



# Does Government Spending Affect Income Poverty? A Meta-regression Analysis



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## SUMMARY

This paper presents the results of a meta-regression analysis of the relationship between government spending and income poverty, with a focus on low- and middle-income countries. Through a comprehensive search and screening process, we identify a total of 19 cross-country econometric studies containing 169 estimates of this relationship. We find that the size and direction of the estimated relationship are affected by a range of factors, most notably the composition of the sample used for estimation, the control variables included in the regression model, and the type of government spending. Overall, we find no clear evidence that higher government spending has played a significant role in reducing income poverty in low- and middle-income countries. This is consistent with the view that fiscal policy plays a much more limited redistributive role in developing countries, in comparison with OECD countries. In addition, we find that the relationship between government spending and poverty is on average less negative for countries in Sub-Saharan Africa, and more negative for countries in Eastern Europe and Central Asia, compared to other regions. We also find that the relationship is less negative for government consumption spending, in comparison with other sectors. Finally, we find some evidence indicating the possibility of publication bias.

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## 1. Introduction

In September 2015, the United Nations announced a new target to eradicate extreme poverty by 2030, as measured by the number of people living on less than \$1.25-a-day. Recent research indicates that this target is unlikely to be met by economic growth alone. If there is no change in the distribution of income within countries, the global \$1.25-a-day headcount is projected to remain at between 5% and 7% in 2030, even under fairly optimistic assumptions regarding rates of economic growth (Lakner, Negre, & Prydz, 2014; World Bank, 2015a, 2015b; Yoshida, Uematsu, & Sobrado, 2014). Meeting the new global poverty target requires not just growth, but growth that is combined with distributional changes that by themselves reduce poverty.

There has been much debate in the literature about the factors that affect the amount of poverty reduction associated with economic growth (e.g., Ravallion, 2001; Son & Kakwani, 2008; Verschoor & Kalwij, 2006). Within this debate, the level and allocation of government spending is often argued to be one key influence. However, the empirical evidence in support of this view is not always forthcoming. Several cross-country econometric

studies have investigated the relationship between government spending and income poverty, and show an interesting diversity of results. For example, Mosley, Hudson, and Verschoor (2004) find that “pro-poor” government spending has a negative and statistically significant effect on the \$1-a-day poverty headcount, and Kwon and Kim (2014) find that health spending has a negative and statistically significant effect. However, Kraay (2006) finds that the effect of government consumption spending on the “redistribution” component of \$1-a-day poverty reduction is not statistically significant, while the effect on the “growth” component is in fact positive.<sup>1</sup> Wagle (2012) finds that the size and significance of the effect of government consumption spending on income poverty varies substantially, according to the sample and specification used.

<sup>1</sup> The “redistribution” component of poverty reduction over a given period of time is the amount of poverty reduction resulting from the change in income distribution over the period, holding the mean level of income constant. The “growth” component is the amount of poverty reduction resulting from the change in the mean level of income, holding the distribution of income constant (see Datt & Ravallion, 1992; Kraay, 2006).

The aim of this paper is to explain some of the heterogeneity in the estimated relationship between government spending and income poverty found in the literature, through the use of meta-regression analysis (MRA). The aim of MRA is to provide a reliable and objective way of summarizing research findings (Stanley & Doucouliagos, 2012). It uses multiple regression analysis to uncover the reasons why estimates vary, and to establish whether there are any consistent and generalizable results which apply across contexts and methods. Although evidence on the impacts of government spending on poverty comes from a range of different sources, we restrict our attention to cross-country econometric studies, on the grounds that a large number of such studies can be found in the literature, which do generate a diverse range of findings.

MRA has been used very widely in the literature to date, on issues such as the effects of aid on economic growth (e.g., Doucouliagos & Paldam, 2008, 2009, 2015), the effects of distance on international trade (e.g., Disdier & Head, 2008), and the impact of foreign direct investment on domestic firms (e.g., Iršová & Havránek, 2013). However, we are not aware of any previous studies using MRA to study the determinants of income poverty at the national level, despite the relatively large empirical literature on this topic. One recent study uses MRA to look at the effects of government spending on income inequality, and finds some evidence of a moderate negative relationship, which is strongest when using the Gini coefficient or the top income share as the inequality measure (Anderson, D'Orey, Duvendack, & Esposito, 2016a). However, the change in inequality is not always an accurate guide to how a change in income distribution affects poverty (Datt & Ravallion, 1992). It is possible for government spending to affect income inequality without affecting income poverty—for example, if it leads to a redistribution of income from the richest households to households in the middle of the income distribution. It is also possible for government spending to affect income poverty without affecting inequality—if for example it leads to higher incomes across the entire distribution. As a result, we cannot necessarily infer the relationship between government spending and poverty from its relationship with inequality.

The remainder of the paper is organized as follows. Section 2 begins by briefly discussing the linkages between government spending and income poverty in theory, and the reasons why estimates of this relationship may vary. Section 3 then describes the inclusion criteria used to identify the studies included in our analysis, and the search process used. In total, we identify 19 cross-country econometric studies, containing 169 estimates of the relationship between a measure of government spending and a measure of income poverty. Section 4 then presents the results of the MRA, asking whether there is any consistent evidence of a relationship between government spending and income poverty across the 19 studies, and what explains the apparent heterogeneity in the estimated size and direction of this relationship. Overall, we find no clear evidence that higher government spending has played a significant role in reducing income poverty in low- and middle-income countries. However, we do find that the relationship between government spending and poverty is on average less negative for countries in Sub-Saharan Africa, and more negative for countries in Eastern Europe and Central Asia, compared to other regions. We also find that the relationship is less negative for government consumption spending, and health and education spending, in comparison with other sectors. Finally, we find some evidence indicating the possibility of publication bias, in that positive estimates of the relationship between government spending and poverty appear to be somewhat under-represented in the literature. Section 5 summarizes these main findings, and discusses the implications for policy and for future research.

## 2. Theoretical background

The relationship between government spending and income poverty is complex and may vary for a number of reasons. First, and most obviously, it is likely to depend on the type of spending being considered. Government spending on transfers and subsidies can reduce poverty directly, by raising the real disposable (“post-fiscal”) income of poor households. It can also do so indirectly, by leading to better nutrition, health, and education among poor households, which in turn leads to higher market (“pre-fiscal”) income. Government spending on basic health and education services and certain types of infrastructure (e.g., rural roads, water and sanitation, housing) is also widely considered to reduce poverty, by increasing the productivity and earnings potential of poor households (McKay, 2004; Mosley et al., 2004; Paternostro, Rajaram, & Tiongson, 2007). These types of government spending are, at least in theory, most likely to reduce income poverty, and are often labeled as “pro-poor” for that reason.<sup>2</sup>

Nevertheless, a large part of government spending on transfers and subsidies in developing countries does not reach poor households, due to imperfect targeting. In Indonesia for example, it is estimated that over 80% of the benefits of subsidized gasoline go to households in the top half of the income distribution (Rhee, Zhuang, Kanbur, & Felipe, 2014). Similarly, much of the benefits of government health and education spending are received by the middle classes, particularly in urban areas (e.g., Castro-Leal, Dayton, Demery, & Mehra, 1999; Davoodi, Tiongson, & Asawanuchit, 2010). Thus the actual impact of spending on transfers and other “pro-poor” sectors will depend critically on how well the spending is targeted toward poor households, which may vary across countries. Transfers and subsidies can also have side effects, e.g., on household labor supply, or on receipts of private transfers, which can offset their effect on income poverty (e.g., Cox, Hansen, & Jimenez, 2004; Cox & Jimenez, 1995; Sahn & Alderman, 1996). Thus even when well targeted, the overall impact of transfers and subsidies on income poverty is ambiguous.

The impact of government spending on poverty also depends on the way it is financed (McKay, 2004). Direct income taxes are considered to have little direct impact on poverty, either because households living below the poverty line are exempt, or because they are outside the direct tax system altogether. In many countries however, a significant share of tax revenue comes from indirect taxes (e.g., value-added tax, excise duties). In Latin America for example, around 60% of tax revenue comes from VAT, in comparison with 40% in OECD countries (Goni, Lopez, & Serven, 2011). Such taxes can increase poverty, by raising the prices of goods and services consumed by poor households. Monetary financing of government spending could also have an adverse effect on poverty, by causing higher inflation (Easterly & Fischer, 2001).

There are good reasons therefore to expect the impact of government spending on poverty to vary, according to the sector of spending, how well it is targeted, and the way in which it is financed. The effect may also differ according to the time period of analysis, since some types of spending have direct, immediate impacts on poverty (e.g., transfers and subsidies), while others only have more indirect, medium-term effects (e.g., health, education, and infrastructure spending). The measure of poverty could also make a difference; if some types of spending are more effective

<sup>2</sup> Note that government spending on basic health and education services does not have direct, first-round impacts on income poverty, in the same way that taxes and transfers do. This is because most measures of poverty used in the literature are based on income measures which reflect a household's purchasing power over private goods and services, but not publicly provided goods and services such as health or education. The difficulties of including the latter in a broader measure of income are typically considered too great; see for example Chen and Ravallion (2010, 1591).

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