



School-track environment or endowment: What determines different other-regarding behavior across peer groups?



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ARTICLE INFO

Article history:

Received 6 August 2014

Available online 23 October 2015

JEL classification:

C91

D03

I21

Keywords:

Other-regarding preferences

School tracking

Personality traits

IQ

Experiments

ABSTRACT

Using data from dictator (DG) and public goods (PGG) game experiments run in classrooms with German pupils (ages 10–16) we analyze the differences in other-regarding behavior across two distinct school tracks which are entered at age 10. We find that pupils in the academic track give more and choose the equal split more often than pupils in the vocational track in the DG, but there are no robust track differences in the PGG. Selection into tracks results in differences in IQ, in personality and in socio-economic background, but these differences appear insufficient to account for the DG differences. A propensity-score-matching econometric model, based on a rich set of individual characteristics, provides evidence that the DG behavior of pupils with similar endowments is directly affected by the distinct track environments. We conclude that the existence of a treatment effect of tracks on other-regarding behavior in the DG of pupils is likely.

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1. Introduction

Childhood and adolescence constitute sensitive periods for the formation of other-regarding preferences. Revealed by their choices in standard economic games, children exhibit more other-regarding behavior as they grow older (see Murnighan and Saxon, 1998; Harbaugh and Krause, 2000; Fehr et al., 2008; or Martinsson et al., 2011). Since schooling is compulsory during most of this period, school environment may play a role in the process of preference formation alongside the biologically determined development. To study the influence of school environment on other-regarding preferences, this paper makes use of the considerable environmental variation induced by tracking pupils. In all countries, pupils are tracked within or across schools according to ability, and tracking also occurs within the sensitive period of preference formation. We compare measurement of other-regarding preferences from dictator and public goods games played with German pupils from two different school tracks, an academic track and a non-academic track. Here, pupils are tracked across schools and tracking occurs around the age of ten, hence in the midst of the sensitive period.

Two important mechanisms that are expected to affect the formation of other-regarding preferences are related to tracking. Firstly, tracking is a selection process not only with respect to ability, but also regarding socio-economic background (see Dustmann, 2004, or Tamm, 2008). School tracks therefore define particular peer groups distinct in the sorting characteristics. This itself can relate to the formation of other-regarding preferences in cases where the characteristics correlate

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with preferences. Secondly, schools teach pupils values, either implicitly or explicitly, and the transmission may differ across tracks. A possible reason for this may be that the two school tracks analyzed differ in their goal – preparing pupils for academia vs. preparing pupils for vocational training. In addition, the leaving certificate aspired to is an indicator for the position pupils will adopt later on in the social hierarchy. Therefore, one can suspect that the importance attributed to specific values may differ between tracks, since different values may matter for the position in society for which the individual aims. [Stein \(2009\)](#) has surveyed school-related structural conditions (such as school track), value objectives and projects aiming to teach values within public schools in Bavaria, Germany, showing that value objectives as well as the kind of projects implemented differ between school tracks. A related argument comes from the domain of identity economics. [Akerlof and Kranton \(2002\)](#) depict a model of social identity in schools, where utility is highest when a pupil's characteristics and behavior match the ideal of the social category he or she has chosen. Due to the different peer groups and distinct educational goals, social categories and the corresponding behavioral prescriptions may differ across school tracks. Besides, the curricula, teachers' education and teaching methods vary with the school track and this itself can stimulate divergent unfolding of values, which are then reflected in different other-regarding preferences. Regarding achievement differences between school tracks in Germany, [Baumert et al., 2006](#) find that these are related to the institutional environment and not only a result of selection. Three studies show that relevant differences in otherwise similar educational institutional settings can affect other-regarding preferences. [Ockenfels and Weimann \(1999; for East versus West Germany\)](#), [Bigoni et al. \(2013; for northern and southern Italy\)](#), and [Kim et al. \(2013; for North and South Korea\)](#) show for three different countries that there is a long-lasting effect of such institutional variations on other-regarding preferences.

In a first step, we assess whether differences in other-regarding preferences exist between tracks. In the dictator game, pupils from the academic track gave more on average to their partner than pupils in the non-academic track which is mainly due to a larger share choosing equal outcomes. In the public goods game, however, pupils from the non-academic track exhibited a higher share of social welfare optimizers compared to pupils in the academic track. Building on the two assumed transmission mechanisms described above, we will test two possible hypotheses for the observed difference in behavior across tracks. Since tracking results in self-selection with respect to achievement and possibly other characteristics, we test whether differences in individual characteristics account for the observed difference in behavior. This first hypothesis would relate to a peer composition effect on other-regarding preferences. The second hypothesis tests whether track environment itself is responsible for the differences in other-regarding preferences, that is we test for a treatment effect of tracking on preferences. For this purpose, we examine other-regarding preferences for pupils similar in background but differing in track.

Using IQ scores, self-evaluated personality traits and several socioeconomic indicators to characterize the individuals, we test the first hypothesis, namely that differences in endowment contribute to the differences in outcomes. Applying several checks on the experiment outcomes, we find differences in outcomes with respect to some of the individual characteristics. For instance, our data reveal a positive correlation between the trait of cooperativeness and altruistic behavior. Nevertheless, the associations found are not large enough to explain the differences in outcomes. Instead, we find more evidence in favor of the treatment effect hypothesis, namely that school-track environment causes differences in other-regarding preferences.

To account for the existing differences in individual characteristics across tracks, we perform a matching analysis. Comparing similar individuals across tracks enables a robust test of the treatment effects hypothesis while controlling for composition effects. Conditional on the assumption of tracking being ignorable of other-regarding preferences, the results show that track differences remain significant for dictator giving even when we condition on individual characteristics. Although we cannot test the ignorability assumption, we are confident that the finding of academic track pupils being more generous is valid. Throughout a wide range of robustness tests, the size and significance of the effect persists. In particular, we observe a length-of-treatment effect, that is, the longer pupils are within the academic track, the larger differences in observed behavior are compared to pupils in the non-academic track. This observation would not be true if only a compositional effect was responsible for differences in outcomes. Other possible transmission channels are also discussed but considered unlikely. Institutional variation induced by tracking therefore seems to provide an environmental influence on generosity as measured by dictator giving. This implies another dimension added to the literature on tracking. Besides aspects of achievement, the process of tracking can lead to different economic preferences, which are crucial factors for influencing decisions later in life.

The structure of the paper is as follows: Section 2 is a summary of school tracking and its implementation. Section 3 presents a model of tracking and other-regarding preferences. Information on the experiment design as well as on different aspects of the data is provided in Section 4. Section 5 encompasses all results from the experiment analysis, the matching analysis as well as additional robustness checks. Finally, Section 6 discusses possible limitations and implications of our research, and the last section concludes.

2. The institutional setting of school tracking

School tracking denotes achievement-based grouping of pupils with the aim of adjusting teaching to the distinct needs of groups differing according to ability (see [Betts, 2011](#), for an overview on the economics of tracking). Within the groups, adjusted teaching can be implemented with the help of different curricula, class sizes, teaching styles, instruction time, or other resources related to the school environment. There are two organizational forms of tracking: grouping pupils in different classrooms at the same school, or streaming pupils in different schools. Tracking pupils into different schools usually involves an academic and one or more non-academic tracks with specific curricula, adjusted according to whether

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