Chapter 11

Educational Equity

Social interactions might matter

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This paper discusses the importance of social interactions at the school and classroom level (the so-called peer effects) as determinants of achievement. It comments on the results of a statistical analysis aimed at estimating the impact of peer effects on science and math test scores. The study is based on the Third International Mathematics and Science Study (TIMSS) created in 1995 by the International Education Agency (IEA) for grade 7 and 8 students across OECD (Organisation for Economic Co-operation and Development) countries. This study confirms the importance of peer effects, but also suggests that their intensity may be subject dependent. This paper also explores the nature of peer effects as it reviews different theories about their modus operandi.

Introduction

It is clear that education requires a certain number of monetary resources (Nye, Hodges & Konstantopoulos, 1999). Yet, people like Hanushek (1986, 1992, 1994) have highlighted the fact that some incentive and organizational problems also need to be solved to maximize achievement. Another promising idea, when it comes to education policy design, is to consider that a child’s ability to learn is also influenced by the characteristics of his or her peers. Education inevitably takes place in classrooms where pupils are together and interact. In turn, these classrooms are part of a school where pupils tend also to interact, generating what pedagogues call “peer effects;” sociologists call “contextual effects;” and economists call “social externalities.” This idea was initially put forth by Coleman et al. (1966) in the educational context, but this phenomenon has been extensively documented in several areas including urban security and crime, drug addiction and teenage pregnancy (Jencks & Meyer, 1987; Corcoran, Gordon, Laren & Solon, 1990).
1. Peer effects’ measurement and stakes

1.1. Existence of peer effects

Several empirical studies have attempted to measure the peer effect phenomenon. The issue has been addressed by sociologists (Coleman, 1966, 1988; Jencks & Meyer, 1987; Willms & Raudenbush, 1989), pedagogues (Slavin, 1987; Grisay, 1993; Gamoran & Nystrand, 1994) and also some economists (Henderson, Mieszkowski & Sauvageau, 1978; Hanushek, 1986; Brueckner & Lee, 1989; Bénabou, 1993, 1996).

Most researchers have concluded that peer effects exist in primary and early secondary education: The higher the proportion of high-achieving pupils in the classroom, the higher everybody’s achievement. In other words, the higher the average ability of classmates, the higher the local social spillover to a pupil’s benefit. Willms and Echols (1992), using Scottish data, estimate that peer effects (also called contextual effects) range from 0.15 to 0.35 of a standard deviation. A child whose ability is at the national average (NA) has an expected attainment about one-quarter of a standard deviation higher when moved from a school where the mean ability is one-half of a standard deviation below the NA to a school where it is one-half of a standard deviation above the NA. This is a substantial effect. This result was already present in previous studies: first in Coleman (1966), then in Henderson, Mieszkowski and Sauvageau (1978). It is also to be found in more recent studies in the United States (Duncan, 1994; Link & Mulligan, 1991; Dynarski, Schwab & Zampelli, 1989; Willms & Echols, 1992) and in France (Leroy-Audouin, 1995; Duru Bellat & Mingat, 1997).

1.2. Peer effects and ability-grouping policy

Our own research confirms the existence of peer effects, but also highlights the political stakes they carry. Indeed, if peer effects matter, distribution of heterogeneous individuals between strictly delimited entities (such as schools and classrooms) becomes a critical issue regarding not only equity but also effectiveness. Average education outcomes might be directly affected by the way heterogeneous individuals are distributed. And the cost of an egalitarian objective aimed at equalizing educational achievement can be influenced by the way peer effects are distributed among schools.

The first question worth assessing relates to the marginal contribution of peer effects on achievement. Knowing that peer effects matter, we might want to know whether redistribution of this particular “input” among schools and classrooms amounts to a zero, negative, or positive sum game. In other words, does the presence of an additional high-achieving pupil in School 1 generate peer-effect (teaching climate) improvement that is equal, inferior or superior to