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Research Summaries

Waste Not, Want Not: Understanding the Efficiency of Health Expenditure

Francesco Grigoli and Javier Kapsoli

Public health spending is low in emerging and developing economies relative to advanced economies, and health outputs and outcomes need to be substantially improved. Simply increasing public expenditure in the health sector, however, may not significantly affect health outcomes if the efficiency of this spending is low. In a recent paper, we quantify the potential gains in life expectancy from reducing the inefficiency of public health expenditure compared with improvements in other determinants of health, such as increasing public spending in health, raising education outcomes, and reducing tuberculosis and HIV diffusion. The results suggest that African economies have the lowest efficiency of public health spending. At current spending levels, they could boost life expectancy up to about five years if they followed best practices; by comparison, a 10 percent increase in public health spending per capita would raise life expectancy by only two months.

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Dismal Employment Growth in EU Countries: The Role of Corporate Balance Sheet Repair and Dual Labor Markets

Bas B. Bakker and Li Zeng

Large differences among European Union countries in postcrisis employment growth to a large extent were driven by the need to adjust corporate balance sheets, which had greatly deteriorated during the boom years in some countries but not in others. To close the large gaps between saving and investment, firms reduced investment and cut costs to boost profits. With much of the cost adjustment falling on firms' wage bills, employment losses were largest in countries under the most intense pressures to improve corporate profitability and with limited wage flexibility due to labor market duality.

Since the onset of the global financial crisis, there have been striking differences in labor market developments among European Union (EU) countries. Between 2008 and 2011, employment dropped by 14 percent in Ireland, but increased by

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Previous research indicates significant inefficiencies in social spending in advanced economies as well as in emerging and developing ones (Herrera and Pang, 2005; Gupta and others, 2007; Verhoeven, Gunnarsson, and Carcillo, 2007; Afonso, Schuknecht, and Tanzi, 2010; Joumard, André, and Nicq, 2010; and Grigoli, 2012). Despite lower levels of spending for emerging and developing economies, such inefficiency leads to a considerable waste of resources (Grigoli and Ley, 2012), and reducing such waste can help to boost much-needed improvements in health indicators.

In recent years, the literature analyzing the efficiency of public expenditure has expanded considerably in advanced economies, but there are only a few contributions on emerging and developing economies. Most of the literature uses non-parametric techniques that do not control for the diverse set of factors that influence health outputs/outcomes. These factors include educational attainment; urbanization (which eases the access to health care); private levels of health spending; lifestyle behaviors (such as alcohol consumption); environmental factors (such as access to sanitation facilities and clean water); and contagious disease indicators (tuberculosis [TB] and HIV diffusion). If these factors are not incorporated in the analysis, then rankings based on the relationship between public health spending and outcomes alone can be misleading.

Emerging and developing economies are very different from advanced ones in terms of health system performance. From 2001 to 2010, public spending on health averaged 3.2 percent of GDP in emerging and developing economies, about half that of advanced economies. The differences are even more pronounced when measured in terms of spending per capita, where outlays in advanced economies are eight times the amount in emerging economies and the developing world. In terms of health outputs and outcomes, emerging and developing economies score systematically worse than advanced ones. A child is expected to live about 15 years longer in an average advanced economy than in an emerging and developing one. Even more striking are the figures for mortality rates. For example, the mortality rate for children under age 5 in emerging and developing economies is eleven times the rate in advanced economies. This heterogeneity in health sector performance is present not only across country groups, but also within the group of emerging and developing countries. This suggests that while public health expenditure is generally associated with better health outputs and outcomes, there are significant differences across emerging and developing economies.

Both non-parametric and parametric techniques have been used in the literature to gauge the technical efficiency of public spending (see Ray, 2004, and Fried and others, 2008, for a comprehensive review of methodologies to gauge efficiency).[1] The former approach includes Free Disposable Hull and Data Envelopment Analysis, whereas the latter comprises a wide family of models generally known as stochastic frontier models, one of which is stochastic frontier analysis (SFA). These two families of methods have advantages and disadvantages. However, there are many environmental, economic, and social factors that affect the performance of the health sector. Given the great heterogeneity across emerging and developing economies, it appears that SFA is a better choice for assessing the efficiency of health spending in these countries.

> *"Emerging and developing economies are very different from advanced ones in terms of health system performance."*

Our estimations show that variables other than public health expenditure have a significant impact on health-adjusted life expectancy (HALE). The estimates are generally robust for educational attainment and TB and HIV diffusion. A significant, but less robust impact is observed for private spending on health, population density (used as a proxy for access to health services), and access to sanitation facilities. The ranking of the most efficient countries is dominated by Western Hemisphere and Asian economies. The results indicate that African economies are the least efficient.

These findings are suggestive of the potential HALE increase that could be achieved if economies produced on the production frontier (that is, eliminated all inefficiency). For the least efficient quartile of countries, for example, 5.1 years of HALE could be gained by moving to the efficiency frontier. By comparison, a 10 percent increase in public health spending per capita would raise HALE by

[1] By technical efficiency we refer to the case where public goods and services are provided at the minimum cost. High levels of corruption, for example, may be a cause of low cost effectiveness. We do not assess allocative efficiency, which evaluates whether resources are allocated to the optimal mix of public programs.

Table 1. Means by Quartile of Technical Efficiency

	Actual				Potential Outcome Increase
	Obs	HALE	Public Expenditure Pc PPP	SFA Efficiency Score	HALE Increase
1st quartile	20	59.2	125.3	.972	1.7
2nd quartile	20	59.3	185.2	.956	2.7
3rd quartile	20	56.3	182.6	.942	3.5
4th quartile	20	52.2	278.4	.910	5.1

Source: Authors' calculations.

Table 2. Average Potential Gain from Reaching the Regional Average

(In HALE years)

	Public Expenditure Pc PPP	Years of Schooling	TB Diffusion	HIV Diffusion	Efficiency
Africa	1.2	0.1	6.5	0.4	1.5
Asia and Pacific	0.9	0.1	2.4	0.0	1.0
Europe	3.0	0.1	1.0	0.0	0.9
Middle East and Central Asia	4.1	0.1	1.3	0.0	1.3
Western Hemisphere	3.3	0.1	1.9	0.0	0.8

Source: Authors' calculations.
Note: Potential gains from each variable are calculated by multiplying the SFA coefficient by the increase needed to reach the regional average. Above regional average observations are excluded from the potential gain calculations.

only two months. The results are robust to changes in model specification and assumptions regarding the distribution of the inefficiency term.

Another way to assess the importance of improving the efficiency of spending is to compare its effects on HALE with improvements in other significant determinants of health outcomes. We calculate how much HALE could increase if we raised the performance of countries scoring below the regional mean on public spending, years of schooling, TB and HIV diffusion, and spending efficiency. The results indicate that bringing public health expenditure efficiency to the regional average would substantially lengthen HALE across regions.

These results also offer some insight on the most effective policies to raise HALE. The gains from increasing public spending and reducing TB diffusion are generally the largest. Years of schooling and reductions in HIV diffusion, however, would on average have only modest effects on HALE. Variable-specific effects by country are reported in our paper (Grigoli and Kaspoli, 2013). Since these calculations are based on the SFA coefficients relative to the entire sample, these results must be interpreted with care. They nevertheless provide an idea on how reforms affecting these variables could affect health outcomes.

In conclusion, our findings suggest that there can be large gains in health outcomes by improving the efficiency of public health spending. Enhancing the efficiency of spending should thus be a core element of countries' reform strategies. The results also underscore the importance of the composition of health spending to improve its efficiency. In particular, spending aimed at efforts to control TB diffusion should be a priority.

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