

Toward Global Economic Recovery with a Human Face

The Effect of Aggregate Economic Shocks on Child Health
and Household Health Seeking Behavior

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OVERVIEW OF PRESENTATION

INTRODUCTION

- Previous studies

- Rationale for research

- Data and empirical approach

PRELIMINARY FINDINGS

- Infant mortality

- Immunizations

- Other health seeking behavior

CONCLUSIONS

- Summary of findings

- Future directions

PREVIOUS STUDIES

- ▶ Growing empirical literature has investigated the relationship between aggregate income shocks and child health.
- ▶ Developed countries generally show pro-cyclical effects (Ruhm, 2000; Dehejia & Lleras-Muney, 2004).
- ▶ Middle-income country case-studies demonstrate mixed effects (e.g. Cutler et al., 2002; Paxson & Schady, 2005; Miller & Urdinola, 2007).
- ▶ Low-income country studies generally show counter-cyclical effects (Bhalotra, 2009).

DIRECTION OF EFFECT AN EMPIRICAL QUESTION

- ▶ Income effects likely reduce demand for good nutrition, health service inputs, and other factors thought to be beneficial ↓.
- ▶ Substitution effects decreases opportunity costs of labor intensive health seeking behavior ↑.
- ▶ Public expenditure contractions likely reduce supply side factors ↓.
- ▶ Indirect effects through fertility reductions also likely.
- ▶ Direction of effect an empirical question and likely to be different in developed and developing countries.

MECHANISM OF EFFECT POORLY UNDERSTOOD

- ▶ Baird et al. (2007) studied effect of aggregate income shocks in a cross-country panel design using both country-year and individual level data.
- ▶ Found aggregate income shocks to be negatively associated with child mortality (1% change in GDP per capita was associated with 20-40 additional deaths per 1000).
- ▶ Study did not investigate the channels through which impact translated to poor health outcomes.

DATA AND EMPIRICAL APPROACH

- ▶ Pooled analysis using 177 Demographic and Health Surveys from 70 countries (1985-2008) over 5 million live births.
- ▶ Dependent variable a measure of infant mortality as well as health service utilization of households and children.
- ▶ Country-level fixed effects, year fixed effects, as well as country-specific time trends.

VARIABLES

- ▶ Dependent variables: infant mortality (death before 13 months), vaccination coverage of EPI vaccines (dpt, pol, mcv), four or more antenatal visits, skilled assistance at birth, and breastfeeding behavior.
- ▶ Income measured as log GDP (PPP) per capita in constant dollars
- ▶ Country-level fixed effects, year fixed effects, as well as country-specific time trends.

EXCLUSIONS

- ▶ Exclude births reported more than 12 years prior to survey
- ▶ Exclude all births within 12 months of the survey
- ▶ Vaccination and maternity data only available for later time periods

IMPACT ON INFANT MORTALITY

Dependent Variable	Infant Mortality					
lnGDPpcap	-0.007 (0.005)	-0.005 (0.005)	-0.026*** (0.004)	-0.022*** (0.004)	-0.019*** (0.004)	-0.016*** (0.004)
Country-fixed effects	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes
Country-specific time trends	no	no	linear	linear	cubic	cubic
Full set of controls	no	yes	no	yes	no	yes
Observations	4228299	3722969	4228299	3722969	4228299	3722969
R-squared	0.01	0.02	0.01	0.02	0.01	0.02

A 1% change in GDP per capita is associated with approximately 20 additional deaths per 1,000 live births

IMPACT ON INFANT MORTALITY, BY SEX

Dependent Variable	Infant Mortality	
Subgroup: Sex	Males	Females
lnGDPpcap	-0.024*** (0.004)	-0.027*** (0.004)
Country-fixed effects	yes	yes
Year dummies	yes	yes
Country-specific time trends	linear	linear
Full set of controls	no	no
Observations	2164011	2064287
R-squared	0.01	0.01

Females slightly more susceptible to income fluctuations

IMPACT ON INFANT MORTALITY, BY REGION

Dependent Variable	Infant Mortality	
Subgroup: Area	Urban	Rural
lnGDPpcap	-0.020*** (0.004)	-0.030*** (0.005)
Country-fixed effects	yes	yes
Year dummies	yes	yes
Country-specific time trends	linear	linear
Full set of controls	no	no
Observations	1514603	2713696
R-squared	0.01	0.01

Children from rural households much more susceptible to income shocks

IMPACT ON INFANT MORTALITY, BY ASSET OWNERSHIP

Dependent Variable	Infant Mortality			
	0	1	2	3
Subgroup: Asset count				
lnGDPpcap	-0.025*** (0.005)	-0.023*** (0.006)	-0.017*** (0.005)	-0.012** (0.006)
Country-fixed effects	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Country-specific time trends	linear	linear	linear	linear
Full set of controls	no	no	no	no
Observations	1146510	1356828	701801	625311
R-squared	0.01	0.01	0.01	0.01

Assets with fewer assets are more susceptible to to the shocks than wealthier households

IMPACT ON UTILIZATION OF VACCINES

Dependent Variable	dpt1	dpt3	polio1	polio3	measles
lnGDPpcap	0.123 (0.122)	0.140 (0.136)	0.224* (0.125)	0.243 (0.182)	0.204* (0.107)
Country-fixed effects	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
Country-specific time trends	linear	linear	linear	linear	linear
Full set of controls	no	no	no	no	no
Observations	820063	813825	822379	816553	812670
R-squared	0.14	0.15	0.10	0.12	0.13

Some evidence that certain vaccines might be susceptible to fluctuations

IMPACT ON UTILIZATION OF MEASLES, BY REGION

Dependent Variable	Measles Vaccination	
Subgroup: Area	Urban	Rural
lnGDPpcap	0.055 (0.118)	0.282*** (0.105)
Country-fixed effects	yes	yes
Year dummies	yes	yes
Country-specific time trends	linear	linear
Full set of controls	no	no
Observations	297445	515225
R-squared	0.07	0.16

Measles coverage more susceptible in rural areas

IMPACT ON UTILIZATION OF MEASLES, BY ASSET OWNERSHIP

Dependent Variable	Measles Vaccination			
	0	1	2	3
Subgroup: Asset count				
lnGDPpcap	0.208** (0.099)	0.108 (0.086)	-0.067 (0.109)	-0.172 (0.187)
Country-fixed effects	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Country-specific time trends	linear	linear	linear	linear
Full set of controls	no	no	no	no
Observations	219374	255924	128660	118454
R-squared	0.15	0.11	0.06	0.06

Measles coverage more susceptible in poorer households

IMPACT ON UTILIZATION OF MATERNAL AND CHILD HEALTH SERVICES

Dependent Variable	4+ ANC	4+ ANC (cond)	Skilled Asst.
lnGDPpcap	0.095 (0.078)	0.001 (0.053)	0.146 (0.092)
Country-fixed effects	yes	yes	yes
Year dummies	yes	yes	yes
Country-specific time trends	linear	linear	linear
Full set of controls	no	no	no
Observations	663502	507314	810470
R-squared	0.19	0.16	0.16

No evidence of impact on maternity and delivery outcomes in aggregate

IMPACT ON UTILIZATION OF BREASTFEEDING

Dependent Variable	Ever breastfed	Months breastfed
lnGDPpcap	0.033 (0.188)	0.186 (1.053)
Country-fixed effects	yes	yes
Year dummies	yes	yes
Country-specific time trends	linear	linear
Full set of controls	no	no
Observations	935653	798586
R-squared	0.28	0.13

No evidence of impact on breastfeeding

SUMMARY OF FINDINGS

- ▶ The impact of aggregate income shocks on child mortality found to be pro-cyclical and more pronounced in rural areas and among low-asset households. A 1% change in GDP per capita was associated with 20 additional deaths per 1000 live births.
- ▶ Little effect on most EPI vaccines, with the exception of measles which does appear sensitive to income shocks.
- ▶ In aggregate limited evidence of impact on other household seeking behavior

FUTURE DIRECTIONS

- ▶ Further investigate other potential dependent variables (e.g. stunting, growth)
- ▶ Decompose effects regionally and by level of income to understand regional patterns.
- ▶ Include effect of social protection measures to determine if effects are mitigated in those with high levels of social protection.