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Misconceived equity? Health care resources, contextual poverty, and child health disparities in Peru

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ABSTRACT

Although many studies have examined determinants of child health, fewer have explored factors explaining regional disparities in child health outcomes. In the Peruvian context, we examined the relationship between regional disparities in child malnutrition and local variation in health resources (health care resources and the socioeconomic environment). Using the Peruvian 2007–2008 Continuous Demographic and Health Survey (N = 8020) and governmental administrative data, our analyses show that 1) only selected types of health care resources (medical professionals and outpatient visits) are related to child nutritional status, 2) local poverty predicts nutritional status net of household characteristics, and, most importantly, 3) a significant portion of regional differences in child malnutrition are explained by local poverty, whereas health care resources are not associated with regional disparities. These findings suggest that the local socioeconomic environment is a key determinant of both child health outcomes and regional disparities in these outcomes.

1. Introduction

Child health has attracted interest from social scientists, health professionals, and policy makers, reflecting its profound short- and long-term implications, both for individuals and for entire societies. Early childhood nutrition and health predict a range of outcomes later in life, such as cognitive achievement and educational attainment (Conley and Bennett, 2000; Glewwe et al., 2001), labor productivity (Strauss and Thomas, 1998), and risk of mortality and chronic disease (Brown and Pollitt, 1996; Grantham-McGregor et al., 2007). At the macro level, health indicators correlate with aggregate economic output, and investments in child health have particularly pronounced long-term consequences for productivity gains (Bloom et al., 2004; Gyimah-Brempong and Wilson, 2004; Well, 2007). Accordingly, child health has been a primary target of research designed to provide policy guidance on development strategies in lower- and middle-income countries with relatively poor public health profiles (Bhalotra, 2007; McGuire, 2006; Thomas et al., 1996).

Although a large volume of research has examined socioeconomic and other determinants of child health, fewer studies have examined which factors may explain disparities in child health outcomes. “It is especially rare for empirical work to

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explore regional disparities in less developed countries (LDCs), with a few notable exceptions (e.g., Fang et al., 2010; Wagstaff et al., 2003; Zere et al., 2007). Even studies focusing on health inequalities have rarely analyzed which factors explain these inequalities. This omission is striking, especially because pronounced regional health disparities remain common in LDCs. Indeed, in many cases, these disparities have grown in recent decades, despite substantial investments in health resources and overall improvements in child health outcomes (Fang et al., 2010; Onis et al., 2000). Such improvements do not necessarily reduce health inequalities and may even exacerbate them, because relatively advantaged groups may benefit more from physical and social resources than do their disadvantaged counterparts (Van de Poel et al., 2008). Clearly, some factors that affect children's health outcomes can be expected to be much more important than others in explaining health disparities.

Many health researchers evaluate health inequalities using the concept of health equity, which frames avoidable differences in health as unjust and unfair (Braveman, 2006; Daniels et al., 2004; Pradhan et al., 2003; Wagstaff and Van Doorslaer, 2000). Although there are several definitions involving the distinct concepts of needs, privileges, and social groups, all share the notion that health equity requires eliminating or at least minimizing avoidable disparities in physical and psychological wellbeing that are beyond individuals' control. Braveman's (2006) definition of health equity explicitly includes the equitable distribution of the determinants of health, thus directing attention to environmental differences in the chances of achieving better health outcomes such as access to and utilization of health care and the quality of that care. The definition also requires attending to differences in physical and environmental resources as determinants of health outcomes.

Peru presents a useful case study for exploring the role of health equity as it relates to regional disparities. Peru's geography, spanning eight different ecosystems, offers a diverse epidemiological, social, and cultural setting that presents challenges for the delivery of health resources on the ground. As a result of public health reform emphasizing administrative and political decentralization, Peru's infant mortality rate has declined over the last 20 years,[1] but regional disparities persist and have even widened during this time period. Evaluating the factors contributing to the persistence of regional disparities in Peru could serve to inform other low- and middle-income countries currently undergoing health reforms aiming to improve child health.

Building on the notion of health equity, our analysis evaluates the extent to which two broad types of factors related to health outcomes can account for geographic disparities in child health in Peru. First, because healthcare systems are typically organized on a geographic basis and health care facilities such as hospitals and health centers tend to be geographically concentrated (Rice and Smith, 2001), regional disparities in child health may reflect geographic variation in health care resources or access to health care more directly than do other types of health inequalities (e.g., differences by gender or race/ethnicity). Second, broader contextual factors shape individual and household decisions about health (Rice and Smith, 2001). Local economic conditions, infrastructure, and support systems may also influence health outcomes in a manner that is not reducible to the effects of individual or household demographic characteristics and socioeconomic position. Regional inequalities in child health outcomes may accordingly reflect unequal distributions of material and social resources.

In our study, we focus on the nutritional status of children, one of the key indicators of child health. Many studies have shown that malnutrition is not just a consequence of household food insecurity, but also a direct result of bacterial and parasitic infections and other diseases, which can cause a vicious cycle of malnutrition and illness (Cook and Zumla, 2008; Dickson et al., 2000; Gajate-Garrido, 2014; Müller and Krawinkel, 2005). Thus, child malnutrition is regarded as a major contributing factor in childhood morbidity and mortality, and, consequently, as a major public health issue in LDCs.

2. Background

2.1. Health care resources and child health in LDCs

Previous research has examined the relationships between health care resources and health outcomes using several different measures. Each of these measures highlights a different aspect of health care resources relevant for health outcomes. Medical professionals and health facilities are indicators of the *availability* of health services and resources, whereas per capita in- and out-patient visits indicate the *utilization* of health care services (WHO, 2009). Additionally, public health researchers have used health expenditure as an indicator of the quantity of health care resources made available by the government (Lichtenberg, 2011). However, although it is tempting to assume that more health care resources ensure better health outcomes, prior research has provided mixed evidence about this association.

The nature of the association between health expenditures and health outcomes is one of the most debated issues in the health literature (Farahani et al., 2010). Some studies have found that health spending is significantly associated with reduced risks of infant and child mortality (Wagstaff, 2003), whereas others have emphasized the role of moderating factors, such as good governance (Rajkumar and Swaroop, 2008) or high poverty rates (Gupta et al., 2003). A number of studies, however, have found that the contribution of health expenditures to health outcomes is either weak or nonsignificant (Filmer and Pritchett, 1999; Kim and Moody, 1992; McGuire, 2006). Filmer and Pritchett's (1999) research revealed that cross-national

[1] According to the Economic Commission for Latin America and the Caribbean, Peru had the fourth highest infant mortality rate among 32 Latin America and Caribbean countries over the last 20 years. However, the general health profile of the country has improved significantly, and Peru ranked 20th in infant mortality rate in 2007 (For more information, please see http://www.cepal.org/mdg/noticias/paginas/0/35590/Ficha_ODM_4en.pdf).