

# Social Spending, Human Capital, and Growth in Developing Countries

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**Summary.** — Using panel data from 118 developing countries in 1971–2000, this paper explores the channels linking social spending, human capital, and growth and compares the effects of alternative economic policy interventions. With separate modeling for education and health capital, explicit control for governance, and incorporation of nonlinearity, the paper finds that both education and health spending have a positive and significant impact on education and health capital, and thus support higher growth. Also, other policy interventions, such as improving governance and taming inflation, can achieve similar results. Hence, higher spending alone is likely insufficient to achieve the Millennium Development Goals.

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## 1. INTRODUCTION

The role of human capital in fostering economic development is well recognized in the growth literature. Following Romer (1986) and Lucas (1988), human capital has been identified not only as a key contributor to growth and poverty alleviation, but also as an ultimate development objective to expand human freedom more generally (Ravallion & Chen, 1997; Schultz, 1999; Sen, 1999; Squire, 1993). The growing global focus on the Millennium Development Goals (MDGs)<sup>1</sup> has further highlighted the importance of making tangible progress in key education and health indicators.

A crucial issue in this regard is the role of public policy in helping countries foster human capital and meet the MDGs. Education and health are two essential dimensions of human capital and core elements of the MDGs. In most countries, the public sector plays a dominant role in providing the educational and health services necessary to build human capital. As such, the impact of this spending on social indicators, and the impact of higher spending *versus* other policy interventions (such as improvements in fiscal sustainability or improvements in governance) that might also

help countries meet the MDGs (via their salutary effects on economic growth) are of great interest. While positive externalities or market failures may justify the involvement of the public sector in these areas, this does not, in itself, indicate that higher spending *per se* is the most effective or the only policy intervention for helping meet the MDGs.<sup>2</sup>

This paper seeks to contribute to this debate by providing an integrated assessment of the role of social spending and other policy interventions on human capital, economic growth, and social indicators. Building upon earlier studies, we analyze the dynamic direct and indirect effects of social spending on human capital and growth, while taking into account the interaction between education and health interventions. The empirical estimates are based on a panel dataset covering 118 developing countries from 1975 to 2000. The paper also examines the impact of different policy interventions for fostering human capital and growth.

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The remainder of the paper is structured as follows. In Section 2, a review of the existing literature is provided. In Section 3, an explanation of the data and model is given. Section 4 provides the empirical results, including robustness tests. Section 5 summarizes the simulated effects of different policy interventions on growth and social indicators. Section 6 discusses policy implications and concludes the paper.

## 2. LITERATURE REVIEW

Most studies in the literature have focused on only one segment of the social spending—social indicators—economic growth nexus. That is, studies either assess the growth effects of improving education or health indicators, or the impact of public spending on these indicators. Furthermore, research on the first stream has concentrated primarily on education capital, and has often focused on the impact of the initial stock of education capital on growth. These studies generally confirm that enrollment and/or schooling boosts growth (Barro, 1996a, 1996b; Barro & Sala-i-Martin, 1995; Levine & Renelt, 1992; Mankiw, Romer, & Weil, 1992; Sala-i-Martin, 1997). Using a more refined measure on skills available for 14 OECD countries, Coulombe, Tremblay, and Marchand (2004) find that a country with literacy scores 1% higher than the average experiences an increase in *per capita* GDP growth of 1.5 percentage points. Some studies, however, find the macroeconomic evidence to be unconvincing (Benhabib & Spiegel, 1994; Pritchett, 1996) and inconsistent with the findings at the microeconomic level on the returns to education.

These findings on the link between education capital and economic growth raise a number of important issues. First, country heterogeneity matters. For example, papers utilizing samples that include developed countries tend to find weaker results, which is consistent with diminishing returns in education. In light of this heterogeneity, Jones and Olken (2005) argue that the within-country dimension is critical for explaining the determinants of growth. Second, the way in which education capital is measured and modeled can affect the empirical results (Krueger & Lindahl, 2001). Finally, it is important to incorporate feedback effects between education capital and growth relationship to correctly gauge the growth effects of enhancing

education capital (Boozer, Ranis, Stewart, & Suri, 2003; Ranis & Ramirez, 2000).

The empirical literature on the effects of health capital on growth is relatively thin. Conceptually, a healthy person cannot only work more effectively and efficiently, but also devote more time to productive activities. Based on microeconomic evidence, Strauss and Thomas (1998) argue that health status explains variation in wages at least as much as education levels. Recent experimental or quasi-experimental studies, such as Thomas and Frankeberg (2002) and Thomas *et al.* (2003), have found that specific health sector interventions help recipients raise earnings significantly, and general indicators of health and nutrition status are significant predictors of economic success. Research at the macro level can better capture the potential externalities of health sector interventions, and several recent studies support the positive contribution of health capital to growth. Barro (1996b), Bloom and Canning (2003), Bloom, Canning, and Sevilla (2004) and Gyimah-Brempong and Wilson (2004) find that health capital indicators positively influence aggregate output. For the countries in their sample, about one-fourth of economic growth was attributable to improvements in health capital, and improvements in health conditions equivalent to one more year of life expectancy are associated with higher growth of up to 4 percentage points per year.

Studies examining the impact of social spending on social indicators have produced mixed results both for industrial and developing countries. For example, based on cross-sectional data for developing countries, Baldacci, Guin-Sui, and de Mello (2003) and Gupta, Verhoeven, and Tiongson (2002b) find that social spending is an important determinant of education and health outcomes.<sup>3</sup> They also find that education spending has a greater effect on social indicators than health outlays. The positive effect of social spending on social indicators is also supported by Anand and Martin (1993), Psacharopoulos (1994), Hojman (1996), Bidani and Ravallion (1997) and Psacharopoulos and Patrinos (2002). At the same time, a number of studies have found insignificant or very weak linkages between public education outlays and education indicators (Flug, Spilimbergo, & Wachtenheim, 1998; Mingat & Tan, 1992, 1998; Noss, 1991). Similarly, a number of studies find that the contribution of health spending to health status—as measured by infant mortality or child mortality—is either small or statisti-

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