



Ability tracking or comprehensive schooling? A theory on peer effects in competitive and non-competitive cultures[☆]



Kathrin Thiemann

University of Hamburg, von-Melle-Park 5, 20146 Hamburg, Germany

ARTICLE INFO

Article history:

Received 2 February 2016

Received in revised form 8 March 2017

Accepted 9 March 2017

Available online 14 March 2017

JEL classification:

I28

J24

D83

Keywords:

Loss aversion

Reference dependence

Ability tracking

Peer effects

Culture

Competitiveness

ABSTRACT

We develop a model of student decision making that shows that it depends on the culture of competitiveness in a country or region whether it is optimal to choose a school design with ability tracking or comprehensive schooling. Students with different cultural background differ in their concern for relative position in the classroom, which is modeled by reference-dependent preferences. We contrast competitive cultures, where students compare their performance with the best performance in class, and non-competitive cultures where the reference point is the average performance. Taking into account students with heterogeneous abilities, we show that the average performance in competitive cultures is maximized under comprehensive schooling and in non-competitive cultures under ability tracking. Segregation of abilities, however, always leads to a higher dispersion of performances.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

Learning behavior of students differs to a huge extent with respect to their cultural background. In economic research that strives to determine optimal school systems and teaching practices, cultural differences in learning behavior should thus play a major role. However, culture as a determinant for outcomes in education has received little attention in economic research so far.

In this paper we are concentrating on educational peer effects, i.e. the question of how the performance of classmates influences the individual student's performance. We assume that this influence works through the channel of social comparison and competitiveness, which have been shown to vary in their extent and nature from culture to culture in various studies from psychology (e.g. Kagan and Madsen, 1971; Cox et al., 1991; Houston et al., 2005). For instance Gibbons and Buunk (1999) show in a laboratory experiment that U.S. students are significantly more comparison oriented than comparable Dutch students, measuring the time the students took to look at the performance of other participants in a computer task.

[☆] I am grateful to an anonymous associate editor and an anonymous referee whose comments were very helpful in improving the paper. I also thank my supervisor Prof. Dr. Gerd Muehlheusser, my former colleagues Dr. Stefanie Pohlkamp and Dr. Berno Buechel as well as participants of the PhD seminar at the University of Hamburg and at the workshop "Self-control, Self-regulation and Education" 2013 at the University of Aarhus for their comments and suggestions.

E-mail address: kathrinthiemann@web.de

According to the cultural scientist [Hofstede \(1986\)](#) a competitive culture is one with high levels of social comparison, where the *best* student in class is the norm. In contrast, a non-competitive culture is one with low levels of social comparison, where students are guided by the performance of the *average* student. This behavior is on the one hand inherent to students as adopted from parents and social groups, but on the other hand influenced by teachers and institutions. [Oettingen \(1995, p. 156\)](#) describes that teachers in competitive countries “single out high-achieving students as the ideal” and highlight their academic successes in front of the class. In line with these descriptions we set up a student-effort-choice model with reference-dependent preferences as in [Kahneman and Tversky \(1979\)](#). We contrast a competitive culture, where the reference point is the *best* performance in class, to a non-competitive culture, where the *average* performance is the reference point. We also assume that students are loss averse with respect to this reference point, following Hofstede who describes that for students in competitive cultures “failure in school is a severe blow to his/her self-image” and in non-competitive cultures “failure in school is a relatively minor accident” (1986, p. 315). That loss aversion is significantly larger in more competitive countries, as measured by the *Masculinity* index developed by [Hofstede \(1984\)](#), has recently been shown by [Wang et al. \(2016\)](#). Conducting a survey including lottery choices in 53 countries they find, for example, a median loss aversion of 2 and 2.7 in competitive Japan and Poland respectively, as opposed to non-competitive countries like the Netherlands with 1.5 and Norway with 1.8.

The constellation of classmates, in particular whether they are of high or low ability, accordingly influences the individual student's effort choice. Therefore an important question that schools and governments face, and that shall be investigated here, is whether students should be grouped according to their ability or whether students of all abilities should be educated together. The arguments in favor of ability tracking (also referred to as streaming, phasing or ability grouping) are generally seen in the more appropriate pace of instruction. Arguments against ability tracking emphasize that it increases inequality due to the lack of positive spillovers from high achievers to low achievers. Empirical evidence on the effect of ability tracking on mean performance is mixed, while it has often been found that it indeed increases inequality (e.g. [Hanushek and Woessmann, 2006](#); [Argys et al., 1996](#); [Hoffer, 1992](#)). Whether the effects of ability tracking differ systematically with different cultures of competitiveness has to the best of our knowledge not been investigated so far.

In the existing literature peer effects are usually analyzed by incorporating mean ability in class in an education production function (see a literature survey by [Epple and Romano, 2011](#)). In the presence of *linear* peer effects the overall sum of students' performances is equally high when students of all abilities are taught together in one class or in classes grouped by ability. While there are no efficiency gains from ability tracking, it, however, increases inequality, since high-ability students gain from the high mean ability in the high track and low abilities suffer from the low mean ability in the low track. Differences in efficiency between ability tracking and comprehensive schooling, can be found in the presence of *non-linear* peer effects. For instance in an early paper [Arnott and Rowse \(1987\)](#) attempt to find a rationale for the optimal school system by maximizing a welfare function in which welfare increases in the sum of all students' final skills, but decreases with inequality. Mean ability in class here enters a Cobb–Douglas production function of students' skills, representing the peer effect. However, no clear cut recommendation on the optimal school design can be made, since results depend sensitively on the exponents in the production function.

More recent work by [Benabou \(1996\)](#) suggests that the peer effect (average ability) that enters the educational production function can be measured by a CES (constant elasticity of substitution) index. In the case of the elasticity of substitution tending to infinity, different abilities in the classroom are substitutes, meaning that heterogeneity of students is a source of gain. As [Argys et al. \(1996\)](#) have shown, comprehensive schooling then leads to efficiency gains compared with tracking. The opposite is true in the case of the elasticity of substitution approaching zero, that is when heterogeneous abilities are complements. Here heterogeneity of students is a source of loss. There are studies surveying students' behavior suggesting that abilities rather work as complements (see [Foster and Frijters, 2010](#)), but this literature says little about what determines the elasticity of substitution. Our contribution to the existing theoretical literature is that we propose an alternative model of peer effects, which takes into account students' culture, modeled by differences in reference points and loss aversion. In contrast to the existing theoretical literature we consider peer effects as being driven not only by the average performance but also by the best performance of a group.

Among the related research is also the growing literature on loss aversion, based on original work on prospect theory by [Kahneman and Tversky \(1979, 1991\)](#), henceforth referred to as KT (1979) and KT (1991). The phenomenon of loss aversion has been used to explain outcomes in diverse fields of research. Closest to our research is the literature referred to as “Catching up with the Joneses” (e.g. [Abel, 1990](#); [Gali, 1994](#)). Originally used in the context of asset pricing this literature assumes that individuals get utility not only from their absolute level of income or consumption, but also from relative comparison with some social reference group. Thus, mean income or mean consumption of neighbors, peers or colleagues is incorporated into prospect theory as a reference point. [Clark and Oswald \(1998\)](#) develop a micro-economic model of behavior, when individuals care about relative position, i.e. they exhibit loss aversion compared with mean action in society. The model predicts herding and “following behavior”, i.e. individuals follow the behavior of their reference point. In an educational setting the concept of loss aversion has been used by [Levitt et al. \(2016\)](#), who conduct experiments on students and find that incentives framed as losses motivate more than incentives framed as gains. To the best of our knowledge the concept of loss aversion has not been used in an educational setting with respect to the performance of classmates.

Download English Version:

<https://daneshyari.com/en/article/5034564>

Download Persian Version:

<https://daneshyari.com/article/5034564>

[Daneshyari.com](https://daneshyari.com)