Can education expenditures reduce income inequality?

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Abstract

Using a cross section of countries, this paper empirically examines whether devoting more resources to education can positively affect the distribution of income (as measured by the Gini coefficient) within a country. From the findings, public education expenditures appear to be associated with a subsequent decrease in the level of income inequality. This finding is robust to the inclusion of various control variables and appears to be larger in high income nations. The findings suggest that devoting more resources to education may be one way to reduce the level of income inequality within a country. © 2001 Elsevier Science Ltd. All rights reserved.

1. Introduction

Many people would agree that having a less skewed distribution of income is preferable to a highly unequal society given that average income in the two are equal. That is, they view inequality as undesirable in and of itself. Others see income inequality as harmful to other socioeconomic pursuits. Benabou (1996) and Barro (1999) provide surveys of various theoretical arguments as to why inequality might deter economic growth. Alesina and Rodrik (1994) and Persson and Tabellini (1994) both report that income inequality lowers growth in a cross section of countries although others have expressed doubts upon their findings. (See Barro (1999) for a more complete summary of empirical studies relating income inequality to economic growth.) Finally, Alesina and Perotti (1996) report that countries with more income inequality are also more likely to suffer from political instability.

Given many people view societal inequalities as undesirable and because income inequality may exert nega-

tive influences upon the economic and political environments, it is important to better understand how policy makers can affect the distribution of income. A commonly expressed view is that education can play an important role in reducing income inequality. Schultz (1963) cites increasing human capital as one way to lower income inequality and increased support for public education might be one way to accomplish this. Some theoretical models also predict that public education lowers income inequality. Glomm and Ravikumar (1992) develop a model where agents can choose between a private and public education system. Although whether or not income inequality declines under a private education system depends upon parameters, income inequality unambiguously declines under a public education system. Saint-Paul and Verdier (1992), Eckstein and Zilcha (1994) and Zhang (1996) also develop models where continued support for public education lowers the level of income inequality over time.

However, Sylwester (2000) develops a model where public education can lower the level of income inequality provided that agents have sufficient resources to forgo income and attend school. If agents are too poor to attend school, then promoting public education can actually cause the distribution of income to become more skewed

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since the poor are taxed for revenue but do not enjoy the benefits of the public education system. In addition, Jimenez (1986) argues that many public education expenditures do not benefit the poor at all and, hence, do not lessen income inequality. Fields (1980) also argues that the degree of income inequality did not diminish even as many countries devoted more resources to public education. Finally, Ram (1989) reviews previous theoretical and empirical papers and concludes that there is not strong support that increasing education within the population lowers income inequality. Given these studies, it is less clear as to whether or not public education expenditures can actually lower the level of income inequality over time.

Since governments must allocate scarce resources among various priorities (defense, education, infrastructure, etc.), it is important to better understand the positive and negative outcomes from such an allocation. Here, I focus upon one type of government expenditure and upon one of its potential effects. Are government expenditures for public education associated with falling income inequality? If so, then governments might be able to lower the degree of income inequality by allocating more resources towards education. If not, then other allocations that place less emphasis upon education and more upon other areas might be better suited for this endeavor. From the above studies, it is not clear whether allocating more resources has had a beneficial influence upon the distribution of income within countries. This paper hopes to better ascertain what the impact might be and so whether or not allocating more resources to public education is an effective strategy to lower income inequality.

To this end, I attempt to measure the association between the change in the level of income inequality and public expenditures for education within a cross section of countries. This approach differs from those found in Ahluwalia (1976), Papanek and Kyn (1986), Bourguignon and Morrisson (1990) and Li, Squire, and Zou (1998). These studies use some level of income inequality as the dependent variable and then identify what demographic factors or policies are correlated with this level. Of these, Ahluwalia (1976) and Papanek and Kyn (1986) join Adelman and Taft-Morris (1973) and Slama (1978) in reporting that education is associated with equality of income.[1] A disadvantage of using the change in inequality is that the number of observations is lowered because I need two measures of income inequality for each country. An advantage is that it can help to limit the potential for reverse causation.

For example, suppose a measure of income inequality

is regressed upon some control variables and some variable X where the coefficient upon X is found to be statistically significant. Provided that this finding is not spurious, why is it arising? Could X affect the level of income inequality so that a society could alter the distribution of income by changing X; or does income inequality partially cause X in which case a policy that affects X will not then lead to any change in the degree of income inequality? These questions are relevant to this analysis, especially since income inequality is persistent in many countries. Does devoting more resources to education affect the distribution of income or does the level of income inequality affect the amount of resources devoted to public education?

Easterly and Rebelo (1993) and Sylwester (1999) report that countries with higher levels of income inequality devote more resources to public education as a percent of GDP. Since income inequality is persistent in many countries (so current levels of income inequality are highly correlated with past levels), even using a previous measure of education expenditures might not mitigate this problem of reverse causation. So by using the change in the level of income inequality, I hope to better ascertain whether devoting more resources to public education can lower the degree of income inequality. In this regard, the paper more closely follows that of Edwards (1997) and Savvides (1998), both of which use the change in the level of income inequality as the dependent variable when examining how trade policies influence the distribution of income.

The paper is organized as follows. Section 2 discusses the data and formally presents the empirical model. A more thorough overview of the data is given in Appendix A. Section 3 reports the findings of the paper and Section 4 concludes.

2. The data and empirical specification

I use Gini coefficients taken from Deininger and Squire (1996) to measure the degree of income inequality. The Gini coefficient is proportional to the area between the Lorenz curve and the 45° line. Each point (x, y) on the Lorenz curve denotes that y percent of a country's income goes to the first x percent of the population. Therefore, the Lorenz curve is weakly increasing between 0 and 1, lies weakly below the 45° line, but intersects the 45° line at 0 and 1. If the Lorenz curve lies along the 45° line, there is no area between the curves and the Gini coefficient is zero denoting perfect income equality. As the Lorenz curve falls below this 45° line, the area between the two curves increases thereby raising the Gini coefficient. A Gini coefficient of 1 denotes that all income goes to one individual.

An advantage of using the Gini coefficient is the availability of the data and the widespread use of the Gini

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[1] These studies do not always use education expenditures as a measure for education. They also focus upon enrollment rates or the level of schooling within the population.