



Public education and income inequality

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Abstract

This paper examines the evolution of inequality in an overlapping generations model where each individual's human capital investment depends on quality of schools. We consider an education regime where the quality of schools is a publicly provided input financed by an income tax. We show that the income gap between the rich and the poor may widen even when the quality of public education is the same across all individuals. Thus, in the short run, public education may not be the great equalizer as intended by its proponents, though it is in the long run. We also show that the effect of taxes on inequality is ambiguous.

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1. Introduction

In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity where the state has undertaken to provide it, is a right which must be made available to all on equal terms. U.S. Supreme Court, *Brown vs. Board of Education*, 1954¹.

In most industrialized countries, public education has been the dominant mode of providing educational services for the last century. In the U.S., for instance, over the last 100 years, the fraction of students at the elementary and secondary level who attend public

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¹ Reprinted in [Kurland \(1968\)](#).

schools has been around 90%. For OECD countries, public school enrollment typically exceeds 70%. As early as 1848, Horace Mann argued that public provision of education is “beyond all other devices of human origin, the great equalizer of the condition of men. . .” (Cremin, 1957, p. 87).

Coons et al. (1970) argue that the purpose of public schools is to provide equality of opportunity and, therefore, unequal access to education ought to be eliminated. The essential idea behind their argument is that, under equal access to public education, some inputs to the learning technology are constant across all children, so the common input would make incomes converge.²

The main purpose of our paper is to study the evolution of income inequality in a model with public education and to evaluate whether *equal* access to public education yields income convergence. A secondary goal is to examine how such an economy behaves over time under different funding levels for public education. In Section 2, we construct an overlapping generations model with heterogeneous individuals. The basic framework is similar to that in Glomm and Ravikumar (1992). All individuals live for two periods. Their preferences over leisure in youth and consumption in old age are described by a CES utility function. Individuals within a generation are differentiated by the stock of human capital of their parents. This is the only source of heterogeneity in our model. Human capital of each individual depends on time allocated to learning, quality of schools and the stock of human capital of the individual’s parents. Quality of schools is a publicly provided input financed by tax revenues from a uniform tax on income. The publicly provided input is common across all agents.

Our model, by construction, has the forces suggested by proponents of public education. All agents have equal access to the public expenditures on education. All agents use the same learning technology. The quantity of the publicly provided input to the learning technology is the same for all agents. That is, we have eliminated, by assumption, the concern in Bowles (1978) or Wälde (2000). Thus, the common publicly provided input should potentially yield income convergence. Yet, we show for reasonable parameters that exactly the opposite occurs. Furthermore, we demonstrate the possibility of adverse distributional consequences without appealing to elitism.

Our model is also different from Glomm and Ravikumar (1992), where we did not examine how an economy with public education behaves over time under different funding levels for public education. Rather, we compared public and private funding regimes, and endogenized public policy on education. Thus, there was exactly one resulting public policy. That model, therefore, cannot deliver comparative dynamic statements on how different public policies influence the evolution of income distribution. Since the model assumed Cobb–Douglas preferences and technology, time allocated to learning was constant over time and independent of parental human capital and the level of funding for public education. In this paper, time allocated to learning is a nontrivial

² Bowles (1978) suggests that the structure educational policy contributes to economic inequality because the resources are allocated disproportionately to the rich. More recently, in Wälde (2000), the degree of elitism in educational policy (measured by public spending per student in tertiary relative to elementary and secondary education) provides incentives to develop technologies that allow skilled labor to replace unskilled labor and, hence, generates higher income inequality.

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