

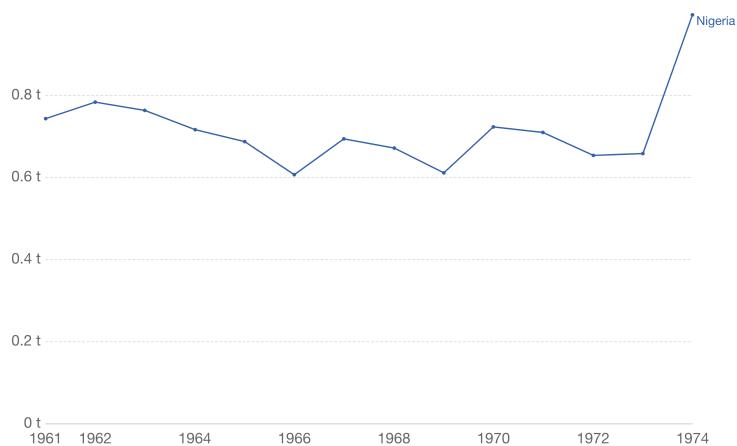
# First and Second Generation Impacts of the Biafran War

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Online Appendix

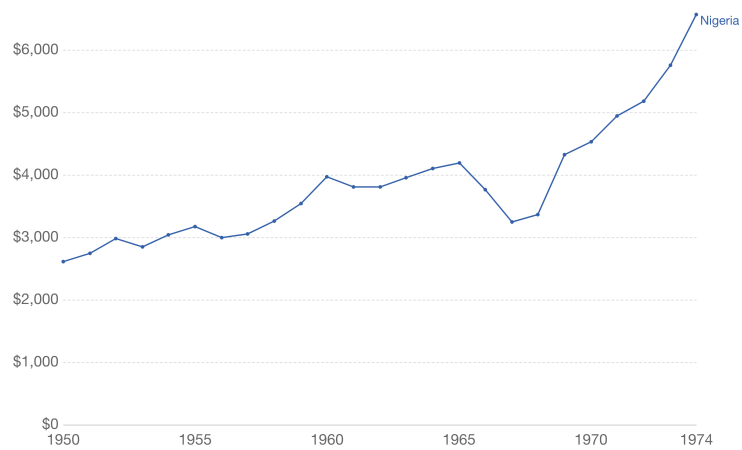
## A Online Appendix: Figures and Tables

Figure A.1: Nigeria cereal yields (1961-1974)



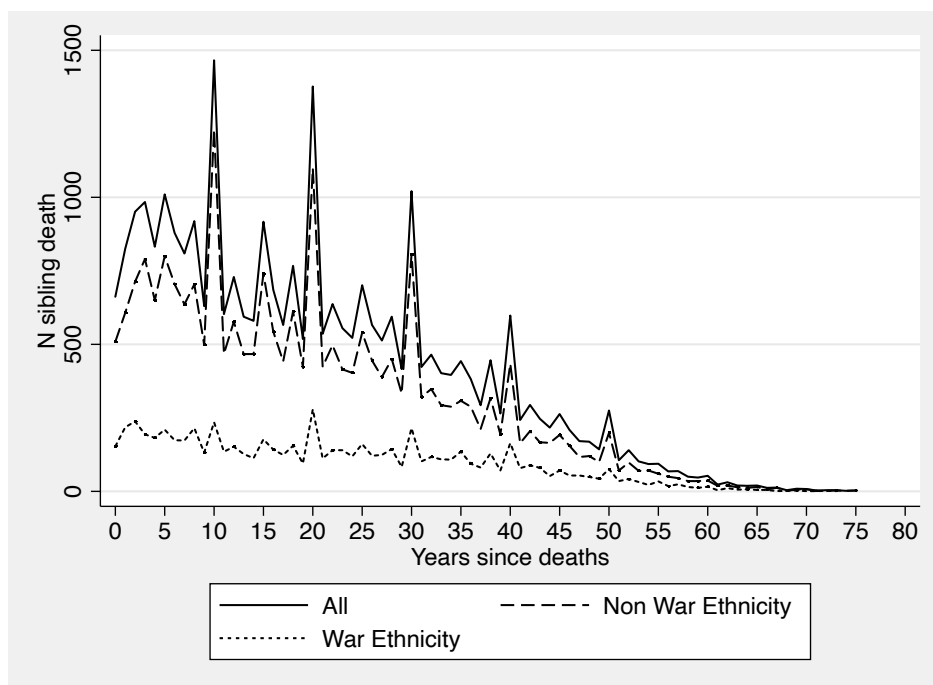
Notes: The figure reports on the vertical axis the average cereal yield, measured in tonnes per hectare of harvested land between 1961 and 1974. Cereals include wheat, rice, maize, barley, oats, rye, millet, sorghum, buckwheat and mixed grains. The horizontal axis reports the year of measurement. Source: UN Food and Agriculture Organization (FAO) downloaded from ourworldindata.org.

Figure A.2: Nigeria GDP per capita (1950-1974)



Notes: The figure reports on the vertical axis the GDP per capita adjusted for price changes over time (inflation) and for price differences between countries to allow comparisons. It is measured in international dollars in 2011 prices. The horizontal axis reports the year of measurement. Source: PENN World Tables downloaded from ourworldindata.org.

Figure A.3: Siblings mortality



Notes: The figure includes data from the first generation women's siblings in the DHS 2008 survey. The vertical axis reports the number of siblings who died. The horizontal axis reports the difference between 2008 and the year of the reported sibling's death. These figures are reported for all siblings and those belonging to the war and non war ethnicity.

Table A.1: Summary Statistics

	Obs.	Mean	St.dev.
<b>Panel A: First generation - Women sample</b>			
Height	13407	158.702	7.062
BMI	12385	23.637	4.960
Underweight	12385	0.098	0.297
Overweight	12385	0.308	0.462
Obesity	12385	0.096	0.294
Years of education	18284	4.489	5.269
Primary or more	18304	0.509	0.500
Secondary or more	18304	0.272	0.445
Age at first marriage	17715	17.897	5.079
Total number of children ever born	18304	5.429	3.026
Age at first birth	17214	19.685	4.819
Wealth index	13733	-0.040	1.032
Work participation	18283	0.752	0.432
Work all year	13683	0.727	0.445
<b>Panel B: First generation - Men sample</b>			
Years of education	7292	7.206	5.659
Primary or more	7312	0.723	0.447
Secondary or more	7312	0.459	0.498
Age at first marriage	6756	25.179	5.818
Total number of children ever born	7312	5.156	4.235
Age at first birth	5463	27.001	5.506
Wealth index	6023	0.044	1.062
Work participation	7308	0.811	0.391
Work all year	6203	0.718	0.450
<b>Panel C: Second generation - Children sample</b>			
Neonatal Mortality (<=1 Months)	99181	0.053	0.224
Infant Mortality (<=12 Months)	99181	0.114	0.317
Child Mortality (<=60 Months)	99181	0.182	0.386
Stunted (Height-for-age Z-score<-2SD)	8622	0.379	0.485
Underweight (Weight-for-age Z-score<-2SD)	8622	0.277	0.447
Years of education	26209	3.287	3.401

Notes: Summary statistics related to the health outcomes of the first generation include a sample of women born between 1954 and 1974 from the 2003 and 2008 DHS Surveys. The other summary statistics for first generation outcomes are related to a sample of women and men born between 1954 and 1974 from the 1999, 2003, and 2008 DHS Surveys. Summary statistics related to health outcomes for second generation children use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974 and who had at least one child. The sample for the height and weight-for-age Z-scores includes children born between 1996 and 2008 to mothers born between 1954 and 1974. The second-generation education outcomes use the 2003 and 2008 DHS surveys and include all children age 6-18 born to mothers who were born between 1954 and 1974 and who had at least one child.

Table A.2: Descriptive Statistics: Months of Exposure

	Non-war ethnicity	War ethnicity	Total
<b>Panel A: Average months of exposure - entire sample</b>			
Months exposure in utero	1.809 (3.345)	1.609 (3.230)	1.761 (3.319)
Months exposure at ages 0-3	5.785 (9.798)	5.148 (9.351)	5.634 (9.697)
Months exposure at ages 4-6	4.542 (8.700)	4.525 (8.898)	4.538 (8.747)
Months exposure at ages 7-12	6.572 (11.41)	6.999 (11.92)	6.673 (11.53)
Months exposure at ages 13-16	0.650 (4.110)	0.734 (4.323)	0.670 (4.162)
<b>Panel B: Average months of exposure - exposed sample</b>			
Months exposure in utero	7.201 (2.390)	7.281 (2.429)	7.219 (2.398)
Months exposure at ages 0-3	18.67 (8.320)	17.47 (9.025)	18.40 (8.501)
Months exposure at ages 4-6	17.76 (8.700)	17.87 (8.613)	17.78 (8.017)
Months exposure at ages 7-12	21.82 (9.976)	22.99 (9.929)	22.10 (9.976)
Months exposure at ages 13-16	19.72 (11.68)	20.55 (10.80)	19.93 (11.46)

Notes: The sample includes DHS 2008 and DHS 2003 surveys used for the first generation health analysis on women. Panel A shows average months of exposure for women in the non-war ethnicity, the war ethnicity, and for the whole sample. Panel B shows average months of exposure restricted to women who have non-zero months of exposure for each of the same sample groups (non-war ethnicity, war ethnicity, and whole sample).

Table A.3: First Generation: Women's Height - Effect Size

<b>Panel A: Estimated coefficients</b>	
Months exposure in utero*War ethnicity	-0.047 (0.038)
Months exposure at ages 0-3*War ethnicity	-0.043** (0.021)
Months exposure at ages 4-6*War ethnicity	-0.061* (0.034)
Months exposure at ages 7-12*War ethnicity	-0.094* (0.050)
Months exposure at ages 13-16*War ethnicity	-0.220*** (0.076)
Months exposure in utero	-0.081 (0.060)
Months exposure at ages 0-3	-0.125*** (0.034)
Months exposure at ages 4-6	-0.015 (0.071)
Months exposure at ages 7-12	-0.003 (0.083)
Months exposure at ages 13-16	-0.022 (0.137)
<b>Panel B: Total effects of war</b>	
Mo. Exp Utero + Mo. Exp Utero * War Ethnicity (S.E.)	-0.127 (0.061)
Mo. Exp 0-3 + Mo. Exp 0-3 * War Ethnicity (S.E.)	-0.168 (0.039)
Mo. Exp 4-6 + Mo. Exp 4-6 * War Ethnicity (S.E.)	-0.076 (0.077)
Mo. Exp 7-12 + Mo. Exp 7-12 * War Ethnicity (S.E.)	-0.096 (0.092)
Mo. Exp 13-16 + Mo. Exp 13-16 * War Ethnicity (S.E.)	-0.242 (0.152)
<b>Panel C: Effect size of war for average months of exposure Entire sample (Avg months entire sample * <math>\beta</math>)</b>	
in utero	-0.08
at ages 0-3	-0.24
at ages 4-6	-0.28
at ages 7-12	-0.62
at ages 13-16	-0.15
<b>Panel D: Effect size of war for average months of exposure War-exposed individuals only (Avg months only exposed* <math>\beta</math>)</b>	
in utero	-0.34
at ages 0-3	-0.76
at ages 4-6	-1.09
at ages 7-12	-2.15
at ages 13-16	-4.52

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. Panel A reports coefficients from estimates of equation 1 for first generation women's height as reported in Column 1 of Table 1. It shows also the coefficients for months of exposure to war at different ages. Panel B reports the total effects of the war calculated as the sum of the coefficients on months of exposure to war at each age group x war ethnicity and months of exposure at each age. Panel C and D report the effect sizes for each estimated coefficient ( $\beta_a$ ) in Panel A. These are calculated as average months of exposure to war for the entire sample \* $\beta$  in Panel C and as average months of exposure to war for war-exposed individuals only \* $\beta$  in Panel D.

Table A.4: First Generation: Women's Weight

	(1)
Months exposure in utero*War ethnicity	0.187** (0.079)
Months exposure at ages 0-3*War ethnicity	0.056 (0.049)
Months exposure at ages 4-6*War ethnicity	0.139* (0.079)
Months exposure at ages 7-12*War ethnicity	0.186 (0.115)
Months exposure at ages 13-16*War ethnicity	0.254 (0.161)
Obs.	12385

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. For the five age categories the average months of exposure for exposed women belonging to the war ethnicity is 7.3, 17.5, 17.9, 23, and 20.6 respectively. In addition to the war exposure interaction term shown in the table, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Individual's weight is measured in kilograms.



Table A.5: UPE Construction Funds

State	Region	Funds per Capita in Naira
<b>Panel A: Low intensity areas</b>		
Oyo	Western	1.4
Ogun	Western	1.93
Ondo	Western	3.27
Lagos (Capital Region)	Western	51.95
<b>Panel B: High intensity areas</b>		
Anambra	Eastern	39.05
Borno	Northern	33.47
Kaduna	Northern	76.43
Rivers	Eastern	81.27
Imo	Eastern	88.34
Kano	Northern	93.19
Sokoto	Northern	95.28
Kwara	Northern	101.19
Bauchi	Northern	102.26
Gongola	Northern	105.06
Bendel	Midwestern	132.24
Niger	Northern	158.08
Plateau	Northern	163.2
Benue	Northern	190.02
Cross-River	Eastern	219.6

Notes: Federal Capital Funds allocated for Primary School Construction in 1976 per capita calculated using 1953 Census Population Estimates for Towns.

Table A.6: Second Generation: Child Mortality by Gender

	Girls			Boys		
	(1)	(2)	(3)	(4)	(5)	(6)
	Under-1 month mortality	Under-12 months mortality	Under-60 months mortality	Under-1 month mortality	Under-12 months mortality	Under-60 months mortality
<b>Duration of exposure to war x exposed ethnicity</b>						
Months exposure of mother in utero*War ethnicity	-0.276 (0.719)	-1.311 (1.303)	-1.092 (1.358)	1.056 (0.871)	1.955 (1.439)	2.038 (1.236)
Months exposure of mother at ages 0-3*War ethnicity	-0.179 (0.276)	0.193 (0.458)	0.284 (0.497)	-0.152 (0.314)	-0.602 (0.429)	-0.434 (0.443)
Months exposure of mother at ages 4-6*War ethnicity	0.228 (0.248)	0.514 (0.420)	0.672* (0.390)	0.511** (0.228)	0.529 (0.393)	0.522 (0.579)
Months exposure of mother at ages 7-12*War ethnicity	0.427 (0.308)	0.770* (0.413)	0.870* (0.483)	0.479 (0.291)	-0.020 (0.370)	0.391 (0.472)
Months exposure of mother at ages 13-16*War ethnicity	0.337 (0.374)	0.385 (0.552)	0.720 (0.587)	0.993** (0.455)	1.456** (0.649)	2.319*** (0.832)
Obs.	47984	47984	47984	51197	51197	51197

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parenthesis, clustered at the year (of mother)\*ethnicity level. Regressions for girls (columns 1-3) and boys (columns 4-6) use the 1999, 2003, and 2008 DHS surveys and include children born after 1970 to mothers who were born between 1954 and 1974. Columns 1 and 4 measure mortality under-1 month. Columns 2 and 5 measure mortality under-12 months. Columns 3 and 6 measure mortality under-60 months. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, and ethnicity specific time trends.

Table A.7: Second Generation: Child Height for Age, Weight for Age, and Education by Gender

	Girls		Boys			
	(1) Height for age below -2sd	(2) Weight for age below -2sd	(3) Years of education	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Years of Education
<b>Duration of exposure to war x exposed ethnicity</b>						
Months exposure of mother in utero*War ethnicity	-0.003 (0.005)	-0.004 (0.004)	0.010 (0.014)	0.006 (0.005)	-0.001 (0.004)	-0.009 (0.014)
Months exposure of mother at ages 0-3*War ethnicity	0.002* (0.001)	0.001 (0.001)	0.002 (0.005)	0.001 (0.002)	-0.000 (0.001)	0.005 (0.005)
Months exposure of mother at ages 4-6*War ethnicity	-0.001 (0.002)	-0.001 (0.001)	0.002 (0.005)	0.003* (0.002)	0.002* (0.001)	0.000 (0.005)
Months exposure of mother at ages 7-12*War ethnicity	0.003 (0.002)	0.001 (0.002)	0.001 (0.004)	-0.003 (0.002)	-0.002 (0.002)	-0.000 (0.006)
Months exposure of mother at ages 13-16*War ethnicity	0.009* (0.004)	0.013*** (0.005)	-0.038*** (0.010)	0.002 (0.004)	0.006 (0.007)	-0.020 (0.013)
Obs.	4287	4287	12387	4335	4335	13822

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parenthesis, clustered at the year (of mother)\*ethnicity level. Columns 1 and 2 (columns 4 and 5) use the 1999, 2003, and 2008 DHS surveys and include girls (boys) born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Columns 3 (column 6) uses the 2003 and 2008 DHS surveys and includes all girls (boys) age 6-18 born to mothers who were born between 1954 and 1974. Dependent variables in columns 1 and 4 define stunting as height-for-age Z-scores below -2 standard deviations. Columns 2 and 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. Columns 3 and 6 defines children's years of completed education. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends.

Table A.8: Second Generation: Health - Benchmarking Effect Sizes

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd
Mother's height	-0.450** (0.190)	-1.120*** (0.282)	-2.370*** (0.355)	-0.006*** (0.001)	-0.006*** (0.001)
Obs.	17101	17101	17101	2805	2805
Mean Dep Var	52.512	112.391	184.258	0.415	0.324

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables in columns 1-3 measure under-1 month, under-12 months, and under-60 months mortality. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. Column 4 defines stunting as height-for-age Z-scores below -2 standard deviations and column 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. All models include as the independent variable mother's height. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1971 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1971 and 1974. All samples are restricted to children of mothers belonging to the non-war ethnicity.

Table A.9: Second Generation: Health - Controlling for Age of Mother at Time of Child Birth and Child Birth Order

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd
Months exposure in utero*War ethnicity	0.279 (0.511)	0.097 (0.946)	0.161 (0.840)	0.001 (0.004)	-0.003 (0.003)
Months exposure at ages 0-3*War ethnicity	-0.141 (0.207)	-0.156 (0.350)	0.011 (0.358)	0.001 (0.001)	0.000 (0.001)
Months exposure at ages 4-6*War ethnicity	0.356** (0.166)	0.492* (0.290)	0.551* (0.326)	0.001 (0.001)	0.001 (0.001)
Months exposure at ages 7-12*War ethnicity	0.467** (0.216)	0.408 (0.254)	0.702** (0.295)	-0.000 (0.001)	-0.001 (0.001)
Months exposure at ages 13-16*War ethnicity	0.616** (0.286)	0.783** (0.366)	1.306** (0.548)	0.005** (0.003)	0.010** (0.005)
Age mother at child's birth	-1.427** (0.701)	-3.733** (0.914)	-7.941*** (1.082)	-0.026 (0.023)	-0.010 (0.022)
Child birth order	3.470*** (0.680)	6.445*** (1.120)	7.545*** (1.340)	0.021*** (0.004)	0.009** (0.003)
Total number of births	3.468*** (0.499)	8.817*** (0.871)	13.773*** (1.025)	-0.006* (0.003)	-0.002 (0.003)
Obs.	99181	99181	99181	8622	8622

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables in columns 1-3 measure under-1 month, under-12 months, and under-60 months mortality. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. Column 4 defines stunting as height-for-age Z-scores below -2 standard deviations and column 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. Column 6 defines children's years of completed education. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends, a dummy for whether the child is a girl, child birth order, total number of births, and the age of the mother at the time of the child's birth. For the five age categories, the average months of exposure in columns 1-3 for exposed women belonging to the war ethnicity is 7.4, 17.7, 18.0, 22.8, and 22.2, respectively. In columns 4-5, the averages are 7.1, 18.0, 17.4, 20.1, and 22.2, while in column 6, the averages are 7.3, 17.8, 17.8, 22.6, and 19.2. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974.

Table A.10: Second Generation: Health and Education - Controlling for Multiple Births

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Year of education
Months exposure of mother in utero*War ethnicity	0.468 (0.484)	0.456 (0.961)	0.630 (0.929)	0.002 (0.004)	-0.002 (0.003)	-0.001 (0.012)
Months exposure of mother at ages 0-3*War ethnicity	-0.138 (0.195)	-0.180 (0.339)	-0.041 (0.366)	0.001 (0.001)	0.000 (0.001)	0.004 (0.004)
Months exposure of mother at ages 4-6*War ethnicity	0.355** (0.174)	0.506 (0.331)	0.577 (0.376)	0.001 (0.001)	0.001 (0.001)	0.001 (0.004)
Months exposure of mother at ages 7-12*War ethnicity	0.435* (0.223)	0.344 (0.274)	0.606* (0.320)	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.004)
Months exposure of mother at ages 13-16*War ethnicity	0.559* (0.282)	0.773* (0.394)	1.368** (0.589)	0.006** (0.003)	0.010** (0.004)	-0.029*** (0.011)
child is twin/multiple birth	152.125*** (8.199)	205.207*** (9.260)	220.720*** (10.456)	0.111*** (0.033)	0.110*** (0.033)	0.148* (0.087)
Obs.	99181	99181	99181	8622	8622	26209

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables in columns 1-3 measure under-1 month, under-12 months, and under-60 months mortality. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. Column 4 defines stunting as height-for-age Z-scores below -2 standard deviations and column 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. Column 6 defines children's years of completed education. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends, a dummy for whether the child is a girl, and a dummy for whether the child is a multiple birth. For the five age categories, the average months of exposure in columns 1-3 for exposed women belonging to the war ethnicity is 7.4, 17.7, 18.0, 22.8, and 22.2, respectively. In columns 4-5, the averages are 7.1, 18.0, 17.4, 20.1, and 22.2, while in column 6, the averages are 7.3, 17.8, 17.8, 22.6, and 19.2. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974.

Table A.11: Second Generation: Health and Education - Only Single Births

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Year of education
Months exposure of mother in utero*War ethnicity	0.240 (0.491)	0.398 (0.982)	0.659 (0.922)	0.002 (0.004)	-0.002 (0.003)	0.002 (0.012)
Months exposure of mother at ages 0-3*War ethnicity	-0.143 (0.189)	-0.246 (0.338)	-0.096 (0.357)	0.002* (0.001)	0.001 (0.001)	0.004 (0.005)
Months exposure of mother at ages 4-6*War ethnicity	0.243 (0.174)	0.515 (0.323)	0.609* (0.366)	0.001 (0.001)	0.001 (0.001)	0.003 (0.004)
Months exposure of mother at ages 7-12*War ethnicity	0.415* (0.225)	0.383 (0.274)	0.676** (0.322)	-0.000 (0.001)	-0.000 (0.001)	0.001 (0.004)
Months exposure of mother at ages 13-16*War ethnicity	0.600** (0.288)	0.832** (0.396)	1.431** (0.566)	0.007** (0.003)	0.007* (0.004)	-0.027** (0.012)
Obs.	95265	95265	95265	8256	8256	25377

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables in columns 1-3 measure under-1 month, under-12 months, and under-60 months mortality. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. Column 4 defines stunting as height-for-age Z-scores below -2 standard deviations and column 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. Column 6 defines children's years of completed education. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends, and a dummy for whether the child is a girl. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974. All samples are further restricted to children that are single births.

Table A.12: Second Generation: Health and Education - Controlling for First Generation Characteristics

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Years of education
<b>Panel A: Including first generation mother's characteristics</b>						
Months exposure of mother in utero*War ethnicity	0.076 (0.449)	-0.711 (1.025)	-1.001 (0.953)	-0.001 (0.004)	-0.003 (0.003)	0.008 (0.011)
Months exposure of mother at ages 0-3*War ethnicity	-0.141 (0.196)	-0.033 (0.398)	0.137 (0.423)	0.001 (0.001)	-0.000 (0.001)	0.004 (0.004)
Months exposure of mother at ages 4-6*War ethnicity	0.397* (0.234)	0.439 (0.396)	0.397 (0.456)	0.000 (0.001)	0.001 (0.001)	0.003 (0.005)
Months exposure of mother at ages 7-12*War ethnicity	0.482* (0.266)	0.366 (0.328)	0.545 (0.351)	-0.000 (0.001)	-0.000 (0.001)	0.005 (0.004)
Months exposure of mother at ages 13-16*War ethnicity	0.548 (0.480)	0.386 (0.566)	0.773 (0.816)	0.005* (0.003)	0.010** (0.004)	-0.022*** (0.009)
Obs.	79890	79890	79890	7593	7593	23477
<b>Panel B: Including first generation mother's, father's and household's characteristics</b>						
Months exposure of mother in utero*War ethnicity	-0.026 (0.448)	-0.853 (0.959)	-1.181 (0.825)	0.000 (0.004)	-0.002 (0.003)	0.004 (0.011)
Months exposure of mother at ages 0-3*War ethnicity	-0.120 (0.197)	-0.007 (0.383)	0.188 (0.380)	0.001 (0.002)	-0.001 (0.001)	0.003 (0.004)
Months exposure of mother at ages 4-6*War ethnicity	0.309 (0.245)	0.303 (0.398)	0.363 (0.483)	0.001 (0.001)	0.001 (0.001)	0.002 (0.005)
Months exposure of mother at ages 7-12*War ethnicity	0.447 (0.274)	0.424 (0.330)	0.593* (0.346)	-0.000 (0.001)	-0.000 (0.002)	0.002 (0.003)
Months exposure of mother at ages 13-16*War ethnicity	0.607 (0.483)	0.518 (0.578)	0.921 (0.849)	0.006** (0.003)	0.012** (0.005)	-0.025*** (0.007)
Obs.	76999	76999	76999	7307	7307	22761

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables in columns 1-3 measure under-1 month, under-12 months, and under-60 months mortality. They are dummies equal to 1 x 1000 if a child died respectively before 1 month, 12 months, or 60 months, and 0 otherwise. Column 4 defines stunting as height-for-age Z-scores below -2 standard deviations and column 5 defines underweight as weight-for-age Z-scores below -2 standard deviations. Column 6 defines children's years of completed education. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends, and a dummy for whether the child is a girl. All regressions in Panel A include also the following mothers' characteristics: height, BMI, years of education, age at first marriage and total fertility (defined as the number of children ever born). Regressions in Panel B include additionally controls for husband's years of education and household wealth. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974.



Table A.13: Second Generation: Children's Health and Education - Mother and Father Exposure

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Years of education
<b>Panel A: Duration of mother exposure to war x exposed ethnicity</b>						
Months exposure of mother in utero*War ethnicity	0.626 (0.992)	1.901 (1.575)	2.187 (2.166)	0.001 (0.007)	-0.002 (0.005)	-0.010 (0.024)
Months exposure of mother at ages 0-3*War ethnicity	-0.554 (0.429)	-0.649 (0.628)	-0.168 (0.894)	0.002 (0.003)	-0.002 (0.002)	0.010 (0.007)
Months exposure of mother at ages 4-6*War ethnicity	-0.001 (0.559)	0.173 (0.619)	0.496 (0.719)	0.000 (0.003)	0.001 (0.002)	0.004 (0.010)
Months exposure of mother at ages 7-12*War ethnicity	0.321 (0.637)	1.144* (0.629)	1.624** (0.734)	-0.000 (0.003)	0.002 (0.002)	-0.004 (0.011)
Months exposure of mother at ages 13-16*War ethnicity	1.549** (0.742)	2.041** (0.828)	2.900** (1.215)	0.017 (0.011)	0.007* (0.004)	-0.011 (0.033)
Obs.	26390	26390	26390	2524	2524	7502
<b>Panel B: Duration of father exposure to war x exposed ethnicity</b>						
Months exposure in utero*War ethnicity	-6.807*** (1.855)	-6.808** (2.786)	-7.364** (3.519)	0.004 (0.008)	-0.007 (0.011)	0.038 (0.041)
Months exposure of father at ages 0-3*War ethnicity	-1.115 (0.693)	-0.103 (0.804)	-0.297 (1.142)	-0.005 (0.004)	-0.007** (0.003)	0.015 (0.016)
Months exposure of father at ages 4-6*War ethnicity	-1.521** (0.719)	-1.104 (0.927)	-1.629 (1.353)	-0.003 (0.004)	-0.005* (0.003)	0.016 (0.015)
Months exposure of father at ages 7-12*War ethnicity	-1.450** (0.694)	-1.256 (0.788)	-1.532 (1.141)	-0.002 (0.003)	-0.005* (0.003)	0.012 (0.014)
Months exposure of father at ages 13-16*War ethnicity	-0.578 (1.269)	-0.042 (1.314)	0.498 (1.548)	0.005 (0.006)	0.001 (0.004)	-0.067*** (0.020)
Obs.	16024	16024	16024	1911	1911	5121

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974. The sample in Panel A is further restricted to children of mothers that could be matched to a husband (i.e. couple sample). The sample in Panel B is further restricted to children of fathers born between 1954 and 1974. The dependent variables in columns 1-6 are defined as in Table 7. In Panel A (Panel B), in addition to the mother's (father's) war exposure interaction term, all regressions also include the level effect for the mother's (father's) months of war exposure at different age ranges, DHS survey dummies, child's year fixed effects, mother's (father's) year, state, and ethnicity fixed effects, ethnicity specific time trends, and a dummy for whether the child is a girl.

Table A.14: First Generation: Women's Height - Alternative Specifications

	(1)	(2)
Months exposure in utero*War ethnicity	-0.018 (0.032)	-0.052 (0.042)
Months exposure at ages 0-3*War ethnicity	-0.032*** (0.009)	-0.050** (0.021)
Months exposure at ages 4-6*War ethnicity	-0.038*** (0.012)	-0.070** (0.034)
Months exposure at ages 7-12*War ethnicity	-0.058*** (0.011)	-0.108** (0.050)
Months exposure at ages 13-16*War ethnicity	-0.173*** (0.039)	-0.244*** (0.079)
Ethnicity Fixed Effects	Yes	Yes
Month and Year of birth Fixed Effects	Yes	Yes
State Fixed Effects	No	Yes
Ethnicity Time Trends	No	Yes
DHS Survey Dummy	Yes	Yes
Obs.	13407	13407

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. The model in column 1 also includes months and year of births fixed effects, ethnicity fixed effects, and DHS survey dummies. The model in column 2 also includes ethnicity specific time trends and state fixed effects. Height is measured in centimeters.

Table A.15: First Generation: Height - Placebo with Post-war Cohorts

	(1) Height	(2) Height
Months exposure in utero*War ethnicity	-0.035 (0.042)	-0.029 (0.035)
Months exposure at ages 0-3*War ethnicity	-0.030* (0.016)	-0.027* (0.014)
Months exposure at ages 4-6*War ethnicity	-0.037 (0.024)	-0.034 (0.021)
Months exposure at ages 7-12*War ethnicity	-0.055** (0.027)	-0.050* (0.026)
Months exposure at ages 13-16*War ethnicity	-0.159*** (0.045)	-0.154*** (0.046)
Born in 1971-75 * War ethnicity	-0.076 (0.293)	
Born in 1976-81 * War ethnicity		0.017 (0.361)
Obs.	22227	22227

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1981 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. The model in column 1 (column 2) also includes a variable to test for post-war trends defined as the interaction between a dummy equal to one if a woman was born in 1971-1975 (1976-1981) and the war ethnicity dummy. In column 1 (column 2) the cohort 1976-1981 (1971-1975) is the omitted cohort and defines the control group. All regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters.

Table A.16: First Generation: Years of Education - Placebo with Post-war Cohorts

	(1) Women Years education	(2) Men Years education
Months exposure in utero*War ethnicity	-0.035 (0.034)	0.037 (0.051)
Months exposure at ages 0-3*War ethnicity	-0.032** (0.015)	0.006 (0.017)
Months exposure at ages 4-6*War ethnicity	-0.026 (0.018)	-0.006 (0.024)
Months exposure at ages 7-12*War ethnicity	-0.074*** (0.021)	0.038 (0.024)
Months exposure at ages 13-16*War ethnicity	-0.055* (0.033)	0.012 (0.032)
Born in 1971-75 * War ethnicity	-0.371 (0.298)	0.024 (0.420)
Born in 1976-81 * War ethnicity	0.241 (0.168)	0.276 (0.273)
Obs.	39654	15117

Notes: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women and men born between 1954 and 1986 and surveyed in the 1999, 2003, and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. All regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Years of education is defined as the number of years of completed schooling. All models also includes two interaction terms to test for post-war trends defined as the interaction between a dummy equal to one if a woman was born in 1971-1975 (or 1976-1981) and the war ethnicity dummy. The control cohort 1982-1986 is the omitted cohort and defines the control group.

Table A.17: Second Generation: Placebo with Post-war Cohorts

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Years of education
Months exposure of mother in utero*War ethnicity	0.644 (0.538)	-0.073 (0.986)	-0.049 (0.974)	-0.000 (0.004)	-0.003 (0.003)	0.010 (0.012)
Months exposure of mother at ages 0-3*War ethnicity	-0.092 (0.212)	-0.358 (0.344)	-0.241 (0.369)	0.001 (0.001)	0.000 (0.001)	0.007 (0.004)
Months exposure of mother at ages 4-6*War ethnicity	0.471** (0.204)	0.337 (0.360)	0.377 (0.423)	0.001 (0.001)	0.001 (0.001)	0.005 (0.004)
Months exposure of mother at ages 7-12*War ethnicity	0.553** (0.248)	0.207 (0.307)	0.460 (0.370)	-0.000 (0.001)	-0.001 (0.001)	0.004 (0.004)
Months exposure of mother at ages 13-16*War ethnicity	0.780** (0.329)	0.753* (0.454)	1.370** (0.657)	0.006** (0.003)	0.010** (0.005)	-0.027** (0.011)
Born in 1971-75 * War ethnicity	2.679 (5.077)	-4.608 (7.693)	-6.812 (9.111)	-0.019 (0.013)	-0.012 (0.018)	0.144* (0.073)
Obs.	130138	130138	130138	16956	16956	35324

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year (of mother)\*ethnicity level. Dependent variables are defined as in Table 7. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, ethnicity specific time trends, and a dummy for whether the child is a girl. All models also include an interaction term to test for post-war trends defined as the interaction between a dummy equal to one if a woman was born in 1971-1975 and the war ethnicity dummy. The control cohort 1976-1981 is the omitted cohort and defines the control group. Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1981. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1981. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1981.

Table A.18: First Generation: Women's Height  
 Controlling for the Oil Boom  
 Differentially Affecting Ethnicities

	(1)
Months exposure in utero*War ethnicity	-0.130*** (0.043)
Months exposure at ages 0-3*War ethnicity	-0.088*** (0.025)
Months exposure at ages 4-6*War ethnicity	-0.150*** (0.043)
Months exposure at ages 7-12*War ethnicity	-0.221*** (0.065)
Months exposure at ages 13-16*War ethnicity	-0.435*** (0.101)
Obs.	5192

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. The sample is further restricted to the Igbo and other war ethnicity minorities and Yoruba ethnic groups (used as control group). War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. In addition to the war exposure interaction term shown in the table, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters.

Table A.19: First Generation: Height - Alternative Control Groups

	(1)	(2)	(3)	(4)
	CG: 1971-72	CG: 1971-73	CG: 1971-78	CG: 1971-81
Months exposure in utero*War ethnicity	-0.053 (0.037)	-0.056 (0.039)	-0.039 (0.036)	-0.028 (0.035)
Months exposure at ages 0-3*War ethnicity	-0.044* (0.026)	-0.056** (0.023)	-0.034** (0.014)	-0.027** (0.012)
Months exposure at ages 4-6*War ethnicity	-0.062 (0.045)	-0.085** (0.038)	-0.045** (0.021)	-0.033* (0.018)
Months exposure at ages 7-12*War ethnicity	-0.094 (0.074)	-0.132** (0.058)	-0.067*** (0.024)	-0.050** (0.020)
Months exposure at ages 13-16*War ethnicity	-0.221** (0.110)	-0.278*** (0.087)	-0.178*** (0.043)	-0.153*** (0.039)
Obs.	10963	12745	18583	22227

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1972 (column 1), 1973 (column 2), 1978 (column 3), and 1981 (column 4) respectively and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. In addition to the war exposure interaction term shown in the table, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters.

Table A.20: First Generation: Health - Without Post-war Control Group

	(1)	(2)	(3)	(4)	(5)
	Height	BMI	Underweight	Overweight	Obese
Months exposure in utero*War ethnicity	-0.044 (0.035)	0.097*** (0.036)	-0.001 (0.003)	0.006* (0.004)	0.004 (0.003)
Months exposure at ages 0-3*War ethnicity	-0.062*** (0.025)	0.050*** (0.024)	-0.001 (0.001)	0.005* (0.002)	0.003*** (0.002)
Months exposure at ages 4-6*War ethnicity	-0.098*** (0.047)	0.097*** (0.043)	-0.001 (0.002)	0.005 (0.004)	0.006*** (0.002)
Months exposure at ages 7-12*War ethnicity	-0.162* (0.084)	0.126* (0.074)	-0.001 (0.003)	0.007 (0.007)	0.006 (0.005)
Months exposure at ages 13-16*War ethnicity	-0.328*** (0.129)	0.229*** (0.111)	-0.003 (0.004)	0.013 (0.010)	0.011 (0.007)
Obs.	9426	8884	8884	8884	8884

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1970 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. All regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters. BMI is defined as an individual's weight in kilograms divided by their height in meters squared. Underweight indicates if BMI is below 18.5. Overweight indicates if BMI is above 25. Obese indicates if BMI is equal or above 30.



Table A.21: Robustness Check: First Generation Health - Placebo Tests

	(1)	(2)	(3)	(4)	(5)
	Height	BMI	Underweight	Overweight	Obese
<b>Placebo duration of exposure to war x exposed ethnicity</b>					
Placebo months exposure in utero*War ethnicity	-0.043 (0.035)	-0.043** (0.019)	0.001 (0.002)	-0.002 (0.002)	-0.002*** (0.001)
Placebo months exposure at ages 0-3*War ethnicity	0.004 (0.016)	-0.023* (0.012)	-0.000 (0.001)	-0.002 (0.002)	-0.001 (0.001)
Placebo months exposure at ages 4-6*War ethnicity	-0.000 (0.024)	-0.020 (0.019)	-0.000 (0.001)	-0.002 (0.002)	-0.001 (0.001)
Placebo months exposure at ages 7-12*War ethnicity	-0.003 (0.036)	-0.049 (0.029)	-0.000 (0.002)	-0.004 (0.004)	-0.002 (0.002)
Placebo months exposure at ages 13-16*War ethnicity	0.001 (0.054)	-0.097** (0.039)	0.001 (0.003)	-0.010** (0.005)	-0.004 (0.003)
Obs.	26485	22823	22823	22823	22823

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parenthesis, clustered at the year\*ethnicity level. The sample includes adult women born between November 1970 and 1990 (1970-1985 for DHS 2003 and 1970-1990 for DHS 2008) so that there is no overlap in exposure with the real war. Placebo exposure defined as exposure to placebo war years (December 1983 to June 1986) for women born between 1970 and March 1987. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the placebo war in months during those age ranges. In addition to the placebo war exposure interaction term shown in the table, all regressions also include the level effect for months of placebo war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters. BMI is defined as an individual's weight in kilograms divided by their height in meters squared. Underweight indicates if BMI is below 18.5. Overweight indicates if BMI is above 25. Obese indicates if BMI is equal or above 30.

Table A.22: First Generation: Height - Simpler and Restrictive Specifications

	(1)	(2)	(3)	(4)
Born in April 1968-Feb 1970 * War ethnicity	-0.099 (0.344)			
Born in 1954-1966 * War ethnicity		-1.508*** (0.279)		
Born in 1967-1970 * War ethnicity		-0.558** (0.275)		
Born 1954-1970 * War Ethnicity			-1.149*** (0.251)	
Months of exposure * War ethnicity				-0.046*** (0.008)
Obs.	2686	13407	13407	13407

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample in column 1 includes adult women born between September 1965-July 1967 and between April 1968- February 1970 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The model in column 1 includes a variable that defines exposure to war in utero. This is defined as the interaction between a dummy equal to one if a woman was born between April 1968 and February 1970 and the war ethnicity dummy. Cohorts of women born between September 1965 and July 1967 act as the control group. The use of this control cohort allows us to have a cohort span of the same length as the exposed cohorts (for which the duration is given by the length of the war). The sample in columns 2 to 4 include adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. In column 2, the war exposure terms are defined as the interaction between a dummy equal to 1 if a woman was born between 1967-1970 (or 1954-1966) and the war ethnicity dummy. Cohorts of women born in 1971-1974 act as the control group. In column 3, the variable born 1954-1970 is a binary indicator that equals 1 if a woman was born between 1954 and 1970 and 0 if born between 1971 and 1974. In column 4, months of exposure indicates the total months of exposure to the war between *in utero* and 16 years old calculated as the sum of the five age-specific months of exposure terms. It assumes value 0 if a woman was born after 1970 or values between 1 and 31 if born between 1954 and 1970. This variable is then interacted with the war ethnicity dummy. In addition to the war exposure interaction terms shown in the table, all regressions also include DHS survey dummies, year, state, and ethnicity fixed effects and the level effect for months of war exposure (only in column 4). Height is the dependent variable and is measured in centimeters.

Table A.23: Multiple Hypothesis Testing

<b>Panel A: First generation women's health and education outcomes</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Height	BMI	Underweight	Overweight	Obese	Years of education	Primary or more	Secondary or more
FWER p-value (Months exposure in utero * War Ethnicity)	0.675	0.195	0.881	0.195	0.881	0.957	0.957	0.957
FWER p-value (Months exposure at ages 0-3 * War Ethnicity)	0.122	0.122	0.825	0.025	0.225	0.346	0.346	0.227
FWER p-value (Months exposure at ages 4-6 * War Ethnicity)	0.142	0.037	0.636	0.037	0.142	0.864	0.864	0.864
FWER p-value (Months exposure at ages 7-12 * War Ethnicity)	0.183	0.055	0.573	0.037	0.245	0.310	0.310	0.205
FWER p-value (Months exposure at ages 13-16 * War Ethnicity)	0.011	0.004	0.960	0.003	0.073	0.844	0.844	0.727
Observations	13407	12385	12385	12385	12385	18284	18304	18304
<b>Panel B: Second generation health outcomes</b>								
	(1)	(2)	(3)	(4)	(5)			
	Under-1 month mortality	Under-12 months mortality	Under-60 months mortality	Height for age below -2sd	Weight for age below -2sd			
FWER p-value (Months exposure in utero * War Ethnicity)	0.705	0.705	0.705	0.698	0.674			
FWER p-value (Months exposure at ages 0-3 * War Ethnicity)	0.819	0.819	0.819	0.504	0.641			
FWER p-value (Months exposure at ages 4-6 * War Ethnicity)	0.102	0.109	0.109	0.491	0.491			
FWER p-value (Months exposure at ages 7-12 * War Ethnicity)	0.085	0.163	0.085	0.988	0.988			
FWER p-value (Months exposure at ages 13-16 * War Ethnicity)	0.027	0.027	0.027	0.031	0.031			
Observations	99181	99181	99181	8622	8622			

Notes: The table reports Family Wise Error Rate (FWER) p-values from a multiple hypothesis testing following the *Hochberg* step-up method. Panel A reports results on first generation women's health and education outcomes. The sample used and the estimated specifications are the same as those reported in Tables 1 and 2. Panel B reports results on second generation health outcomes. The sample used and the estimated specifications are the same as those reported in Table 7.

Table A.24: First and Second Generation: Health and Education Aggregate Index

	(1) First Generation Women: health index	(2) First Generation Men: education index	(3) First Generation Men: education index	(4) Second Generation Children: mortality index	(5) Second Generation Children: Anthropometric index
Months exposure in utero*War ethnicity	-0.011** (0.005)	0.001 (0.005)	0.012* (0.007)	0.002 (0.002)	-0.001 (0.006)
Months exposure at ages 0-3*War ethnicity	-0.006** (0.002)	-0.005 (0.003)	0.002 (0.003)	-0.001 (0.001)	0.002 (0.002)
Months exposure at ages 4-6*War ethnicity	-0.012*** (0.004)	-0.003 (0.005)	0.004 (0.005)	0.002* (0.001)	0.002 (0.002)
Months exposure at ages 7-12*War ethnicity	-0.016*** (0.006)	-0.012 (0.007)	0.013** (0.007)	0.002** (0.001)	-0.001 (0.002)
Months exposure at ages 13-16*War ethnicity	-0.034*** (0.008)	-0.009 (0.011)	0.008 (0.010)	0.003*** (0.001)	0.017** (0.007)
Obs.	13408	18304	7312	99181	8622

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample in column 1 includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. The dependent variable is an aggregate health index. Standardized Z-scores for height and reverse coded BMI are first calculated by subtracting for each outcome, the mean values of the non-war ethnicities and dividing by the standard deviation of the outcomes for the non-war ethnicities for each survey wave. The average health index is then calculated as the unweighted mean of the Z-scores following Kling et al. (2007). The sample in column 2 and 3 includes adult women born between 1954 and 1974 and surveyed in the 1999, 2003, and 2008 DHS surveys. The dependent variable is the education aggregate index for women and men, respectively. The standardized Z-scores are calculated as above for the three education outcomes: years of education, completed at least primary education, and completed at least secondary education. The average mean index of these three Z-scores is then calculated. Column 4 includes 1999, 2003, and 2008 DHS surveys and includes all children born after 1970 to mothers who were born between 1954 and 1974. The aggregate mortality index is calculated by taking the average of the three child mortality Z-scores measure calculated as above. Column 5 includes children born in the five years preceding the 2003 and 2008 DHS surveys (and in the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. The aggregate anthropometric index is calculated by taking the average of the two Z-scores measures calculated as above. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. All of the control variables are as defined in Table 1.

Table A.25: Robustness Check: First Generation Women's Health, Alternative Measures of War Exposure

	(1)	(2)	(3)	(4)	(5)
	Height	BMI	Underweight	Overweight	Obese
<b>Panel A: Duration of exposure to war x ethnic mortality</b>					
Months exposure in utero*Ethnic mortality	-0.373 (0.257)	0.573** (0.270)	0.007 (0.016)	0.040** (0.018)	0.014 (0.021)
Months exposure at ages 0-3*Ethnic mortality	-0.339*** (0.127)	0.164 (0.156)	0.003 (0.007)	0.018 (0.012)	0.011 (0.012)
Months exposure at ages 4-6*Ethnic mortality	-0.522** (0.217)	0.573** (0.259)	0.007 (0.011)	0.039** (0.019)	0.033* (0.020)
Months exposure at ages 7-12*Ethnic mortality	-0.866*** (0.294)	0.673* (0.384)	0.010 (0.014)	0.046* (0.027)	0.034 (0.029)
Months exposure at ages 13-16*Ethnic mortality	-1.607*** (0.531)	1.469*** (0.541)	0.006 (0.022)	0.112*** (0.040)	0.078* (0.040)
Obs.	13407	12385	12385	12385	12385
<b>Panel B: Duration of exposure to war x exposed region</b>					
	Height	BMI	Underweight	Overweight	Obese
Months exposure in utero*War region	-0.059 (0.066)	0.035 (0.045)	0.000 (0.002)	0.003 (0.004)	-0.001 (0.003)
Months exposure at ages 0-3*War region	-0.074** (0.034)	0.030 (0.026)	0.000 (0.001)	0.004** (0.002)	0.003 (0.002)
Months exposure at ages 4-6*War region	-0.103** (0.051)	0.080** (0.040)	0.001 (0.001)	0.008** (0.003)	0.005** (0.003)
Months exposure at ages 7-12*War region	-0.158** (0.075)	0.110* (0.058)	0.002 (0.002)	0.012** (0.005)	0.007* (0.004)
Months exposure at ages 13-16*War region	-0.291*** (0.110)	0.228*** (0.085)	0.001 (0.003)	0.023*** (0.008)	0.012** (0.005)
Obs.	13407	12385	12385	12385	12385

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level in Panel A and year\*state level in Panel B. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. Ethnic mortality is defined as the percentage change at the ethnicity level in mortality rates during the war (1967-70) relative to a post-war period (1973-76). War region is a dummy equal to 1 if a woman resided in the war region and 0 otherwise. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. In addition to the war exposure interaction term, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity (state) specific time trends in Panel A (Panel B). Dependent variables are defined as in Table 1.

Table A.26: Robustness Check: First Generation Education, Alternative Measures of War Exposure

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
	Years education	Primary or more	Secondary or more	Years education	Primary or more	Secondary or more
<b>Panel A: Duration of exposure to war x ethnic mortality</b>						
Months exposure in utero*Ethnic mortality	0.016 (0.195)	-0.010 (0.011)	-0.005 (0.018)	0.082 (0.297)	0.025 (0.024)	0.040* (0.024)
Months exposure at ages 0-3*Ethnic mortality	-0.275*** (0.093)	-0.019** (0.008)	-0.034*** (0.009)	0.014 (0.168)	0.003 (0.012)	0.001 (0.014)
Months exposure at ages 4-6*Ethnic mortality	-0.193 (0.148)	-0.024* (0.012)	-0.025* (0.014)	-0.039 (0.239)	0.013 (0.016)	0.006 (0.020)
Months exposure at ages 7-12*Ethnic mortality	-0.519** (0.221)	-0.044** (0.019)	-0.064*** (0.022)	0.127 (0.343)	0.031 (0.022)	0.035 (0.028)
Months exposure at ages 13-16*Ethnic mortality	-0.354 (0.362)	-0.024 (0.030)	-0.062* (0.036)	-0.194 (0.540)	0.026 (0.033)	0.039 (0.046)
Obs.	18284	18304	18304	7292	7312	7312
<b>Panel B: Duration of exposure to war x exposed region</b>						
Months exposure in utero*War region	-0.012 (0.033)	-0.002 (0.002)	0.002 (0.003)	0.009 (0.049)	0.005 (0.004)	0.009** (0.004)
Months exposure at ages 0-3*War region	-0.033 (0.021)	-0.002 (0.002)	-0.003 (0.002)	-0.001 (0.032)	0.001 (0.002)	-0.001 (0.003)
Months exposure at ages 4-6*War region	-0.025 (0.031)	-0.002 (0.003)	-0.001 (0.003)	-0.019 (0.044)	0.004 (0.003)	-0.000 (0.004)
Months exposure at ages 7-12*War region	-0.081* (0.045)	-0.005 (0.004)	-0.006 (0.005)	0.034 (0.066)	0.009** (0.004)	0.005 (0.006)
Months exposure at ages 13-16*War region	-0.078 (0.068)	-0.004 (0.006)	-0.006 (0.007)	-0.070 (0.095)	0.007 (0.006)	-0.000 (0.008)
Obs.	18284	18304	18304	7292	7312	7312

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level in Panel A and year\*state level in Panel B. The sample includes adult women and men born between 1954 and 1974 and surveyed in the 1999, 2003, and 2008 DHS surveys. Ethnic mortality is defined as the percentage change at the ethnicity level in mortality rates during the war (1967-70) relative to a post-war period (1973-76). War region is a dummy equal to 1 if an individual resided in the war region and 0 otherwise. All of the control variables are as defined in Table A.25. Dependent variables are defined as in Table 2.

Table A.27: Robustness Check: First Generation Marriage and Fertility, Alternative Measures of War Exposure

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
	Age at first marriage	Age at first birth	Children ever born	Age at first marriage	Age at first birth	Children ever born
<b>Panel A: Duration of exposure to war x ethnic mortality</b>						
Months exposure in utero*Ethnic mortality	-0.142 (0.232)	-0.388* (0.224)	0.087 (0.122)	0.631* (0.337)	0.128 (0.363)	-0.356* (0.195)
Months exposure at ages 0-3*Ethnic mortality	-0.396***	-0.319***	0.061	0.695***	0.542***	-0.335***
Months exposure at ages 4-6*Ethnic mortality	(0.147)	(0.115)	(0.064)	(0.232)	(0.160)	(0.089)
Months exposure at ages 7-12*Ethnic mortality	-0.085	-0.319*	0.028	0.712**	0.669**	-0.436**
Months exposure at ages 13-16*Ethnic mortality	(0.220)	(0.170)	(0.108)	(0.304)	(0.289)	(0.174)
	-0.372	-0.543**	0.050	1.133**	0.937**	-0.591**
	(0.364)	(0.258)	(0.150)	(0.466)	(0.370)	(0.206)
	-0.349	-0.640*	0.154	2.125***	1.335	-0.929***
	(0.505)	(0.374)	(0.213)	(0.722)	(0.883)	(0.318)
Obs.	17715	17214	18304	6756	5463	7312
<b>Panel B: Duration of exposure to war x exposed region</b>						
Months exposure in utero*War region	-0.043 (0.039)	-0.096*** (0.036)	0.027 (0.021)	0.103 (0.076)	-0.025 (0.080)	-0.039 (0.036)
Months exposure at ages 0-3*War region	-0.043*	-0.031	0.004	0.105***	0.085*	-0.046***
Months exposure at ages 4-6*War region	(0.023)	(0.021)	(0.012)	(0.038)	(0.043)	(0.017)
Months exposure at ages 7-12*War region	-0.022	-0.036	0.001	0.119**	0.086	-0.042
Months exposure at ages 13-16*War region	(0.032)	(0.031)	(0.016)	(0.047)	(0.065)	(0.032)
	-0.051	-0.071	0.004	0.156**	0.083	-0.059
	(0.050)	(0.047)	(0.024)	(0.076)	(0.099)	(0.042)
	-0.047	-0.079	0.018	0.304***	0.195	-0.109*
	(0.074)	(0.070)	(0.035)	(0.105)	(0.148)	(0.060)
Obs.	17715	17214	18304	6756	5463	7312

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level in Panel A and year\*state level in Panel B. The sample includes adult women and men born between 1954 and 1974 and surveyed in the 1999, 2003, and 2008 DHS surveys. Ethnic mortality is defined as the percentage change at the ethnicity level in mortality rates during the war (1967-70) relative to a post-war period (1973-76). War region is a dummy equal to 1 if an individual resided in the war region and 0 otherwise. All of the control variables are as defined in Table A.25. Dependent variables are defined as in Table 3.

Table A.28: Robustness Check: Second Generation Health and Education, Alternative Measures of War Exposure

	(1) Under-1 month mortality	(2) Under-12 months mortality	(3) Under-60 months mortality	(4) Height for age below -2sd	(5) Weight for age below -2sd	(6) Years of education
<b>Panel A: Duration of exposure to war x ethnic mortality</b>						
Months exposure of mother in utero*Ethnic mortality	2.935 (3.858)	6.191 (7.001)	5.732 (6.794)	0.018 (0.029)	-0.008 (0.023)	-0.093 (0.072)
Months exposure of mother at ages 0-3*Ethnic mortality	-1.083 (1.404)	-2.096 (2.304)	-1.178 (2.728)	0.013 (0.010)	0.005 (0.008)	0.022 (0.023)
Months exposure of mother at ages 4-6*Ethnic mortality	2.868** (1.263)	5.633*** (1.882)	6.394*** (2.112)	0.008 (0.010)	0.006 (0.008)	-0.046 (0.028)
Months exposure of mother at ages 7-12*Ethnic mortality	2.492* (1.497)	1.034 (1.993)	2.502 (2.264)	0.001 (0.009)	0.002 (0.008)	-0.027 (0.027)
Months exposure of mother at ages 13-16*Ethnic mortality	4.971*** (1.794)	6.443** (2.728)	8.915** (4.157)	0.033 (0.031)	0.060 (0.037)	-0.106 (0.116)
Obs.	99181	99181	99181	8622	8622	26209
<b>Panel B: Duration of exposure to war x exposed region</b>						
Months exposure of mother in utero*War region	-0.497 (0.532)	-0.754 (1.004)	-0.340 (1.152)	0.000 (0.004)	-0.004 (0.003)	-0.009 (0.014)
Months exposure of mother at ages 0-3*War region	-0.013 (0.195)	0.084 (0.316)	0.186 (0.396)	0.001 (0.001)	0.001 (0.001)	0.001 (0.004)
Months exposure of mother at ages 4-6*War region	0.430** (0.205)	0.398 (0.373)	0.364 (0.462)	0.001 (0.001)	0.000 (0.001)	-0.001 (0.005)
Months exposure of mother at ages 7-12*War region	0.512*** (0.194)	0.479* (0.289)	0.782** (0.333)	0.002 (0.001)	-0.001 (0.001)	0.000 (0.005)
Months exposure of mother at ages 13-16*war region	0.418 (0.398)	0.643 (0.538)	1.163* (0.667)	0.007** (0.003)	0.011** (0.005)	-0.019 (0.013)
Obs.	99181	99181	99181	8622	8622	26209

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level in Panel A and year\*state level in Panel B. Ethnic mortality is defined as the percentage change at the ethnicity level in mortality rates during the war (1967-70) relative to a post-war period (1973-76). War region is a dummy equal to 1 if a woman resided in the war region and 0 otherwise. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. In addition to the mother's war exposure interaction term, all regressions also include the level effect for the mother's months of war exposure at different age ranges, DHS survey dummies, year (mother and child), state, and ethnicity fixed effects, a dummy for whether the child is a girl, and ethnicity (state) specific time trends in Panel A (Panel B). Columns 1 to 3 use the 1999, 2003, and 2008 DHS surveys and include all children born after 1970 to mothers who were born between 1954 and 1974. Columns 4 and 5 include children born in the five years preceding the 2003 and 2008 DHS surveys (and due to data limitations the three years preceding the 1999 DHS survey) to mothers born between 1954 and 1974. Column 6 uses the 2003 and 2008 DHS surveys and includes all children age 6-18 born to mothers who were born between 1954 and 1974. Dependent variables are defined as in Table 7.



Table A.29: Robustness Check: Probability of Migration

	(1)	(2)
	Health sample	Education sample
Months exposure in utero*War ethnicity	-0.003 (0.004)	-0.002 (0.003)
Months exposure at ages 0-3*War ethnicity	-0.000 (0.002)	-0.002 (0.002)
Months exposure at ages 4-6*War ethnicity	-0.004 (0.004)	-0.003 (0.003)
Months exposure at ages 7-12*War ethnicity	-0.005 (0.005)	-0.006 (0.005)
Months exposure at ages 13-16*War ethnicity	0.003 (0.007)	-0.001 (0.007)
Obs.	13261	18048

Marginal effects

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample in column 1 includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. The sample in column 2 includes adult women born between 1954 and 1974 surveyed in the 1999, 2003, and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. The dependent variable is a dummy equal to 1 if a woman ever migrated and 0 otherwise. In addition to the war exposure interaction term, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Estimates show marginal effects from probit regressions.

Table A.30: First Generation: Women's Height Percentile

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	below 10th	below 20th	below 25th	below 30th	below 40th	below 50th	below 60th	below 70th	below 75th	below 80th	below 90th
Months exposure in utero*War ethnicity	-0.001 (0.002)	-0.002 (0.002)	0.001 (0.003)	0.004 (0.003)	0.003 (0.003)	0.005 (0.003)	0.005 (0.003)	0.005** (0.003)	0.004 (0.003)	0.004 (0.003)	0.002 (0.003)
Months exposure at ages 0-3*War ethnicity	0.000 (0.001)	0.001 (0.001)	0.003* (0.002)	0.003* (0.002)	0.003 (0.002)	0.004** (0.002)	0.002 (0.002)	0.002* (0.001)	0.002 (0.001)	0.002 (0.001)	0.001 (0.001)
Months exposure at ages 4-6*War ethnicity	-0.001 (0.002)	0.001 (0.002)	0.003 (0.003)	0.006** (0.003)	0.007*** (0.003)	0.008*** (0.003)	0.006** (0.002)	0.005*** (0.002)	0.005** (0.002)	0.004** (0.002)	0.001 (0.002)
Months exposure at ages 7-12*War ethnicity	-0.000 (0.002)	0.002 (0.003)	0.006 (0.004)	0.008** (0.004)	0.009** (0.004)	0.011*** (0.004)	0.007** (0.004)	0.009*** (0.003)	0.007** (0.003)	0.007** (0.003)	0.002 (0.002)
Months exposure at ages 13-16*War ethnicity	0.000 (0.004)	0.002 (0.005)	0.008 (0.006)	0.012** (0.006)	0.014** (0.006)	0.018*** (0.006)	0.015*** (0.005)	0.014*** (0.004)	0.014*** (0.004)	0.013*** (0.005)	0.006* (0.003)
Obs.	13407	13407	13407	13407	13407	13407	13407	13407	13407	13407	13407

Notes: Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, and 13-16 are defined as the duration of exposure to the war in months during those age ranges. In addition to the war exposure interaction term shown in the table, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. The dependent variables in columns 1 to 11 are binary indicators defined as 1 if a woman's height (measured in centimeters) is below respectively the 10th, 20th, 25th, 30th, 40th, 50th, 60th, 70th, 75th, 80th, 90th percentile.

Table A.31: Robustness Check: Endogenous Fertility

	(1)	(2)	(3)	(4)
	Number of sibling births	Log (number sibling births)	Number of sibling births	Log (number sibling births)
War ethnicity*Sibling born in war	0.029 (0.069) Yes	0.006 (0.012) Yes	0.025 (0.067) Yes	0.006 (0.012) Yes
War ethnicity dummy	Yes	Yes	Yes	Yes
Sibling born in war dummy	No	No	Yes	Yes
Year birth oldest sibling fixed effects	No	No	Yes	Yes
State fixed effects	No	No	Yes	Yes
N	33803	33803	33803	33803

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the woman level. The sample includes sibling level data, which are siblings of surveyed women in the DHS 2008 survey. It includes siblings born between 1954 and 1970. The dependent variable in columns 1 and 3 is defined as the total number of siblings born between 1954 to 1970 (columns 2 and 4 is the log of this variable). The term war ethnicity \* sibling born in war is defined as the interaction between a dummy equal to 1 if the sibling belongs to the war ethnicity and 0 otherwise and a dummy equal to 1 if the sibling was born during the war years (1967-1970) and 0 otherwise. All specifications include also the non-interacted terms. Estimates in column 3 and 4 include fixed effects for the year of birth of the oldest sibling and state fixed effects.

Table A.32: First Generation: Women's Height - Intensity of the War

	(1)	(2)
<b>Panel A: Regional Intensity of War</b>		
Months exposure in utero*War East Central States	-0.124*	
	(0.067)	
Months exposure at ages 0-3*War East Central States	-0.096**	
	(0.040)	
Months exposure at ages 4-6*War East Central States	-0.121*	
	(0.063)	
Months exposure at ages 7-12*War East Central States	-0.177*	
	(0.095)	
Months exposure at ages 13-16*War East Central States	-0.364***	
	(0.133)	
Months exposure in utero*War enclave		-0.143
		(0.088)
Months exposure at ages 0-3*War enclave		-0.106**
		(0.049)
Months exposure at ages 4-6*War enclave		-0.199**
		(0.078)
Months exposure at ages 7-12*War enclave		-0.254**
		(0.118)
Months exposure at ages 13-16*War enclave		-0.435***
		(0.167)
Obs.	12278	11640
	(1)	
<b>Panel B: Months of Exposure Intensity of War</b>		
Months exposure in utero (Low)*War ethnicity	-0.002	
	(0.145)	
Months exposure in utero (High)*War ethnicity	-0.014	
	(0.081)	
Months exposure at ages 0-3 (Low)*War ethnicity	0.068	
	(0.176)	
Months exposure at ages 0-3 (High)*War ethnicity	-0.057	
	(0.046)	
Months exposure at ages 4-6 (Low)*War ethnicity	0.134	
	(0.213)	
Months exposure at ages 4-6 (High)*War ethnicity	-0.110*	
	(0.057)	
Months exposure at ages 7-12 (Low)*War ethnicity	0.097	
	(0.264)	
Months exposure at ages 7-12 (High)*War ethnicity	-0.144*	
	(0.075)	
Months exposure at ages 13-16 (Low)*War ethnicity	-0.252	
	(0.325)	
Months exposure at ages 13-16 (High)*War ethnicity	-0.202**	
	(0.096)	
Obs.	13407	

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*state level in Panel A and at year\*ethnicity level in Panel B. The samples in Panel A and B include adult women born between 1954 and 1974. War East Central States in Panel A column 1 is a dummy that equals 1 for the states of Anambra, Imo, Abia, Enugu, Ebony and 0 for states in the North, Southwest and Central regions; war enclave in column 2 is a dummy equal to 1 for the states of Imo, Abia, Ebony and 0 for states in the North, Southwest and Central regions. States previously included in the war region variable are excluded from the sample. In Panel B, the variables for months of exposure *in utero*, at ages 0-3, 4-6, 7-12, 13-16 are defined as the duration of exposure to the war in months during those age ranges in low and high intensity war times. Low and high intensity war times are defined respectively as the time from July 1967-March 1968 and April 1968-January 1970.

Table A.33: First Generation: Height - Alternative Age Cut-offs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Months exposure in utero*War ethnicity	-0.049 (0.051)	-0.035 (0.033)	-0.031 (0.035)	-0.037 (0.039)	-0.033 (0.039)	-0.042 (0.037)	-0.022 (0.032)
Months exposure at age group 1*War ethnicity	-0.039** (0.019)	-0.043** (0.020)	-0.033** (0.017)	-0.031 (0.020)	-0.033 (0.021)	-0.040** (0.019)	-0.024 (0.019)
Months exposure at age group 2*War ethnicity	-0.055 (0.035)	-0.056 (0.034)	-0.038 (0.030)	-0.052 (0.037)	-0.043 (0.034)	-0.054* (0.032)	-0.041 (0.035)
Months exposure at age group 3*War ethnicity	-0.091 (0.056)	-0.083* (0.045)	-0.062* (0.036)	-0.066 (0.052)	-0.066 (0.051)	-0.086* (0.047)	-0.038 (0.045)
Months exposure at age group 4*War ethnicity	-0.215** (0.083)	-0.204** (0.069)	-0.179*** (0.062)	-0.182** (0.075)	-0.144** (0.069)	-0.242*** (0.077)	-0.149** (0.063)
Obs.	13407	13407	13407	13407	13407	13407	13407

Notes: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Robust standard errors in parentheses, clustered at the year\*ethnicity level. The sample includes adult women born between 1954 and 1974 and surveyed in the 2003 and 2008 DHS surveys. War ethnicity is a dummy defined as 1 if an individual belongs to the Igbo or another minority ethnic group from the Biafran region. The variables for months of exposure are defined as the duration of exposure to the war in months during specific age ranges. Age groups are defined over the following range of months: Column 1: -9 to -1 (*in utero*), 0-23, 24-71, 72-143, 144-191; Column 2: -9 to -1 (*in utero*), 0-47, 48-71, 72-143, 144-191; Column 3: -9 to -1 (*in utero*), 0-35, 36-59, 60-143, 144-191; Column 4: -9 to -1 (*in utero*), 0-35, 36-83, 84-143, 144-191; Column 5: -9 to -1 (*in utero*), 0-35, 36-71, 72-131, 132-191; Column 6: -9 to -1 (*in utero*), 0-35, 36-71, 72-155, 156-191; Column 7: -9 to -1 (*in utero*), 0-47, 48-95, 96-143, 144-191. In addition to the war exposure interaction term shown in the table, all regressions also include the level effect for months of war exposure at different age ranges, DHS survey dummies, year, state, and ethnicity fixed effects, and ethnicity specific time trends. Height is measured in centimeters.

## B Data appendix

### B.1 Data and samples

#### DHS survey sample

In the DHS 2008 survey, all women age 15-49 who were either permanent residents of the households in the DHS survey sample or visitors present in the households on the night before the survey were eligible to be interviewed. In a sub-sample of half of the households, all men age 15-59 who were either permanent residents of the households in the 2008 sample or visitors present in the households on the night before the survey were eligible to be interviewed (NPC, 2009). Similarly, in the DHS 2003 (DHS 1999) survey, a probability sample of households was selected and all women age 15-49 (10-49 in the DHS 1999 survey) identified in the household were eligible to be interviewed. In a sub-sample of one-third of the households selected for the survey, all men 15-59 (15-64 in the DHS 1999 survey) were eligible to be interviewed (NPC, 2000, 2004).

#### First generation sample

*Health outcomes:* For the first generation analysis on health outcomes, we use the sample of women in the 2003 and 2008 DHS as health indicators are only collected for women. We do not use the DHS 1999 survey for the analysis of first generation health outcomes because the nutritional status and height of women is collected only for women who had a birth in the 3 years prior to the survey year, which would result in a non-representative sub-sample of interviewed women. The DHS 2003 includes women born since 1954 and the DHS 2008 those born since 1958. We choose the 1974 birth cohort as the upper bound in our sample in order to reduce possible confounding effects.

*Education, fertility, and marriage outcomes:* For the analysis of education, fertility, and marriage outcomes, we use the sample of women and men in the three DHS surveys from 1999, 2003, and 2008. We include both women and men born between 1954 (1958 for the

2008 DHS survey) and 1974. As for the health outcomes, we choose the 1974 birth cohort as the upper bound in our sample in order to reduce possible confounding effects.

### **Second generation sample**

We use the information on the fertility histories of mothers in the three DHS surveys from 1999, 2003, and 2008 to construct a child level sample for the analysis of second generation children. The 1999 DHS survey, while not containing information on health outcomes of all women, includes information on the year of birth and the state of residence of all women 15-49 years old. This additional dataset allows including mothers and children born in earlier years and hence covering additional cohorts. The sample we use for the second generation analysis includes all children born to mothers who had at least one child. The child-level sample is based on children of mothers born between 1954 and 1974 (i.e., this is consistent with the sample used for the first generation analysis). We further restrict the sample to children born after 1970 to avoid any confounding effect of the war on second generation children.

There is a likelihood of under-reporting of births and deaths of children not alive at the time of the survey because the mother may be reluctant to talk about deceased children. Children's deaths in early infancy may be those most likely under reported. However, as the proportion of neonatal deaths in our surveys is substantial, this may suggest that the under-reporting is not severe (NPC, 2000, 2004, 2009).

### **Second generation sample for education outcome**

Children's educational attainment can only be retrieved in the 2003 and 2008 DHS surveys. The 1999 DHS survey does not contain the identifier that allows one to match the household level dataset (which contain information on education) with the child level dataset that we use for the analysis. Only children that are listed in the household level dataset and that are alive can be matched to the child level dataset. We further restrict the sample to children

that are aged 6-18 at the time of the survey to account for potential selection of children that stay or leave home once they turn 18.

## **Couple sample**

The couple sample is obtained by matching each woman in the women's sample to her husband in the male sample. We are only able to match men and women that live in the same household and that are currently married. The size of the couple sample is also smaller than the full sample because men were only surveyed in a sub-sample of half of the households included in the women's sample. Men can have polygamous unions. We include all women that could be married to the same man.

For the second generation outcomes, we match women to their children, hence restricting the sample to women that had at least one child. For consistency with our main analysis, we further restrict the sample to women that were born between 1954 and 1974. The father sample is further restricted to only men that were born between 1954 and 1974.

## **B.2 Variables definitions**

*BMI, underweight, overweight, and obese:* BMI is a continuous measure and underweight, overweight, and obesity are binary indicators. Pregnant women at the time of the survey are excluded from this sample. The underweight variable is a dummy defined as equal to 1 if the BMI of an adult woman is below 18.5 and 0 otherwise. The overweight indicator is defined as equal to 1 if the BMI is above 25 and 0 otherwise. The obese indicator is defined as equal to 1 if the BMI is equal or above 30 and 0 otherwise.

*Employment:* the work participation variable is defined as a dummy equal to 1 if an individual worked in the past 12 months and 0 otherwise. We also investigate whether individuals work for the entire year or seasonally. We construct a binary variable defined as 1 if an individual works all year, and 0 if she is employed in seasonal or occasional work.

*Education:* We look at the years of completed education and at primary and secondary



school completion. Primary school completion is a dummy defined as 1 if an individual has completed at least primary school and 0 otherwise. Similarly, secondary school completion is a dummy defined as 1 if an individual has completed at least secondary school and 0 otherwise. We use information on women and men. We choose for both women and men the same sample used for the health outcomes.

*Ethnic mortality exposure:* The information on siblings is reported only in the 1999 and 2008 DHS surveys but not in the 2003 DHS survey. In the 2008 survey, each woman was asked to report information on her siblings and their date of birth and death (if relevant). We use these data to construct mortality rates of siblings at different time periods. The sibling mortality rate at the ethnicity level during the war is calculated as the ratio of the number of siblings who died during the war (1967-70) and the total number of siblings born before 1970. Similarly, the mortality rate after the war is calculated as the ratio of the number of siblings who died after the war between 1973 and 1976 and the number of siblings born before 1976. We obtain a measure of ethnic mortality for ethnicity  $e$  as the percentage change in siblings' mortality rates between the war years and post-war years as follows:  $ethnic\ mortality_e = (mortality\ rate\ in\ war_e - mortality\ rate\ after\ war_e) / mortality\ rate\ after\ war_e$ .

*Child mortality:* We construct binary variables equal to 1 x 1000 if the child died within 1 month, 12 months, or 60 months after birth and 0 if the child is still alive or died afterwards. We restrict the sample to children born after 1970 to avoid including direct confounding effects from the war years.

*Height-for-age Z-score:* This nutritional status indicator is expressed in standard deviation units from the median of the reference population as calculated in the NDHS/CDC/WHO Child Growth Standards (NPC, 2000, 2004, 2009). We define the height-for-age indicator as a binary variable equal to 1 if the height-for-age Z-score is below minus 2 standard deviations from the reference population median. Children below this threshold are considered stunted and so chronically malnourished. We define the weight-for-age indicator as

a binary variable equal to 1 if the weight-for-age Z-score is below minus 2 standard deviations from the reference population median. Children below this threshold are considered underweight. Anthropometric data on height are only collected on children born in the five years prior to the 2008 and 2003 DHS surveys and in the three years prior to the 1999 DHS survey. Therefore, the sample includes children born between 1996 and 2008 from mothers born between 1954 and 1974.

*Education:* The outcome we analyze is the years of completed education. The sample includes only children that are aged 6-18 years old.

*Prenatal care and delivery:* The variables we investigate measure the number of prenatal health clinic visits during pregnancy, whether the mother received antenatal care from a skilled provider, whether the mother received assistance during delivery from a skilled provider, and whether the mother delivered in a health facility. This information is available for births in the five years preceding the survey in the 2003 and 2008 surveys and for births in the preceding three years in the 1999 survey. This is the sample used for the analysis of children's height-for-age and weight-for-age Z-scores, containing children born between 1996 and 2008. Note that we have a longer series of cohorts for child mortality as this is available from the complete retrospective fertility histories of mothers.