



Child Mortality, Commodity Price Volatility and the Resource Curse

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The authors investigate empirically the impact of commodity price movements on child mortality using panel data for 69 low and lower-middle income countries from 1970 to 2010. They find that commodity terms-of-trade volatility increases child mortality in highly commodity-dependent importers suggesting a “scarce” resource curse. They also find that the presence of sound institutions (proxied by democracy) mitigates the harmful impact of commodity price volatility. They conclude that an effective approach to improving child wellbeing in low to lower-middle income countries will combine hedging, import diversification and improvement of institutional quality.

Introduction

The child mortality rate is shockingly high in many low and lower-middle income countries. For example, in 2015 there were 6 million deaths of under-fives worldwide, of which 3 million occurred in Sub-Saharan Africa (86 deaths per 1000 live births) and 1.8 million in Southern Asia (50 deaths per 1000 live births). Such regions typically contain countries that are particularly dependent either on commodity exports or imports or both. *Prima facie* this suggests a potential linkage between commodity prices and child mortality. There are several reasons why such a relationship may hold; booms in food prices are theorized to lead to malnutrition (Christian, 2010), and more broadly, commodity prices affect macroeconomic conditions (Céspedes and Velasco, 2014), which in turn determine infant mortality rates (Baird *et al.*, 2011). This potential linkage deserves to be thoroughly explored in the literature.

The authors study the impact of the growth and volatility of commodity prices on child mortality and, in doing so, they extend previous work examining (i) the relationship between economic growth and natural resource endowments (e.g., Sachs and Warner, 2001), which is known as the “resource curse,” and (ii) the linkages between such endowments and serious health conditions (de Soysa and Gizelis, 2013).

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Relevance of the Research Question

Only a few studies test the potential linkage between commodity prices and child mortality. Miller and Urdinola (2010), for example, examine the case of Colombia using three episodes of sharp coffee price swings in 1975, 1985 and 1989-90. Lee *et al.* (2016) test the impact of food price inflation on infant mortality for a panel of developing countries over the period 2001-2011. However, it is still unclear whether it is the level (or the growth) and/or the volatility of commodity prices that affects child mortality. Specifically, the present paper provides a new theoretical framework that includes both the level and the volatility. Moreover, the authors explore the role of the quality of institutions to mitigate the potential harmful effects of the growth and/or volatility of commodity prices on child mortality.

Theoretical Framework

The authors adopt a theoretical framework that leads to four hypotheses: (1) food prices are not the only commodity price that affects child mortality rates in commodity-dependent countries; (2) level changes (or growth) in commodity prices have different directional effects on child mortality for net exporters and importers; (3) commodity price volatility adversely affects the rate of child mortality; and (4) better institutions limit the latter effect.

Data and Methodology

Using data for 69 low and middle-low income countries over the period from 1970 to 2010, the authors apply panel ordinary least squares (POLS) estimation. In particular, they use data on a country-specific “commodity terms-of-trade” index (CTOT hereafter), which incorporates a number of commodities and reflects an individual country’s overall position in the commodity market (or national commodity trade structure.) Accordingly, movements in global commodity prices affect the CTOT differently across countries (Spatafora and Tytell, 2009). The authors additionally decompose the CTOT into energy and non-energy CTOT to examine the first hypothesis. They also split the sample into net commodity exporters (25 countries) and net commodity importers (44 countries) to test the second and third hypotheses. They compare these groups with two smaller sub-samples consisting of the most commodity-dependent countries to assess the impact of the degree of commodity dependence. Finally, they use a democracy index, as well as a distribution-of-resources index, as proxies of the quality of a country’s institutions, to examine the fourth hypothesis.

Results

The authors find that the main driver through which commodity prices can affect child mortality is their volatility, not the growth rate. As an explanation for the latter, they show that the CTOT of developing countries exhibits either no or weak trend. They further demonstrate that the volatility effect is at play mostly in those countries that depend heavily on commodity imports; these countries tend to suffer more from higher commodity price volatility than heavily commodity-dependent exporters. This not only illustrates the adverse impact of high commodity dependence on child survival but also reveals a new “scarce” resource curse. In other words, while the well-known resource curse applies to countries that have an abundance of a natural resource, the “scarce” resource curse means that commodity price



volatility is particularly harmful for child mortality in countries that need to import essential resources. To shed light on the channels of this commodity price volatility effect, the authors decompose the CTOT into energy and non-energy (mainly food) CTOT. The energy volatility effect on child mortality is significant for heavily commodity-dependent importers whereas the non-energy volatility has no effect. This implies that movements in global food commodity prices are subordinate to those of energy when considering the impact on child mortality. The results suggest also that sound institutions, as proxied by democratic regimes, can shield importer countries from some of the detrimental effects of volatility, whereas autocratic regimes cannot.

Conclusions

The authors discuss theoretically the political and economic aspects that may link commodity price movements and child mortality in developing countries and examine various testable predictions. Their empirical analysis suggests that it is the volatility and not the growth rate of commodity prices that adversely affects child mortality in developing countries. This harmful linkage between commodity price volatility and child mortality is present primarily in heavily commodity-dependent importers, which reveals a “scarce” resource curse, and more so in countries with poor-quality (autocratic) institutions. The analysis prescribes improving institutional quality, the use of financial hedging, and reducing commodity dependence through import substitution strategies and/or diversification of the commodity basket in developing countries.

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Keywords

Low and lower-middle income countries, commodity prices, terms-of-trade, institutions, resource curse, child mortality.