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# Does it matter where children live? The role of neighbourhood and school composition for secondary school aspirations and choices in Germany

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## Abstract

The effects of family backgrounds on educational decisions have been well studied both in Germany and internationally. However, one aspect that has not yet been thoroughly investigated is the influence of contextual factors related to the residential and school environment of children and parents. We ask how neighbourhood, school and family contexts affect educational decisions, focusing on the most consequential sorting process in the German education system, the transition from primary to lower secondary school. To capture this transition, we analyse not only its outcome but also two critical precursors: parental educational aspirations in primary school and teachers' recommendations for the academic track. Controlling for prior academic achievement allows us to quantify the secondary effects these contexts exert. Based on data of NEPS Starting Cohort 2, supplemented with geocoded residential address data on a 1000x1000-meter grid, our results show that neighbourhood composition, school composition and family backgrounds are tightly interlinked, pointing to residential segregation, which is reflected in school composition. While effects of neighbourhood educational and ethnic composition are found when they are introduced solely, they disappear as soon as school context and family backgrounds are accounted for. In contrast, school composition does still matter in the full models. In particular, students in schools with higher shares of immigrant background students tend to have better outcomes, on average. The most important factor directly influencing transition outcomes is individual family backgrounds. We conclude that despite the lack of direct effects, the neighbourhoods where children live do matter because their composition is reflected in schools and they might have influenced their parents over time. To equalize children's chances to access the academic track it seems to be as important to support individual families from early on as to tackle residential segregation.

**Keywords:** social inequality, educational inequality, context, neighbourhood, aspirations, primary education, Germany, NEPS

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**Website:** <https://www.helsinki.fi/en/researchgroups/longitudinal-educational-achievements>

## 1 Introduction

A large stock of empirical research, for Germany as well as for many other countries, has shown that the family of origin is decisive in determining the educational success of children (Hertz et al., 2008; Pfeffer, 2008). In particular, the socio-economic status of families as well as their migration background affect their offspring's competence development and educational pathways, by providing resources, exerting everyday educational practices, and making educational decisions. Both children and parents are exposed to local contexts, which might affect their educational attitudes, aspirations, and decisions. These contexts are spatially bound around the place families live, and their children go to school. Both the school context and even more the residential environment of children and parents have not yet been thoroughly investigated with regard to educational decisions—at least in Germany.

Why do these contexts matter? First, the neighbourhoods that families live in shape the living conditions they are exposed to in daily life, for example environmental conditions, population density, housing, employment, schools, infrastructure, traffic, and security. Since neighbourhoods differ in these respects, people tend to self-select into residential environments, i.e. those ones who have the financial means will move to better neighbourhoods, while families with few resources have less choices, and often end up in deprived neighbourhoods where living is cheap.

Second, neighbourhoods as well as the schools in these areas shape the social networks of parents and children, and this way they affect their perceptions, attitudes, and norms. These ideas found their way not only into spatial and urban sociology, but also into theories related to education. In his Ecological Framework for Human Development, Bronfenbrenner (1979) postulated that child development is affected by several layers of environment, which are characterized by reciprocal interdependencies. Hence a child does not only depend on its immediate physical and social environment, such as its family of origin, but also on more remote contexts, such as the school and the peers, the family's social networks and the neighbourhood community, as well as the overall cultural context and social, economic conditions within society.

Against this background, this article addresses two interrelated research questions. First, we ask how neighbourhood and school contexts shape parental educational aspirations, teachers' recommendations, and children's actual transitions from primary to lower secondary school in Germany. By focusing on the transition at the end of primary school, we examine the most consequential educational sorting process in the German education system, which has long-lasting implications for subsequent educational trajectories. Importantly, we conceptualize this transition not as a single event but as a process that unfolds over time and is preceded by earlier orientations and evaluations. Accordingly, we analyse not only the final secondary school track entered but also two critical precursors: parental idealistic and realistic educational aspirations formed during primary school and teachers' recommendations for the academic track.

Second, we examine how neighbourhood contexts interact with school and family contexts in shaping these aspirations, recommendations, and transitions. Neighbourhoods do not operate in isolation but are closely intertwined with schools and families through residential sorting, catchment-area school assignment, and everyday social interactions. We therefore investigate whether and to what extent neighbourhood effects persist once school composition and family background are taken into account, and whether schools mediate neighbourhood influences on educational decision-making. This perspective allows us to assess the relative importance of residential context compared to more established determinants of educational inequality.

This article makes several contributions to the literature on educational inequality and contextual effects. First, it advances research on neighbourhood effects by simultaneously considering multiple dimensions of neighbourhood composition and their configurations. Rather than relying on single indicators, we distinguish between educational composition, poverty, and concentration of immigrants, thereby providing a more differentiated account of how residential contexts may influence educational aspirations and decisions. Second, the study contributes to the literature on educational transitions by focusing explicitly on the process leading to entry into lower secondary school, which constitutes the most decisive institutional sorting point in the German education system. By jointly analysing parental aspirations, teachers' recommendations, and actual transitions, we capture different stages of decision-making and evaluation and are able to disentangle how contextual factors shape educational trajectories before and at the moment of track choice. Third, the article contributes to a better understanding of how neighbourhood, school, and family contexts jointly structure educational inequality. By explicitly modelling the interplay between these contexts, we assess whether neighbourhood effects operate independently of school composition and family background or whether they are mediated or confounded by these factors. This approach allows us to situate neighbourhood effects within a broader framework of multi-level stratification processes. Finally, the study offers a methodological contribution by using novel, fine-grained neighbourhood indicators derived from geocoded residential address data on a 1,000 × 1,000 meter grid. This spatially precise measurement reduces aggregation bias and allows for a more accurate assessment of local residential environments than is possible with more coarse administrative units. Taken together, these contributions provide new insights into the role of residential context in shaping educational aspirations and transitions in Germany.

## 2 Theoretical considerations and previous evidence

### 2.1 Local context effects and their mechanisms

The concept of local context effects refers to the idea that individual outcomes are influenced not only by personal and family characteristics but also by the characteristics of the residential environment in which individuals are embedded (Galster, 2012). Galster distinguishes 15 types of mechanisms, which he grouped into four broad categories. *Geographic* mechanisms, which relate to spatial distance from opportunities such as jobs or services, are of limited relevance in the context of our research questions due to the fact that primary and secondary schools are accessible in virtually all parts of Germany. *Environmental* mechanisms, such as exposure to pollution or noise, are thought to be associated solely with health outcomes but not with individual attitudes or behaviour. However, they might affect educational success indirectly via poor physical or mental health.

By contrast, *social-interactive mechanisms* are widely regarded as the most important pathway through which neighbourhoods affect educational outcomes, as they rely on interactions among residents (Blasius et al., 2013). These mechanisms encompass several closely related processes. First, contagion or epidemic effects describe how attitudes, norms, and behaviours—such as orientations toward education—spread through social contact, analogous to epidemiological processes. The epidemic theory of neighbourhood effects, originally developed in the United States to explain the dynamics of highly segregated urban ghettos, conceptualizes neighbourhoods as social incubators in which individual success is strongly shaped by place of residence. Although this framework does not map neatly onto European contexts, where racial segregation is generally less pronounced, recent European studies increasingly draw on this perspective to analyse spatial inequality in educational outcomes (e.g. Gresch et al., 2023).

A second approach, which is closely related to the idea of contagion effects, is the socialisation model, which asserts that socially and economically marginalized parts of cities and neighbourhoods can form their own subcultures with their own values and norms, resulting in deviating practices and social networks (Jencks & Mayer, 1990). High levels of poverty and ethnic heterogeneity may undermine social cohesion and increase social disorder, thereby exposing children to peer groups with anti-educational attitudes. Empirical work suggests that a minimum share of high-status residents—often estimated at around five percent—is required to sustain positive educational norms within a neighbourhood (Zangger, 2015). Deviations from average norms and values can also occur in affluent neighbourhoods, where socially and economically thriving families cluster. These groups might develop norms and expectations reinforcing high educational ambitions, influencing other individuals in these areas, particularly by trying to enforce their prevailing educational norms.

A third influential framework, which is explicitly dedicated to educational success, is the Wisconsin model of status attainment. This model goes beyond spatial and geographical neighbourhoods but considers the social contexts that children are exposed to. It supposes that educational aspirations and subsequent attainment are shaped by social transmission processes, whereby children internalize norms, values, and expectations conveyed by significant others (Sewell et al., 1969, 1970). While parents are typically the most influential actors, teachers, peers, relatives, and other adults may also become significant others. Importantly, opportunities for interaction with such persons are spatially structured: friends, peers, and neighbours tend to live nearby and/or join the same school or class. Consequently, if neighbourhoods are socially and economically negatively selected, schools in these neighbourhoods often reflect this composition, and children are more likely to be exposed to limited educational aspirations and resources. In this sense, both narrow contexts (the family) and broader contexts (neighbourhoods, peer groups, and schools) jointly shape educational orientations. Similar to the Wisconsin model, role-model mechanisms suggest that the presence of successful, well-educated adults provides behavioural templates, particularly for children and adolescents.

Next to social-interactive mechanisms, *institutional mechanisms* are relevant for explaining how local contexts can influence children's individual educational transitions. Galster (2012) states that these mechanisms typically involve actions by actors who are not necessarily residing in the given neighbourhood but who control important institutional resources located there. Since neighbourhoods are subject to positive or negative stereotypes, these stereotypes are often transmitted to the schools in these areas. Stigmatized schools might suffer from problems of attracting students from higher-status families and good teachers as well as from financial deficits due to a lack of local funding. These factors might result in lower school quality, which negatively affects students' educational attainment.

Taken together, these approaches underscore that disparities in residential environments can translate into differential educational outcomes, although the strength and nature of these effects may vary across national contexts depending on economic, social, and cultural conditions.

## **2.2 The interplay of neighbourhood, school and family contexts**

Neighbourhood, school, and family contexts are theoretically as well as empirically difficult to disentangle, as they are closely interrelated and jointly affect children's educational achievement and via achievement as well attainment (Figure 1).

As described above, *schools* constitute a particularly important institutional as well as social-interactive setting through which neighbourhoods may exert effects on children, because schools are settled in neighbourhoods and often reflect the social and cultural composition of their inhabitants. This is especially relevant in educational systems with restricted school choice, e.g. via catchment areas, where children are bound to visit the school which caters the neighbourhood and parents only have

limited opportunities to counteract these regulations. However, if the time span considered is broadened the interplay of neighbourhoods and schools is more complex than this. Rich and Owens (2023) argue that schools and neighbourhoods reciprocally shape and reshape each other over time through the behaviour of families as well as policy makers. Families might change their place of residence for reasons of living or gaining access to better schools for their children, if they have the resources to do so, and this way the school composition as well as the neighbourhood composition might change over time. In some countries, areas or municipalities schools in disadvantaged neighbourhoods receive additional resources or support to compensate for the problems that might arise from a student body with little educational resources or language deficits. In these cases, schools are sometimes able to gain in (perceived) school quality and draw more students from socially advantaged families over time. Similar examples could be made for the case of demographic processes, such as immigration or ageing populations, and the policy reactions on these challenges for local areas as well as schools.

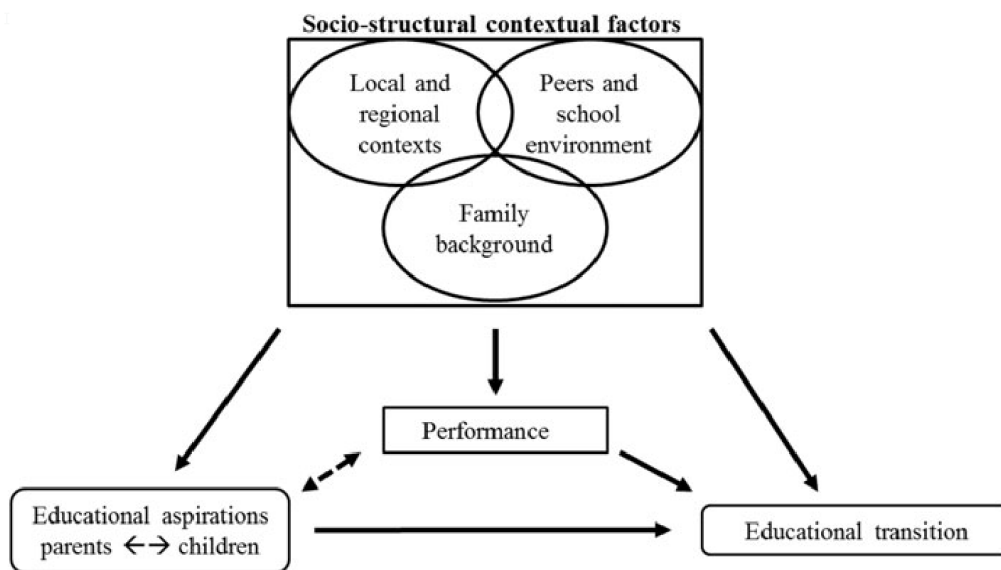


Figure 1: Analytical model (Source: Hillmert et al., 2023)

The relationship between neighbourhood and school context on the one hand and individual family background on the other hand is similarly complex. On the one hand, families self-select into neighbourhoods (or their children into schools) based on their socio-economic resources, cultural preferences, and constraints. In particular, better-off families have often high educational aspirations for their children and a high interest for them to visit 'good' schools, and in contrast to families with less monetary resources, they have the financial means to pay for the higher costs of living in these areas. In this case, social origin and migration background are potential confounders of neighbourhood and school effects. On the other hand, for families who have lived in the same neighbourhood over longer periods, neighbourhood conditions may have contributed to shaping their own educational resources and opportunities. In particular, families with little resources are often stuck in place, both in geographical as well as in socioeconomic terms (Sharkey & Elwert, 2011). In this case, social origin and migration background may partly mediate, rather than confound, the relationship between neighbourhood composition and children's educational outcomes. The same arguments apply for the interrelation between school context and family backgrounds.

In sum, these ambiguities underline the importance of estimating neighbourhood and school effects jointly and also considering family background to account for the potential biasing effect of the other

contexts (Rich & Owens, 2023). This does not mean, however, that neighbourhood, school, and family context effects can be isolated and clearly distinguished from each other; as Sharkey and Faber (2014) point out, this would be a misleading concept from a multigenerational perspective.

### 2.3 State of research

While there is an extensive literature on the role of family background in shaping educational outcomes, effects of school and particularly neighbourhood contexts have received comparatively little attention in many European countries, including Germany. Much more research on both contexts and their interplay is found for the U.S. Here, a large body of evidence suggests that neighbourhoods affect children's academic achievement and attainment (for reviews, c.f. Galster & Sharkey, 2017; Nieuwenhuis & Hooimeijer, 2016; Sharkey & Faber, 2014). Across studies, neighbourhood composition is commonly operationalized using indicators of concentrated poverty, educational climate, social disorder and violence, or ethnic heterogeneity. Findings on the effects of these indicators, however, depend strongly on modelling strategies, spatial scales, larger regional contexts, and the populations under study (Nieuwenhuis & Hooimeijer, 2016; Sharkey & Faber, 2014). Since theoretical as well as empirical work suggests that neighbourhood effects should be stronger in more segregated contexts, it is unclear, though, whether neighbourhood contexts affect educational success in similar ways in European countries as in the U.S, where residential segregation is pronounced, as well in economic as in ethnic terms (Galster & Sharkey, 2017).

Several studies in German-speaking countries have examined neighbourhood effects on students' school achievement or competence development. Results vary considerably, partly due to differences in data quality and control strategies, and all the studies are restricted to single cities. One study found that positive effects of advantaged neighbourhoods prevail, while living in a socially deprived neighbourhood seems to be less consequential for students' achievement (Helbig, 2010). In contrast, data from the city of Bremen suggests small linear effects of poverty in the neighbourhood which are only partially significant when school context and individual factors are controlled (Gresch et al., 2023). Studies from the city of Zurich, Switzerland, suggest that the social status composition of the neighbourhood has a weak positive effect, compared to the more pronounced effect of classroom achievement level, which differs by own social status and gender (Zangger, 2015, 2019).

By contrast, relatively few studies have focused on educational attainment and the process factors that lead to it, i.e. educational aspirations, decisions and transitions. For Germany, small neighbourhood effects on students' aspirations and choices in secondary schools have been reported, with findings depending on the spatial scale used to define neighbourhoods (Hillmert et al., 2023; Wicht & Ludwig-Mayerhofer, 2014). Similar to the literature on educational achievement, in these studies mostly single indicators were used that measured only selected aspects of local and regional contexts, i.e. labour market conditions (Hillmert et al., 2023), the class composition (Wicht & Ludwig-Mayerhofer, 2014) or the educational composition (Hartung & Hillmert, 2019). Similar to the study by Helbig, Wicht and Ludwig-Mayerhofer found strong school-level effects on students' occupational status aspirations, but only marginal neighbourhood-level effects. Research from Switzerland suggests that parental expectations are interdependent within neighbourhoods and play an important role in shaping school choices (Zangger, 2018).

A larger literature has focussed solely on the composition of peers in the classroom or school without taking the neighbourhood composition into account. Internationally, the socio-economic status composition of peers seems to be an important determinant of academic success (van Ewijk & Slegers, 2010). In Germany as well as in Switzerland, the mean achievement level of peers seems to be more important than other composition indicators, although this effect is confounded with school track and

social composition (Dumont et al., 2013; Traini et al., 2021; Zangger, 2019). In contrast, Keyserling, Becker, Jansen and Maaz (2020) found that being in an academic-track school with a higher or lower mean SES was not relevant for postsecondary educational pathways. A separate set of studies have examined how the immigrant student composition affects attitudes towards education. Wicht (2016) found that consistent with the notion of immigrant optimism a high ratio of immigrants in schools can positively affect aspirations of both immigrant and native students via the school climate. A high share of immigrant students also frames teachers' expectations for native students in a positive way, however, this effects seems to vary by institutional context (Becker & Wessling, 2020).

In sum, there are several shortcomings in the previous literature, which we take as starting point for our own study. First, there are only few studies on the effects of local contexts on educational aspirations, decisions and transitions in the German context, and none on the transition from primary to secondary school. Second, most studies so far only considered single selected aspects of the neighbourhood and school context, neglecting others. Similarly, mostly singular outcomes were investigated, not considering that transitions in education are processes. Finally, several previous studies did model neighbourhood, school and family contexts jointly, but they often argued with confounding; in reality, however, neighbourhood, school, and family contexts are mutually interrelated over time, which requires to make more complex assumptions on their interplay.

## 2.4 Our study

Our study focuses on the German context. The most consequential institutionalized decision point in Germany is the transition from primary school to tracked secondary school, which takes places in most federal states after grade 4, when children are 10 years old.<sup>1</sup> While originally the secondary school system in Germany was tripartite, nowadays the 16 German federal states have different school forms and tracks that cater for students with average or below average achievement. However, all of them have still one track in common: the *Gymnasium*, the most academically demanding and prestigious track, which traditionally is the only one that gives direct access to tertiary education (for an overview, cf. Henniges et al., 2019). Hence, the distinction between entering the *Gymnasium* versus one of the other school forms is the most relevant outcome at this decision point.

The realized transition to the secondary school is the endpoint of a longer transition process, which is shaped by students, parents and teachers alike (Figure 1). As the Wisconsin models states and much empirical research has shown, parents' educational aspirations are important predictors of the transition outcome. In this regard idealistic aspirations, the educational attainment that parents wish their children to reach matter as much as their realistic aspirations, the educational levels they realistically think they will reach. In grade 4, the class teachers recommend a secondary school track for every student, based on previous performance, motivation and expectations about the child's development, which leaves room for biased evaluations. In some federal states, these track recommendations are still binding, restricting access to the *Gymnasium*, while in most states, parents were free to overrule the track recommendations.

Applied to the German context and to educational decision-making at the transition to secondary school, several mechanisms appear particularly relevant for our study. Drawing on contagion theories, socialization approaches, and the Wisconsin model, the social and educational composition of the neighbourhood and the school their children attend may shape parental educational aspirations through interactions with significant others, such as neighbours, friends, extended family and the parents of their children's classmates and peers. Teachers' track recommendations may be influenced

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<sup>1</sup> In Brandenburg and Berlin, the transition takes places two years later, after grade 6.

by neighbourhood- and school-related stereotypes, language environments, or stigmatization processes. Finally, students' actual transitions to secondary school are shaped by aspirations, perceived probabilities of success, access to information, and peer interactions, all of which may be influenced by neighbourhood and school contexts over and above prior academic achievement.

Based on the abovementioned theoretical considerations and prior empirical evidence, we expect that the educational and socio-economic composition of the neighbourhood as well as the educational composition of the students in school is positively associated with parental idealistic and realistic aspirations, teacher recommendations, and students' transitions to secondary school (H1).

We expect the share of immigrants in the residential environment and the school to have somewhat more complex effects on individual outcomes. On the one hand, students with an immigrant background often perform worse in school, and immigrants in Germany are on average less educated and have a lower socio-economic status than the rest of the population. These factors might spark stereotypes and stigmatization towards neighbourhoods and schools with a high concentration of immigrant students. On the other hand, immigrants are well-known for their high educational aspirations, a phenomenon termed 'immigrant optimism' (Kao & Tienda, 2002). Hence, being exposed to many immigrant families in the neighbourhood or students in school, these high aspirations might spill over to other students and their families. Therefore, we expect that higher shares of immigrants in the neighbourhood and the school are associated with higher idealistic parental aspirations, and to a lesser degree with higher realistic aspirations (H2a). At the same time, we hypothesize that a higher concentration of immigrants in the neighbourhood as well as school reduces the likelihood of receiving a Gymnasium recommendation, reflecting potential institutional biases and structural barriers (H2b). Regarding the transition to secondary school, we assume that these opposing effects offset each other (H2c).

The close interrelation between neighbourhood, school, and family context suggests that neighbourhood effects decline when school composition is controlled for, as schools represent a key institutional link between residential context and educational decision-making (H3a). Similarly, we expect that neighbourhood as well as school effects decline further once individual social origin and migration background are taken into account (H3b).

### **3 Data and methods**

#### **3.1 Data**

The main data source for our data is the National Educational Panel Study (NEPS).<sup>2</sup> The NEPS has been established in 2010 to be Germany's most ambitious research project to better understand the role of education throughout the entire life course. The NEPS includes a large variety of information, for example, regarding social origin, academic performance, but also various psychological traits or sociodemographic aspects of the student and family. For this study, we utilize NEPS Starting Cohort 2 (SC2), a representative sample of children in two randomly selected classes in primary schools in Germany (NEPS Network, 2024).

SC2 is a highly relevant data source, as it provides prospective panel data over the entire course of primary education and includes the transition to secondary education. This means that all relevant

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<sup>2</sup> This paper uses data from the National Educational Panel Study (NEPS; see Blossfeld & Roßbach, 2019). The NEPS is carried out by the Leibniz Institute for Educational Trajectories (LifBi, Germany) in cooperation with a nationwide network.

information from children and their parents is available and we do not only measure individual social origin very well, but we also have information on all relevant outcome variables. The prospective nature of the data supports a clear temporal ordering, avoiding issues such as reverse causality. Furthermore, since entire classrooms in the first stage of primary school were invited to participate in the study, contextual effects on the school-level are provided as well. While it cannot be guaranteed that all students within a classroom did participate, there is ample information available that can be utilized to construct contextual influences on the classroom or school level.

While the NEPS provides excellent data on the student and school level, it does not include information on the neighbourhoods a student lives in. However, since the place of residence is known, at least to the provider of the survey, this information can be combined with administrative data to reconstruct information on the individual place of residence. For this aim, we utilize data provided by the Federal Statistical Office. This dataset contains a grid of 1000 by 1000m over the entire Federal Republic of Germany. By combining the two sources, we know for each student the grid cell the family resides in. Additional administrative information can now be merged to this information to characterize the neighbourhoods. For this aim, we utilize three different variables, which are described below.

The initial NEPS SC2 sample consists of 9,337 students in the first grade of primary schools. We apply one few sample selection criteria. First, we exclude students with missing information on all four dependent variables, which reduces the sample size to 6,468. Second, we exclude students who transfer to a special needs school (*Förderschule*) after primary school. As these students are very likely to display special conditions throughout primary education as well, we believe it does not make sense to study the selected outcomes for this group. Removing them reduces the sample size to 6,417 students. Lastly, we need to remove all students for those we cannot reconstruct the federal place of residence. This selection gives the final sample size of 5,261 students. All other missing information (item nonresponse) was imputed, which we explain in more detail below.

### 3.2 Variables

We consider four different dependent variables (outcomes). The first one are aspirations, as aspirations have been shown to be powerful explanatory and predictive factors of final educational outcomes. We consider both the idealistic and the realistic aspirations (also called expectations) of the parents, which are reported in every year of primary school. We consider the information in school grade 3, as this is not directly before the transition (in grade 4) to avoid reverse causality (when parents have already made up their mind about the track choice) but it is also long enough after the beginning of primary school so that contextual and school influences had time to unfold their impact.<sup>3</sup> These two items have been collapsed into binary variables which indicate whether parents have high aspirations (final degree should be the higher education eligibility, *Abitur*) or another, lower degree. The third outcome variable measures whether a student has received a teacher recommendation for the academic track (*Gymnasium*) in grade 4 or not; this is a binary item which was collected in the parent interview. In all federal states, teachers give an (either binding or non-binding) track recommendation, which we regard as a rather subjective measurement of performance. The teachers consider not only academic performance, but also individual development, socio-emotional skills, and motivation when giving this recommendation. Finally, we measure whether a student has factually transferred to the academic school track in secondary education or not, which was asked retrospectively in the parental interview.

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<sup>3</sup> The wording of the two items was the following: (a) "It does not matter how well <name of student> currently does in school: Which school-leaving qualification do you desire for him/her?" (b) "And considering everything you know now: What qualification will <name of student> actually finish school with?"

Apparently, this is the single most relevant outcome variable as this track selection determines the future educational trajectory of a student.

As outlined before, we utilize three different variables available in official statistics to characterize neighbourhood composition. The first one is the percentage of people the 1x1 km grid of the family's place of residence who are welfare recipients (receiving SGB II), provided by the Federal Employment Agency and the municipality. As only families below a certain income level receive this means-tested benefits, this variable indicates poverty. The second variable measures the percentage of employees in a grid cell who have obtained tertiary education. This indicator is included in the employer notifications for Social Security. The third indicator measures the percentage of individuals living in the grid cell who were not born in Germany. It stems from the German census in 2011 and measures the share of the population with a non-German nationality. Taken together, these variables characterize a neighbourhood in various ways. For a high level of insight, we not only test the main effect of these variables (which all have the same scale of measurement, a share between 0 and 1) but we also investigate how these influences interact with each other and create distinct patterns.

To measure the school context, we aggregate the available student data from the NEPS per school. While this is not ideal, as not all students in a school or class participated in the NEPS, introducing a certain measurement error, this is the only option to measure these context indicators. We use two indicators to depict school composition, the educational background composition and the migration background composition. To obtain the latter variable, we first determine the number of students with a migration background per school (the student or at least one parent is born abroad) and then form the average of this binary variable per school. The process is the same for students with highly educated parents, which is defined as true if at least one parent has obtained any tertiary degree. Both variables show shares and have a range of between 0 and 1, similar to the neighbourhood indicators.

The individual family context is measured by two variables. The first is simply the binary migration background indicator (1=the student or at least one parent were born abroad). The second is a rather complex construct measuring social origin. While the NEPS provides a wide range of information on social origin, using all this information in an analysis can be challenging. To avoid problems of multicollinearity and provide a comprehensive, continuous measurement, a latent score consisting of household income, the occupational status of both parents (using the ISEI), and the parental education is used. Using a structural equation model, we generate a continuous and approximately normally distributed score, which has been z-standardized for a more convenient interpretation. Using this score, we measure social origin and the different resources that come with it very precisely, even if such a composite measure does not allow to explain in detail which parental factor contributes to the four measured outcomes. However, as we do not focus in this article on the individual family context, this is fine.

Lastly, we also add a few control variables to avoid any biasing factors. This is not necessarily done to strengthen any causal claims, since there are very few factors that can act as classical confounders when social origin is one of the main treatments. However, adding these variables accounts for unequal sampling probabilities and helps to make the results comparable to other populations. For this aim, we control for gender and age of the child, the household size, the number of individuals living in a grid cell, the level of urbanity of the municipality (very central, central, peripheral, very peripheral), and the federal state a family lives in. We also control for the log number of individuals living in the municipality. Finally, we measure whether a family does or does not live close to the edges of the 1000x1000m grid cell which we define as neighbourhood. The exact location of the place of residence in the cell is not available due to data protection rules, yet we know whether the family lives in one of the 36 100x100m cells that form the edge of the 1x1 km grid cell. This variable is a dummy indicator.

Finally, we also control for objective academic performance, which is measured using the comprehensive NEPS assessments in mathematics (grade 4) and vocabulary knowledge (grade 3). Adding these two variables to our models, enables to isolate secondary effects (that is, effects net of systematic differences in student performance) for additional insight.

### 3.3 Analysis strategy

To account for the nested structure of our data, we estimate various multilevel models. We impose two levels, the lowest being the individual student, the one above is based on the classrooms in primary school.<sup>4</sup> While it seems obvious to add a third level, the 1000x1000m grids, tests have shown that there are only very few students within the same grid on average, resulting in a data structure that is not ideal for multilevel models (the typical threshold is about 30 data points per cell). Adding this third level does not come with any benefits, hence we keep the two-level structure.

As all our dependent models are binary and the distributions are not very skewed, we estimate linear probability models with robust standard errors. This is a robust way to estimate effects that are directly interpretable. While we are aware that more complex options exist to model either spatial effects (such as spatial econometric models) or fixed-effects regressions to isolate neighbourhood and school contexts, our tests have shown that the rather coarse grid data with large cells are not suited to add additional insight. As we have only data for about 5,200 students all over Germany, most cells are completely empty and even in the regions where students are typically located (cities), the number of cells is too low due to their large size.

To test our hypotheses on the interplay of the different contexts in affecting the transition process from primary to secondary school, we add the variables of interest in four blocks in a nested model structure. This enables us to clearly separate effects of interest. In a first step, we estimate gross effects of the contextual neighbourhood information. In the second step, we add the school context indicators, in the third step the family context variables, and in the fourth and final step we control for school performance.

Finally, we compute various robustness checks. First, to test for nonlinearities of the contextual grid information, we transform the continuous measurements of poverty, high education, and the share of non-Germans into terciles. By doing so, we can test whether certain compositional thresholds need to be reached for variables to show effects (Galster 2014; Quercia and Galster 2000). In these models, the middle tercile (“average”) is the reference category.

Furthermore, we compute various models for subgroups to test for implicit interactions. The first is splitting the sample by parents’ educational attainment (tertiary education or lower). Second, we split by migration background, third, by urbanity.

Finally, we conduct a latent profile analysis (LPA) based on the raw and continuous contextual neighbourhood variables (poverty share, share of academics, share of non-Germans). By doing so, we attempt to find out whether these three variables interact with each other in meaningful ways in affecting educational success. To this end, we first identify typical patterns in the data that might correspond to typical neighbourhood types. Then we test whether these specific types, conceptualized as categorical indicators, influence educational aspirations, teacher recommendations and transitions to secondary schools.

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<sup>4</sup> Technically, we have groups, in which students were tested for the NEPS performance tests. These correspond closely to actual classrooms.

## 4 Results

### 4.1 Descriptive results

First, we give an overview of the central variables of the study to better understand what the different levels of context mean in Germany and how they are interrelated.

Table 1 provides standardized information on the univariate descriptions of all the variables in the models. On average, 76 percent of the parents in the sample wish their children to obtain university eligibility, but only 63 percent also realistically expect their children to manage to do so. 61 percent of the students receive a Gymnasium recommendation and 56 percent finally enter the Gymnasium.

*Table 1. Univariate statistics of the variables in the models*

	mean	sd	median	min	max
Share of income support receivers	0.08	0.08	0.05	0	0.72
Share with tertiary education	0.14	0.10	0.11	0	0.75
Share of Non-Germans	0.13	0.12	0.10	0	0.71
Parents with tertiary education per school	0.44	0.22	0.42	0	1
Students with migration backgr. per school	0.21	0.17	0.17	0	0.92
High idealistic parental aspirations	0.76	0.43	1.00	0	1
High realistic parental aspirations	0.63	0.48	1.00	0	1
Techers' academic track recommendation	0.61	0.49	1.00	0	1
Transition to the academic track	0.56	0.50	1.00	0	1
Social origin (std)	0.00	1.00	-0.02	-3.27	3.17
Migration background	0.21	0.40	0.00	0	1
Mathematic competence (std)	0.00	1.00	0.00	-3.92	4.36
Vocabulary competence (std)	0.00	1.00	0.04	-3.84	4.49
Female student	0.52	0.50	1.00	0	1
Age of student, in years (Jan 2013)	6.86	0.37	6.84	5.26	8.59
Number of persons in the household	4.10	0.99	4.00	2	11
Log size of municipality	10.4	2.05	10.10	4.79	15.1
Living close to edge of grid cell	0.34	0.48	0.00	0	1
Level of urbanity (municipality)					
Very central	0.46	0.50	0.00	0	1
Central	0.32	0.47	0.00	0	1
Peripheral	0.19	0.40	0.00	0	1
Very peripheral	0.03	0.17	0.00	0	1
Number of observations			5,261		

On average, eight percent of the inhabitants in the neighbourhood, i.e. the 1x1 km grid cell, receive basic income support, 14 percent of the employees are tertiary educated, and 13 percent of the inhabitants are of non-German nationality. In contrast, the share of tertiary educated parents at the school is much higher on average (44 percent), and similarly, the average share of students with a migration background in the school is higher (21 percent). The main reason for the deviations between the neighbourhood and the school composition is the younger age of the parents of primary school-age students, compared to the overall residential population. Since here older cohorts live as well (and are stronger in numbers due to the ageing population in Germany), the neighbourhood context is

characterised by lower educational attainment and a much lower share of persons with tertiary education on average. On the individual level, 21 percent of the students in the sample have a migration background, 52 percent are female, and they were on average 6.9 years old in January 2013, when they attended grade 1 in primary school.

Figure 2 shows the detailed distribution of the contextual variables. Apparently, the distributions are right-skewed—their peaks are rather close to zero, and there are considerable shares of observations with the value of 0. This is especially true for the share of individuals in grids with poverty support, with a peak below 10 percent. This means that it is a rather rare occurrence to live in a neighbourhood in which many families live who receive welfare support. In comparison, the distributions of the school context indicators are less skewed. This is especially true for the share of parents with tertiary educational attainment per school. Apparently, it is much more likely to have a child in a classroom where the majority of parents has obtained a tertiary degree than to live in a neighbourhood where many tertiary-educated employees live.

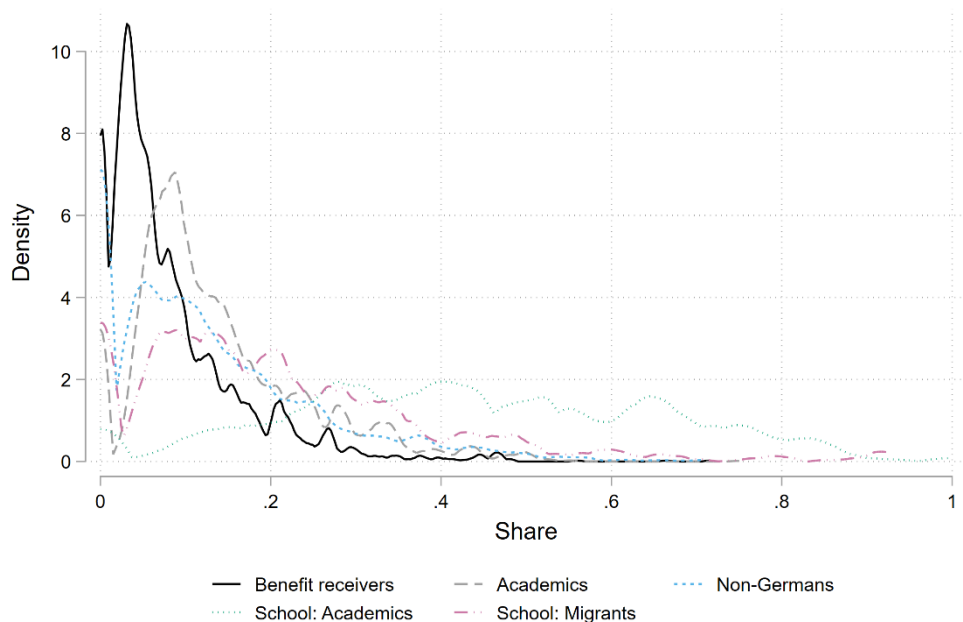


Figure 2. Distributions of neighbourhood and school context indicators

Despite these differences, there are low to moderate associations between most of the context indicators, as shown in Figure 3. Note that the individual migration background is a binary variable, all others are continuous. The associations in Figure 3 show that the share of income support receivers in the neighbourhood correlates negatively with the share of academics in both the neighbourhood and the school but positively with the share of non-Germans. We also see various other signs that contexts depend on each other: for example, the share of academics in the neighbourhood strongly correlates with the share of academics in the school ( $r=.51$ ), and individual social origin strongly correlates with the share of academic parents in the school ( $r=.44$ ) and in the neighbourhood ( $r=.36$ ). Similar tight associations are found between individual migration background, the share of immigrant parents in school and the share of Non-Germans in the neighbourhood. This suggests that individuals are segregated in different schools and neighbourhoods, socio-economically as well as ethnically.

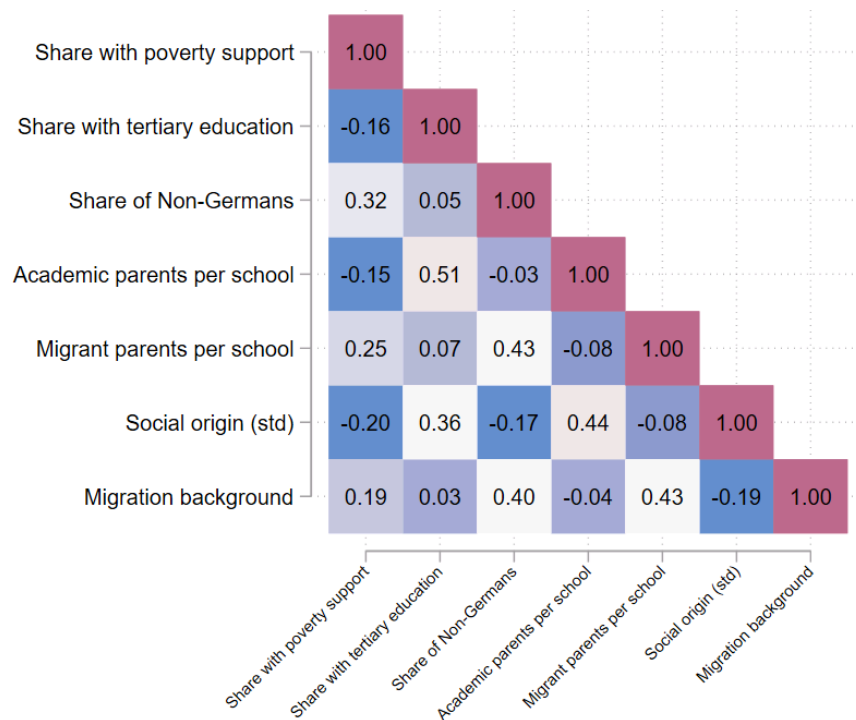


Figure 3. Bivariate correlations between all variables of interest (Pearson's  $r$ )

## 4.2 Effects of neighbourhood, school, and family context

We continue with the main results. For a convenient interpretation, we report the regression coefficients of interest by using coefficient plots which contain only the variables of interest, not the control variables. Complete tables are provided in the appendix. The first outcome variable are the parental idealistic aspirations, which is a binary variable (high vs low). Figure 4 shows the coefficients (for the full model, see Table A1 in the appendix). Keep in mind that all context variables are measured on a scale from 0 to 1, which is relevant for the interpretation.

In the first model (black dots), only contextual effects of the neighbourhoods and control variables are included. Here, only the share of tertiary educated in the neighbourhood shows a significant positive effect on idealistic educational aspirations, while the coefficients of the two other indicators, poverty and immigrant composition are close to zero and the confidence intervals overlap the zero-line, indicating non-significance. The coefficient of the share of academics in the grid is 0.525. This means that when the share of academics in a grid increases by one percentage point, the probability that the parents have high idealistic aspirations for their child increases by 0.53 percentage points. Note that the confidence intervals of all three neighbourhood context indicators are quite large, indicating a large statistical insecurity of effects.

In the second model (grey rectangles), school context variables are added. Both the share of students with tertiary educated parents and the share of students with migration background influence parental idealistic educational aspirations positively. As theoretically expected, this reduces the coefficients of the neighbourhood context, in particular of its educational composition.

In the third model (green diamonds), the individual effects of social origin and individual migration background are added. However, when the social origin of the family increases by one standard deviation, the probability of high aspirations increases by almost 17 percentage points. Migrants have, on average, a 15 percentage points higher probability to hold high idealistic aspirations for their offspring. All local context effects are strongly reduced by this. Now, the three neighbourhood context

indicators show no significant effects anymore. Interestingly, the point estimates of poverty and the share of Non-Germans now are positive, while they were close to zero in the previous models; however, the confidence intervals are very large. The two school context indicators still show marginally significant positive effects on the idealistic aspirations of parents.

Finally, in the last model (blue triangles), we add test scores of the students to account for individual ability. When the math test score of a student increases by one standard deviation, parental idealistic aspirations increase by about six percentage points, on average. Adding these variables influences the other coefficients only slightly. Most importantly, now only the positive effect of the share of immigrants in the school remains significant. This suggests that when considering the school achievement of students, which is on average worse in school with a high share of immigrant students, there seem to be positive spillover effects from these students on parents' idealistic educational aspirations for their children.

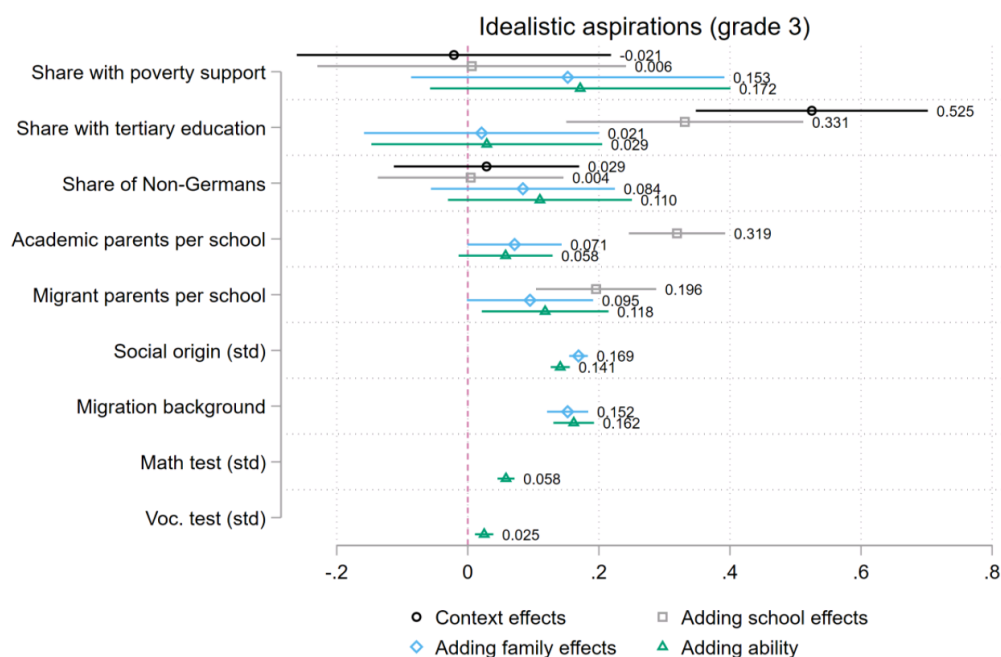


Figure 4: Effects of local contexts and school performance on parents' idealistic aspirations (coefficients and confidence intervals)

We continue with the realistic parental aspirations (Figure 5). For the full model, see Table A2 in the appendix. The general patterns of the coefficients are highly similar to those in Figure 4. However, in the first and second models, we now see a negative effect of the neighbourhood's nationality composition, which does not shine up anymore when family backgrounds and student performance are controlled. What is quite interesting is that realistic aspirations are more reactive to academic performance than idealistic aspirations, as the coefficient of the math test score is much larger (about 13 percentage points). This makes sense, as for realistic aspirations, parents usually take the child's factual performance into account. The main conclusion is that in the full model, there are no statistically significant local context effects left, again except for the share of student with migration background in the school. As expected, this indicator has a positive effect on realistic aspirations. Contrary to our expectations, though, the effect is similarly high for both the idealistic and realistic aspirations of parents.

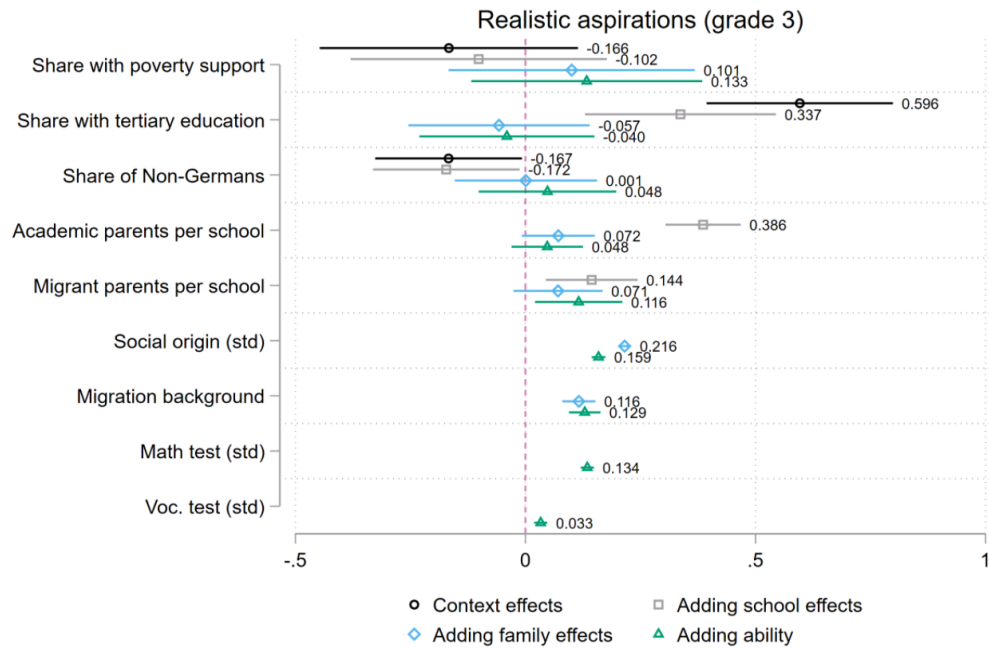


Figure 5: Effects of local contexts and school performance on parents' realistic aspirations (coefficients and confidence intervals)

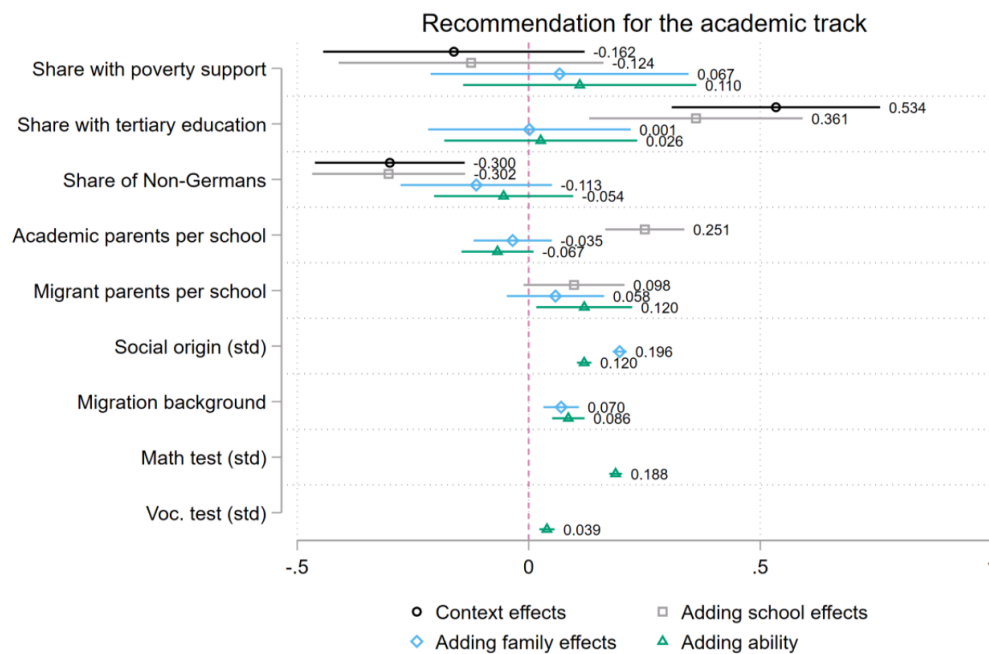


Figure 6: Effects of local contexts and school performance on teachers' recommendations (coefficients and confidence intervals)

Regarding the teacher recommendation for the academic track (Figure 6), the general pattern of coefficients is again very similar to Figure 4 and 5, despite the difference in outcomes (for the full model, see Table A3 in the appendix). In contrast, the coefficient of the ethnic neighbourhood composition in the first and second model (indicated in black and grey) is twice as high as the one on parents' realistic aspirations, suggesting that teachers might indeed be influenced negatively in their recommendations by the neighbourhood composition. Effects of school composition on track recommendations are lower than on parental aspirations. As soon as individual factors are included in the models, again only the

effect of the ethnic school composition remains statistically significant. Contrary to our expectation, it has a positive effect on teachers' track recommendation, which is only significant when the differences in student competences are controlled. Compared to parents' aspirations, the teachers' recommendations seem to depend more on students' competences, in particular in mathematics, and less on individual social and migration backgrounds (Model 4, green).

Lastly, we look at the factual transition to the academic track (Figure 7). Again, the main pattern of coefficients is very similar to the previous models (for the full model, see Table A4 in the appendix). Compared to Figure 6, the gross negative effect of the ethnic neighbourhood composition in the first and second model is smaller. In the full model (shown in green), both school context indicators have marginally statistically significant effects on the transition to the academic track. Contrary to our expectations, the share of students with tertiary educated parents seems to lower the likelihood of a successful transition, while the share of students with a migration background has a positive effect.

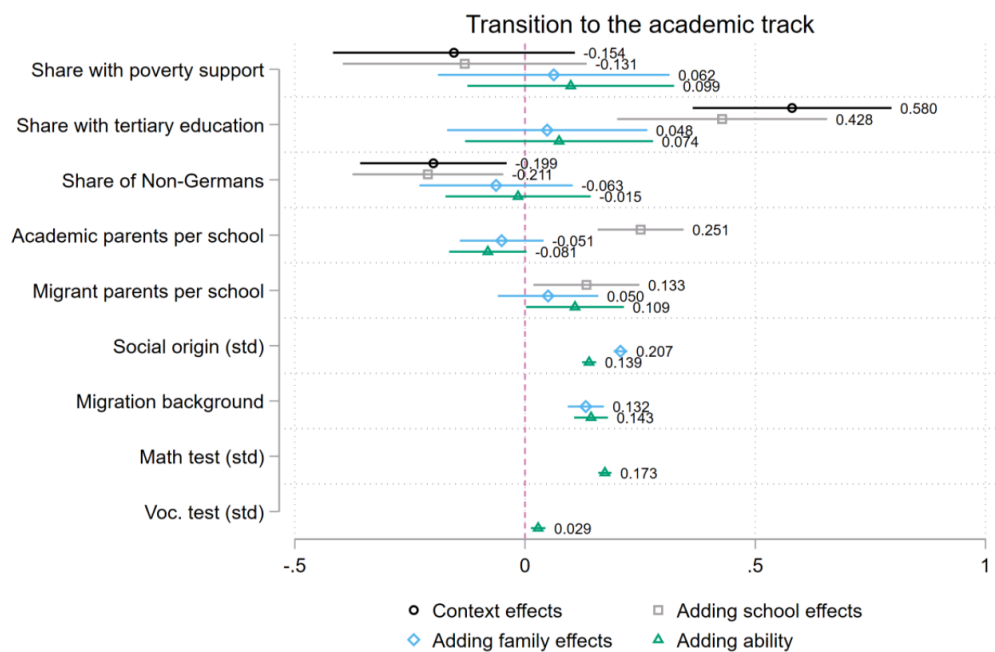


Figure 7: Effects of local contexts and school performance on transitions to the academic track (coefficients and confidence intervals)

Overall, after having inspected four relevant educational outcomes of primary schooling, we can summarize the results. Contrary to hypothesis 1, the poverty concentration in a neighbourhood is never statistically relevant. In line with hypothesis 1, its educational composition is partially beneficial for the transition to the academic track but loses statistical significance as soon as individual family backgrounds is being controlled. Contrary to hypothesis 2a and 2c, but in line with hypothesis 2b, the influence of the ethnic neighbourhood composition is in tendency disadvantageous but as well not significant anymore when individual factors are introduced. This means that neighbourhood contexts are correlated with the four transition indicators but seem to be no longer exerting direct effects when the family context is accounted for, which supports our expectations in hypothesis 3a and 3b. The conclusions are slightly different for school context indicators, which in line with hypothesis 3b decline as well when individual factors are controlled for, but often remain statistically significant. This is true in particular for the ethnic school composition, which has positive effect on parental educational aspirations (as expected in hypothesis 3a), but contrary to hypotheses 2b and 2c as well on teachers'

academic track recommendations and the realized transitions to the academic track. It is important to note that these positive effects turn up only in the full models, when the differences in students' competences are taken into account. However, as the confidence intervals of the school context indicators shows, their influence is probably not very robust, at least in our survey data. Finally, effects of individual social origin, migration background, and the past academic performance of the student are robustly related to all four outcomes and remain statistically significant in all cases.

### 4.3 Neighbourhood configurations and their effects

After having tested the influence of the three main neighbourhood context indicators separately, we would like to recover more information. One option would be to account for interaction effects and other non-linear influences; however, this would produce a large amount of regression coefficients, which would render the model virtually impossible to interpret and understand. An elegant and well-established solution to recover patterns within the data is the usage of latent profile analysis. The algorithm can recover typical constellations of neighbourhood contexts within the data and suggest a solution. We have done so and follow the established rules to select the number of profiles in a data driven way, based on the AIC and BIC, which measures the statistical fit of a solution (see Figure A1 in the appendix). Based on these measures, we decided to generate four different profiles.

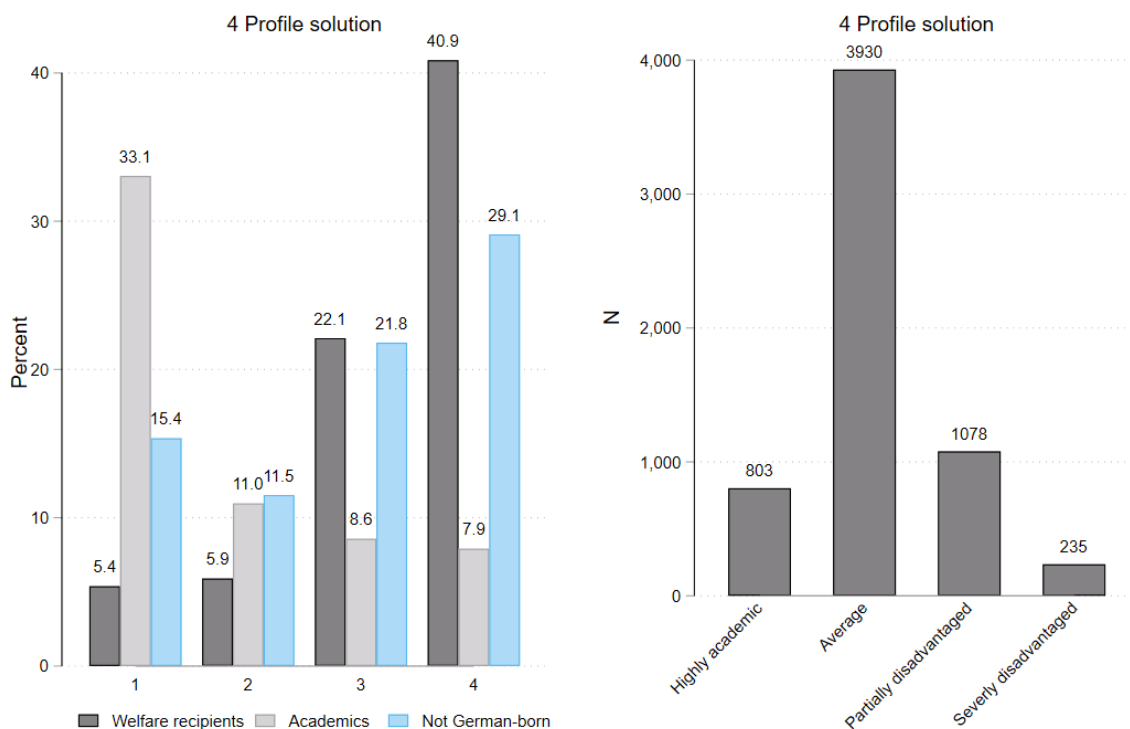


Figure 8: Four distinct neighbourhood context profiles

To better understand how these profiles look like, Figure 8 shows the distributions of the relevant context indicators in the four profiles as well as their incidence. The first profile has a very high share of academics and a very low share of individuals who receive poverty support. Apparently, this profile is positively selected. 13 percent of the students in the sample fall into this profile. The second profile has rather low values regarding all three variables. Furthermore, it is frequently found in our sample (65 percent). Hence, we regard this as the 'average' neighbourhood. The third profile, which accounts for 18 percent of the students in the sample, has higher levels of poverty support and a higher share

of non-Germans. We regard this profile to be partially disadvantaged. Lastly, there is a severely disadvantaged cluster, which is very rare; less than four percent of the students are found here.

Having created these profiles, we re-estimated our models using them instead of the single neighbourhood context indicators. We always set the largest cluster ('average') as reference group. Otherwise, the models are built identically to the last section of results. Results for the four outcome variables are shown in Figure 9 (for the full models, see Tables A5-A8 in the appendix). Note that for a clearer depiction, we only display the coefficients of the cluster indicators.

The results show that on average idealistic aspirations are higher in the highly academic profile, while there are no differences between the other profiles. Yet this advantage disappears as soon as individual controls are added to the model. Regarding the other three outcomes, all three neighbourhood profiles show distinctive effects, i.e. outcomes are in tendency more advantageous in highly academic contexts, and worse in more disadvantaged contexts. All effects, however, get insignificant when individual factors are introduced and the point estimators show mostly values close to zero.

To summarize, using latent profiles has the advantage that no explicit interactions between contextual variables need to be included in the models as the profiles select "typical" living environments from the data, which makes sense from a theoretical perspective. While the selection of the number of profiles is itself a somewhat subjective step, the results are overall highly stable and never lead to deviating conclusions. Using latent neighbourhood profiles leads to similar conclusions as using single indicators of neighbourhood contexts: while effects are visible in the uncontrolled models, as soon as school and individual contexts are accounted for, these vanish and no traceable differences are left. Compared to the models using the single indicators, the confidence intervals of the latent profiles are even larger, particularly for the severely disadvantaged neighbourhood profile, pointing to limitations of our data. Overall, the patterns of results suggests that the single indicators grouped together in the neighbourhood profiles cancel each other out.

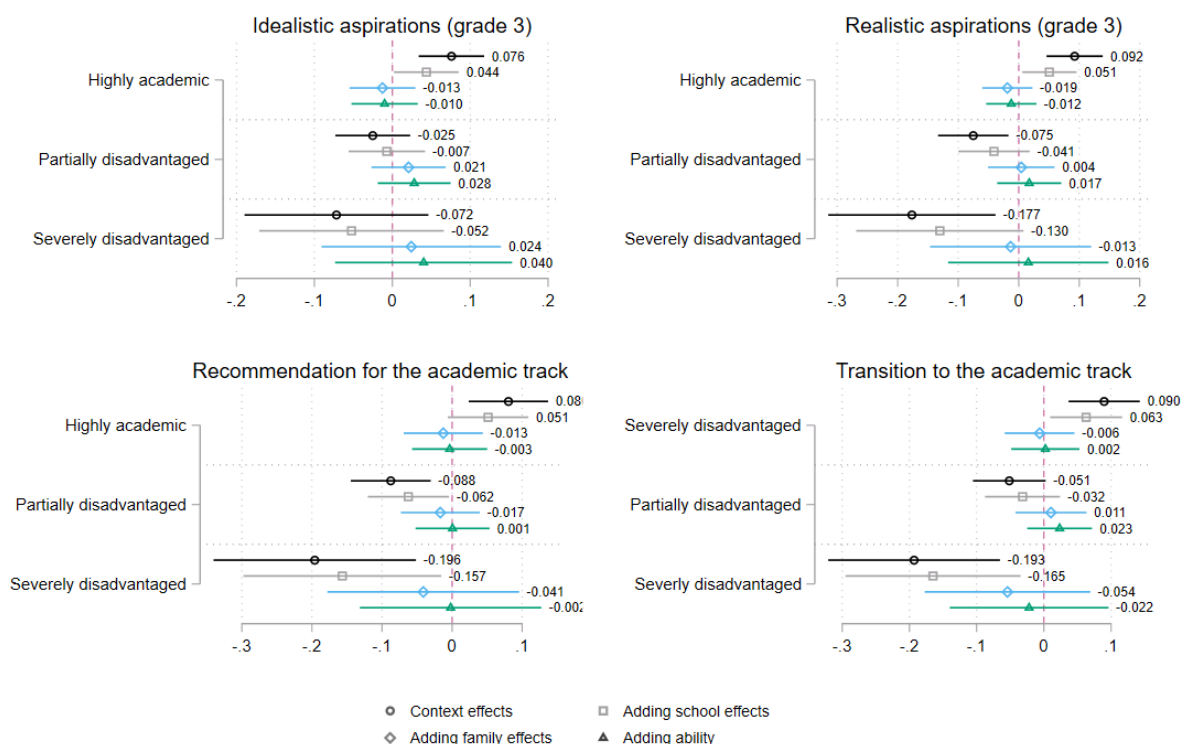


Figure 9: Effects of neighbourhood profiles on four outcomes (coefficients and confidence intervals)

#### 4.4 Sensitivity analyses

To further strengthen the robustness of our findings, we conduct a range of additional analyses. By doing so we would like to establish that our empirical findings and derived conclusions are not due to somewhat arbitrary coding decisions but represent stable and robust patterns within the data.

First, we account for nonlinearities in the raw contextual variables. Some previous studies found that the influence of neighbourhood context is non-linear, and effects only appear above a certain **threshold**. To test this, we have recoded the three continuous neighbourhood context variables into terciles, i.e. three groups with a low, average, and high incidence are compared (for the models, see Tables A9-A12 in the appendix). In sum, these models do not suggest non-linear effects of the neighbourhood contexts, as most point estimators are close to zero and non-significant. There is one exception to the result. Regarding ideal aspirations, we notice a persisting effect of poverty, even in the fully controlled models. However, contrary to our theoretical expectations, low levels of poverty are associated with lower parental aspirations than medium levels of poverty. Given these results, we regard the initial findings as stable as accounting for nonlinear context effects does not alter our previous conclusions.

Second, we estimated models separately for specific **subgroups** in the sample to analyse whether effects of neighbourhood and school context differ by migration background (Tables A13-A16 in the appendix), parental educational attainment (Tables A17-A20), and urbanicity of the municipality (Tables A21-A24). One could argue, for example, that students with a disadvantaged social origin or migration background might be more affected by neighbourhood contexts than students from affluent and/or high-educated backgrounds, because their families have enough resources to shield them from negative influences in the residential or school environment. Furthermore, in cities small-scale neighbourhoods and schools tend to be more heterogeneous than in more rural areas, which could mean that local contexts might matter more here. Our empirical results, however, provide no evidence for differential effects by these subgroups.

## 5 Discussion and conclusions

Our empirical analyses allow us to draw several conclusions. One consistent and robust finding is that *neighbourhood context* effects are relevant mainly in the models which do not control for school and family contexts. Here, a favourable educational composition, and, to a lesser extent a lower share of the non-German population, play a role for high parental aspirations and the successful transition to the academic track, while poverty risks do not show any effects. The effects of the educational composition decline as soon as school context indicators are introduced, and the effects of all three variables are not significant anymore when also family backgrounds are accounted for.

This is different for the *school contexts*, for which we do find relevant direct effects. One stable finding which we expected theoretically is that parents have higher aspirations when their children visit schools with a higher share of migrant parents, on average. Contrary to our expectations, the positive spillover effects from immigrant optimism also shine up in a higher likelihood of recommendations for and transitions to the academic track. This becomes even more obvious when individual migration background is investigated, as these coefficients are as well significantly positive for all four outcomes. Even if the performance of students with a migration background is not equal to the native population, on average, foreign parents usually have high aims for their offspring. It does not seem surprising that especially values and norms are contagious in the social networks at schools, so that high ambitions lead to higher aspirations of other parents in the same school.

A less stable but tentatively present finding is that in schools with a higher educational background composition it is somewhat less likely to receive recommendations for and make transitions to the academic track (indicated by negative point estimates, even if not statistically significant). This might seem surprising as it is well known that more highly educated parents favour a better education for their children. Since these effects arise when individual social origin is controlled for, this result indicates that the chances to be recommended and to enter the academic track are lower for children in schools with an advantageous educational background composition net of their own social origin, migration background and competences. This effect might be explained by the fact that teachers tend to assign grades taking the class (or their school) as reference point, i.e. an average-able student tends to get better grades (and therefore, possibly a recommendation for the academic track) in a negatively selected class where he is in the top quartile of students than in a positively selected class where he is in the bottom quartile of students. Hence, the better the overall educational background composition of a school is, the higher is the competition among students, and the lower are the chances to succeed in entering the academic track, on average. The same argument can be made for explaining the positive effects of the ethnic school composition. In the end, both results point to the fact that social and ethnic school segregation might cause undesirable effects for the students when teachers' track recommendations are based on grades and expectations, while objective test criteria are lacking.

What our analyses have demonstrated beyond any doubt is the overarching influence of students' *social origin* on the transition process from primary to secondary education. The individual conditions a child faces at home are potentially the most significant direct influence for further educational success. In other words, it matters less whether an affluent family lives in an economically deprived area, or a poor family lives in a rich neighbourhood, decisive for success is what happens at home. There are many theoretical arguments for this: parents are the most influential significant others of students at this young age, usually far more important than friends and peers that are recruited from the class or the neighbourhood. Parents transmit their values to the child and support it with their economic, cultural, and social capital. Even if there are other influences present, they are probably quite small compared to one's own family.

To return to the question in the title of this article: Does it matter where children live? At first glance, the results suggest the answer is no. In German context, there is only limited evidence for *direct* neighbourhood effects on educational aspirations and transitions to secondary education net of school and family context. However, this does not mean that neighbourhood contexts do not influence children's educational careers indirectly, for example via the social and ethnic composition of schools in the neighbourhood. Hence, on second glance, our answer is yes. Several arguments underline this reasoning. Our results show that neighbourhood, school, and family contexts are deeply interrelated. We cannot decide with our empirical data to what extent the non-existence of direct neighbourhood effects is a problem of confounding, due to the active self-selection of parents into 'better' neighbourhoods, based on their own status and resources, and to what extent it is due to mediation effects of social origin, i.e. local contexts have affected families who never left their neighbourhood from early on, and via this these contexts exert indirect effects on their children's transition process. More fundamentally, Sharkey and Elwert (2011) argued that the approach to identify the effect of neighbourhood contexts after controlling for a range of school and family characteristics might generate estimates that are substantially biased toward zero because doing so ignores the manifold ways in which the family and the school contexts are influenced by the residential environments in which families have lived over time (Sharkey & Faber, 2014). Hence, Sharkey and Elwert (2011) conclude that the attempt to isolate and distinguish neighbourhood effects from school or family effects is conceptually misleading. While we followed this attempt empirically, we already discussed in the theory section that in a longitudinal perspective there are complex mutual interrelations between

the three levels of contexts. Empirically, we can only present a more or less cross-sectional snapshot of how these interrelations look and exert effects on children and parents. For these reasons, we refrain from concluding that it does not matter where children live.

What do these results mean for equal access to high-quality education? To foster the positive development of a child, the sooner deprived families are supported, the better. So even if eradicating contagious poverty and bad schools is clearly important, if individual families are not supported, the results will be limited. At the same time, it is important to understand that families do not live isolated in space. Students tend to cluster in schools with students of similar social and migration backgrounds, and families tend to live in neighbourhoods where people of similar social and ethnic backgrounds live. Often, the social and ethnic composition of the school reflects the neighbourhood composition. Hence, our results suggest that it is worth as well to tackle residential segregation in order to promote equality in educational chances.

Finally, we need to discuss the **limitations** of our study. Three points are particularly relevant here.

First, our study is looking at a transition taking place at the end of primary school, when students are about ten years old. At this rather young age, children will rely to a large extent on their parents and have limited independence, for example, when it comes to exploring the neighbourhood on one's own. Since parents are the main actors who decide about their children's transition to secondary schools, we measured parental educational aspirations. However, one could argue that neighbourhood effects might be much lower for parents than for their (older) children because parents might be exposed as well to many other contexts, such as the workplace or family and friends who live elsewhere. Potentially, we could observe more pronounced neighbourhood effects, when focussing on educational aspirations and transitions of students in secondary schools, who have a higher independence, but are bound much more to neighbourhoods and schools as their parents are. The second argument for extending the study to a higher age is that secondary schools are often not bound to catchment areas anymore, hence neighbourhoods and schools should be less tightly interrelated as in our study.

Second, our measurement of neighbourhood contexts is quite coarse. The grid cells contain information on the 1x1km level, which apparently covers a quite large area. In some cases, rich and deprived neighbourhoods might easily fit both within a single grid cell, rendering the results questionable. Furthermore, the grids are evenly distributed across Germany, i.e. they might cut through a grown neighbourhood which is characterised by tight social networks, institutions and infrastructures. However, this is a limitation we cannot change with our data as the indicators used from official registers are not available on a lower resolution. While the literature presents various other solutions to define and operationalize neighbourhoods and spatial contexts (Hillmert et al., 2023), we are limited by this specific data constellation. At least there are no indications that students close to the borders of a grid are affected differently than others. Otherwise than that, we cannot test with our data whether our neighbourhood measure is an adequate answer to the modifiable area unit problem. Theoretical considerations as well as the quite large confidence intervals of the effects suggest that more fine-graded neighbourhood measures might reveal more precise effects that we could not detect.

This brings us to a related problem: overall, the survey data we used is not suited well to provide more solid answers to the quite complex problem of identifying local context effects, not only in terms of measurement, but as well in terms of missing statistical power and data structure. Only very few students lived in particularly interesting local contexts, such as strongly disadvantaged areas, so that due to power problems effects of these contexts could probably not be detected. Selective survey participation, in particular on the level of schools, might also have contributed to this problem.

Furthermore, many grids in our data were empty, and the number of students in the same grid was too low to apply more sophisticated methods of how to overcome geographic selection bias (for an overview, cf. Galster & Sharkey, 2017). Finally, despite the fact that the survey is longitudinal in nature, data on the precise history of the parents' residences would be very useful, for example to account for exposure to a neighbourhood, to distinguish between stayers and movers, and to control for self-selection into advantageous local contexts, which often takes place before the children enter school (Zwier et al., 2026). In summary, the questions posed here could be answered better with register data than with longitudinal survey data, for reasons of statistical power as well as for reasons of the availability of fine-grained residential histories. However, such a data source is currently not existent for the whole of Germany. What can be done with the available longitudinal educational survey data from the NEPS is to investigate parental residence choices and their attitudes towards education, without linking these to later children's outcomes. This will be up to future research.

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## 7 Appendix

Figure A1: AIC and BIC for different latent profile solutions

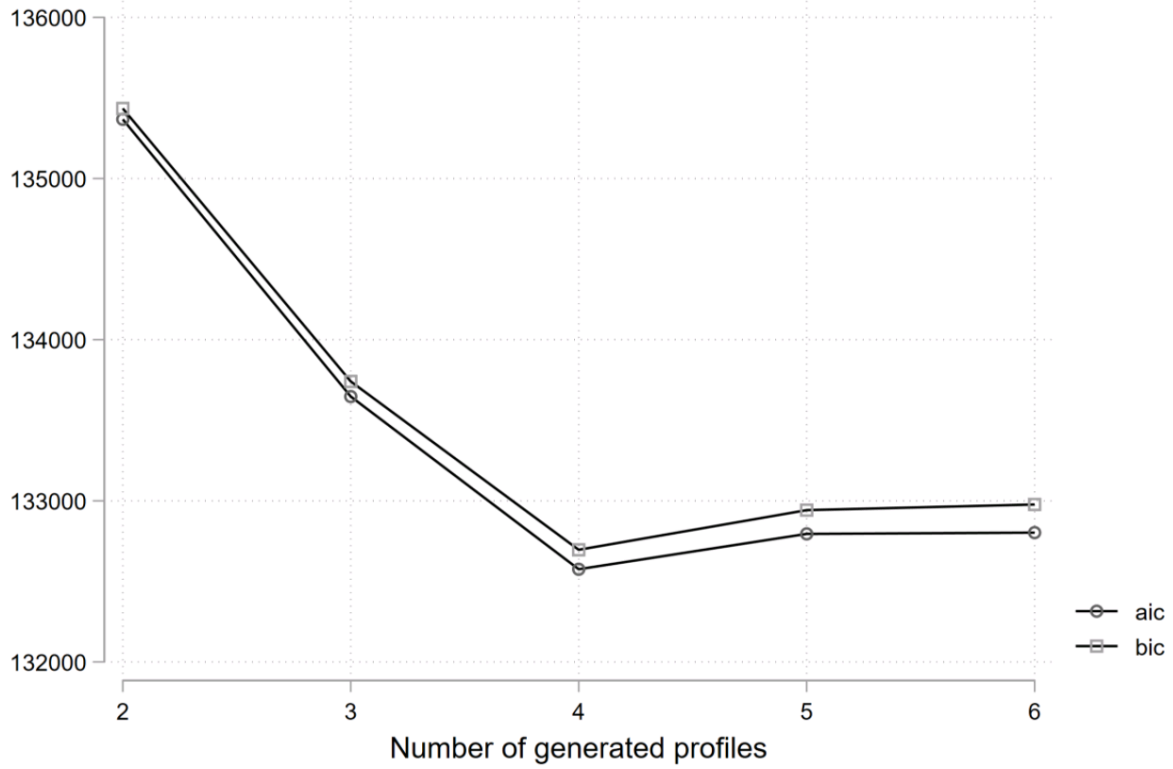


Table A1: Main models, idealistic aspirations

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers	-0.0212 [-0.261,0.219]	0.00595 [-0.230,0.241]	0.153 [-0.0865,0.392]	0.172 [-0.0576,0.401]
Share with tertiary education	0.525*** [0.348,0.702]	0.331*** [0.150,0.512]	0.0210 [-0.158,0.200]	0.0290 [-0.147,0.205]
Share of Non-Germans	0.0286 [-0.113,0.170]	0.00431 [-0.137,0.146]	0.0841 [-0.0563,0.225]	0.110 [-0.0303,0.250]
Girl	0.0239 [-0.00124,0.0490]	0.0234 [-0.00165,0.0484]	0.0325** [0.00900,0.0561]	0.0408*** [0.0174,0.0643]
Age of student in January 2013	-0.0789*** [-0.115,-0.0430]	-0.0744*** [-0.110,-0.0389]	-0.0214 [-0.0549,0.0121]	-0.0215 [-0.0545,0.0116]
Total number of individuals in the HH	0.000635 [-0.0124,0.0137]	-0.000315 [-0.0132,0.0126]	-0.0211*** [-0.0332,-0.00888]	-0.0174** [-0.0296,-0.00530]
Log. size of city	0.0102 [-0.00167,0.0221]	0.00602 [-0.00574,0.0178]	0.00560 [-0.00545,0.0167]	0.00566 [-0.00526,0.0166]
Central	-0.0508* [-0.0930,-0.00866]	-0.0358 [-0.0775,0.00586]	-0.0277 [-0.0685,0.0131]	-0.0305 [-0.0711,0.0101]
Peripheral	-0.108*** [-0.171,-0.0446]	-0.0712* [-0.134,-0.00845]	-0.0560 [-0.118,0.00555]	-0.0580 [-0.119,0.00300]
Very peripheral	-0.151** [-0.257,-0.0448]	-0.130* [-0.233,-0.0275]	-0.103* [-0.201,-0.00435]	-0.0956 [-0.194,0.00280]
Living close to edge of grid cell	-0.00658 [-0.0343,0.0211]	-0.00601 [-0.0335,0.0214]	-0.00711 [-0.0335,0.0193]	-0.00640 [-0.0321,0.0193]
Academic parents per school		0.319*** [0.246,0.393]	0.0714 [-0.000404,0.143]	0.0577 [-0.0140,0.129]
Migrant parents per school		0.196*** [0.104,0.288]	0.0949 [-0.00133,0.191]	0.118* [0.0212,0.215]
Social origin (std)			0.169*** [0.155,0.183]	0.141*** [0.126,0.156]
Migration background			0.152*** [0.121,0.184]	0.162*** [0.131,0.193]
Math test (std)				0.0583*** [0.0453,0.0713]
Voc. test (std)				0.0250*** [0.0109,0.0390]
Federal state	Yes	Yes	Yes	Yes
Constant	1.245*** [0.955,1.535]	1.109*** [0.820,1.398]	0.937*** [0.666,1.208]	0.915*** [0.647,1.184]
sd(_cons)				
Constant	0.0848*** [0.0651,0.111]	0.0643*** [0.0433,0.0955]	0.0622*** [0.0432,0.0897]	0.0625*** [0.0437,0.0894]
sd(Residual)				
Constant	0.400*** [0.390,0.411]	0.400*** [0.390,0.410]	0.373*** [0.364,0.382]	0.367*** [0.359,0.376]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A2: Main models, realistic aspirations

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers	-0.166 [-0.447,0.114]	-0.102 [-0.380,0.177]	0.101 [-0.167,0.368]	0.133 [-0.118,0.384]
Share with tertiary education	0.596*** [0.394,0.799]	0.337** [0.129,0.544]	-0.0575 [-0.255,0.140]	-0.0403 [-0.231,0.150]
Share of Non-Germans	-0.167* [-0.327,-0.00744]	-0.172* [-0.331,-0.0127]	0.000894 [-0.154,0.156]	0.0479 [-0.102,0.198]
Girl	0.0308* [0.00291,0.0586]	0.0307* [0.00293,0.0585]	0.0430** [0.0172,0.0689]	0.0608*** [0.0359,0.0858]
Age of student in January 2013	-0.123*** [-0.160,-0.0868]	-0.117*** [-0.153,-0.0810]	-0.0481** [-0.0818,-0.0144]	-0.0426** [-0.0749,-0.0104]
Total number of individuals in the HH	0.00851 [-0.00625,0.0233]	0.00772 [-0.00682,0.0223]	-0.0161* [-0.0293,-0.00284]	-0.0104 [-0.0233,0.00252]
Log. size of city	0.0179* [0.00316,0.0327]	0.0142 [-0.000438,0.0288]	0.0136* [0.000281,0.0268]	0.0137* [0.00123,0.0261]
Central	-0.0111 [-0.0569,0.0346]	0.00562 [-0.0385,0.0498]	0.0150 [-0.0269,0.0570]	0.00992 [-0.0316,0.0514]
Peripheral	-0.0366 [-0.101,0.0277]	0.00715 [-0.0555,0.0698]	0.0258 [-0.0357,0.0872]	0.0237 [-0.0351,0.0826]
Very peripheral	-0.104 [-0.212,0.00520]	-0.0828 [-0.188,0.0223]	-0.0464 [-0.149,0.0565]	-0.0255 [-0.124,0.0733]
Living close to edge of grid cell	-0.0129 [-0.0469,0.0212]	-0.0129 [-0.0468,0.0211]	-0.0149 [-0.0471,0.0174]	-0.0128 [-0.0430,0.0174]
Academic parents per school		0.386*** [0.305,0.468]	0.0715 [-0.00773,0.151]	0.0475 [-0.0301,0.125]
Migrant parents per school		0.144** [0.0443,0.244]	0.0709 [-0.0258,0.168]	0.116* [0.0206,0.211]
Social origin (std)			0.216*** [0.201,0.230]	0.159*** [0.144,0.174]
Migration background			0.116*** [0.0801,0.152]	0.129*** [0.0946,0.163]
Math test (std)				0.134*** [0.120,0.149]
Voc. test (std)				0.0332*** [0.0189,0.0475]
Federal state Constant	Yes 1.305*** [0.991,1.618]	Yes 1.132*** [0.823,1.440]	Yes 0.888*** [0.601,1.174]	Yes 0.814*** [0.541,1.087]
sd(_cons) Constant	0.0746*** [0.0501,0.111]	0.0340* [0.00135,0.852]	0.0384** [0.00351,0.419]	0.0450*** [0.0187,0.108]
sd(Residual) Constant	0.458*** [0.451,0.466]	0.458*** [0.450,0.465]	0.420*** [0.413,0.428]	0.397*** [0.390,0.405]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A3: Main models, teacher recommendation

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers	-0.162 [-0.444,0.121]	-0.124 [-0.411,0.162]	0.0667 [-0.212,0.345]	0.110 [-0.142,0.362]
Share with tertiary education	0.534*** [0.309,0.759]	0.361** [0.131,0.592]	0.00149 [-0.217,0.220]	0.0260 [-0.182,0.234]
Share of Non-Germans	-0.300*** [-0.462,-0.138]	-0.302*** [-0.468,-0.137]	-0.113 [-0.277,0.0504]	-0.0541 [-0.204,0.0963]
Girl	0.0329* [0.00415,0.0616]	0.0328* [0.00416,0.0614]	0.0445** [0.0171,0.0719]	0.0689*** [0.0431,0.0947]
Age of student in January 2013	-0.104*** [-0.143,-0.0647]	-0.0993*** [-0.138,-0.0604]	-0.0358 [-0.0725,0.000932]	-0.0270 [-0.0617,0.00764]
Total number of individuals in the HH	0.000972 [-0.0145,0.0165]	0.000539 [-0.0149,0.0160]	-0.0199** [-0.0343,-0.00555]	-0.0129 [-0.0266,0.000819]
Log. size of city	0.00634 [-0.00894,0.0216]	0.00383 [-0.0115,0.0191]	0.00297 [-0.0118,0.0178]	0.00295 [-0.0110,0.0169]
Central	0.0227 [-0.0235,0.0688]	0.0337 [-0.0123,0.0796]	0.0419 [-0.00304,0.0868]	0.0350 [-0.00690,0.0769]
Peripheral	0.00918 [-0.0557,0.0740]	0.0390 [-0.0260,0.104]	0.0552 [-0.00958,0.120]	0.0523 [-0.00703,0.112]
Very peripheral	-0.0354 [-0.154,0.0828]	-0.0220 [-0.138,0.0940]	0.0114 [-0.104,0.126]	0.0401 [-0.0700,0.150]
Living close to edge of grid cell	0.0150 [-0.0195,0.0496]	0.0151 [-0.0191,0.0494]	0.0129 [-0.0208,0.0467]	0.0160 [-0.0149,0.0469]
Academic parents per school		0.251*** [0.165,0.336]	-0.0346 [-0.119,0.0500]	-0.0674 [-0.145,0.0105]
Migrant parents per school		0.0979 [-0.0111,0.207]	0.0579 [-0.0472,0.163]	0.120* [0.0165,0.224]
Social origin (std)			0.196*** [0.181,0.212]	0.120*** [0.104,0.135]
Migration background			0.0701*** [0.0318,0.108]	0.0856*** [0.0506,0.121]
Math test (std)				0.188*** [0.174,0.201]
Voc. test (std)				0.0394*** [0.0229,0.0558]
Federal state	Yes	Yes	Yes	Yes
Constant	1.212*** [0.889,1.535]	1.097*** [0.777,1.417]	0.866*** [0.564,1.168]	0.763*** [0.476,1.050]
sd(_cons)				
Constant	0.0639*** [0.0356,0.115]	0.0475 [0.00221,1.019]	0.0611*** [0.0347,0.108]	0.0633*** [0.0425,0.0944]
sd(Residual)				
Constant	0.472*** [0.466,0.479]	0.472*** [0.465,0.478]	0.441*** [0.434,0.449]	0.400*** [0.392,0.408]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A4: Main models, transition to the academic track

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers	-0.154 [-0.417,0.108]	-0.131 [-0.396,0.134]	0.0624 [-0.189,0.314]	0.0993 [-0.125,0.324]
Share with tertiary education	0.580*** [0.364,0.796]	0.428*** [0.200,0.656]	0.0481 [-0.169,0.265]	0.0739 [-0.130,0.278]
Share of Non-Germans	-0.199* [-0.358,-0.0399]	-0.211* [-0.375,-0.0471]	-0.0629 [-0.229,0.104]	-0.0151 [-0.173,0.143]
Girl	0.0215 [-0.00698,0.0500]	0.0216 [-0.00676,0.0499]	0.0335* [0.00699,0.0600]	0.0554*** [0.0302,0.0805]
Age of student in January 2013	-0.102*** [-0.140,-0.0640]	-0.0984*** [-0.136,-0.0603]	-0.0322 [-0.0677,0.00336]	-0.0228 [-0.0560,0.0104]
Total number of individuals in the HH	0.00748 [-0.00720,0.0222]	0.00694 [-0.00774,0.0216]	-0.0166* [-0.0304,-0.00282]	-0.0111 [-0.0241,0.00196]
Log. size of city	0.0136 [-0.00167,0.0289]	0.0107 [-0.00486,0.0262]	0.00968 [-0.00491,0.0243]	0.00934 [-0.00423,0.0229]
Central	0.0450 [-0.00734,0.0973]	0.0562* [0.00417,0.108]	0.0654* [0.0154,0.115]	0.0587* [0.0107,0.107]
Peripheral	0.0519 [-0.0170,0.121]	0.0814* [0.0120,0.151]	0.0987** [0.0294,0.168]	0.0962** [0.0326,0.160]
Very peripheral	0.00558 [-0.109,0.120]	0.0206 [-0.0909,0.132]	0.0547 [-0.0549,0.164]	0.0786 [-0.0256,0.183]
Living close to edge of grid cell	0.0106 [-0.0221,0.0433]	0.0108 [-0.0218,0.0434]	0.00896 [-0.0227,0.0406]	0.0120 [-0.0172,0.0412]
Academic parents per school		0.251*** [0.158,0.344]	-0.0508 [-0.142,0.0402]	-0.0807 [-0.165,0.00333]
Migrant parents per school		0.133* [0.0182,0.248]	0.0500 [-0.0591,0.159]	0.109* [0.00221,0.215]
Social origin (std)			0.207*** [0.193,0.222]	0.139*** [0.124,0.155]
Migration background			0.132*** [0.0927,0.171]	0.143*** [0.107,0.180]
Math test (std)				0.173*** [0.159,0.188]
Voc. test (std)				0.0285*** [0.0127,0.0444]
Federal state	Yes	Yes	Yes	Yes
Constant	1.041*** [0.717,1.364]	0.929*** [0.607,1.251]	0.703*** [0.403,1.003]	0.609*** [0.324,0.894]
sd(_cons)				
Constant	0.105*** [0.0843,0.131]	0.0966*** [0.0745,0.125]	0.101*** [0.0814,0.127]	0.0992*** [0.0810,0.122]
sd(Residual)				
Constant	0.473*** [0.467,0.480]	0.473*** [0.467,0.479]	0.439*** [0.431,0.446]	0.406*** [0.398,0.414]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A5: Latent profiles, idealistic aspirations

	Only context	Added school effects	Added origin	Added ability
Average	Ref.	Ref.	Ref.	Ref.
Highly academic	0.0760*** [0.0340,0.118]	0.0437* [0.00213,0.0853]	-0.0126 [-0.0549,0.0297]	-0.00988 [-0.0525,0.0327]
Partially disadvantaged	-0.0250 [-0.0731,0.0231]	-0.00703 [-0.0561,0.0420]	0.0209 [-0.0267,0.0685]	0.0282 [-0.0185,0.0748]
Severely disadvantaged	-0.0717 [-0.190,0.0464]	-0.0524 [-0.171,0.0661]	0.0244 [-0.0907,0.140]	0.0402 [-0.0734,0.154]
Girl	0.0242 [-0.000942,0.0493]	0.0235 [-0.00152,0.0485]	0.0327** [0.00912,0.0562]	0.0409*** [0.0175,0.0644]
Age of student in January 2013	-0.0809*** [-0.117,-0.0448]	-0.0757*** [-0.111,-0.0402]	-0.0215 [-0.0550,0.0120]	-0.0214 [-0.0544,0.0116]
Total number of individuals in the HH	0.000406 [-0.0127,0.0135]	-0.000374 [-0.0133,0.0125]	-0.0215*** [-0.0336,-0.00935]	-0.0181** [-0.0302,-0.00600]
Log. size of city	0.0177** [0.00643,0.0291]	0.0105 [-0.000761,0.0217]	0.00906 [-0.00152,0.0196]	0.00948 [-0.00101,0.0200]
Central	-0.0609** [-0.103,-0.0187]	-0.0415 [-0.0830,0.0000854]	-0.0285 [-0.0687,0.0118]	-0.0311 [-0.0711,0.00899]
Peripheral	-0.133*** [-0.196,-0.0706]	-0.0847** [-0.147,-0.0229]	-0.0572 [-0.118,0.00310]	-0.0590 [-0.119,0.000741]
Very peripheral	-0.178** [-0.284,-0.0718]	-0.147** [-0.249,-0.0440]	-0.104* [-0.202,-0.00616]	-0.0972 [-0.195,0.000773]
Living close to edge of grid cell	-0.00598 [-0.0335,0.0216]	-0.00590 [-0.0333,0.0215]	-0.00636 [-0.0327,0.0200]	-0.00549 [-0.0312,0.0202]
Academic parents per school		0.345*** [0.275,0.415]	0.0752* [0.00470,0.146]	0.0630 [-0.00748,0.133]
Migrant parents per school		0.198*** [0.107,0.289]	0.110* [0.0139,0.207]	0.135** [0.0383,0.232]
Social origin (std)			0.168*** [0.154,0.182]	0.140*** [0.125,0.154]
Migration background			0.159*** [0.129,0.190]	0.170*** [0.139,0.200]
Math test (std)				0.0583*** [0.0453,0.0713]
Voc. test (std)				0.0243*** [0.0101,0.0384]
Federal state Constant	Yes 1.257*** [0.963,1.551]	Yes 1.108*** [0.816,1.401]	Yes 0.923*** [0.649,1.197]	Yes 0.900*** [0.628,1.171]
sd(_cons) Constant	0.0898*** [0.0702,0.115]	0.0649*** [0.0436,0.0964]	0.0627*** [0.0436,0.0902]	0.0631*** [0.0442,0.0900]
sd(Residual) Constant	0.401*** [0.390,0.411]	0.400*** [0.390,0.410]	0.373*** [0.364,0.382]	0.368*** [0.359,0.377]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A6: Latent profiles, realistic aspirations

	Only context	Added school effects	Added origin	Added ability
Average	Ref.	Ref.	Ref.	Ref.
Highly academic	0.0923*** [0.0458,0.139]	0.0506* [0.00573,0.0954]	-0.0188 [-0.0601,0.0226]	-0.0123 [-0.0538,0.0292]
Partially disadvantaged	-0.0751* [-0.133,-0.0170]	-0.0409 [-0.0999,0.0181]	0.00426 [-0.0506,0.0592]	0.0173 [-0.0356,0.0703]
Severely disadvantaged	-0.177* [-0.315,-0.0382]	-0.130 [-0.268,0.00788]	-0.0134 [-0.146,0.120]	0.0159 [-0.117,0.148]
Girl	0.0305* [0.00277,0.0582]	0.0304* [0.00270,0.0581]	0.0431** [0.0171,0.0690]	0.0609*** [0.0360,0.0859]
Age of student in January 2013	-0.127*** [-0.164,-0.0905]	-0.120*** [-0.156,-0.0838]	-0.0482** [-0.0819,-0.0145]	-0.0427** [-0.0749,-0.0105]
Total number of individuals in the HH	0.00897 [-0.00591,0.0239]	0.00842 [-0.00615,0.0230]	-0.0161* [-0.0293,-0.00293]	-0.0106 [-0.0235,0.00226]
Log. size of city	0.0222** [0.00853,0.0359]	0.0156* [0.00205,0.0292]	0.0146* [0.00217,0.0270]	0.0154* [0.00368,0.0271]
Central	-0.0231 [-0.0705,0.0243]	-0.000982 [-0.0462,0.0442]	0.0149 [-0.0272,0.0571]	0.0103 [-0.0311,0.0518]
Peripheral	-0.0662* [-0.131,-0.00123]	-0.00750 [-0.0700,0.0550]	0.0264 [-0.0343,0.0871]	0.0253 [-0.0329,0.0835]
Very peripheral	-0.134* [-0.244,-0.0244]	-0.0998 [-0.205,0.00591]	-0.0445 [-0.148,0.0586]	-0.0236 [-0.122,0.0748]
Living close to edge of grid cell	-0.0133 [-0.0474,0.0209]	-0.0139 [-0.0481,0.0202]	-0.0145 [-0.0469,0.0179]	-0.0124 [-0.0426,0.0178]
Academic parents per school		0.411*** [0.331,0.491]	0.0655 [-0.0129,0.144]	0.0441 [-0.0325,0.121]
Migrant parents per school		0.117* [0.0172,0.216]	0.0791 [-0.0192,0.177]	0.127** [0.0313,0.224]
Social origin (std)			0.214*** [0.201,0.228]	0.157*** [0.143,0.172]
Migration background			0.118*** [0.0832,0.153]	0.133*** [0.100,0.166]
Math test (std)				0.135*** [0.120,0.149]
Voc. test (std)				0.0328*** [0.0183,0.0472]
Federal state Constant	Yes 1.346*** [1.027,1.666]	Yes 1.153*** [0.841,1.465]	Yes 0.882*** [0.593,1.171]	Yes 0.807*** [0.531,1.082]
sd(_cons) Constant	0.0816*** [0.0580,0.115]	0.0282 [0.0000442,17.95]	0.0405*** [0.0127,0.129]	0.0454*** [0.0193,0.107]
sd(Residual) Constant	0.458*** [0.451,0.466]	0.458*** [0.451,0.465]	0.420*** [0.413,0.428]	0.397*** [0.390,0.405]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A7: Latent profiles, teacher recommendation

	Only context	Added school effects	Added origin	Added ability
Average	Ref.	Ref.	Ref.	Ref.
Highly academic	0.0804** [0.0238,0.137]	0.0514 [-0.00612,0.109]	-0.0126 [-0.0690,0.0438]	-0.00349 [-0.0571,0.0501]
Partially disadvantaged	-0.0876** [-0.145,-0.0305]	-0.0624* [-0.120,-0.00445]	-0.0168 [-0.0731,0.0395]	0.000595 [-0.0522,0.0534]
Severely disadvantaged	-0.196** [-0.340,-0.0516]	-0.157* [-0.298,-0.0155]	-0.0411 [-0.178,0.0956]	-0.00210 [-0.132,0.127]
Girl	0.0321* [0.00349,0.0608]	0.0320* [0.00343,0.0606]	0.0445** [0.0170,0.0720]	0.0689*** [0.0430,0.0947]
Age of student in January 2013	-0.109*** [-0.148,-0.0699]	-0.103*** [-0.142,-0.0646]	-0.0363 [-0.0730,0.000324]	-0.0274 [-0.0621,0.00719]
Total number of individuals in the HH	0.00170 [-0.0138,0.0172]	0.00168 [-0.0136,0.0170]	-0.0194** [-0.0337,-0.00507]	-0.0127 [-0.0264,0.000969]
Log. size of city	0.00808 [-0.00566,0.0218]	0.00423 [-0.00982,0.0183]	0.00355 [-0.00995,0.0171]	0.00431 [-0.00818,0.0168]
Central	0.0110 [-0.0354,0.0575]	0.0258 [-0.0202,0.0718]	0.0404 [-0.00479,0.0856]	0.0340 [-0.00825,0.0763]
Peripheral	-0.0183 [-0.0815,0.0449]	0.0229 [-0.0405,0.0863]	0.0540 [-0.00998,0.118]	0.0514 [-0.00737,0.110]
Very peripheral	-0.0625 [-0.181,0.0558]	-0.0403 [-0.156,0.0750]	0.0115 [-0.103,0.126]	0.0394 [-0.0701,0.149]
Living close to edge of grid cell	0.0138 [-0.0209,0.0486]	0.0134 [-0.0210,0.0479]	0.0125 [-0.0215,0.0465]	0.0159 [-0.0152,0.0469]
Academic parents per school		0.278*** [0.195,0.361]	-0.0387 [-0.122,0.0446]	-0.0684 [-0.146,0.00884]
Migrant parents per school		0.0488 [-0.0538,0.151]	0.0541 [-0.0481,0.156]	0.120* [0.0184,0.222]
Social origin (std)			0.197*** [0.182,0.212]	0.120*** [0.104,0.136]
Migration background			0.0647*** [0.0287,0.101]	0.0835*** [0.0502,0.117]
Math test (std)				0.188*** [0.174,0.201]
Voc. test (std)				0.0395*** [0.0231,0.0559]
Federal state Constant	Yes 1.269*** [0.945,1.593]	Yes 1.130*** [0.809,1.451]	Yes 0.865*** [0.562,1.168]	Yes 0.760*** [0.473,1.048]
sd(_cons) Constant	0.0664*** [0.0394,0.112]	0.0390 [5.46e-14,2.78241e+10]	0.0611*** [0.0348,0.107]	0.0634*** [0.0425,0.0946]
sd(Residual) Constant	0.474*** [0.467,0.480]	0.473*** [0.467,0.480]	0.441*** [0.434,0.449]	0.400*** [0.392,0.408]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A8: Latent profiles, transition to the academic track

	Only context	Added school effects	Added origin	Added ability
Average	Ref.	Ref.	Ref.	Ref.
Highly academic	0.0896*** [0.0366,0.143]	0.0629* [0.00925,0.116]	-0.00632 [-0.0582,0.0455]	0.00221 [-0.0486,0.0530]
Partially disadvantaged	-0.0515 [-0.106,0.00268]	-0.0317 [-0.0874,0.0241]	0.0105 [-0.0422,0.0633]	0.0234 [-0.0248,0.0716]
Severely disadvantaged	-0.193** [-0.321,-0.0653]	-0.165* [-0.295,-0.0348]	-0.0541 [-0.177,0.0691]	-0.0219 [-0.140,0.0961]
Girl	0.0210 [-0.00740,0.0494]	0.0210 [-0.00721,0.0493]	0.0336* [0.00705,0.0601]	0.0554*** [0.0303,0.0805]
Age of student in January 2013	-0.108*** [-0.146,-0.0694]	-0.103*** [-0.141,-0.0647]	-0.0333 [-0.0690,0.00236]	-0.0238 [-0.0572,0.00951]
Total number of individuals in the HH	0.00807 [-0.00657,0.0227]	0.00786 [-0.00675,0.0225]	-0.0163* [-0.0300,-0.00250]	-0.0110 [-0.0240,0.00197]
Log. size of city	0.0166* [0.00301,0.0301]	0.0120 [-0.00217,0.0261]	0.0105 [-0.00267,0.0238]	0.0110 [-0.00112,0.0231]
Central	0.0319 [-0.0209,0.0847]	0.0470 [-0.00507,0.0991]	0.0628* [0.0129,0.113]	0.0565* [0.00853,0.105]
Peripheral	0.0216 [-0.0471,0.0904]	0.0624 [-0.00652,0.131]	0.0955** [0.0269,0.164]	0.0930** [0.0299,0.156]
Very peripheral	-0.0261 [-0.141,0.0883]	-0.00270 [-0.114,0.108]	0.0508 [-0.0581,0.160]	0.0741 [-0.0295,0.178]
Living close to edge of grid cell	0.00915 [-0.0234,0.0417]	0.00885 [-0.0236,0.0413]	0.00815 [-0.0235,0.0397]	0.0115 [-0.0178,0.0407]
Academic parents per school		0.288*** [0.197,0.379]	-0.0459 [-0.136,0.0443]	-0.0733 [-0.157,0.0102]
Migrant parents per school		0.0956 [-0.0140,0.205]	0.0484 [-0.0597,0.156]	0.110* [0.00414,0.216]
Social origin (std)			0.208*** [0.194,0.223]	0.140*** [0.125,0.155]
Migration background			0.129*** [0.0921,0.166]	0.143*** [0.108,0.178]
Math test (std)				0.173*** [0.159,0.188]
Voc. test (std)				0.0286*** [0.0127,0.0445]
Federal state Constant	Yes 1.099*** [0.779,1.419]	Yes 0.964*** [0.646,1.281]	Yes 0.707*** [0.409,1.005]	Yes 0.611*** [0.328,0.893]
sd(_cons) Constant	0.107*** [0.0862,0.133]	0.0956*** [0.0732,0.125]	0.101*** [0.0809,0.126]	0.0988*** [0.0805,0.121]
sd(Residual) Constant	0.474*** [0.468,0.481]	0.474*** [0.468,0.480]	0.439*** [0.432,0.446]	0.406*** [0.398,0.414]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A9: Threshold models: idealistic aspirations

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers				
Lowest tercile	-0.0136 [-0.0488,0.0216]	-0.0128 [-0.0475,0.0219]	-0.0337* [-0.0660,-0.00138]	-0.0333* [-0.0654,-0.00115]
Highest tercile	-0.00533 [-0.0414,0.0307]	-0.00312 [-0.0388,0.0326]	0.00567 [-0.0306,0.0419]	0.00645 [-0.0295,0.0424]
Share with tertiary education				
Lowest tercile	-0.0338 [-0.0717,0.00404]	-0.0182 [-0.0561,0.0197]	0.00568 [-0.0301,0.0414]	0.00480 [-0.0306,0.0402]
Highest tercile	0.0729*** [0.0387,0.107]	0.0455** [0.0119,0.0791]	0.00624 [-0.0265,0.0390]	0.00408 [-0.0286,0.0367]
Share of Non-Germans				
Lowest tercile	-0.0187 [-0.0529,0.0155]	-0.0144 [-0.0484,0.0196]	-0.0128 [-0.0453,0.0196]	-0.0163 [-0.0481,0.0156]
Highest tercile	-0.0153 [-0.0495,0.0188]	-0.0166 [-0.0501,0.0169]	-0.00146 [-0.0323,0.0294]	0.00284 [-0.0277,0.0333]
Girl	0.0234 [-0.00183,0.0487]	0.0230 [-0.00203,0.0481]	0.0327** [0.00919,0.0563]	0.0410*** [0.0176,0.0644]
Age of student in January 2013	-0.0796*** [-0.116,-0.0436]	-0.0746*** [-0.110,-0.0391]	-0.0209 [-0.0544,0.0127]	-0.0209 [-0.0540,0.0122]
Total number of individuals in the HH	0.000207 [-0.0129,0.0133]	-0.000547 [-0.0135,0.0124]	-0.0212*** [-0.0334,-0.00897]	-0.0176** [-0.0298,-0.00545]
Log. size of city	0.0127* [0.000992,0.0243]	0.00764 [-0.00383,0.0191]	0.00564 [-0.00529,0.0166]	0.00619 [-0.00467,0.0171]
Central	-0.0523* [-0.0945,-0.0100]	-0.0365 [-0.0783,0.00520]	-0.0284 [-0.0690,0.0123]	-0.0315 [-0.0720,0.00898]
Peripheral	-0.109*** [-0.174,-0.0450]	-0.0723* [-0.136,-0.00906]	-0.0599 [-0.122,0.00230]	-0.0622* [-0.124,-0.000560]
Very peripheral	-0.152** [-0.260,-0.0449]	-0.132* [-0.237,-0.0283]	-0.107* [-0.206,-0.00801]	-0.100* [-0.199,-0.000695]
Living close to edge of grid cell	-0.00576 [-0.0334,0.0219]	-0.00552 [-0.0329,0.0219]	-0.00691 [-0.0332,0.0194]	-0.00615 [-0.0318,0.0195]
Academic parents per school		0.329*** [0.258,0.401]	0.0664 [-0.00451,0.137]	0.0532 [-0.0177,0.124]
Migrant parents per school		0.196*** [0.106,0.286]	0.106* [0.0112,0.201]	0.131** [0.0357,0.227]
Social origin (std)			0.168*** [0.154,0.183]	0.141*** [0.126,0.155]
Migration background			0.157*** [0.126,0.188]	0.166*** [0.136,0.197]
Math test (std)				0.0584*** [0.0454,0.0714]
Voc. test (std)				0.0242*** [0.0101,0.0383]
Federal state Constant	Yes 1.302*** [1.010,1.593]	Yes 1.141*** [0.851,1.431]	Yes 0.966*** [0.693,1.239]	Yes 0.945*** [0.675,1.215]
sd(_cons) Constant	0.0864*** [0.0663,0.113]	0.0645*** [0.0433,0.0962]	0.0612*** [0.0416,0.0898]	0.0617*** [0.0425,0.0896]
sd(Residual) Constant	0.400*** [0.390,0.411]	0.400*** [0.390,0.410]	0.373*** [0.364,0.382]	0.367*** [0.359,0.376]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets. Reference is the intermediate tercile. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A10: Threshold models: realistic aspirations

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers				
Lowest tercile	0.0127 [-0.0263,0.0517]	0.0138 [-0.0242,0.0518]	-0.0117 [-0.0461,0.0228]	-0.0108 [-0.0435,0.0219]
Highest tercile	-0.00718 [-0.0507,0.0364]	0.00127 [-0.0420,0.0445]	0.0171 [-0.0232,0.0573]	0.0173 [-0.0216,0.0562]
Share with tertiary education				
Lowest tercile	-0.0369 [-0.0785,0.00457]	-0.0126 [-0.0540,0.0287]	0.0188 [-0.0202,0.0577]	0.0172 [-0.0202,0.0546]
Highest tercile	0.0927*** [0.0532,0.132]	0.0570** [0.0182,0.0958]	0.00687 [-0.0287,0.0424]	0.00326 [-0.0316,0.0382]
Share of Non-Germans				
Lowest tercile	-0.00356 [-0.0431,0.0359]	0.00112 [-0.0377,0.0400]	-0.00317 [-0.0385,0.0322]	-0.00980 [-0.0440,0.0244]
Highest tercile	-0.0437* [-0.0824,-0.00495]	-0.0395* [-0.0778,-0.00115]	-0.00916 [-0.0436,0.0253]	-0.000756 [-0.0342,0.0327]
Girl	0.0297* [0.00181,0.0577]	0.0300* [0.00224,0.0578]	0.0431** [0.0172,0.0691]	0.0610*** [0.0360,0.0859]
Age of student in January 2013	-0.125*** [-0.161,-0.0885]	-0.118*** [-0.154,-0.0820]	-0.0475** [-0.0812,-0.0137]	-0.0422* [-0.0745,-0.0100]
Total number of individuals in the HH	0.00787 [-0.00692,0.0227]	0.00751 [-0.00703,0.0220]	-0.0162* [-0.0294,-0.00300]	-0.0104 [-0.0234,0.00249]
Log. size of city	0.0188* [0.00424,0.0334]	0.0147* [0.000294,0.0292]	0.0123 [-0.000916,0.0254]	0.0134* [0.00114,0.0257]
Central	-0.0114 [-0.0576,0.0349]	0.00583 [-0.0385,0.0502]	0.0148 [-0.0273,0.0568]	0.00917 [-0.0324,0.0507]
Peripheral	-0.0357 [-0.102,0.0310]	0.00738 [-0.0567,0.0715]	0.0212 [-0.0412,0.0837]	0.0195 [-0.0410,0.0800]
Very peripheral	-0.103 [-0.215,0.00936]	-0.0839 [-0.192,0.0236]	-0.0512 [-0.156,0.0533]	-0.0298 [-0.130,0.0705]
Living close to edge of grid cell	-0.0122 [-0.0464,0.0220]	-0.0127 [-0.0467,0.0213]	-0.0148 [-0.0471,0.0176]	-0.0128 [-0.0431,0.0174]
Academic parents per school		0.403*** [0.322,0.485]	0.0674 [-0.0118,0.147]	0.0445 [-0.0329,0.122]
Migrant parents per school		0.122* [0.0229,0.221]	0.0727 [-0.0245,0.170]	0.122* [0.0267,0.217]
Social origin (std)			0.215*** [0.201,0.229]	0.159*** [0.144,0.173]
Migration background			0.117*** [0.0818,0.153]	0.131*** [0.0969,0.164]
Math test (std)				0.135*** [0.120,0.149]
Voc. test (std)				0.0327*** [0.0184,0.0470]
Federal state Constant	Yes 1.351*** [1.034,1.668]	Yes 1.138*** [0.826,1.449]	Yes 0.891*** [0.600,1.182]	Yes 0.819*** [0.544,1.095]
sd(_cons) Constant	0.0789*** [0.0546,0.114]	0.0365** [0.00428,0.312]	0.0380*** [0.00722,0.200]	0.0438*** [0.0162,0.119]
sd(Residual) Constant	0.458*** [0.451,0.466]	0.458*** [0.450,0.465]	0.420*** [0.413,0.428]	0.397*** [0.390,0.405]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets. Reference is the intermediate tercile. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A11: Threshold models: teacher recommendation

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers				
Lowest tercile	0.0148 [-0.0270,0.0567]	0.0161 [-0.0253,0.0576]	-0.00725 [-0.0465,0.0320]	-0.00604 [-0.0419,0.0299]
Highest tercile	-0.00863 [-0.0528,0.0355]	-0.00322 [-0.0475,0.0411]	0.0124 [-0.0296,0.0544]	0.0135 [-0.0254,0.0524]
Share with tertiary education				
Lowest tercile	-0.0424* [-0.0828,-0.00186]	-0.0250 [-0.0651,0.0151]	0.00367 [-0.0351,0.0424]	0.00140 [-0.0345,0.0373]
Highest tercile	0.0791*** [0.0373,0.121]	0.0544* [0.0126,0.0962]	0.00933 [-0.0300,0.0487]	0.00410 [-0.0333,0.0416]
Share of Non-Germans				
Lowest tercile	-0.000630 [-0.0394,0.0381]	0.00177 [-0.0365,0.0400]	-0.00474 [-0.0407,0.0312]	-0.0130 [-0.0472,0.0211]
Highest tercile	-0.0714*** [-0.112,-0.0308]	-0.0676** [-0.108,-0.0271]	-0.0344 [-0.0717,0.00289]	-0.0239 [-0.0574,0.00952]
Girl	0.0316* [0.00275,0.0604]	0.0317* [0.00305,0.0604]	0.0444** [0.0171,0.0718]	0.0687*** [0.0429,0.0946]
Age of student in January 2013	-0.106*** [-0.144,-0.0667]	-0.101*** [-0.139,-0.0618]	-0.0354 [-0.0721,0.00119]	-0.0269 [-0.0614,0.00769]
Total number of individuals in the HH	0.000367 [-0.0152,0.0159]	0.000370 [-0.0150,0.0157]	-0.0198** [-0.0342,-0.00548]	-0.0128 [-0.0265,0.000874]
Log. size of city	0.00640 [-0.00854,0.0213]	0.00404 [-0.0110,0.0191]	0.00167 [-0.0128,0.0162]	0.00293 [-0.0107,0.0165]
Central	0.0233 [-0.0229,0.0696]	0.0345 [-0.0115,0.0804]	0.0425 [-0.00253,0.0875]	0.0346 [-0.00730,0.0765]
Peripheral	0.0119 [-0.0530,0.0769]	0.0415 [-0.0234,0.106]	0.0545 [-0.0104,0.119]	0.0506 [-0.00855,0.110]
Very peripheral	-0.0313 [-0.149,0.0867]	-0.0198 [-0.135,0.0957]	0.0112 [-0.104,0.126]	0.0395 [-0.0704,0.149]
Living close to edge of grid cell	0.0153 [-0.0193,0.0499]	0.0150 [-0.0193,0.0493]	0.0126 [-0.0212,0.0463]	0.0157 [-0.0152,0.0466]
Academic parents per school		0.269*** [0.186,0.352]	-0.0379 [-0.120,0.0444]	-0.0693 [-0.145,0.00662]
Migrant parents per school		0.0674 [-0.0400,0.175]	0.0547 [-0.0498,0.159]	0.122* [0.0182,0.226]
Social origin (std)			0.197*** [0.182,0.211]	0.120*** [0.104,0.136]
Migration background			0.0684*** [0.0307,0.106]	0.0849*** [0.0503,0.120]
Math test (std)				0.188*** [0.174,0.201]
Voc. test (std)				0.0393*** [0.0229,0.0556]
Federal state Constant	Yes 1.258*** [0.934,1.581]	Yes 1.110*** [0.789,1.431]	Yes 0.876*** [0.570,1.181]	Yes 0.776*** [0.487,1.065]
sd(_cons) Constant	0.0689*** [0.0416,0.114]	0.0513*** [0.0140,0.188]	0.0605*** [0.0338,0.108]	0.0628*** [0.0417,0.0947]
sd(Residual) Constant	0.472*** [0.466,0.479]	0.472*** [0.465,0.478]	0.441*** [0.434,0.449]	0.400*** [0.392,0.408]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets. Reference is the intermediate tercile. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A12: Threshold models: transition to the academic track

	Only context	Added school effects	Added origin	Added ability
Share with benefit receivers				
Lowest tercile	0.0198 [-0.0210,0.0605]	0.0214 [-0.0193,0.0621]	-0.00456 [-0.0423,0.0332]	-0.00417 [-0.0393,0.0309]
Highest tercile	-0.0117 [-0.0558,0.0323]	-0.00795 [-0.0521,0.0362]	0.00545 [-0.0367,0.0476]	0.00615 [-0.0331,0.0454]
Share with tertiary education				
Lowest tercile	-0.0303 [-0.0712,0.0106]	-0.0153 [-0.0564,0.0257]	0.0148 [-0.0246,0.0543]	0.0119 [-0.0250,0.0489]
Highest tercile	0.0856*** [0.0428,0.128]	0.0636** [0.0206,0.107]	0.0158 [-0.0244,0.0560]	0.0113 [-0.0268,0.0493]
Share of Non-Germans				
Lowest tercile	-0.0160 [-0.0553,0.0234]	-0.0135 [-0.0524,0.0255]	-0.0160 [-0.0533,0.0214]	-0.0233 [-0.0593,0.0126]
Highest tercile	-0.0562** [-0.0968,-0.0156]	-0.0549** [-0.0959,-0.0139]	-0.0272 [-0.0653,0.0108]	-0.0190 [-0.0540,0.0160]
Girl	0.0201 [-0.00846,0.0486]	0.0203 [-0.00801,0.0487]	0.0333* [0.00670,0.0598]	0.0550*** [0.0298,0.0802]
Age of student in January 2013	-0.104*** [-0.142,-0.0661]	-0.0998*** [-0.138,-0.0618]	-0.0321 [-0.0677,0.00346]	-0.0230 [-0.0562,0.0102]
Total number of individuals in the HH	0.00689 [-0.00780,0.0216]	0.00668 [-0.00797,0.0213]	-0.0166* [-0.0304,-0.00281]	-0.0111 [-0.0241,0.00196]
Log. size of city	0.0157* [0.000300,0.0311]	0.0127 [-0.00300,0.0283]	0.00994 [-0.00481,0.0247]	0.0107 [-0.00299,0.0244]
Central	0.0439 [-0.00874,0.0965]	0.0557* [0.00351,0.108]	0.0649* [0.0150,0.115]	0.0573* [0.00932,0.105]
Peripheral	0.0507 [-0.0190,0.120]	0.0810* [0.0112,0.151]	0.0951** [0.0256,0.165]	0.0918** [0.0281,0.155]
Very peripheral	0.00538 [-0.110,0.121]	0.0193 [-0.0927,0.131]	0.0509 [-0.0593,0.161]	0.0745 [-0.0300,0.179]
Living close to edge of grid cell	0.0112 [-0.0215,0.0439]	0.0111 [-0.0215,0.0436]	0.00884 [-0.0229,0.0405]	0.0119 [-0.0174,0.0413]
Academic parents per school		0.274*** [0.183,0.366]	-0.0492 [-0.138,0.0399]	-0.0779 [-0.160,0.00458]
Migrant parents per school		0.109 [-0.00416,0.221]	0.0498 [-0.0584,0.158]	0.112* [0.00648,0.218]
Social origin (std)			0.208*** [0.193,0.223]	0.140*** [0.124,0.155]
Migration background			0.131*** [0.0925,0.169]	0.143*** [0.107,0.179]
Math test (std)				0.173*** [0.159,0.188]
Voc. test (std)				0.0284*** [0.0125,0.0442]
Federal state Constant	Yes 1.083*** [0.755,1.410]	Yes 0.939*** [0.613,1.265]	Yes 0.708*** [0.400,1.015]	Yes 0.618*** [0.326,0.910]
sd(_cons) Constant	0.107*** [0.0867,0.133]	0.0974*** [0.0753,0.126]	0.101*** [0.0809,0.126]	0.0987*** [0.0804,0.121]
sd(Residual) Constant	0.473*** [0.467,0.480]	0.473*** [0.467,0.479]	0.439*** [0.431,0.446]	0.406*** [0.398,0.414]
Observations	5261	5261	5261	5261

95% confidence intervals in brackets. Reference is the intermediate tercile. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A13: Subgroup analysis by migration background: idealistic aspirations

	Natives				Migrants			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.04 (0.15)	0.02 (0.15)	0.19 (0.15)	0.22 (0.14)	-0.05 (0.18)	-0.02 (0.19)	0.08 (0.19)	0.08 (0.18)
Share with tertiary education	0.58*** (0.11)	0.37*** (0.11)	0.02 (0.11)	0.02 (0.10)	0.38* (0.15)	0.18 (0.16)	0.01 (0.15)	0.02 (0.15)
Share of Non-Germans	-0.10 (0.10)	-0.10 (0.10)	0.03 (0.09)	0.06 (0.09)	-0.06 (0.11)	-0.04 (0.10)	0.11 (0.11)	0.13 (0.11)
Girl	0.02 (0.01)	0.02 (0.01)	0.03* (0.01)	0.04** (0.01)	0.04 (0.02)	0.04 (0.02)	0.04 (0.02)	0.05* (0.02)
Age of student in January 2013	-0.09*** (0.02)	-0.08*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.06 (0.04)	-0.06 (0.04)	-0.03 (0.03)	-0.03 (0.03)
Total number of individuals in the HH	-0.00 (0.01)	-0.00 (0.01)	-0.03*** (0.01)	-0.02*** (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Log. size of city	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Central	-0.05* (0.03)	-0.04 (0.03)	-0.03 (0.03)	-0.03 (0.02)	-0.05 (0.04)	-0.04 (0.04)	-0.03 (0.04)	-0.04 (0.04)
Peripheral	-0.11** (0.04)	-0.07* (0.04)	-0.06 (0.03)	-0.06 (0.03)	-0.08 (0.06)	-0.05 (0.06)	-0.03 (0.06)	-0.04 (0.06)
Very peripheral	-0.15* (0.06)	-0.13* (0.06)	-0.10 (0.06)	-0.09 (0.05)	-0.15 (0.17)	-0.14 (0.17)	-0.18 (0.17)	-0.17 (0.17)
Living close to edge of grid cell	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.01)	0.01 (0.03)	0.00 (0.03)	-0.00 (0.03)	-0.00 (0.03)
Academic parents per school		0.33*** (0.04)	0.06 (0.04)	0.05 (0.04)		0.24** (0.07)	0.08 (0.07)	0.07 (0.07)
Migrant parents per school		0.17** (0.06)	0.13* (0.06)	0.14* (0.06)		0.02 (0.08)	-0.01 (0.08)	0.01 (0.08)
Social origin (std)			0.19*** (0.01)	0.16*** (0.01)			0.11*** (0.01)	0.09*** (0.01)
Migration background			0.00 (.)	0.00 (.)			0.00 (.)	0.00 (.)
Math test (std)				0.07*** (0.01)				0.03* (0.01)
Voc. test (std)				0.03*** (0.01)				0.02 (0.01)
Federal state Constant	Yes 1.31*** (0.17)	Yes 1.16*** (0.17)	Yes 0.95*** (0.16)	Yes 0.94*** (0.16)	Yes 1.27*** (0.29)	Yes 1.15*** (0.29)	Yes 1.06*** (0.27)	Yes 1.02*** (0.28)
sd(_cons) Constant	0.09*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.06*** (0.01)	0.05 (0.09)	0.01 (5312.65)	0.01 (7921.28)	0.05 (0.09)
sd(Residual) Constant	0.41*** (0.01)	0.41*** (0.01)	0.38*** (0.00)	0.37*** (0.00)	0.35*** (0.01)	0.35 (0.23)	0.33*** (0.06)	0.33*** (0.01)
Observations	4174	4174	4174	4174	1087	1087	1087	1087

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A14: Subgroup analysis by migration background: realistic aspirations

	Natives				Migrants			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.19 (0.17)	-0.13 (0.17)	0.07 (0.16)	0.12 (0.15)	-0.11 (0.24)	-0.05 (0.23)	0.12 (0.23)	0.11 (0.22)
Share with tertiary education	0.64*** (0.12)	0.39** (0.12)	-0.04 (0.11)	-0.03 (0.11)	0.46* (0.22)	0.11 (0.24)	-0.19 (0.23)	-0.15 (0.22)
Share of Non-Germans	-0.15 (0.11)	-0.15 (0.11)	0.01 (0.10)	0.05 (0.10)	-0.32* (0.13)	-0.27* (0.13)	-0.01 (0.13)	0.01 (0.12)
Girl	0.02 (0.02)	0.02 (0.02)	0.04** (0.01)	0.06*** (0.01)	0.06 (0.03)	0.06 (0.03)	0.05 (0.03)	0.07* (0.03)
Age of student in January 2013	-0.12*** (0.02)	-0.11*** (0.02)	-0.04* (0.02)	-0.04* (0.02)	-0.11** (0.04)	-0.12** (0.04)	-0.07 (0.04)	-0.06 (0.04)
Total number of individuals in the HH	0.01 (0.01)	0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.01)	-0.01 (0.01)
Log. size of city	0.02* (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.01 (0.02)	0.02 (0.01)	0.02 (0.01)
Central	-0.00 (0.03)	0.02 (0.03)	0.02 (0.02)	0.02 (0.02)	-0.04 (0.05)	-0.02 (0.05)	-0.00 (0.05)	-0.02 (0.04)
Peripheral	-0.03 (0.03)	0.01 (0.03)	0.03 (0.03)	0.03 (0.03)	-0.06 (0.08)	-0.01 (0.08)	0.01 (0.07)	0.00 (0.07)
Very peripheral	-0.10 (0.06)	-0.08 (0.06)	-0.04 (0.06)	-0.02 (0.05)	-0.02 (0.20)	-0.00 (0.19)	-0.06 (0.19)	-0.03 (0.19)
Living close to edge of grid cell	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	0.01 (0.04)	0.01 (0.04)	-0.01 (0.03)	-0.00 (0.03)
Academic parents per school		0.37*** (0.04)	0.05 (0.04)	0.03 (0.04)		0.41*** (0.09)	0.14 (0.09)	0.10 (0.09)
Migrant parents per school		0.19** (0.07)	0.13* (0.06)	0.16** (0.06)		-0.01 (0.09)	-0.05 (0.08)	-0.01 (0.08)
Social origin (std)			0.22*** (0.01)	0.16*** (0.01)			0.19*** (0.02)	0.14*** (0.02)
Migration background			(.)	(.)			(.)	(.)
Math test (std)				0.14*** (0.01)				0.11*** (0.02)
Voc. test (std)				0.04*** (0.01)				0.02 (0.02)
Federal state Constant	Yes 1.27*** (0.18)	Yes 1.08*** (0.18)	Yes 0.83*** (0.16)	Yes 0.79*** (0.16)	Yes 1.47*** (0.35)	Yes 1.27*** (0.35)	Yes 1.11*** (0.32)	Yes 0.96** (0.31)
sd(_cons) Constant	0.07*** (0.02)	0.01 (496.83)	0.03 (0.73)	0.04*** (0.03)	0.06 (6286.77)	0.00 (480.82)	0.00 (.)	0.00 (66.04)
sd(Residual) Constant	0.46*** (0.00)	0.46*** (0.02)	0.42*** (0.00)	0.40*** (0.00)	0.45*** (0.02)	0.45*** (0.06)	0.42*** (0.07)	0.40*** (0.03)
Observations	4174	4174	4174	4174	1087	1087	1087	1087

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A15: Subgroup analysis by migration background: teacher recommendation

	Natives				Migrants			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.19 (0.17)	-0.17 (0.17)	0.01 (0.17)	0.08 (0.15)	-0.06 (0.24)	-0.01 (0.23)	0.15 (0.23)	0.13 (0.21)
Share with tertiary education	0.56*** (0.13)	0.42** (0.13)	0.03 (0.12)	0.04 (0.11)	0.44 (0.25)	0.12 (0.26)	-0.16 (0.25)	-0.10 (0.23)
Share of Non-Germans	-0.26* (0.11)	-0.28** (0.11)	-0.13 (0.10)	-0.07 (0.09)	-0.35* (0.15)	-0.30* (0.15)	-0.06 (0.14)	-0.02 (0.13)
Girl	0.04* (0.02)	0.04* (0.02)	0.05*** (0.02)	0.08*** (0.01)	0.02 (0.04)	0.02 (0.03)	0.02 (0.03)	0.05 (0.03)
Age of student in January 2013	-0.10*** (0.02)	-0.09*** (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.11* (0.04)	-0.11** (0.04)	-0.07 (0.04)	-0.05 (0.04)
Total number of individuals in the HH	0.01 (0.01)	0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.03* (0.02)	-0.03 (0.02)	-0.03* (0.02)	-0.02 (0.01)
Log. size of city	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.00 (0.02)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Central	0.03 (0.03)	0.05 (0.03)	0.05* (0.03)	0.05* (0.02)	-0.01 (0.05)	0.01 (0.05)	0.02 (0.05)	-0.00 (0.04)
Peripheral	0.03 (0.04)	0.05 (0.04)	0.07 (0.04)	0.07* (0.03)	-0.06 (0.07)	-0.00 (0.07)	0.02 (0.07)	-0.00 (0.07)
Very peripheral	-0.02 (0.06)	-0.00 (0.06)	0.03 (0.06)	0.07 (0.05)	-0.13 (0.24)	-0.12 (0.23)	-0.17 (0.24)	-0.12 (0.24)
Living close to edge of grid cell	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.04 (0.04)	0.04 (0.04)	0.03 (0.04)	0.03 (0.03)
Academic parents per school		0.21*** (0.05)	-0.08 (0.05)	-0.10* (0.04)		0.38*** (0.09)	0.13 (0.09)	0.06 (0.08)
Migrant parents per school		0.19** (0.07)	0.13 (0.07)	0.18** (0.06)		0.03 (0.09)	-0.01 (0.09)	0.05 (0.09)
Social origin (std)			0.20*** (0.01)	0.13*** (0.01)			0.18*** (0.02)	0.10*** (0.02)
Migration background			(.)	(.)			(.)	(.)
Math test (std)				0.19*** (0.01)				0.18*** (0.02)
Voc. test (std)				0.04*** (0.01)				0.04* (0.02)
Federal state Constant	Yes 1.11*** (0.18)	Yes 1.01*** (0.18)	Yes 0.78*** (0.17)	Yes 0.71*** (0.16)	Yes 1.49*** (0.35)	Yes 1.31*** (0.35)	Yes 1.15*** (0.33)	Yes 0.91** (0.31)
sd(_cons) Constant	0.05*** (0.04)	0.01 (1139.41)	0.06*** (0.03)	0.06*** (0.02)	0.00 (.)	0.00 (.)	0.00 (.)	0.00 (.)
sd(Residual) Constant	0.47*** (0.00)	0.47*** (0.01)	0.44*** (0.00)	0.40*** (0.00)	0.47*** (0.05)	0.47*** (0.05)	0.45*** (0.03)	0.41*** (0.08)
Observations	4174	4174	4174	4174	1087	1087	1087	1087

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A16: Subgroup analysis by migration background: transition to the academic track

	Natives				Migrants			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.21 (0.17)	-0.19 (0.17)	0.01 (0.16)	0.07 (0.15)	-0.10 (0.23)	-0.05 (0.22)	0.12 (0.22)	0.09 (0.21)
Share with tertiary education	0.62*** (0.13)	0.48*** (0.13)	0.07 (0.12)	0.08 (0.12)	0.46 (0.24)	0.17 (0.25)	-0.12 (0.24)	-0.06 (0.23)
Share of Non-Germans	-0.21* (0.10)	-0.23* (0.11)	-0.07 (0.10)	-0.02 (0.09)	-0.38** (0.14)	-0.33* (0.14)	-0.08 (0.14)	-0.06 (0.14)
Girl	0.02 (0.02)	0.02 (0.02)	0.04** (0.02)	0.06*** (0.01)	0.02 (0.03)	0.02 (0.03)	0.01 (0.03)	0.04 (0.03)
Age of student in January 2013	-0.11*** (0.02)	-0.10*** (0.02)	-0.03 (0.02)	-0.02 (0.02)	-0.08 (0.04)	-0.09* (0.04)	-0.05 (0.04)	-0.02 (0.04)
Total number of individuals in the HH	0.01 (0.01)	0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.01)
Log. size of city	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.02 (0.02)	0.02 (0.01)	0.02 (0.01)
Central	0.06* (0.03)	0.08* (0.03)	0.08** (0.03)	0.08** (0.03)	-0.01 (0.05)	0.01 (0.05)	0.02 (0.04)	0.00 (0.04)
Peripheral	0.07 (0.04)	0.10* (0.04)	0.11** (0.04)	0.11** (0.03)	0.01 (0.08)	0.06 (0.08)	0.08 (0.07)	0.06 (0.07)
Very peripheral	0.02 (0.06)	0.04 (0.06)	0.08 (0.06)	0.10 (0.05)	-0.12 (0.23)	-0.11 (0.23)	-0.17 (0.24)	-0.11 (0.25)
Living close to edge of grid cell	0.00 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.04)	0.03 (0.04)	0.01 (0.04)	0.02 (0.03)
Academic parents per school		0.22*** (0.05)	-0.09 (0.05)	-0.11* (0.05)		0.34*** (0.10)	0.08 (0.09)	0.03 (0.09)
Migrant parents per school		0.19* (0.08)	0.13 (0.07)	0.17* (0.07)		-0.02 (0.09)	-0.07 (0.08)	-0.01 (0.09)
Social origin (std)			0.21*** (0.01)	0.15*** (0.01)			0.19*** (0.02)	0.12*** (0.02)
Migration background			(.)	(.)			(.)	(.)
Math test (std)				0.17*** (0.01)				0.17*** (0.02)
Voc. test (std)				0.03*** (0.01)				0.02 (0.02)
Federal state Constant	Yes 1.02*** (0.19)	Yes 0.91*** (0.19)	Yes 0.67*** (0.18)	Yes 0.61*** (0.17)	Yes 1.18*** (0.34)	Yes 1.02** (0.34)	Yes 0.87** (0.32)	Yes 0.63* (0.30)
sd(_cons) Constant	0.11*** (0.01)	0.10*** (0.01)	0.11*** (0.01)	0.10*** (0.01)	0.03 (.)	0.00 (99.75)	0.00 (.)	0.00 (.)
sd(Residual) Constant	0.47*** (0.00)	0.47*** (0.00)	0.44*** (0.00)	0.40*** (0.00)	0.47*** (0.06)	0.47*** (0.07)	0.44*** (0.04)	0.41*** (0.11)
Observations	4174	4174	4174	4174	1087	1087	1087	1087

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A17: Subgroup analysis by parental education: idealistic aspirations

	Other parents				Tertiary educated parents			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	0.02	-0.00	0.16	0.17	0.10	0.09	0.14	0.15
	(0.17)	(0.17)	(0.17)	(0.16)	(0.15)	(0.15)	(0.14)	(0.14)
Share with tertiary education	0.41*	0.31	0.06	0.06	0.24**	0.17	0.06	0.07
	(0.16)	(0.17)	(0.17)	(0.17)	(0.09)	(0.09)	(0.08)	(0.08)
Share of Non-Germans	0.16	0.10	0.07	0.11	0.07	0.05	0.06	0.07
	(0.09)	(0.10)	(0.09)	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)
Girl	0.03	0.03	0.04*	0.05*	0.03*	0.03*	0.03*	0.03*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Age of student in January 2013	-0.09***	-0.09***	-0.03	-0.03	-0.01	-0.01	0.00	0.00
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Total number of individuals in the HH	-0.01	-0.01	-0.02**	-0.02*	-0.00	-0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log. size of city	0.01	0.01	0.01	0.01	0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Central	-0.08*	-0.07*	-0.05	-0.05	-0.01	-0.00	0.00	-0.00
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Peripheral	-0.10*	-0.08	-0.05	-0.06	-0.08*	-0.06	-0.05	-0.05
	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.04)	(0.03)	(0.03)
Very peripheral	-0.17*	-0.15*	-0.13	-0.12	-0.09	-0.08	-0.06	-0.05
	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
Living close to edge of grid cell	0.00	0.00	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Academic parents per school		0.18**	0.09	0.08		0.15***	0.10*	0.09*
		(0.06)	(0.06)	(0.06)		(0.04)	(0.04)	(0.04)
Migrant parents per school		0.20**	0.09	0.12		0.11	0.07	0.08
		(0.07)	(0.07)	(0.07)		(0.06)	(0.05)	(0.05)
Social origin (std)			0.23***	0.19***			0.10***	0.08***
			(0.01)	(0.01)			(0.01)	(0.01)
Migration background			0.21***	0.22***			0.06***	0.06***
			(0.02)	(0.02)			(0.02)	(0.02)
Math test (std)				0.07***				0.04***
				(0.01)				(0.01)
Voc. test (std)				0.04***				0.01
				(0.01)				(0.01)
Federal state	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.28***	1.23***	1.04***	0.96***	0.95***	0.88***	0.80***	0.82***
	(0.21)	(0.21)	(0.20)	(0.20)	(0.17)	(0.17)	(0.17)	(0.17)
sd(_cons)								
Constant	0.10***	0.09***	0.08***	0.08***	0.00	0.00	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(956.47)	(.)	(256.57)	(415.66)
sd(Residual)								
Constant	0.44***	0.44***	0.42***	0.41***	0.30**	0.30***	0.29***	0.29***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.12)	(0.03)	(0.05)	(0.03)
Observations	2969	2969	2969	2969	2292	2292	2292	2292

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A18: Subgroup analysis by parental education: realistic aspirations

	Other parents				Tertiary educated parents			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.06 (0.18)	-0.06 (0.18)	0.13 (0.17)	0.14 (0.16)	0.04 (0.19)	0.03 (0.19)	0.12 (0.18)	0.16 (0.18)
Share with tertiary education	0.35* (0.18)	0.23 (0.18)	-0.03 (0.18)	-0.03 (0.17)	0.25* (0.12)	0.16 (0.12)	-0.02 (0.12)	0.00 (0.12)
Share of Non-Germans	-0.04 (0.10)	-0.07 (0.10)	-0.03 (0.10)	0.02 (0.10)	0.00 (0.11)	-0.02 (0.11)	0.02 (0.11)	0.05 (0.11)
Girl	0.03 (0.02)	0.03 (0.02)	0.04* (0.02)	0.06*** (0.02)	0.05** (0.02)	0.05** (0.02)	0.05** (0.02)	0.06*** (0.02)
Age of student in January 2013	-0.12*** (0.02)	-0.12*** (0.02)	-0.06* (0.02)	-0.05* (0.02)	-0.05 (0.03)	-0.05 (0.03)	-0.03 (0.03)	-0.03 (0.02)
Total number of individuals in the HH	-0.01 (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Log. size of city	0.02 (0.01)	0.02 (0.01)	0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Central	-0.03 (0.03)	-0.02 (0.03)	0.00 (0.03)	0.00 (0.03)	0.02 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)
Peripheral	-0.01 (0.04)	0.01 (0.04)	0.04 (0.04)	0.03 (0.04)	-0.02 (0.04)	-0.01 (0.04)	0.00 (0.04)	0.01 (0.04)
Very peripheral	-0.12 (0.07)	-0.10 (0.07)	-0.07 (0.07)	-0.05 (0.07)	-0.03 (0.08)	-0.03 (0.08)	0.02 (0.08)	0.04 (0.07)
Living close to edge of grid cell	-0.01 (0.03)	-0.00 (0.03)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Academic parents per school		0.19** (0.06)	0.10 (0.06)	0.08 (0.06)		0.16** (0.06)	0.08 (0.05)	0.05 (0.05)
Migrant parents per school		0.13 (0.07)	0.08 (0.07)	0.13* (0.07)		0.09 (0.07)	0.05 (0.06)	0.08 (0.06)
Social origin (std)			0.26*** (0.01)	0.18*** (0.01)			0.17*** (0.01)	0.13*** (0.01)
Migration background			0.15*** (0.03)	0.17*** (0.02)			0.07** (0.02)	0.07** (0.02)
Math test (std)				0.15*** (0.01)				0.11*** (0.01)
Voc. test (std)				0.04*** (0.01)				0.02* (0.01)
Federal state Constant	Yes 1.27*** (0.22)	Yes 1.21*** (0.22)	Yes 1.00*** (0.21)	Yes 0.81*** (0.20)	Yes 0.98*** (0.21)	Yes 0.91*** (0.21)	Yes 0.74*** (0.20)	Yes 0.77*** (0.20)
sd(_cons) Constant	0.08*** (0.02)	0.08*** (0.02)	0.07*** (0.03)	0.06*** (0.04)	0.00 (.)	0.00 (759.72)	0.00 (123.02)	0.01 (2626.16)
sd(Residual) Constant	0.48*** (0.00)	0.48*** (0.00)	0.45*** (0.01)	0.42*** (0.01)	0.38*** (0.05)	0.38*** (0.05)	0.37*** (0.05)	0.35*** (0.03)
Observations	2969	2969	2969	2969	2292	2292	2292	2292

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A19: Subgroup analysis by parental education: teacher recommendation

	Other parents				Tertiary educated parents			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.08	-0.07	0.11	0.11	0.03	0.00	0.09	0.16
	(0.17)	(0.17)	(0.17)	(0.15)	(0.24)	(0.24)	(0.23)	(0.21)
Share with tertiary education	0.37*	0.31	0.08	0.08	0.17	0.18	0.02	0.05
	(0.17)	(0.18)	(0.17)	(0.16)	(0.14)	(0.15)	(0.14)	(0.14)
Share of Non-Germans	-0.20*	-0.21*	-0.12	-0.05	-0.12	-0.14	-0.09	-0.05
	(0.10)	(0.11)	(0.11)	(0.10)	(0.12)	(0.12)	(0.12)	(0.11)
Girl	0.03	0.03	0.04*	0.07***	0.05**	0.05**	0.05**	0.07***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age of student in January 2013	-0.12***	-0.12***	-0.07*	-0.04	-0.01	-0.01	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Total number of individuals in the HH	-0.01	-0.01	-0.02*	-0.01	0.00	-0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log. size of city	0.01	0.01	0.01	0.01	-0.00	-0.01	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Central	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Peripheral	0.04	0.05	0.08	0.07	0.00	0.01	0.02	0.03
	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
Very peripheral	-0.02	-0.02	0.01	0.04	-0.02	-0.01	0.03	0.06
	(0.08)	(0.08)	(0.08)	(0.07)	(0.09)	(0.09)	(0.09)	(0.08)
Living close to edge of grid cell	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Academic parents per school		0.09	0.02	-0.01		0.01	-0.07	-0.12*
		(0.06)	(0.06)	(0.05)		(0.06)	(0.06)	(0.06)
Migrant parents per school		0.05	0.04	0.11		0.14	0.11	0.14
		(0.07)	(0.07)	(0.07)		(0.08)	(0.08)	(0.08)
Social origin (std)			0.24***	0.14***			0.16***	0.10***
			(0.01)	(0.01)			(0.02)	(0.02)
Migration background			0.08**	0.10***			0.05	0.05
			(0.03)	(0.02)			(0.03)	(0.03)
Math test (std)				0.20***				0.16***
				(0.01)				(0.01)
Voc. test (std)				0.05***				0.03*
				(0.01)				(0.01)
Federal state Constant	Yes 1.26***	Yes 1.23***	Yes 1.03***	Yes 0.77***	Yes 0.80***	Yes 0.79***	Yes 0.64**	Yes 0.69**
	(0.22)	(0.22)	(0.21)	(0.20)	(0.23)	(0.23)	(0.22)	(0.21)
sd(_cons) Constant	0.03	0.03	0.02	0.04	0.08***	0.08***	0.08***	0.06*
	(0.09)	(.)	(.)	(.)	(0.03)	(0.03)	(0.03)	(0.07)
sd(Residual) Constant	0.49***	0.49***	0.46***	0.42***	0.41***	0.41***	0.40***	0.37***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	2969	2969	2969	2969	2292	2292	2292	2292

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A20: Subgroup analysis by parental education: transition to the academic track

	Other parents				Tertiary educated parents			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.03 (0.16)	-0.04 (0.17)	0.14 (0.16)	0.14 (0.15)	-0.03 (0.23)	-0.06 (0.23)	0.02 (0.22)	0.08 (0.20)
Share with tertiary education	0.35* (0.17)	0.29 (0.18)	0.04 (0.17)	0.05 (0.16)	0.27* (0.14)	0.28 (0.15)	0.11 (0.14)	0.14 (0.14)
Share of Non-Germans	-0.10 (0.10)	-0.13 (0.10)	-0.09 (0.11)	-0.04 (0.10)	-0.03 (0.12)	-0.04 (0.13)	-0.03 (0.13)	0.00 (0.12)
Girl	0.03 (0.02)	0.03 (0.02)	0.04* (0.02)	0.06*** (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.05** (0.02)
Age of student in January 2013	-0.10*** (0.03)	-0.10*** (0.03)	-0.05 (0.02)	-0.02 (0.02)	-0.03 (0.03)	-0.03 (0.03)	-0.01 (0.03)	-0.02 (0.03)
Total number of individuals in the HH	-0.00 (0.01)	-0.00 (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Log. size of city	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.02* (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)
Central	0.03 (0.04)	0.04 (0.04)	0.06 (0.03)	0.06 (0.03)	0.07* (0.03)	0.08* (0.03)	0.08* (0.03)	0.07* (0.03)
Peripheral	0.10* (0.04)	0.12* (0.04)	0.14*** (0.04)	0.14*** (0.04)	0.01 (0.05)	0.02 (0.05)	0.03 (0.05)	0.04 (0.05)
Very peripheral	0.01 (0.07)	0.02 (0.07)	0.05 (0.07)	0.08 (0.07)	0.03 (0.09)	0.04 (0.09)	0.08 (0.09)	0.10 (0.08)
Living close to edge of grid cell	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	-0.00 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)
Academic parents per school		0.10 (0.06)	0.01 (0.06)	-0.01 (0.05)		-0.01 (0.07)	-0.10 (0.07)	-0.14* (0.07)
Migrant parents per school		0.09 (0.07)	0.04 (0.07)	0.10 (0.07)		0.11 (0.09)	0.05 (0.09)	0.09 (0.08)
Social origin (std)			0.25*** (0.01)	0.16*** (0.01)			0.17*** (0.02)	0.12*** (0.02)
Migration background			0.15*** (0.03)	0.17*** (0.02)			0.10*** (0.03)	0.10*** (0.03)
Math test (std)				0.19*** (0.01)				0.15*** (0.01)
Voc. test (std)				0.03** (0.01)				0.03* (0.01)
Federal state Constant	Yes 0.94*** (0.21)	Yes 0.91*** (0.21)	Yes 0.71*** (0.20)	Yes 0.47* (0.19)	Yes 0.85*** (0.24)	Yes 0.85*** (0.25)	Yes 0.71** (0.24)	Yes 0.77*** (0.23)
sd(_cons) Constant	0.09*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.14*** (0.02)	0.14*** (0.02)	0.14*** (0.02)	0.13*** (0.02)
sd(Residual) Constant	0.48*** (0.00)	0.48*** (0.00)	0.45*** (0.01)	0.42*** (0.01)	0.42*** (0.01)	0.42*** (0.01)	0.41*** (0.01)	0.38*** (0.01)
Observations	2969	2969	2969	2969	2292	2292	2292	2292

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A21: Subgroup analysis by urbanity: idealistic aspirations

	Urban regions				Rural regions			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	0.16 (0.12)	0.20 (0.11)	0.31** (0.11)	0.34** (0.11)	0.12 (0.26)	0.25 (0.26)	0.56* (0.25)	0.56* (0.24)
Share with tertiary education	0.41*** (0.09)	0.20* (0.09)	-0.03 (0.09)	-0.04 (0.09)	0.66*** (0.17)	0.50** (0.17)	0.04 (0.17)	0.09 (0.17)
Share of Non-Germans	-0.06 (0.08)	-0.08 (0.08)	-0.00 (0.08)	0.01 (0.08)	-0.06 (0.13)	-0.09 (0.14)	-0.03 (0.13)	0.00 (0.13)
Girl	0.02 (0.02)	0.02 (0.02)	0.02 (0.01)	0.03* (0.01)	0.03 (0.02)	0.03 (0.02)	0.05* (0.02)	0.05* (0.02)
Age of student in January 2013	-0.08*** (0.02)	-0.07*** (0.02)	-0.03 (0.02)	-0.03 (0.02)	-0.06 (0.03)	-0.05 (0.03)	0.01 (0.03)	0.01 (0.03)
Total number of individuals in the HH	-0.00 (0.01)	-0.00 (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.03* (0.01)	-0.02 (0.01)
Central	-0.05* (0.02)	-0.04 (0.02)	-0.03 (0.02)	-0.04 (0.02)	-0.09* (0.04)	-0.07 (0.04)	-0.05 (0.04)	-0.05 (0.04)
Peripheral	-0.10** (0.04)	-0.07 (0.04)	-0.07 (0.04)	-0.08* (0.04)	-0.14*** (0.04)	-0.10* (0.04)	-0.07 (0.04)	-0.07 (0.04)
Very peripheral	-0.11 (0.13)	-0.08 (0.14)	-0.09 (0.13)	-0.09 (0.13)	-0.15** (0.06)	-0.13* (0.06)	-0.09 (0.06)	-0.07 (0.06)
Living close to edge of grid cell	-0.00 (0.02)	-0.00 (0.02)	-0.01 (0.02)	-0.00 (0.02)	-0.01 (0.03)	-0.01 (0.03)	-0.01 (0.02)	-0.01 (0.02)
Academic parents per school		0.26*** (0.04)	0.05 (0.04)	0.03 (0.04)		0.29*** (0.07)	-0.00 (0.07)	-0.01 (0.07)
Migrant parents per school		0.12* (0.05)	0.02 (0.05)	0.04 (0.05)		0.07 (0.11)	-0.02 (0.11)	0.01 (0.11)
Social origin (std)			0.15*** (0.01)	0.13*** (0.01)			0.21*** (0.01)	0.17*** (0.01)
Migration background			0.14*** (0.02)	0.15*** (0.02)			0.17*** (0.03)	0.17*** (0.03)
Math test (std)				0.05*** (0.01)				0.07*** (0.01)
Voc. test (std)				0.02* (0.01)				0.03* (0.01)
Constant	1.28*** (0.16)	1.14*** (0.15)	1.02*** (0.15)	1.02*** (0.14)	1.11*** (0.25)	0.94*** (0.25)	0.69** (0.23)	0.67** (0.23)
sd(_cons)								
Constant	0.09*** (0.02)	0.07*** (0.02)	0.07*** (0.02)	0.07*** (0.02)	0.13*** (0.02)	0.12*** (0.02)	0.11*** (0.02)	0.12*** (0.02)
sd(Residual)								
Constant	0.37*** (0.01)	0.37*** (0.01)	0.35*** (0.01)	0.34*** (0.01)	0.45*** (0.01)	0.44*** (0.01)	0.41*** (0.01)	0.40*** (0.01)
Observations	3282	3282	3282	3282	1979	1979	1979	1979

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A22: Subgroup analysis by urbanity: realistic aspirations

	Urban regions				Rural regions			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	0.03 (0.14)	0.09 (0.13)	0.28* (0.13)	0.33** (0.12)	-0.23 (0.28)	-0.08 (0.28)	0.27 (0.27)	0.25 (0.25)
Share with tertiary education	0.54*** (0.10)	0.25* (0.11)	-0.07 (0.11)	-0.09 (0.10)	0.61** (0.19)	0.42* (0.19)	-0.12 (0.18)	-0.04 (0.18)
Share of Non-Germans	-0.21* (0.09)	-0.19* (0.09)	-0.01 (0.09)	0.02 (0.08)	-0.20 (0.14)	-0.25 (0.14)	-0.12 (0.14)	-0.06 (0.13)
Girl	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)	0.05** (0.02)	0.04 (0.03)	0.04 (0.03)	0.06* (0.02)	0.07** (0.02)
Age of student in January 2013	-0.11*** (0.03)	-0.11*** (0.02)	-0.05* (0.02)	-0.05* (0.02)	-0.10** (0.03)	-0.10** (0.03)	-0.01 (0.03)	-0.02 (0.03)
Total number of individuals in the HH	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.02 (0.01)	-0.01 (0.01)
Central	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.08 (0.04)	-0.06 (0.05)	-0.04 (0.04)	-0.03 (0.04)
Peripheral	-0.04 (0.04)	-0.01 (0.04)	-0.01 (0.04)	-0.02 (0.03)	-0.13** (0.05)	-0.08 (0.05)	-0.05 (0.05)	-0.03 (0.04)
Very peripheral	-0.12 (0.13)	-0.09 (0.14)	-0.10 (0.12)	-0.09 (0.11)	-0.18** (0.06)	-0.15* (0.06)	-0.10 (0.06)	-0.06 (0.06)
Living close to edge of grid cell	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.02)
Academic parents per school		0.36*** (0.05)	0.07 (0.05)	0.03 (0.05)		0.31*** (0.07)	-0.03 (0.07)	-0.04 (0.07)
Migrant parents per school		0.08 (0.06)	0.01 (0.06)	0.04 (0.06)		0.12 (0.11)	0.07 (0.10)	0.12 (0.10)
Social origin (std)			0.20*** (0.01)	0.15*** (0.01)			0.24*** (0.01)	0.17*** (0.01)
Migration background			0.11*** (0.02)	0.13*** (0.02)			0.12** (0.04)	0.12*** (0.04)
Math test (std)				0.12*** (0.01)				0.15*** (0.01)
Voc. test (std)				0.02** (0.01)				0.05*** (0.01)
Constant	1.36*** (0.18)	1.17*** (0.18)	0.98*** (0.17)	0.95*** (0.16)	1.30*** (0.25)	1.09*** (0.25)	0.78*** (0.24)	0.72** (0.22)
sd(_cons)								
Constant	0.10*** (0.02)	0.07*** (0.02)	0.07*** (0.02)	0.07*** (0.02)	0.10*** (0.03)	0.09*** (0.03)	0.08*** (0.03)	0.10*** (0.02)
sd(Residual)								
Constant	0.45*** (0.01)	0.45*** (0.01)	0.41*** (0.01)	0.39*** (0.01)	0.48*** (0.01)	0.48*** (0.01)	0.43*** (0.01)	0.40*** (0.01)
Observations	3282	3282	3282	3282	1979	1979	1979	1979

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A23: Subgroup analysis by urbanity: teacher recommendation

	Urban regions				Rural regions			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.18	-0.15	0.03	0.11	-0.40	-0.28	0.03	0.01
	(0.14)	(0.14)	(0.13)	(0.12)	(0.27)	(0.28)	(0.26)	(0.25)
Share with tertiary education	0.48***	0.28*	-0.01	-0.03	0.54**	0.38	-0.12	-0.02
	(0.10)	(0.11)	(0.11)	(0.11)	(0.19)	(0.20)	(0.18)	(0.18)
Share of Non-Germans	-0.32***	-0.32***	-0.13	-0.09	-0.11	-0.16	0.01	0.05
	(0.09)	(0.10)	(0.10)	(0.09)	(0.14)	(0.14)	(0.14)	(0.13)
Girl	0.03	0.03	0.04*	0.07***	0.03	0.03	0.05*	0.07**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)
Age of student in January 2013	-0.09***	-0.08***	-0.03	-0.03	-0.11**	-0.10**	-0.03	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Total number of individuals in the HH	0.00	0.00	-0.02	-0.01	0.00	0.00	-0.02	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Central	0.03	0.04	0.05	0.04	-0.05	-0.03	-0.01	0.00
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.04)	(0.04)	(0.04)
Peripheral	0.00	0.03	0.03	0.01	-0.07	-0.03	-0.00	0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Very peripheral	-0.28	-0.25	-0.26	-0.24	-0.16*	-0.13	-0.08	-0.03
	(0.16)	(0.16)	(0.15)	(0.15)	(0.07)	(0.07)	(0.07)	(0.07)
Living close to edge of grid cell	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)
Academic parents per school		0.24***	-0.02	-0.08		0.23**	-0.08	-0.08
		(0.06)	(0.06)	(0.05)		(0.07)	(0.07)	(0.07)
Migrant parents per school		0.10	0.06	0.11		0.12	0.10	0.16
		(0.07)	(0.06)	(0.06)		(0.11)	(0.11)	(0.10)
Social origin (std)			0.18***	0.11***			0.22***	0.14***
			(0.01)	(0.01)			(0.01)	(0.01)
Migration background			0.07**	0.09***			0.06	0.05
			(0.02)	(0.02)			(0.04)	(0.03)
Math test (std)				0.18***				0.19***
				(0.01)				(0.01)
Voc. test (std)				0.04***				0.04**
				(0.01)				(0.01)
Constant	1.18***	1.04***	0.85***	0.82***	1.33***	1.17***	0.87***	0.76***
	(0.17)	(0.17)	(0.17)	(0.16)	(0.24)	(0.25)	(0.23)	(0.22)
sd(_cons)								
Constant	0.10***	0.09***	0.08***	0.08***	0.02	0.01	0.05	0.08***
	(0.02)	(0.02)	(0.02)	(0.02)	(1636.29)	(915.93)	(0.13)	(0.02)
sd(Residual)								
Constant	0.46***	0.46***	0.44***	0.40***	0.48***	0.48***	0.44***	0.40***
	(0.00)	(0.00)	(0.01)	(0.01)	(0.02)	(0.03)	(0.01)	(0.01)
Observations	3282	3282	3282	3282	1979	1979	1979	1979

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A24: Subgroup analysis by urbanity: transition to the academic track

	Urban regions				Rural regions			
	Only context	Added school effects	Added origin	Added ability	Only context	Added school effects	Added origin	Added ability
Share with poverty support	-0.14	-0.12	0.05	0.12	-0.31	-0.19	0.14	0.12
	(0.13)	(0.13)	(0.12)	(0.11)	(0.26)	(0.26)	(0.24)	(0.23)
Share with tertiary education	0.56***	0.38**	0.07	0.05	0.73***	0.59**	0.08	0.18
	(0.11)	(0.12)	(0.12)	(0.11)	(0.18)	(0.19)	(0.18)	(0.18)
Share of Non-Germans	-0.21*	-0.23*	-0.08	-0.04	-0.10	-0.16	-0.04	0.00
	(0.09)	(0.10)	(0.10)	(0.10)	(0.14)	(0.14)	(0.14)	(0.13)
Girl	0.02	0.02	0.03	0.05**	0.02	0.02	0.04	0.05*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age of student in January 2013	-0.10***	-0.10***	-0.04	-0.04	-0.12***	-0.11***	-0.03	-0.03
	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Total number of individuals in the HH	0.01	0.01	-0.01	-0.01	0.01	0.01	-0.02	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Central	0.06*	0.07**	0.08**	0.07**	-0.04	-0.02	0.00	0.01
	(0.03)	(0.03)	(0.02)	(0.02)	(0.04)	(0.05)	(0.04)	(0.04)
Peripheral	0.03	0.06	0.07	0.04	-0.03	0.01	0.05	0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Very peripheral	-0.25	-0.22	-0.24	-0.21	-0.12	-0.08	-0.03	0.01
	(0.15)	(0.15)	(0.15)	(0.15)	(0.07)	(0.07)	(0.07)	(0.06)
Living close to edge of grid cell	0.01	0.01	0.01	0.02	-0.00	-0.00	-0.00	-0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)
Academic parents per school		0.22***	-0.06	-0.11		0.25**	-0.07	-0.07
		(0.06)	(0.06)	(0.06)		(0.08)	(0.08)	(0.07)
Migrant parents per school		0.11	0.03	0.07		0.16	0.10	0.16
		(0.07)	(0.06)	(0.06)		(0.12)	(0.12)	(0.11)
Social origin (std)			0.19***	0.13***			0.23***	0.16***
			(0.01)	(0.01)			(0.01)	(0.01)
Migration background			0.14***	0.15***			0.12**	0.11**
			(0.03)	(0.02)			(0.04)	(0.03)
Math test (std)				0.17***				0.18***
				(0.01)				(0.01)
Voc. test (std)				0.03**				0.03
				(0.01)				(0.01)
Constant	1.16***	1.04***	0.86***	0.81***	1.30***	1.12***	0.81***	0.69**
	(0.18)	(0.18)	(0.17)	(0.16)	(0.25)	(0.26)	(0.23)	(0.22)
sd(_cons)								
Constant	0.11***	0.11***	0.11***	0.11***	0.11***	0.10***	0.11***	0.12***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
sd(Residual)								
Constant	0.47***	0.47***	0.44***	0.41***	0.48***	0.48***	0.44***	0.40***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	3282	3282	3282	3282	1979	1979	1979	1979

Standard errors in parentheses. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$