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Do Municipal Factors Influence the Type of Schooling Newly Arrived Refugees Receive?

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Abstract

In the context of refugee immigration in the mid-2010s, a considerable number of adolescents of compulsory school age came to Germany. This group of lateral entrants to the German school system is more frequently enrolled in less demanding school types and often taught in separate classes. Previous research suggests that, in addition to individual and family-related factors, educational policy regulations at the federal-state level impact the schooling of refugees. However, these regulations are relatively abstract, leaving the individual municipalities considerable room for implementation. Furthermore, the associated administrative regulations can vary greatly between districts and might affect school integration differently. Yet, the influence that such municipal-level factors have on refugees' educational participation has hardly been quantitatively researched. We analyse whether conditions at the municipal level correlate with the school type and class type attended by refugees. We expect education-related municipal resources, but also local experience with immigrants, to be important. Applying multivariate multilevel models, we test these assumptions with data from the ReGES study regarding 1,879 adolescent refugees. The results show that the more refugee pupils there are in the municipality, the more likely it is that pupils will be educated in a separate class for newcomers. In most cases, examining the further hypotheses shows the assumed direction of the relationships, but they are not statistically significant. Overall, municipal factors only contribute to a very small extent to explaining the schooling of lateral entrants in our analyses. Possible explanations for this are discussed in the conclusion.

Keywords

educational participation; lateral entrants; municipal context; newcomer classes; refugees; secondary schools

1. Introduction

In the mid-2010s, many refugees sought protection in other countries, including in Europe. In the years 2013–2017 alone, Germany took in 1.8 million refugees, about a third of whom were minors (Bundesamt für Migration und Flüchtlinge, 2018). For children and adolescents, participation in the education system is crucial for settling into the host society; it is essential for acquiring knowledge and skills, structuring everyday life, and making social contacts. In addition, in Germany, the acquisition of school-leaving qualifications is closely linked to subsequent labour market success (Bol & van der Werfhorst, 2011). However, integrating large numbers of newcomers into educational institutions is challenging for both schools of the host society and immigrants. The situation is particularly demanding for so-called lateral entrants: young people who have fled during their educational trajectory and are now trying to catch up in the host country. This makes it vital to investigate which factors influence educational participation and which aspects hinder or promote the educational success of young newcomers.

Previous research has shown that both individual and family resources, but also educational policy regulations, are related to the educational participation of young lateral entrants to the German education system (Will et al., 2022; Will & Homuth, 2020). This applies to various indicators of educational participation, such as duration until enrolment at school, the classes and school types attended, and whether new immigrants are enrolled age-appropriately. However, these studies can only explain the schooling of newcomers to a certain extent. One explanation for this could be that educational policy regulations for the schooling of new immigrants at the federal-state level are usually relatively abstract. This leaves the municipalities, which are responsible for implementing the federal state regulations, considerable room for interpretation. The administrative implementation of regulations at the municipal level can therefore vary greatly between municipalities, even within a federal state, as they possibly also depend on other structural characteristics in the district (Tjaden & Spörlein, 2023). Therefore, we suspect—in line with previous research (e.g., El-Mafaalani & Kemper, 2017; Emmerich, Hormel, & Kemper, 2020)—that factors at the municipal level also influence the schooling of newly immigrated adolescents. We analyse whether conditions at the municipal level correlate with the school type and class type attended by refugees. In doing so, we take into account the number of newly arrived pupils at the municipal level who need to be integrated into education and the experience of the respective municipality in educating immigrant pupils. We also consider the number of existing schools and free capacity in these schools in the respective municipality. Our analyses are based on data from the study ReGES—Refugees in the German Educational System that allows us to consider relevant individual and family-related aspects as well as variables at the federal state and regional levels. Furthermore, we import regional characteristics from various databases. We test our hypotheses using multivariate multilevel models based on data from 1,879 young refugees.

We first describe the situation of lateral entrants in the German education system regarding their assignment to school and class type (2.1 and 2.2), before presenting studies on the influence of municipal characteristics on educational participation (2.3). We then present our theoretical assumptions and the research hypotheses derived from them (3), describe our data basis, and outline the analysis strategy (4), before presenting our results (5). In the conclusion, we discuss the results in the context of the limitations of the available data (6).

2. The Situation of Lateral Entrants in the German Education System

Two aspects seem central to the schooling of newly immigrated adolescents in Germany. First, the assignment to a specific type of school or a specific educational track; second, the question of how young pupils are to be educated if they have not yet acquired sufficient knowledge of the language of instruction, i.e., German. Here, we will briefly describe the educational regulations in Germany and report empirical results on the schooling of newly arrived refugees regarding these two aspects. Note that there are usually no explicit regulations for refugees; mostly there are regulations for pupils without a sufficient command of the language of instruction. These are primarily newly immigrated pupils, among whom refugees comprise the largest group. Also, in Germany, as a rule, there are no nationwide legal regulations for schooling; instead, education falls under the jurisdiction of the 16 federal states.

2.1. Assignment of Newly Immigrated Pupils to a School Type or School Track

The German school system is characterised by a relatively early division into different school types or educational tracks. In most federal states, the transition from primary school, which all children attend together, to the secondary level takes place after the fourth grade, i.e., at the age of around ten. Traditionally, there are three school types: *Hauptschule* (lower secondary school) and *Realschule* (intermediate secondary school), which prepare pupils for vocational training and usually end after 9–10 years with an intermediate secondary school leaving certificate at most. The *Gymnasium* (grammar school) prepares pupils for university and ends after 12 or 13 years with the *Abitur*, the general higher education entrance qualification. *Hauptschulen* and *Realschulen* are now often combined into one school type (von Maurice & Roßbach, 2017), so that in some federal states, *Hauptschulen* no longer exist as a separate type. In the meantime, there are also school types that combine all three tracks (e.g., comprehensive schools), but the quantitative significance of these school types varies greatly between federal states. Nevertheless, the assignment to a particular type of secondary school is of great importance, as the German school system is not very permeable and a subsequent transition from a *Hauptschule* or *Realschule* to a *Gymnasium* is not easily possible. When transitioning to secondary school, children's performance plays a dominant role, although other factors, such as motivation and a supportive family environment, can also matter. Teachers recommend a school type, which is more or less binding for parents, depending on the federal state in which the school is located.

In Germany, there are generally no guidelines as to which school types or educational paths newly arrived refugees should be assigned to if they immigrate at an age at which the other children have already officially moved on to secondary school. In principle, the same rules should apply to them as to pupils who have lived in Germany for longer. However, several factors make it much more difficult to assess the performance of recent arrivals: the curricula in their countries of origin often differ from the curricula in Germany and previous school reports of refugee pupils are often unavailable. Many refugees have had their schooling interrupted for a significant time due to the situation in their country of origin and their flight. A lack of German language skills also makes it difficult to assess their school knowledge (on the problem of allocation to specific school types see Emmerich et al., 2017). Due to these problems and the absence of standardised measurement procedures (Jäger et al., 2021; Massumi et al., 2023), it is therefore likely that young immigrants with little or no knowledge of the language of instruction tend to be assigned to less demanding school types. This trend could be reinforced by the decades-long practice of primarily educating new

immigrants in *Hauptschulen* (Emmerich et al., 2017; Emmerich, Hormel, Jording, & Massumi, 2020). This applies even more to federal states that initially educate immigrants in separate newcomer classes (see 2.2) and locate these classes primarily in less demanding school types (for instance, in Bavaria and Saxony; see Will et al., 2022). It can be assumed that the change of school type (especially to a more demanding one) represents an additional hurdle when moving from a newcomer class to a regular class (Jäger et al., 2021; Will & Homuth, 2020). Moreover, refugee pupils and their parents are often unfamiliar with the education system in the country of arrival. This is particularly relevant when there is a big gap between the school systems of the country of arrival and the country of origin. The structuring of the German school system into different educational tracks and the early division into these different educational programmes is not common in many of the refugees' countries of origin, such as Iraq or Syria (see Welker et al., 2021; Will et al., 2024). As such, refugee pupils are often unable to assess the consequences of being assigned to a particular school type or educational track. Indeed, previous research has demonstrated that newly arrived refugees are less likely to attend demanding school types (de Paiva Lareiro, 2019; Emmerich, Hormel, Jording, & Massumi, 2020; Homuth et al., 2020). While newly arrived refugees are overrepresented at lower secondary schools and schools with several educational tracks, they are underrepresented at *Realschulen* and *Gymnasien* (Homuth et al., 2020).

2.2. Strategies for Educating Adolescents With Insufficient Knowledge of the Language of Instruction

For educational institutions, integrating newcomers without sufficient knowledge of the language of instruction at a late and learning-intensive point in their education is challenging. Many states (including most federal states in Germany) therefore provide (temporary) separate schooling of newcomers so that they can first learn the language of instruction (see, e.g., Crul et al., 2017; Hilt, 2016; Tajic & Bunar, 2020; Vogel & Stock, 2017). However, there is no nationwide regulation in Germany for how immigrants without sufficient knowledge of the language of instruction are taught at lower secondary levels. The regulations range from integrative schooling in regular classes (e.g., in Rhineland-Palatinate) to schooling in separate classes for new immigrants, in which young pupils can be educated separately until they have obtained a school-leaving qualification (e.g., in Hamburg). There are also countless hybrid forms that combine integrated (e.g., in some subjects) and separate schooling (see Massumi et al., 2015). Whether schooling in separate classes is better than direct schooling in regular classes has not been conclusively clarified. Arguments in favour of separate schooling emphasise the importance of initial separate language acquisition, as a lack of language skills could lead to children not being able to keep up in regular classes and being afraid to participate (Nilsson & Axelsson, 2013; Schmiedebach & Wegner, 2019). Arguments against separate schooling are that faster language acquisition through separate teaching is doubtful (Höckel & Schilling, 2022; Simopoulos & Alexandridis, 2019) and that contact with native pupils is also reduced, which limits opportunities to learn the language of arrival outside the classroom (Lang, 2019; Miller et al., 2005). Existing research on young refugees' participation in the German general school system shows that many refugees initially attend classes for newcomers (about 50%; see Homuth et al., 2020), and that about a third of them still attend separate classes after some time (e.g., de Paiva Lareiro, 2019; Homuth et al., 2020). However, it also shows that there is a significant number of refugees who have been attending regular classes from the outset (see Homuth et al., 2020).

2.3. Research on the Connection Between Municipal Aspects and the Schooling of Newly Arrived Immigrants

Previous research has observed that education policy guidelines at the federal-state level, e.g., whether separate newcomer classes are set up and to which school types newcomer classes are assigned, have a strong influence on the schooling of young immigrants (see Will et al., 2022). This influence remains even when individual resources (such as school performance in the country of origin) or family resources (such as educational background) are controlled for (Will et al., 2022). However, these studies could only partially explain the schooling of new immigrants. This could be because the education policy regulations for the schooling of newcomers at the federal-state level are usually formulated in a relatively abstract way and often as guidelines, thus giving the individual municipalities major scope for interpretation. We therefore suspect that there are also factors at the municipal level that influence the schooling of newly immigrated adolescents.

Prior work on regional aspects and the educational participation of immigrants in Germany has primarily focused on the socio-economic or ethnic composition of the neighbourhood or school and has mainly considered their influence on pupils' competencies or the acquisition of educational qualifications (see, e.g., Helbig, 2010; Olczyk, 2018). It is, however, difficult to disentangle the effects of neighbourhoods and schools on pupils' educational success (Horr, 2016). In addition, certain groups specifically chose schools that differ in their composition from that of the neighbourhood. Some studies therefore analyse the relationship between the social and ethnic background of families and their school choice while controlling for selected characteristics of schools or residential areas (Jurczok & Lauterbach, 2014; Kristen, 2008; Riedel et al., 2010; Schneider et al., 2012; for an overview see also Horr, 2016). Studies that specifically address the schooling of newly immigrated adolescents and examine which classes and school types these newcomers attend, depending on regional or municipal characteristics, are still the exception.

Several studies suggest that there are strong regional differences in the schooling of lateral entrants (El-Mafaalani & Kemper, 2017; Emmerich et al., 2017; Emmerich, Hormel, & Kemper, 2020; Jäger et al., 2021). The variance here is related not only to the type of school attended but also to whether a separate class is attended (see Emmerich, Hormel, Jording, & Massumi, 2020). Yet, despite these regional differences, there are limited hypotheses about the potential influence of municipal characteristics on attending a newcomer class. It is assumed that new immigrants in municipalities with fewer newcomers are more likely to attend a regular class, because the establishment of newcomer classes may not be worthwhile due to low numbers of newcomers. Or, as in North Rhine-Westphalia, for example, additional personnel resources for the establishment of classes for newcomers are only provided if there is a minimum number of pupils (see Emmerich, Hormel, Jording, & Massumi, 2020). There are many more explanations in the literature for regional differences regarding the type of school attended. It is thought that the number of different school types in a municipality and the free capacity in these schools are linked to the chance of attending certain school types (El-Mafaalani & Kemper, 2017; Emmerich, Hormel, & Kemper, 2020). In particular, it is assumed that the long-standing practice of educating new immigrants at *Hauptschulen* will decline to the extent that the number of *Hauptschulen* in some municipalities gradually reduces (see Emmerich et al., 2017; Emmerich, Hormel, & Kemper, 2020). However, the absolute number of lateral entrants within a municipality is also deemed important: the more newcomers in a municipality require schooling, the greater the need to include all school types in the education of lateral entrants (see Emmerich et al., 2017). More generally, it is assumed

that the educational participation of immigrant pupils tends to be better in municipalities where the share of foreign pupils among all pupils is high—and vice versa (El-Mafaalani & Kemper, 2017). Reasons for this are teachers' expertise in teaching immigrants and established support services in and outside of school. Additionally, it is assumed that in areas with fewer immigrants, there is more prejudice towards immigrants and that decision-makers overestimate the demands of the German language competencies. Immigrant pupils are also not distributed equally among schools within a city but are often found primarily in schools in segregated urban areas (El-Mafaalani & Kemper, 2017).

3. Theoretical Background

When analysing educational participation, theoretical models are often used that see educational decisions as the result of rational cost-benefit calculations. In these models, individuals choose the option that best suits their long-term interests (Boudon, 1974; Breen & Goldthorpe, 1997; Erikson & Jonsson, 1996). However, the weighing up of costs and benefits does not take place independently of a given opportunity structure. This is also noted by Roberts (2009), who assumes that focusing solely on the decisions of individuals does not sufficiently acknowledge the contexts that shape individual decisions and the constraints within which different groups of adolescents make decisions. Opportunity structures include macro-level factors (e.g., national laws and state-level education policies) and community-level factors (e.g., institutions, gatekeepers). For example, the availability of certain schools in a neighbourhood can strongly influence educational choices, as can the number of competing pupils. Here, we therefore use a model that views investments in education as the result of rational cost-benefit considerations and integrates municipal aspects into the theoretical model via the opportunity structure. Crucially, the different levels (especially the individual and municipal levels) are not isolated but interact (Walther, 2020). On the one hand, we assume that municipal characteristics influence the educational alternatives available to refugee families and those that are perceived by them as alternatives. The educational alternatives proposed to young refugees by those responsible in the education system in these municipalities can decisively influence new immigrants' perception of alternatives. On the other hand, we also assume that the influence of individual and family resources on educational decisions varies depending on characteristics at the municipal level: The more municipal aspects restrict the opportunity structure, the less influence personal and family characteristics should have, and vice versa. The influence of parents' education (signalling effect for municipal decision-makers, parents' interest in their children's higher education) should be particularly relevant in municipalities that impose fewer restrictions on the type of schooling for newcomers. Previous school performance should play a role, too, particularly in municipalities that do not automatically assign newcomers to certain classes and school types but rather take individual characteristics into account when deciding on their education. Considering possible interactions between individual and family resources and municipal conditions is even more important, given that previous research on the schooling of lateral entrants suggests that certain regional aspects may severely restrict the educational choices of refugee families.

We will first specify our theoretical assumptions regarding attending a separate class for new immigrants before formulating hypotheses about the relationship between municipal characteristics and attending a *Gymnasium*.

3.1. Education in a Class for Newcomers Depending on Municipal Characteristics

3.1.1. Number of New Immigrants in the Municipality

First, we assume that whether newly immigrated adolescents are educated in separate classes for newcomers is linked to the number of newly immigrated pupils in the municipality. There are various reasons for this: setting up a separate class for newcomers is only worthwhile if there are enough pupils in the relevant catchment area (see, e.g., Massumi et al., 2015). This is supported by the fact that additional personnel resources for the establishment of separate newcomer classes are only provided if there is a minimum number of newly arrived pupils (see Emmerich, Hormel, & Kemper, 2020). We therefore assume that the more newcomers there are in a municipality, the more likely they will be educated in newcomer classes (H1a). However, we assume that this is not a linear relationship, but rather that, above a certain threshold, the influx of further lateral entrants into the municipality does not additionally increase the probability of attending a newcomer class (H1b). Furthermore, the more newcomer pupils a municipality has, the less capacity municipal actors have to examine individual cases, especially if there are established newcomer classes. Consequently, families have less freedom to choose which class their child should attend. We therefore assume that in municipalities with many newcomers, the influence of family (H1c1) and individual (H1c2) resources on the type of class attended is less pronounced than in municipalities with few lateral entrants.

3.1.2. Experiences in Teaching Pupils Whose Mother Tongue is Not the Language of Instruction

Due to the greater experience of teachers with non-native speaking pupils and established support structures, the integration of lateral entrants into regular classes may appear easier to implement in communities with longer migration histories. A realistic assessment of the required German language skills could support this trend. Thus, we assume that the more experience municipalities have in educating pupils whose native language is not the language of instruction, the less likely they are to educate newly arrived adolescents in newcomer classes (H2a). Furthermore, we assume that in communities with experience in schooling immigrants, newly immigrated pupils are perceived less as a homogeneous group and that, consequently, family (H2b1) and individual (H2b2) characteristics may have a greater influence on the form of schooling.

3.1.3. Number of Schools in the Municipality

In municipalities with many schools, it could be easier to distribute newcomers to different schools and integrate newcomers into regular classes. We therefore assume that the probability of attending a newcomer class decreases with the number of schools in the municipality (H3a). However, this correlation should only be observable if the newly arrived pupils are also distributed across the entire community and do not live and attend schools in segregated residential areas. We therefore suspect that the influence of the number of schools decreases with increasing segregation in the community (H3b).

3.1.4. Free Capacity in Schools in the Municipality

Free capacity in schools could make it more attractive for the schools to educate newcomers in regular classes. Yet, it could also make it easier for teachers at these schools to additionally master the integration of

newcomers. We therefore assume that the probability of newcomers being educated in newcomer classes decreases with the amount of free capacity at the municipal schools (H4a). Furthermore, we suspect that in municipalities with more free capacity, the influence of family (H4b1) and individual (H4b2) characteristics on the education of young newcomers should be greater than in municipalities with less capacity.

3.2. Attending a Gymnasium *Dependent on Characteristics at the Municipal Level*

3.2.1. Number of *Hauptschulen* in the Municipality

The connection between municipal aspects and the schooling of newly arrived immigrants most frequently mentioned in the literature is that between school provision and the type of school attended (e.g., El-Mafaalani & Kemper, 2017; Emmerich, Hormel, & Kemper, 2020). In particular, it is assumed that schooling newcomers (especially the establishment of newcomer classes) traditionally takes place primarily at *Hauptschulen*. If there are a sufficient number of *Hauptschulen* offered in the municipality, it is to be expected that the possibility of attending a different school, such as a *Gymnasium*, will be communicated less frequently as an option by those responsible for enrolment of lateral entrants in the municipality and will therefore be less likely to be perceived as an alternative by refugees. If there are not enough *Hauptschulen*, however, lateral entrants will be taught at other school types, too (Emmerich et al., 2017; Emmerich, Hormel, & Kemper, 2020), and information about these additional options is presumably also more frequently conveyed to refugees. Our hypothesis is therefore: The higher the number of *Hauptschulen* in a municipality, the less likely it is that newcomers will be educated in a *Gymnasium* (H5a). Furthermore, we assume that refugee families are less likely to influence which type of school their children attend if the number of *Hauptschulen* in the municipality is high and newcomer classes are, thus, more likely not located at alternative school types: The higher the number of *Hauptschulen* in a municipality, the smaller the influence of family (H5b1) and individual (H5b2) resources on the school attendance of newcomers. Since these hypotheses relate also to the establishment of newcomer classes at different types of schools and, thus, affect newly immigrated pupils from the beginning of their school career, we consider all pupils, regardless of whether they attend a newcomer or a regular class.

3.2.2. Number of New Immigrants in the Municipality

If there are many new immigrants living in a municipality who need to be integrated into education, the capacities of individual schools (usually *Hauptschulen*) might not be sufficient to accommodate them. Thus, it could be assumed that all schools have to take responsibility to enrol newcomers, regardless of the type of school. Therefore, we assume that the greater the number of newcomers in the municipality, the more likely it is that they will be educated in a *Gymnasium* (H6a). As we assume that the probability of being taught in a class for newcomers increases with the number of newcomers (see H1a), we take all pupils at a *Gymnasium* into account, regardless of whether they attend a regular class. It is assumed that the correlation between the number of newly immigrated pupils and the probability of attending a *Gymnasium* is not linear, but that the strength of the correlation decreases beyond a certain threshold of newcomers in the municipality (H6b). If the hypothesis is correct that in municipalities with many newcomers, newcomer classes are also offered at *Gymnasien*, it can be assumed that *Gymnasien* are not only increasingly being perceived as a realistic educational alternative by refugees but also being proposed as a possible alternative by those responsible at the local level. We therefore assume that family (H6c1) and individual (H6c2) resources should have a greater influence on schooling decisions in these communities.

3.2.3. Experiences in Teaching Pupils Whose Mother Tongue is Not the Language of Instruction

In the literature, it is assumed that the educational success of non-German pupils (e.g., better performance through better support structures) tends to be higher in municipalities with a high share of immigrant pupils (El-Mafaalani & Kemper, 2017). Indeed, we also believe that in communities with more experience with immigrants, educational institutions and teachers are better prepared for the integration of new immigrants and a better infrastructure for schooling immigrants exists. This could also mean that refugee pupils in municipalities with a longer history of immigration might be more likely to be taught in regular classes (see also H2a). However, we assume that this infrastructure for supporting immigrants mainly exists at school types with a disproportionately high number of immigrants. As a rule, these are rarely *Gymnasien* (see, e.g., Siegert & Olszenka, 2016). If immigrants are to be enrolled at schools where support structures already exist, then these will generally be *Hauptschulen* and *Realschulen* rather than *Gymnasien*. Our hypothesis is, therefore, that the more experienced the municipality is with educating immigrants, the less likely lateral entrants are to attend a *Gymnasium* (H7). Since this argument refers more to support measures in everyday school life in regular classes and not to newly established newcomer classes, we only consider pupils who already attend a regular class when examining this hypothesis.

3.2.4. Free Capacity in Schools in the Municipality

We believe that free capacity in schools makes it easier for teachers at these schools to additionally master the integration of newcomers (see 3.1.4). We therefore assume that with greater free capacity at specific school types in the municipality, the probability increases that newly arrived refugees will also be educated at these school types. This is particularly true for *Gymnasien*, as the integration of lateral entrants at this demanding school type is particularly ambitious. We therefore assume that with free capacity at *Gymnasien* in the municipality, the probability increases that newcomers will also be educated at *Gymnasien* (H8a). In these communities, attending a *Gymnasium* should be perceived as a realistic educational alternative, and thus, the influence of family (H8b1) and individual (H8b2) resources should play a greater role than in communities with less free capacity. The analyses again consider all pupils who already attend a regular class. Figure 1 summarises the research hypotheses.

4. Data and Methods

4.1. Data

Our analyses are based on data from the first wave of the panel study ReGES—Refugees in the German Educational System (Artelt & ReGES, 2024; Will et al., 2021), which was collected in the spring of 2018. The study was conducted in five German federal states (Bavaria, Hamburg, North Rhine-Westphalia, Rhineland-Palatinate, and Saxony) which were chosen to achieve a variation according to selected macro factors, including the number of people seeking protection or the schooling strategies for newly immigrated pupils. The sample was drawn in a multi-stage process, with municipalities with a higher number of refugees being disproportionately represented (Steinhauer et al., 2019). We use the data from the adolescent cohort (Refugee Cohort 2), which includes refugee adolescents who arrived in Germany between 2014 and 2018, live in Germany with at least one parent or legal guardian, have been assigned to a municipality, and are enrolled at lower secondary school in the school year 2017–2018. The data was collected using surveys

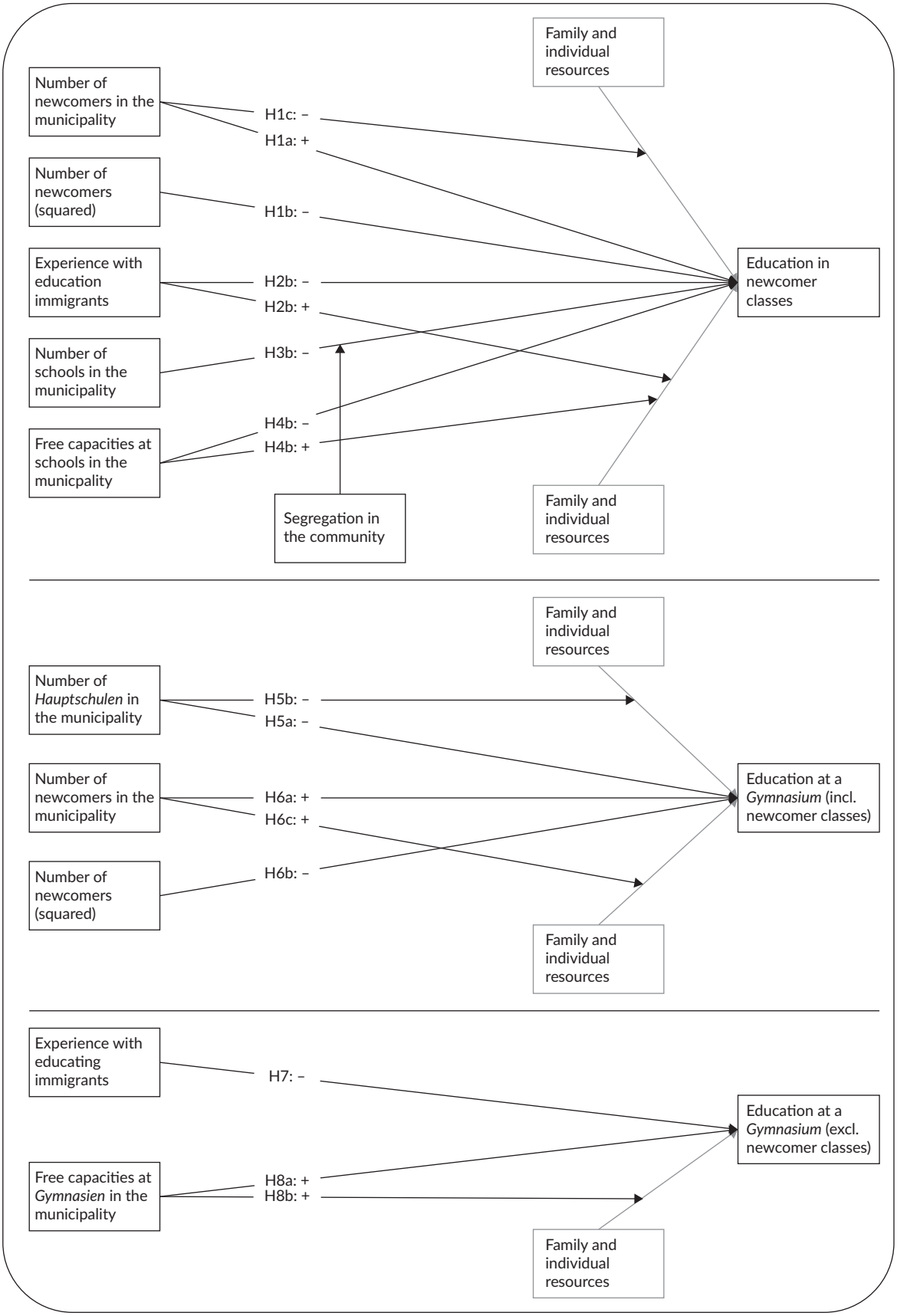

Figure 1. Overview of hypotheses.

with both adolescents and parents (for further information, see Will et al., 2021). The regional variables originate from the microcensus (Statistische Ämter des Bundes und der Länder, 2024b) and the databases INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2024), regional school statistics (Statistische Ämter des Bundes und der Länder, 2024a), and the Federal Employment Agency (Bundesagentur für Arbeit, 2023). We only included adolescents for whom we knew in which municipality they lived and only those who lived in regions with at least 100,000 inhabitants.

4.2. Operationalisation

4.2.1. Dependent Variables

The type of class includes information on whether the first class a pupil attended in Germany was a newcomer class (yes vs. no). The type of school is the first school a pupil attended in Germany and was coded as *Gymnasium* vs. other school types. Attending a *Gymnasium* implies being on the direct track to pursuing higher education while other school types primarily lead to vocational training. Comprehensive schools were categorised as other school types, even though these might also include academic tracks. We include those who are placed into a newcomer class at a *Gymnasium* if we are interested in looking at the first allocation, even though the school type is not necessarily the same after transferring to a regular class (Emmerich, Hormel, Jording, & Massumi, 2020). However, if we are only interested in pupils who have already been relatively firmly assigned to a school type, we exclude pupils in newcomer classes. Thus, we use two different variables for *Gymnasium*, depending on the hypothesis.

4.2.2. Independent and Control Variables

4.2.2.1. Municipal Factors

Where possible, we used the regional indicator in the year before adolescents' enrolment as this best presents the initial local situation for enrolling newcomers. Deviations from this procedure are indicated. The adolescents were enrolled between 2014 and 2018. Most regional indicators are available at the district level, not the municipal level. The administrative unit of the district encompasses both rural districts with several municipalities and urban districts, which correspond to a municipality. As we have limited the analyses to refugees in large cities (excluding those living in areas with fewer than 100,000 inhabitants), the regions included should mostly correspond to an urban district and only one municipality. The number of newly arrived pupils in the district is calculated by the total number of refugees in the district. We divided the number by 1,000 to better illustrate the correlation. Additionally, a squared term was included to account for a non-linear correlation. The municipalities' experiences in educating immigrant pupils are measured via the share of immigrants and people with a migration background among all inhabitants in the district (for the year 2011). The indicator for the number of secondary schools includes the orientation level regardless of the school type, *Hauptschulen*, schools with combined tracks, *Realschulen*, *Gymnasien*, and integrated comprehensive schools. The number of *Hauptschulen* only includes these school types and is, thus, missing if no *Hauptschulen* exist in a federal state or municipality. These missing values were set to 0 for the analysis. The segregation index indicates the extent to which foreigners live segregated in the respective municipality. There are three indicators to measure free capacities in schools: the pupil–teacher ratio of all secondary school types listed above, the pupil–teacher ratio of *Gymnasien*, and the pupil–teacher

ratio of all secondary school types, except *Gymnasien*. A higher pupil–teacher ratio means that one teacher is responsible for more pupils and therefore has less spare capacity. See Table 1 for the distribution of regional variables in the districts under consideration.

4.2.2.2. Parental Education, School Performance, and Control Variables

Educational background is assessed via the highest parental educational qualification, measured by the International Standard Classification of Education (ISCED-1997). Cases with no education were also included. The categories were regrouped to obtain enough observations per category: "no/less than primary education," "primary education," "secondary I + II education," and "postsecondary/tertiary education." The parental socio-economic background is measured via the highest parental occupational status in the origin country according to the International Socio-Economic Index of Occupational Status (ISEI-08; see Ganzeboom, 2010; Schimpl-Neimanns, 2004). The scale ranges from 11.01 to 88.96. If no parents were employed prior to moving to Germany, the ISEI was coded as 0. Previous educational experiences in the origin country are a self-assessed measurement of their average school performance, based on a scale from 0 to 100. We added interaction terms to test, as stated in the hypotheses, whether educational background and previous educational experiences may have a stronger influence under certain regional conditions. The degree of urbanity entails two categories: regions with "more than 500,000 inhabitants" and regions "between 100,000 and 500,000 inhabitants."

Federal states' educational policies vary. Following Will et al. (2022), we make the following distinctions: For newcomer classes, there are federal states in our sample which school newly arrived pupils primarily directly in regular classes (Rhineland-Palatinate), some which school them primarily separately (Hamburg), and some which assign them more flexibly to either a regular or newcomer class (Bavaria, North Rhine-Westphalia, and Saxony). For attending a *Gymnasium*, there are the following distinctions: There are some federal states (Bavaria and Saxony) whose guidelines stipulate that classes for newly arrived pupils should be set up primarily at lower school types. In other federal states (Hamburg, North Rhine-Westphalia, and Rhineland-Palatinate), the guidelines are less tied to specific school types, so refugee pupils are also enrolled at *Gymnasien*. We generated two variables to capture the educational regulations. Gender was coded as female vs. male. Age was measured as age at arrival in months. The origin country lists the three most frequent countries of origin separately: Afghanistan, Iraq, and Syria. Origin countries with <3% were subsumed under "other." Current residence status distinguishes between insecure and secure. Insecure residence status encompasses those whose application has been rejected (including those with a short-term tolerated stay status, i.e., *Duldung*), whose application has not yet been decided, or for whom an asylum application has not yet been submitted. Secure residence status includes being recognised as a refugee or as a person entitled to asylum or if another protection status was granted. For an overview of all the variables used in the analyses and their statistical characteristics, see Table 1 in the Supplementary File.

4.3. Analytical Strategy

We calculated multilevel linear models with random intercepts to account for the fact that multiple adolescents live in the same municipality. The Intraclass Correlation Coefficients (ICC) are low, which indicated that only a small percentage of the overall variance is explained at the group level (ICC: refugee class: 0.101, *Gymnasium*: 0.054, *Gymnasium* without refugee class: 0.054). We used iterated chained equations to estimate all missing

values (White et al., 2011) but deleted imputed values for the dependent variable after imputation (von Hippel, 2007). We used a quadratic rule to determine the required number of imputations ($M = 70$) based on the fraction of missing information in our fully specified models (von Hippel, 2020).

For each dependent variable, we first provide a model without regional variables and then test the individual hypotheses to assess the effect of each regional variable separately. We present a coefficient plot for the effects of the central independent variables in the text and a corresponding comprehensive table with all effects in the Supplementary File. For each dependent variable, we also calculate an overall model that contains all variables at the regional level to test whether the correlations are also stable when other regional factors are controlled for. We map the key results of these models using a coefficient plot in cases in which the overall results differ from the analyses by hypothesis.

5. Results

5.1. Descriptive Results

The descriptive results show that about half of the pupils indicated that the first class they attended in Germany was a newcomer class (50%; see also Table 1 in the Supplementary File). 24% of the sample indicated that the first school which they attended was a *Gymnasium*. This percentage is slightly lower when considering only those who already attend a regular class (19%).

We observe a large diversity regarding our central independent variables in the different municipalities (see Table 1). We display the results for the year 2015, which characterises the situation in the year before enrolment for almost half of the adolescents in our sample. The number of people seeking protection varies

Table 1. Overview of regional characteristics in 2015.

	N	Missing values	%/M	SD	Min.	Max.
Number of people seeking protection	66	0	5,299.95	5,936.01	381.04	37,356.83
Share of refugees as a proportion of all residents	66	0	1.45	0.97	0.44	8.01
Share of immigrants (2011)	66	0	22.88	8.91	2.79	37.34
Segregation index (2018)	58	8	26.90	10.84	12.30	74.34
Number of secondary schools	66	0	40.09	29.53	5	162
Number of inhabitants per secondary school	66	0	8,678.55	2,107.14	3,504.98	14,062.27
Number of *Hauptschulen*	66	0	8.74	8.76	0	59
Pupil–teacher ratio (secondary schools)	66	0	19.70	1.35	16.66	22.88
Pupil–teacher ratio (secondary schools without *Gymnasien*)	66	0	18.88	1.41	14.65	22.12
Pupil–teacher ratio (*Gymnasien*)	66	0	20.80	1.90	17.36	28.21

from about 380 to more than 37,000, depending at least partly on the size of the municipality. However, in some municipalities the share of refugees as a proportion of all residents is 0.44, while in others it is 8.01. Whereas some municipalities have a high share of population with familial migration experiences (37.34%), in other areas there are only a few (2.79%). The segregation index ranges from 12.30 to 74.34. Additionally, the number of secondary schools varies from 5 to 162 and the number of *Hauptschulen* ranges from 0 to 59. The number of schools also correlates with the number of inhabitants in the respective district. However, if we compare the number of schools with the number of inhabitants, there are still huge differences (number of inhabitants per secondary school ranging from 3,505 to 14,062). This could indicate a difference in the availability of secondary schools. At the same time, it cannot be ruled out that there are fewer secondary schools overall in some municipalities but the available schools have larger capacities. There are some areas in which teachers at secondary schools need to tend to only about 17 pupils, while in others, one teacher is, on average, responsible for 23 pupils. The pupil–teacher ratio for different school types also varies greatly between districts.

5.2. Attending a Newcomer Class

First, the model without regional variables shows a significant negative effect for adolescents living in federal states which enrol mainly directly in regular classes (compared to those who live in federal states, who enrol more flexibly), meaning that they are less likely to attend newcomer classes (see Supplementary File, Table 2). The same holds true for adolescents with parents who obtained postsecondary or tertiary education (compared to those with secondary education), but also for newcomers from families with less than primary education. Additionally, the older pupils were at the time of arrival, the more likely they are to attend a newcomer class. These effects remain stable if we control for regional variables (an exception being the models with interactions).

Our first two assumptions were that the more newcomers there are in a municipality, the more likely it is that they will be educated in a newcomer class (H1a). A non-linear effect is expected, which implies that above a certain threshold, additional newly immigrated pupils have a decreasing additional influence (H1b). The results show a significant positive effect of the number of newcomers in a municipality, confirming H1a (see Figure 2). If we additionally account for the squared number of newcomers, we see the expected negative direction of the squared term (H1b), but both indicators are not significant. The interaction term measures whether the effect of educational background varies for adolescents in municipalities with different numbers of newcomers. The main effects, in this case, the educational background and the number of newcomers, then indicate the effect for the baseline or reference category, e.g., no newcomers or adolescents with parents with secondary education. We could not confirm that educational factors at the family level (H1c1) or individual level (H1c2) play a significant role in deciding whether to school newly arrived refugee adolescents in a newcomer class, dependent on the number of newcomers in a municipality (see Figure 2).

We further assumed that the experiences a municipality has with immigrant pupils and the potentially established support structures facilitate schooling newcomers directly in regular classes, making it less likely that refugee adolescents will attend newcomer classes (H2a). While our analysis points in this direction, the effects are not significant (Figure 3). Additionally, we cannot confirm from our data that municipal experiences with schooling immigrant pupils increase the opportunities of immigrant families to influence the type of class attended (H2b1 and H2b2, Figure 3).

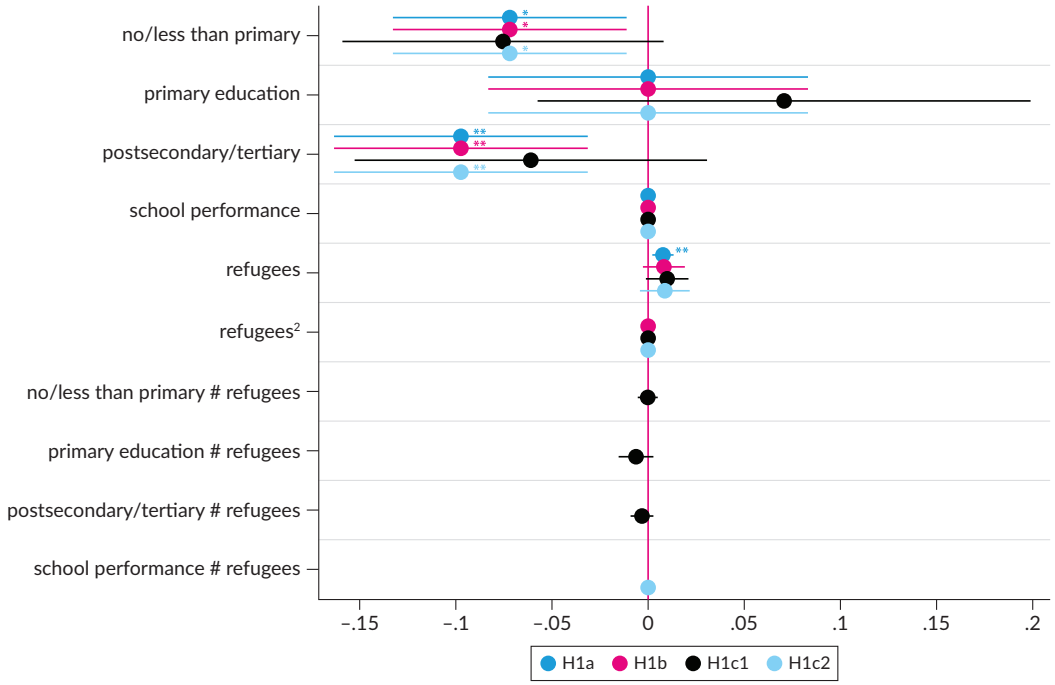

Figure 2. Multi-level models on newcomer class as dependent variable (only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

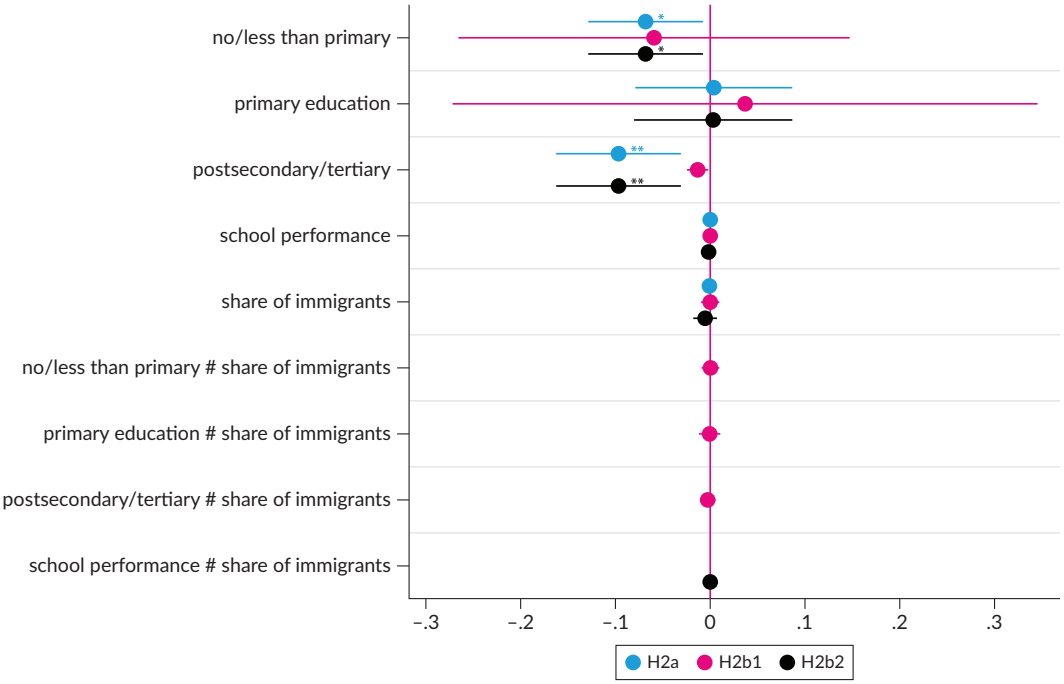

Figure 3. Multi-level models on newcomer class as dependent variable (only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

The negative effect for the number of schools indicates that the refugee adolescents in our sample are less likely to attend a newcomer class if there are more schools in the municipality they live in (H3a, Figure 4). However, this correlation is also not significant. Additionally, we cannot confirm the assumption that the influence of the number of schools decreases with increasing segregation in the municipality (H3b).

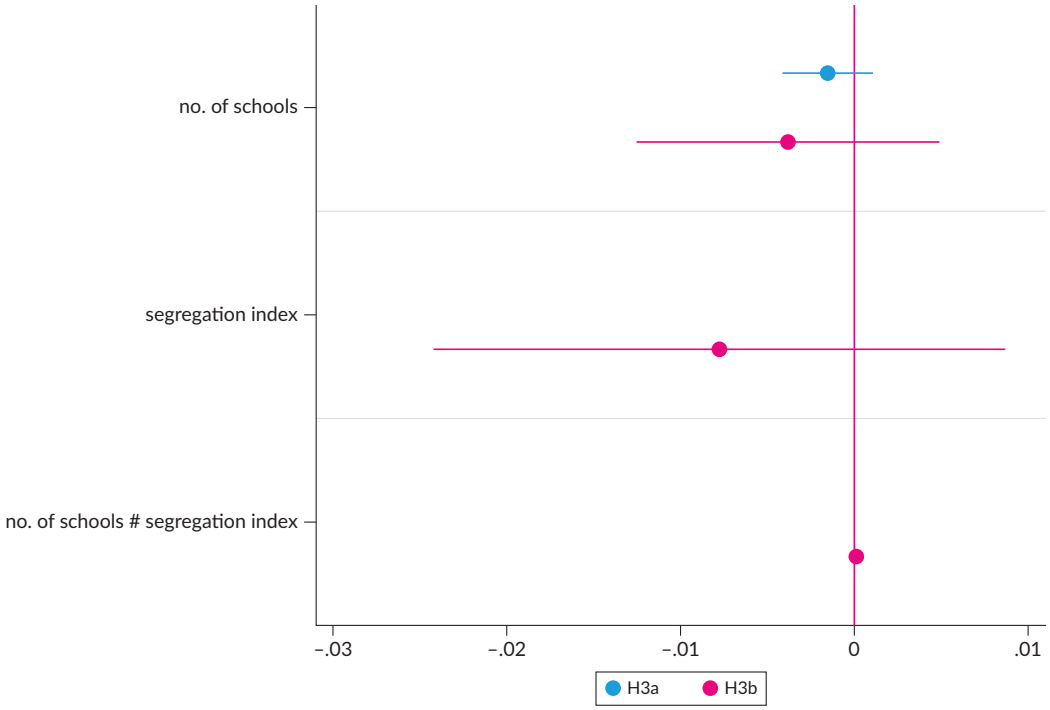

Figure 4. Multi-level models on newcomer class as dependent variable (only regional variables and interaction effect displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

The same holds true for the level of free capacity, measured via the pupil–teacher ratio (Figure 5). While the results point towards a lower likelihood of being educated in newcomer classes if more capacity is available across schools in this municipality (H4a), this effect, as well as the assumed correlations of family and individual resources in combination with free capacity, is not significant (H4b1 and H4b2, Figure 5).

When we account for all regional variables that we deem relevant for schooling in newcomer classes in a model without interactions, we first see that the number of people seeking protection (as a proxy for the number of new immigrant pupils) remains positive and significant. Furthermore, we now see that the probability of attending a newcomer class decreases with the number of schools. This correlation is generally as expected in hypothesis 3a but only appears to become relevant when controlling for other regional factors (see Figure 6).

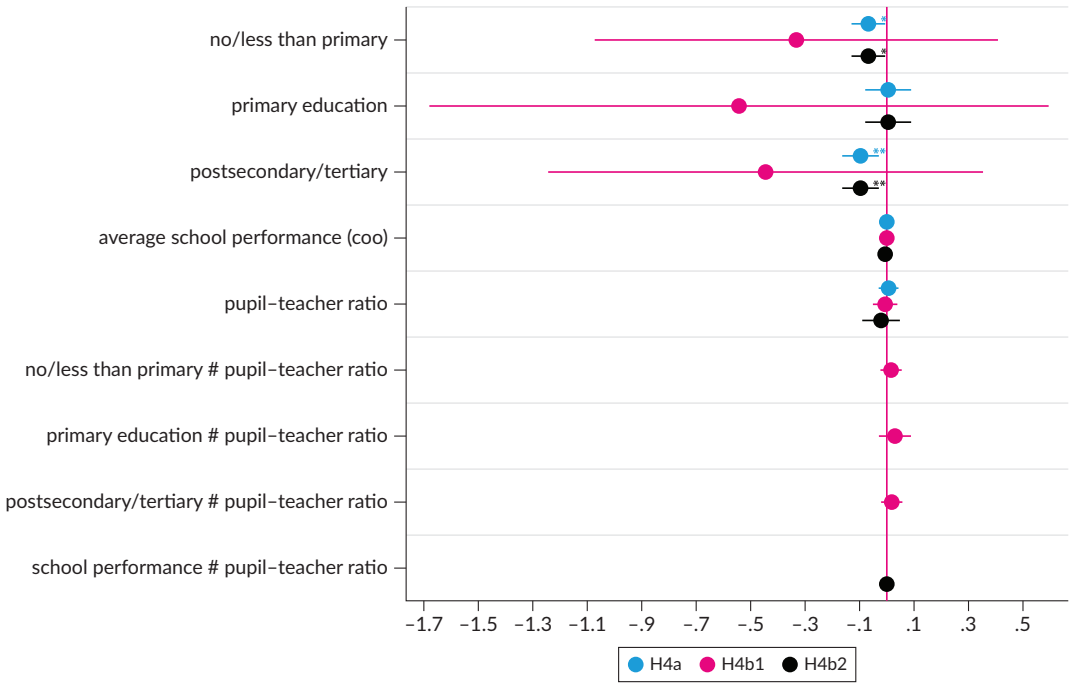

Figure 5. Multi-level models on newcomer class as dependent variable (only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

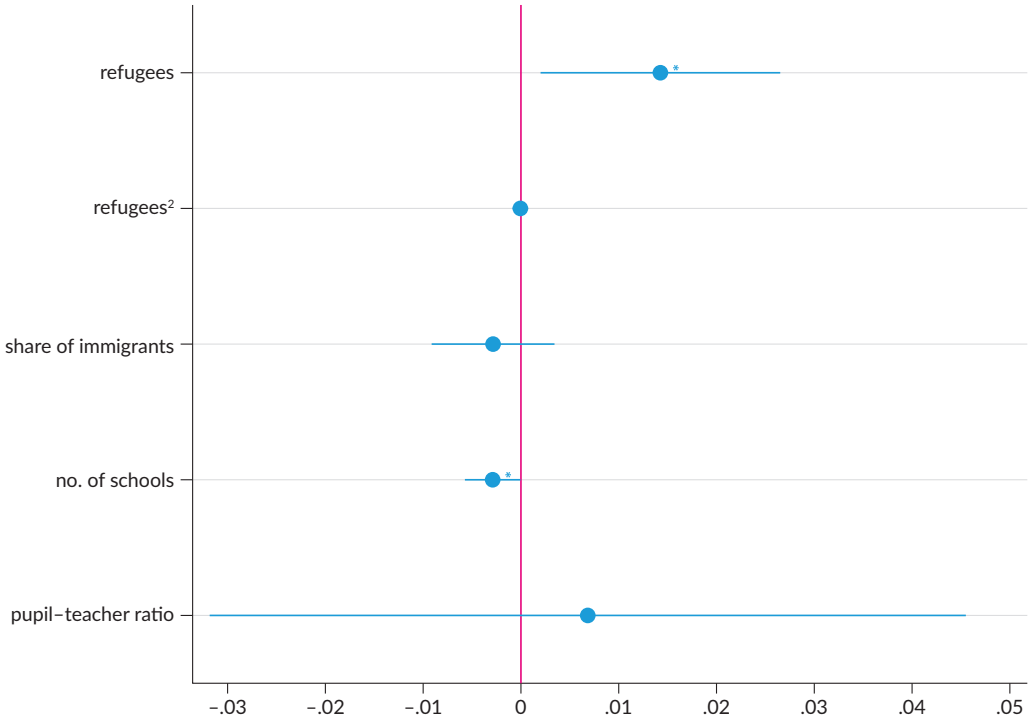

Figure 6. Multi-level models on newcomer class as dependent variable (only regional variables displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

5.3. *Attending a* Gymnasium

Recall that some of our hypotheses concerning attendance at the *Gymnasium* apply to all pupils, independent of whether they attend a newcomer class (H5a to H6c), while others only concern those who attend a regular class (H7 to H8b). Thus, we show these results separately.

The baseline model without regional variables indicates that pupils who live in federal states which preferably enrol pupils at lower school types are less likely to attend a *Gymnasium*, while pupils with parents who obtained postsecondary or tertiary education (compared to those with secondary education), and with better self-assessed school performance in the country of origin, are more likely to attend a *Gymnasium* (see Supplementary File, Table 3). These effects remain largely stable if we control for regional variables (an exception being the models with interactions). The picture looks similar if we only include those who attend a regular class (see Supplementary File, Table 4).

5.3.1. Attending a *Gymnasium* (Newcomer and Regular Classes)

Testing our assumptions on the effects of regional factors on the attendance of a *Gymnasium*, we cannot observe any significant results of the regional factors (Figures 7 and 8; see also Supplementary File, Table 3).

While the effects show in the expected direction, meaning the higher the number of *Hauptschulen* in a municipality, the less likely newcomers are to attend a *Gymnasium* (H5a, Figure 7), and the more newcomers

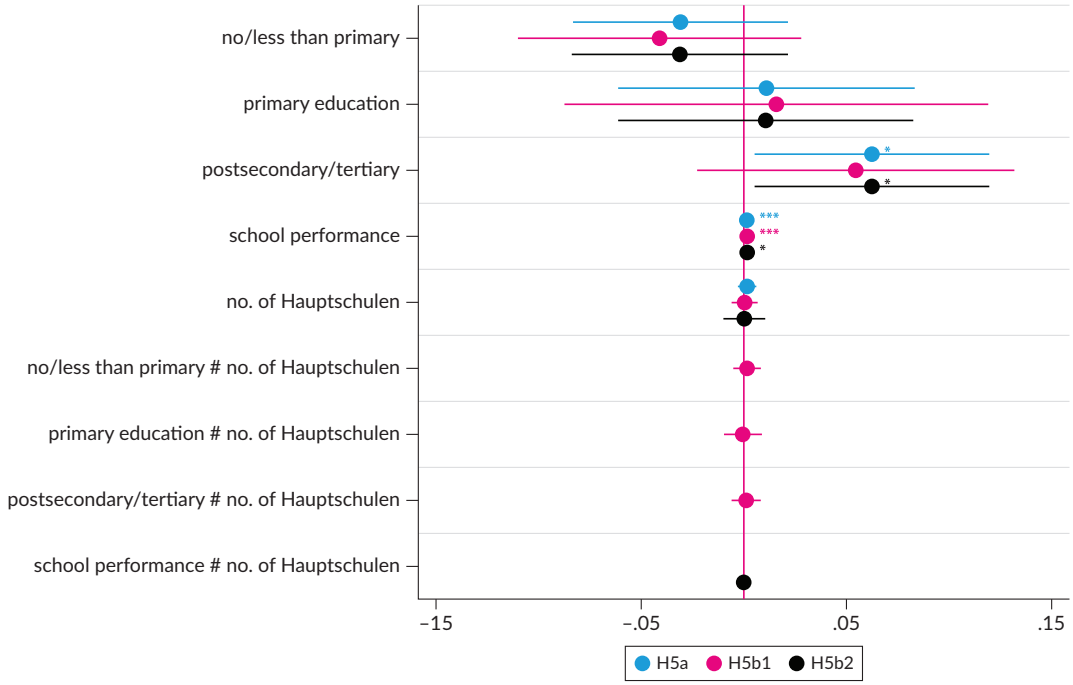

Figure 7. Multi-level models on *Gymnasium* as dependent variable (including those in newcomer classes, only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

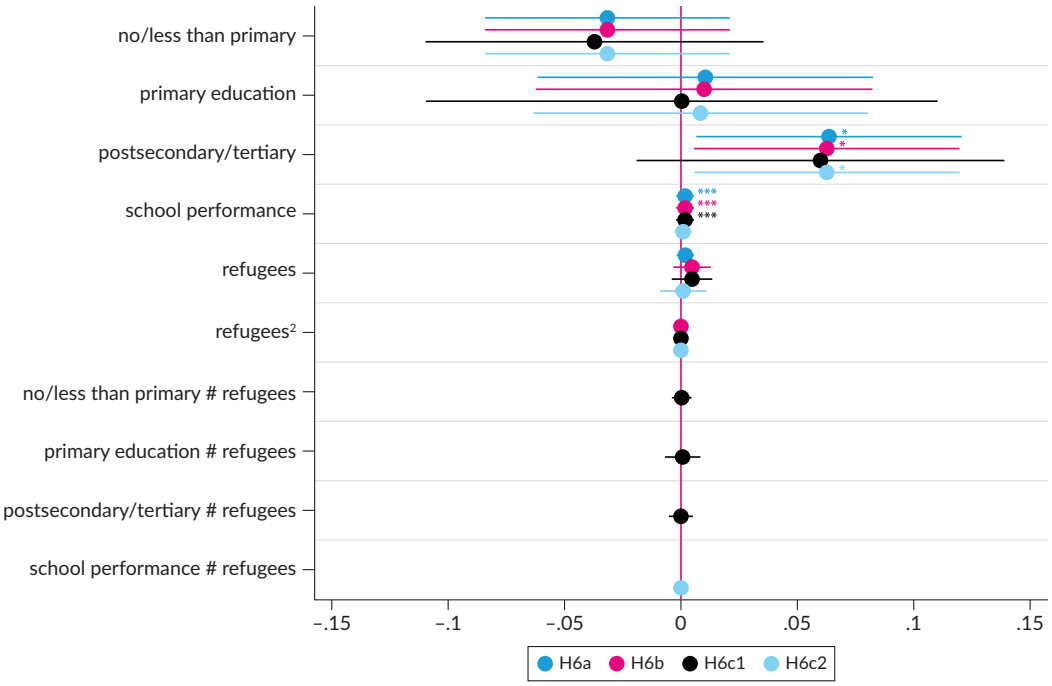

Figure 8. Multi-level models on *Gymnasium* as dependent variable (including those in newcomer classes, only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

there are in a municipality, the more likely the adolescents in our sample attend a *Gymnasium* (H6a, Figure 8), these effects are not significant. No evidence was found for the assumption that the number of *Hauptschulen* (H5b1 and H5b2, Figure 7) and the number of newly arrived pupils (H6c1 and H6c2, Figure 8) in the municipality affect the influence of family and individual resources on educational decisions.

Considering the relevant regional aspects together in a model without interaction terms, a similar picture emerges. The effects of the regional variables point in the expected direction but show no significant correlations with attending a *Gymnasium* (see Supplementary File, Table 3).

5.3.2. Attending a *Gymnasium* (Only Regular Classes)

The results regarding previous experiences with schooling immigrants indicate in the expected direction (Figure 9). If the adolescents in our sample live in a municipality with more previous experiences with teaching immigrants, they are less likely to attend a *Gymnasium* (H7). The correlation is not significant, however. Contrary to our assumptions, the higher the pupil–teacher ratio at *Gymnasien*, meaning the less capacity there is at *Gymnasien* in a municipality, the more likely they attend a *Gymnasium* (H8a, Figure 9). This significant correlation contradicts hypothesis 8a. It is possible that other regional aspects influence both the workload of teachers at *Gymnasien* and the schooling of newcomers. An alternative explanation is that more teachers have been assigned to schools that have faced particular challenges in the past (e.g., a high proportion of children from socially disadvantaged backgrounds or children whose family language is not German), so that the pupil–teacher ratio has diminished. A high pupil–teacher ratio could therefore indicate

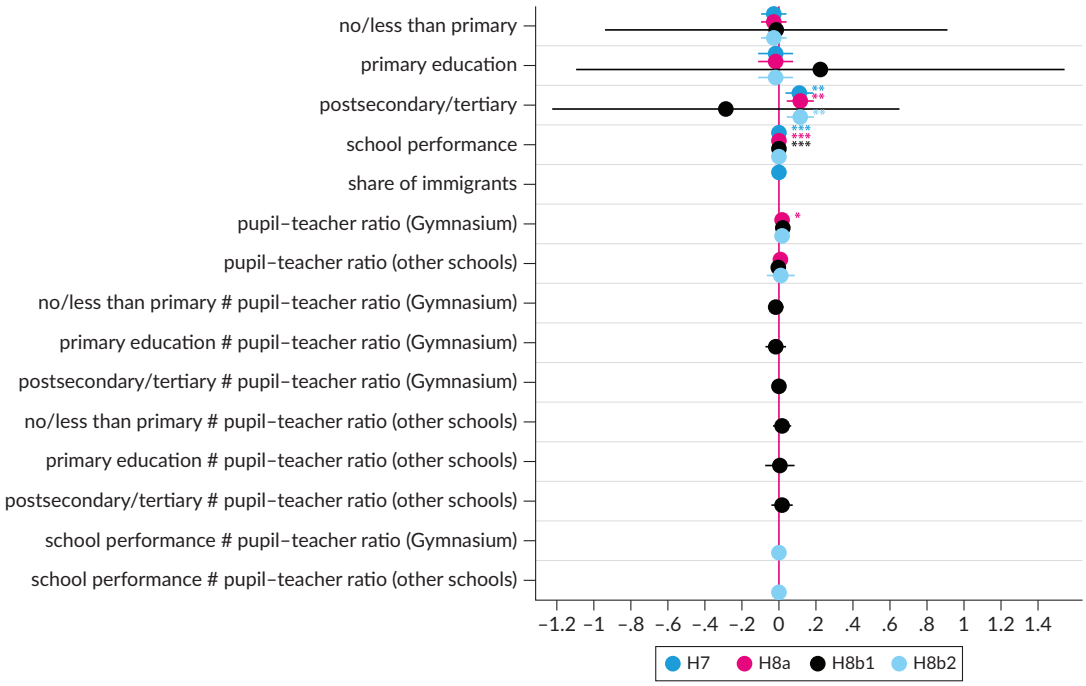

Figure 9. Multi-level models on *Gymnasium* as dependent variable (excluding those in newcomer classes, only regional variables and interaction effects displayed). Notes: Results present regression coefficients and confidence intervals; significance levels: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$; reference category: HISCED = secondary I+II education; control variables = educational policies, degree of urbanity, HISEI, gender, age at arrival, origin country, residence status.

that the school has not been particularly challenged so far and is therefore considered capable of including newly arrived refugees. The assumed interactions between free capacities and family and individual resources (H8b1, H8b2) are not significant.

In a model without interactions that considers all relevant regional aspects, we see similar results to those obtained when the hypotheses are tested individually. The unexpected significant correlation between less free capacity at *Gymnasien* and a higher probability of attending a *Gymnasium* remains (see Supplementary File, Table 4).

6. Conclusion

In the literature on the schooling of newly arrived refugees, factors at the municipal level are assigned great importance. Analyses with the data from the ReGES study show that a small part of the variance when explaining differences in the schooling of newly arrived refugees can indeed be attributed to municipal aspects (5.4–10.1%). This is in line with other studies, which conclude that regulations at the district level contribute to a limited extent to explaining the integration processes of refugees (Tjaden & Spörlein, 2023). We can only explain the regional variance to a very limited extent based on our models, and there are hardly any significant correlations between municipal aspects and the education of newly immigrated pupils. The number of newly immigrated pupils in the municipality operationalised by the number of those seeking protection in the district is, as expected, associated with a higher probability of being educated in a separate newcomer class. Furthermore, as expected, in municipalities with more schools, instruction in newcomer

classes seems to be less likely. However, this finding only emerges when other regional characteristics are controlled for. In municipalities where teachers at *Gymnasien* are responsible for many pupils and should therefore have little free capacity, we see a positive correlation with the education of new immigrants at *Gymnasien*. This correlation contradicts our expectation and requires further investigation. The assumption that the freedom of choice of pupils and their families varies depending on municipal aspects and that individual and family resources should have a stronger influence in some municipalities could not be confirmed.

Overall, we could not find any evidence for most of our hypotheses, although the results often showed the expected direction of the relationships. Several reasons for this can be discussed. First, the explanatory factors can often only be measured indirectly. The experience of the municipality with the education of immigrant children, which might increase teachers' expertise or imply established support structures, is only operationalised by the share of immigrants in the total population, to give one example. The pupil–teacher ratio may also not be the best (sole) indicator of teachers' workload due to the complexity of this topic. Other factors that might be important (El-Mafaalani & Kemper, 2017; Emmerich et al., 2017; Jäger et al., 2021; Massumi et al., 2015) cannot be incorporated into the analysis due to a lack of suitable indicators. This applies, for example, to the presence of a welcoming culture, (official) guidelines for assigning newly arrived pupils within the municipality, or the commitment and personal initiative of teachers or gatekeepers who assign newly arrived pupils to classes and schools. Furthermore, many characteristics are only available at the municipal level and not in a more detailed subdivision, such as at the neighbourhood level. Differences within municipalities, which are sometimes significant, cannot be sufficiently considered. Moreover, there are arguments that the schools themselves exert a strong influence on the allocation of young refugees to classes and school types (Emmerich et al., 2017; Massumi et al., 2015), which could not be accounted for in the present analyses either. Future work should therefore try to consider smaller-scale contexts. It further seems worthwhile to consider distance measures, which could test the hypothesis that newly immigrated pupils are primarily enrolled in the nearest school (with a class for newly immigrated pupils), regardless of whether this matches their skills or previous educational experiences (Emmerich et al., 2017). Finally, in the ReGES study, large municipalities and those with many refugees were disproportionately included for sampling reasons. Rural districts with small municipalities and with relatively few refugees could not be included. This makes it more difficult to test some hypotheses that relate, for example, to the number of refugees or the number of secondary schools.

Previous research has shown that regional aspects influence the schooling of new immigrants. However, due to the design of these studies, the suspected mechanisms could not be tested by quantitative analyses. The present study is a first step towards a quantitative examination of these relationships. We showed that the number of newly immigrated pupils, as already assumed in the literature, and the number of schools influence whether lateral entrants are educated in separate newcomer classes. We also acknowledged the difficulties in analysing regional factors that influence the educational participation of newly immigrated pupils and discussed approaches for further research.

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Conflict of Interests

The authors declare no conflict of interests.

Data Availability

The data is available as scientific use files via the Leibniz Institute for Educational Trajectories, Bamberg, Germany. Further information about data access can be found here: https://www.reges-data.de/en-us/Data-and-Documentation/Data-Access

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

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