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Does trade liberalization reduce child mortality in low- and middle-income countries? A synthetic control analysis of 36 policy experiments, 1963-2005

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ABSTRACT

Scholars have long argued that trade liberalization leads to lower rates of child mortality in developing countries. Yet current scholarship precludes definitive conclusions about the magnitude and direction of this relationship. Here I analyze the impact of trade liberalization on child mortality in 36 low- and middle-income countries, 1963–2005, using the synthetic control method. I test the hypothesis that trade liberalization leads to lower rates of child mortality, examine whether this association varies between countries and over time, and explore the potentially modifying role of democratic politics, historical context, and geographic location on the magnitude and direction of this relationship. My analysis shows that, on average, trade liberalization had no impact on child mortality in low- and middle-income countries between 1963 and 2005 (Average effect (AE): −0.15%; 95% CI: −2.04%–2.18%). Yet the scale, direction and statistical significance of this association varied markedly, ranging from a ~20% reduction in child mortality in Uruguay to a ~20% increase in the Philippines compared with synthetic controls. Trade liberalization was also followed by the largest declines in child mortality in democracies (AE 10-years post reform (AE_{10}): −3.28%), in Latin America (AE_{10}: −4.15%) and in the 1970s (AE_{10}: −6.85%). My findings show that trade liberalization can create an opportunity for reducing rates of child mortality, but its effects cannot be guaranteed. Inclusive and pro-growth contextual factors appear to influence whether trade liberalization actually yields beneficial consequences in developing societies.

1. Introduction

Worldwide, rates of child mortality fell by as much as 53% between 1990 and 2015 (You et al., 2015). Despite this progress as many as 5.9 million children under the age of five died in 2015 globally (UNICEF, 2015). A majority of these deaths were attributable to treatable and preventable causes and occurred in low- and middle-income countries (Black et al., 2013; UNICEF, 2015). Thus, reducing child mortality is a key objective in the Sustainable Development Goals (SDGs), adopted by 193 countries in September 2015 (UN, 2015). Scholars have long argued that growth-oriented macro-economic policies can lead to lower child mortality rates (Subramanian et al., 2002; Bettcher and Lee, 2002; Pritchett and Summers, 1996). One such policy is trade liberalization: the removal of restrictions on exports and imports between countries by repealing trade bans or quotas, lowering trade taxes or 'tariffs', and eliminating fixed exchange rates (Winters, 2000). Trade liberalization could reduce child mortality through several hypothesized mechanisms, including raising incomes, reducing poverty, and increasing access to medicines and nutritious food (Levine and Rothman, 2006; Bettcher et al., 2000; Blouin et al., 2009). However, trade liberalization could also lead to a rise in child mortality by, for example, increasing the cost of pharmaceuticals and worsening environmental conditions (Blouin et al., 2009). These mechanisms and their impacts on child mortality – for better and for worse – are all supported by varying levels of evidence and, ultimately, whether or not trade liberalization actually leads to a reduction in child mortality is an empirical question.

Yet, two recent reviews published in *Social Science and Medicine* showed that previous studies investigating the relationship between trade liberalization and child mortality were inconclusive (McNamara, 2017; Burns et al., 2016). Prior studies reported contrasting results, used liberalization indicators with weak specificity, and did not adequately address limitations to causal inference when analyzing the impact of trade reforms. Furthermore, prior studies did not examine the scale and potential sources of heterogeneity in the relationship between trade liberalization and child mortality. Here I address these limitations by analyzing the impact of trade liberalization on child mortality in 36 low- and middle-income countries, 1963–2005, using the synthetic control method. I test the hypothesis that trade liberalization leads to lower rates of child mortality, examine the degree of cross-country and temporal heterogeneity, and explore the potentially modifying role of democratic politics, historical context, and geographic location on the magnitude of this relationship.

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2. Background

2.1. Theoretical framework

A large number of studies has identified how trade liberalization could impact on child mortality, for better or for worse, through myriad and complex pathways (Labonté and Schrecker, 2007; Bettcher et al., 2000; Blouin et al., 2009; Barlow et al., 2017b; Bozorgmehr and San Sebastian, 2014). Much like other economic reforms and economic growth (Pritchett and Summers, 1996; Subramanian et al., 2002; Kentikelenis, 2017), trade liberalization can yield effects via changes to health-care and services and via changes to the social, economic and environmental context of a society, which are all important determinants of parental and child well-being (Dahlgren and Whitehead, 1991; Marmot, 2008).

For example, trade liberalization can improve the quality and access to healthcare by facilitating a rise in imports and a reduction in the prices of medical supplies such as vaccines and pharmaceuticals (Bettcher et al., 2000). Trade liberalization may also facilitate the flow of knowledge, technologies, and information that lead to more effective medical treatments and public health programs (Bettcher et al., 2000). Trade liberalization can also lead to higher rates of economic growth and government tax revenue, providing fiscal resources for funding public health-services, thereby expanding access to care and increasing quality (McNeill et al., 2017). These fiscal resources could also be used to supply other public goods and services that are conducive to better health, such as water sanitation and education (Pritchett and Summers, 1996; Caldwell, 2001). Trade liberalization can also raise employment, wages and incomes and reduce poverty which, in turn, increases access to health-sustaining public services (Levine and Rothman, 2006). These changes can also increase access to other goods and services that are essential to sustaining good health, such as nutritious food and housing (Pritchett and Summers, 1996; Subramanian et al., 2002).

Yet conversely, trade liberalization could lead to rising rates of child mortality in low- and middle-income countries. Access to pharmaceuticals and affordability of health-services could decline due to rising pharmaceutical costs arising from the protection of intellectual property rights in international trade agreements (Stiglitz, 2009). Fiscal resources for spending on health-care and other public services could decline if governments are unable to compensate for fiscal shortfalls arising from lower trade tax-receipts by increasing tax revenue from other sources, such as businesses (McNeill et al., 2017; Baunsgaard and Keen, 2010). In addition, trade liberalization can lead to environmental degradation, deteriorating working conditions, greater job insecurity, and more volatile prices (De Vogli, 2011; Blouin et al., 2009). It is also possible that trade reforms lead to widening wage differentials and worsen material conditions, especially among those working in import-competing sectors (Krugman, 2008; Autor et al., 2013), thereby increasing child mortality by increasing inequality and reducing access to health sustaining goods and services among low-income groups (Blouin et al., 2009). Finally, trade liberalization can increase harmful health behaviours such as tobacco and alcohol consumption among parents, thereby reducing children's health and longevity (Friel et al., 2013; Barlow et al., 2017a; Schram et al., 2017).

2.2. Effect heterogeneity

Ultimately, the positive and negative effects of trade liberalization may offset one another, leading to no statistically identifiable impact on child mortality. In addition, the impact of trade liberalization on child mortality is likely to take time to accrue due to the time needed for businesses to respond to lower tariffs, co-ordinate and establish production and distribution networks, and expand production (Krugman, 2008). Thus, the effect on child mortality may vary in the post-liberalization era and could only be apparent 5 or 10 years after reforms are implemented.

The impact of trade liberalization is also likely to vary between countries, and socio-political, geographic, and historical factors could influence the magnitude and direction of this relationship. Winters and Martuscelli (2014) showed that trade was correlated with the highest income gains and lowest poverty rates in democracies. Democracies that undergo trade liberalization may also experience greater reductions in child mortality as they experience greater trade and income growth (Besley and Kudamatsu, 2006; Muntaner et al., 2011). Democracies may also ensure that the economic benefits of trade liberalization translate into inclusive public policies that benefit vulnerable groups (Pieters et al., 2016).

In addition, Billmeier and Nanicini reported that liberalizing the economy had a positive effect on economic growth in most low- and middle-income countries, but more recent liberalizations in the 1990s and in Africa had no significant impact (Billmeier and Nannicini, 2013). They suggest that later liberalizers and African economies may have faced greater competition for exporting labour-intensive goods, such as agricultural products or textiles, and lacked growth-enhancing institutions. Thus, trade liberalization may have also lead to greater reductions in child mortality before the 1990s and outside Africa where income gains – and the health benefits that flow from it – were greatest.

2.3. Previous literature

A small number of studies have investigated the association between trade liberalization and rates of under-5 and neo-natal mortality. Levine and Rothman (2006) analyzed the association between trade volumes (imports and exports) as a proportion of Gross Domestic Product (GDP) and infant and child mortality rates in 1990 (Levine and Rothman, 2006). The authors found that a 15-percentage point increase in trade as a share of GDP corresponded to approximately 4 fewer child deaths before age 5 per 1000 live births. However, Levine and Rothman did not disaggregate their analysis into different income groups so it is unclear whether their results hold in low- and middle-income countries which often lacked the institutions that translate trade liberalization into greater trade, economic growth and lower poverty (Rodriguez and Rodrik, 2001; Winters, 2000; Billmeier and Nannicini, 2013). Indeed, Gerring and Thacker (2008) showed that the relationship between trade volumes (as a share of GDP) and infant mortality was negative in high-income countries but was not statistically significant in low- and middle-income countries (Gerring and Thacker, 2008). Yet, these findings contrast with the results from an earlier study by Owen and Wu (2007) who found that the negative association between trade and child mortality was strongest among poorer countries, 1960–1995 (Owen and Wu, 2007). However, this relationship was unstable across model specifications.

Previous studies of trade liberalization and child mortality in low- and middle-income countries therefore paint an unclear picture of this relationship. There are three additional limitations in existing scholarship that could also explain this lack of consensus. First, prior studies quantified the associations between child mortality and trade flows rather than trade liberalizing policies. McNamara argued that analyses of trade flows “conflate liberalization for its presumed outcomes” (McNamara, 2017, p.11). Increases in trade are not an inevitable consequence of trade liberalization in low- and middle-income countries which may lack trade-sustaining institutions (Rodriguez and Rodrik, 2001; Winters, 2000). In addition, trade liberalization is promoted through a range of institutions, agreements and policies (McNamara, 2017). These are, in turn, influenced by wider political forces, including power asymmetries within- and between-countries (Ottersen et al., 2014). Thus, studies of trade liberalization acknowledge the role of wider inequities in shaping well-being, and the impact of trade policy cannot be directly inferred from analyses of trade flows.

Second, prior studies estimated the average effect of trade liberalization on child mortality. They did not examine the degree of cross-country and temporal heterogeneity in this relationship, and the