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Educational systems, growth and income distribution: a quantitative study

Hung-ju Chen*

Department of Economics, National Taiwan University, 21 Hsu-Chou Road, Taipei 100, Taiwan

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Abstract

This study sets out to develop a dynamic model within an economy characterized by the coexistence of public and private schools, under imperfect credit market conditions, in an attempt to provide a clearer understanding of the evolution of economic growth and income inequality. We find that any government wishing to reduce income inequality should adopt policies aimed at increasing the enrollment rate in public schools. However, whilst high enrollment rates can be sustained in private schools, and thus create enhanced economic growth, this can only occur if accompanied by the liberalization of the credit markets.

JEL classification: E17; I28; O11; O15
Keywords: Income distribution; Imperfect credit markets; Mixed educational system

1. Introduction

Despite human capital being widely regarded as an extremely important determinant of economic growth, rather surprisingly, few studies within the literature have attempted to examine the structure of the educational system within an economy.[1] This study develops a dynamic model within an economy characterized by the coexistence of public and

* Tel.: +886 2 23519641x457; fax: +886 2 23511826.
E-mail address: hjc@ntu.edu.tw.

[1] The structure of the educational system of an economy is referred to as the composition of schools.

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private schools, under imperfect credit market conditions, in an attempt to provide a clearer understanding of the evolution of economic growth and income inequality.

In order to effectively study the impacts of educational policies on economic performance, a requirement of our model of coexisting public and private schools, is that students are allowed to switch; therefore, a prerequisite of all the countries selected for inclusion in this study is that they must be providers of both public and private schools. Details of private school enrollments, as a proportion of total secondary school enrollments, for the year 1985, are presented in Table 1 in respect of a wide range of high income (OECD and non-OECD) countries.

Details of private school enrollments for middle and low income countries, as a proportion of total secondary school enrollments in 1985, are presented in Table 2.

The deregulation of the financial sector normally takes place alongside the growth of an economy, with financial development in turn boosting economic growth as a result of additional financial resources being directed towards the most appropriate uses. Although, in explaining the linkage between financial development and growth, most of the literature on economic growth tends to focus on the role of physical capital, we aim to explore the ways in which financial development and economic growth are linked to human capital; we also adopt a human capital perspective to examine the impacts of financial reforms on income inequality.

We construct an overlapping generations (OLG) model within which agents differ in both their innate abilities and in the human capital possessed by their parents, and begin by studying a mixed educational system under perfect credit market conditions and no borrowing constraints, with governments providing public schools and support for the private sector.[2]

A government can subsidize private schools in one of two ways, either by a direct subsidy to the private school, or by subsidizing those households choosing to attend private schools through the reimbursement of tuition fees; such support is normally provided through voucher programs. We adopt the latter policy, assuming that households must choose between public and private schools, and that only those attending private schools will be eligible for vouchers. We find that the structure of the educational system is an important determinant of growth and income inequality. Under a public education regime, everyone has the same investment in education, therefore, income inequality is lower under a public education regime than under a private education regime; hence, for an economy with a mixed educational system, income inequality decreases (increases) as the size of the public sector increases (decreases).

We then introduce imperfect credit market conditions into our model in order to analyze the effects of credit constraints on education decisions.[3] We first consider an extreme case which assumes that no agents can borrow, a situation which may occur if there is no enforcement of punitive measures for defaulting; we refer to these as exogenous borrowing constraints. For agents attending public schools, credit constraints will only affect their

[2] Public schools are referred to as the 'public sector', and private schools as the 'private sector'; we use the enrollment rate in public and private schools to represent the size of each sector.

[3] Carneiro and Heckman (2002) demonstrated that the relationship between family income and college enrollment can be explained by either long-run family effects, or short-run credit constraints.