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The resource curse and child mortality, 1961–2011



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ABSTRACT

There is now an extensive literature on the adverse effect of petroleum wealth on the political, economic and social well-being of a country. In this study we examine whether the so-called resource curse extends to the health of children, as measured by under-five mortality. We argue that the type of revenue available to governments in petroleum-rich countries reduces their incentive to improve child health. Whereas the type of revenue available to governments in petroleum-poor countries encourages policies designed to improve child health. In order to test that line of argument we employ a panel of 167 countries (all countries with populations above 250,000) for the years 1961–2011. We find robust evidence that petroleum-poor countries outperform petroleum-rich countries when it comes to reducing under-five mortality. This suggests that governments in oil abundant countries often fail to effectively use the resource windfall at their disposal to improve child health.

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There is now a large literature that purports to show that petroleum wealth has an adverse effect on a country's political, social, and economic well-being. More specifically it is argued that oil and natural gas abundance strengthens autocratic governments, undermines the effectiveness of governmental institutions, increases the likelihood of civil conflict, reinforces gender inequality, and frustrates economic growth (Ross, 2015; van der Ploeg, 2011). This suggests that the discovery of substantial oil and gas reserves may, paradoxically, represent a curse rather than a blessing for a country.

In this article we examine whether the so-called resource curse extends to the health of children, as measured by the probability of dying between birth and age five. Child mortality provides an indicator of the health status of the most vulnerable members of society. It also provides an indicator of the well-being of the poorest members of society. That is because premature mortality amongst the youngest primarily afflicts the poorest members of society (de Looper and Lafortune, 2009; Yazbeck, 2009). Thus, child mortality allows us to examine the impact of petroleum wealth both on the well-being of children and, indirectly, the well-being of the poorest.

It is also worth noting that child mortality often results from causes that are comparatively easier and less costly to prevent or treat (e.g. through access to clean water, oral rehydration, antibiotics, ante and post-natal care etc.). Of those children from around the world that died before five years of age in 2013 51.8% died of infectious causes, with the largest shares caused by pneumonia

(14.9%), diarrhea (9.2%) and malaria (7.2%) (Liu et al., 2015). Effective interventions are available for all three diseases. That suggests that child mortality should be responsive to public policy-making. Moreover, it indicates that governments with access to abundant oil revenues have more than sufficient resources to tackle child mortality. Indeed two studies have presented evidence suggesting that oil wealth does not adversely affect the ability of governments to reduce child mortality (Cotet and Tsui, 2013a; Ross, 2012, pp. 196–197).

In what follows we argue and present evidence in support of the view that resource-poor countries outperform resource-rich countries with respect to child health. We contend that the type of revenue available to governments in resource-rich countries reduces their incentive to improve child health. Whereas the type of revenue available to governments in resource-poor countries, encourages policies designed to improve child health. The non-tax revenue available to the former means they need not seek the pro-growth benefits that flow from improved child health. Whereas the tax revenue that the latter depend on means they must seek the pro-growth benefits that flow from improved child health.

In order to test that line of argument we employ a panel of 167 countries (all countries with a population greater than 250,000) for the years 1961–2011. We find evidence that oil wealth is positively associated with under-five mortality after controlling for potentially confounding factors. This suggests that governments in oil rich countries often fail to effectively use the resource windfall at their disposal to improve the well-being of children and, more

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generally, the poorest. The results are robust to the inclusion of fixed country and year effects, lags and instrumental variables to mitigate potential endogeneity, alternative measures of oil wealth and child health, as well as the use of multiple imputation to estimate missing data.

1. The paradox of plenty

Why is oil wealth a curse rather than a blessing? One of the key reasons is that oil and gas reserves provide governments with a source of revenue that does not require the collection of taxes from the population at large. This increases the likelihood that political leaders will remain in power and reduces the incentive for governments to invest in human capital.

The standard explanation as to why oil wealth prolongs nondemocratic rule is that hydrocarbon revenues enable autocratic leaders to buy the support of their backers without having to impose taxes. By contrast autocratic leaders without access to oil revenues must levy taxes to finance the dispersal of benefits to the regime's supporters, with the attendant risk that those who are taxed may demand greater representation (Levi, 1989; Mahdavi, 1970). One upshot of this is that resource-poor autocracies are more likely to transition to democracy. (Although, it should be noted that some scholars have disputed the claim that petroleum wealth reinforces autocratic rule; see, for example, Haber and Menaldo, 2011; Wacziarg, 2012). For similar reasons it is argued that access to oil revenues enhances the ability of incumbent elected leaders to secure re-election (Goldberg et al., 2008; Mahdavi, 2015). Thus, access to non-tax revenues enhance the ability of autocratic and democratic leaders to stay in power. In both cases the government can provide benefits to its supporters without incurring the political cost of imposing taxes.

What this also means is that the survival of autocratic and democratic leaders in resource-poor countries is dependent on their ability to provide benefits to supporters whilst avoiding the political cost of taxation (Bueno de Mesquita and Smith, 2010). That in turn is dependent on economic growth. Increasing government revenue by raising new taxes is more unpopular than relying on a combination of economic growth and unchanged or lower tax rates to increase the tax yield. Thus, governments in resource-poor countries have a greater incentive to invest in public goods such as health and education that are key determinants of labor productivity and, therefore, economic growth (Lindert, 2004). Child health is a crucial determinant of education outcomes and, therefore, labor productivity. That is because disease-free children are more likely to attend school and to learn more while they are there (Baird et al., forthcoming; Bleakley, 2007). In addition, parents have an increasing incentive to send their children to school as survival rates improve (Soares, 2005). Childhood health may also have a more direct impact on labor productivity. Maladies that are endured during childhood may continue to incapacitate individuals as they reach working age (Bleakley, 2010). Thus, the survival of political leaders in resource-poor countries is indirectly linked to their ability to improve the health of the youngest members of society. Indeed, the provisioning of schooling and health care is optimal for the political leader who lacks access to non-tax revenues. Public goods that improve child health and education appease the government's backers and generate the economic growth that reduces the need for higher tax rates to finance those public goods. By contrast political leaders in resource-rich countries can rely on a source of revenue that is not dependent on how much they invest in child health and education. As a result, their political survival is less likely to be threatened by a failure to reduce child mortality. That is to say, they are less likely to be voted out of office (in the case of democratic leaders) or removed by revolution or

coup (in the case of autocratic leaders).

We predict, therefore, that countries that have significant oil revenues will be less successful at reducing child mortality than countries without significant oil revenues. While the former may have more resources to improve child health they also have less of an incentive to do so. This prediction is broadly in keeping with existing research which finds that resource rich countries typically underinvest in productive capital, such as health and education, even though it is a key determinant of economic growth (Hamilton et al., 2006; van der Ploeg, 2011). That finding is reinforced by another study that found that petroleum wealth is negatively associated with public spending on health (Cockx and Francken, 2014). However, it should be noted that the impact of public spending on mortality and morbidity is significantly dependent on the targeting of health-promoting resources, rather than simply the magnitude of those resources (Filmer and Pritchett, 1999). More explicit support for our hypothesis is provided by a study of 137 countries for the years 1990–2008 which found that petroleum wealth is associated with a reduced capacity to prevent the spread of HIV/AIDS (de Soysa and Gizelis, 2013).

2. Model, variables and data

In order to test the claim that oil wealth leads to higher levels of child mortality we employ a panel of 167 countries for each year from 1960 to 2011 to analyze the relationship between oil wealth and child mortality. The estimation model takes the following form.

$$\ln(\text{Under5 mortality})_{it+1} = \beta_0 + \beta_1 \ln(\text{Oil Income})_{it} + \beta_2 \ln(X)_{it} + u_{it+1} \quad (1)$$

Where i is the country, t is the year and X is the set of control variables. We include country fixed-effects in order to control for those unchanging or slow-changing factors, such as culture and inveterately weak state capacity, which may be independently determining oil wealth and child health. In effect this means we are comparing each country with itself over time in order to see whether increases in the level of oil wealth is associated with higher levels of child mortality. In addition, we include year dummies so as to control for the possibility of a spurious correlation between the political variables and child mortality. That is necessary given that there was a downward trend in child mortality around the world in recent decades (Hill et al., 2012). Finally, we lag all the independent variables by one year so as to reduce endogeneity.

2.1. Dependent variable

Our measure of child health is the probability, per 1000 live births, that a newborn baby will die before reaching the age of five (*Under-5 mortality*). The mortality data is taken from the UN Inter-Agency Group for Child Mortality Estimation (IGME, 2016). We prefer under-5 mortality over infant mortality because the latter is more susceptible to undercounting, especially in poor countries (Anthopolos and Becker, 2010). We assume that it becomes increasingly difficult to achieve a marginal decrease in under-5 mortality as its level is lowered. Thus, in the empirical analysis that follows we take the natural log transformation of the dependent variable.

2.2. Independent variables

Our measure of natural resource wealth is the natural log (plus

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