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Educational Expansion, Social Class, and Choosing Latin as a Strategy of Distinction

Bildungsexpansion, soziale Klasse und die Wahl von Latein als Strategie der Distinktion

Abstract: In times of educational expansion, privileged families are looking for new strategies of distinction. Referring to Pierre Bourdieu's theory of distinction, we argue that choosing Latin at school – a language that is no longer spoken and therefore has no direct value – is one of the strategies of privileged families to set themselves apart from less privileged families. Based on two surveys we conducted at German schools, the paper analyzes the relationship between parents' educational background and the probability that their child will learn Latin. Results indicate that historically academic families have the strongest tendency towards learning Latin, followed by new academic families, and leaving behind the non-academic families. We distinguish between four causal mechanisms that might help to explain these associations: cultural distinction, selecting a socially exclusive learning environment, beliefs in a secondary instrumental function of learning Latin, and spatial proximity between the location of humanist Gymnasiums and the residential areas of privileged families. The hypotheses are formalized by means of Directed Acyclic Graphs (DAG). Findings show that the decision to learn Latin is predominately an unintended consequence of the selection of a socially exclusive learning environment. In addition, there is evidence that especially children from historically academic families learn Latin as a strategy of cultural distinction.

Keywords: Bourdieu; Distinction; Social Class; Educational Expansion; Latin; Foreign Language; Directed Acyclic Graph (DAG).

Zusammenfassung: In Zeiten der Bildungsexpansion sind sozial privilegierte Familien auf der Suche nach neuen Strategien der Distinktion, um ihre Kinder von denen bildungsferneren Elternhäusern abzugrenzen. Unter Bezugnahme auf Pierre Bourdieus Theorie der Distinktion argumentieren wir, dass die Wahl von Latein in der Schule – einer Sprache, die nicht mehr gesprochen wird und daher keinen direkten Nutzen hat – eine der Strategien privilegierter Familien ist, sich von weniger privilegierten Familien abzugrenzen. Auf der Grundlage von zwei an deutschen Schulen durchgeführten Umfragen analysieren wir den Zusammenhang zwischen dem Bildungshintergrund der Eltern und der Wahrscheinlichkeit, dass ihr Kind Latein lernt. Die Ergebnisse zeigen, dass Kinder aus historisch akademischen Elternhäusern am häufigsten Latein lernen, gefolgt von sogenannten neuen akademischen Familien und – mit großem Abstand – von den nicht-akademischen Familien. Wir unterscheiden vier kausale Mechanismen, die zur Erklärung der gefundenen Zusammenhänge beitragen könnten: Kulturelle Distinktion im engeren Sinne, die Wahl eines sozial exklusiven Lernumfelds, der Glaube an eine sekundäre instrumentelle Funktion des Lateinlernens und die räumliche Nähe zwischen dem Standort humanistischer Gymnasien und dem Wohnort der Familie. Die Hypothesen werden mit Hilfe von gerichteten azyklischen Graphen (DAG) formalisiert. Die Ergebnisse zeigen, dass die Wahl von Latein in erster Linie eine unbeabsichtigte Folge der Wahl eines sozial exklusiven Lernumfelds ist. Darüber hinaus zeigen die Analysen, dass insbesondere historisch akademische

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Familien die Wahl von Latein als Strategie der kulturellen Distinktion einsetzen.

Schlüsselwörter: Bourdieu; Distinktion; soziale Klasse; Bildungsexpansion; Latein; Fremdsprache; Directed Acyclic Graph (DAG).

1 Introduction

Referring to the work of Pierre Bourdieu (1984, 1992), we argue that in times of educational expansion choosing Latin from grade five onwards at school can be interpreted as a strategy of social closure of and for privileged families. Over time, the percentage of students in Germany attending a Gymnasium to gain the Abitur and the number of students attending a Gymnasium from the lower social classes has grown continuously (Authoring Group Educational Reporting 2014). Due to this development, once rare educational qualifications are no longer exclusive. As a consequence, privileged families are looking for new strategies of distinction in order to distance their children from those of the lower classes and to transmit their privileged position to their children. The repertoire of compensatory activities of distinction that has been used for this purpose in the last decades is very diverse. It ranges from spending a school year abroad, participating in different forms of community activities to completing internships at companies, governmental bodies, and civil society organizations (see e. g., Hadjar 2019; Mau 2015; Groh-Samberg et al. 2014). We argue that choosing Latin at school is one of the strategies of privileged families to set themselves apart from less privileged families. A particularly interesting feature of Latin is that it is a dead language and learning it has no direct benefit. Especially in the context of globalization, one might expect children to learn a language that is widely used – e. g., English, Spanish, or Chinese – to increase job opportunities in international labor markets, or to enable them to study in other countries (Gerhards 2014). However, one third of all pupils attending the German Gymnasium decide to learn Latin instead of a second modern foreign language (Federal Statistical Office 2019).[1] In this article, we distinguish three types of families that differ from each

other in their level of education: '*non-academic*' (neither parents, nor grandparents have an academic degree), '*new academic*' (at least one parent, but none of the grandparents have an academic degree), and '*historically academic*' (at least one parent and at least one grandparent have an academic degree). We attempt to explain how and why the three different types of families differ in their likelihood to choose Latin.[2] Section two describes more precisely the mechanisms that can motivate the family's choice of Latin including those factors that cannot be directly interpreted as a strategy of cultural distinction. We distinguish between four mechanisms that can be expected to link parents' educational background to the decision of learning Latin at school. We will elaborate these four mechanisms and derive empirically testable hypotheses from each of them. Later in the article the hypotheses will be formalized by means of Directed Acyclic Graphs (DAG).

To disentangle the four mechanisms, survey data specifically designed for that purpose were collected (Gerhards, Kohler & Sawert 2021a, 2021b). Section three describes the sampling design and the operationalizations of the dependent and independent variables. Section four presents the findings of our analyses. Section five summarizes the results of our study and discusses some of its limitations.

2 Theory

Within the last decades, the role of the German Gymnasium has changed remarkably. Since 1970 the Gymnasium has continuously attracted more and more students who go on to graduate with the Abitur, allowing them to study at universities. In 1970, only 11 % of the population aged 18 to 20 years held the Abitur. This number increased steadily, and in 2012 it was the most common educational certificate in Germany, held by 59 % of the 18- to 20-year-olds (Authoring Group Educational Reporting 2014: 295). Although educational expansion has reduced social inequalities in educational attainment not only in Germany but in all Western societies (e. g., Breen & Jonsson 2005; Blossfeld et al. 2015), parents' (Breen et al. 2010) and grandparents' (Sheppard & Monden 2018) educational background is still

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1 For those who are not familiar with the German school system: In Germany all pupils have to learn English as a first foreign language in primary school. When we are talking about "first foreign language" we are referring to the order of foreign languages at the upper secondary school. Usually, English is learned from grade five onwards and a second foreign language is learned from grade six onwards. However, at some Gymnasiums pupils can decide to learn Latin as a first foreign language at the Gymnasium. In this case, English and

Latin are learned from grade five onwards, but more schooling hours are spent on learning Latin than on learning English.
2 At the outset we should point out that the assumption that educational expansion has increasingly led to the use of Latin as a strategy of cultural distinction cannot be tested with our data as we are not analyzing longitudinal data. We focus solely on the causal mechanisms that lead to the choice of Latin.

a major predictor of educational success of the (grand)children. Considering declining inequalities in upper secondary attainment, research expanded its focus on so-called horizontal educational inequalities (Davies & Guppy 1997; Lucas 2001, 2009). Lucas (2001) argues that privileged families make use of different schooling tracks in stratified curricula, e. g., different majors, to intergenerationally transmit social privilege to their children. Having highly educated parents increases children's probability of opting for general academic instead of vocational school tracks (Møllegaard & Jæger 2015). In countries that have elite institutions at the upper secondary level (e. g., the UK or the US), quantitative and qualitative studies have shown that children from privileged families are more likely to attend these institutions than their less privileged peers (Jerrim et al. 2015; Gaztambide-Fernández 2009; Khan 2011).

In Germany, the situation is different. Even though a process of differentiation and segregation of different types of Gymnasiums has taken place in recent decades (Helsper et al. 2018), there are still relatively few elite schools. This condition forces parents to look for new strategies to let their offspring stand out from the "masses" (see Groh-Samberg et al. 2014; Mau 2015). We test whether learning Latin as a first foreign language from grade five onwards, can be interpreted as a strategy of cultural distinction and thus as a functional equivalent to the absence of elite institutions in the German educational system. Four different mechanisms can be distinguished that can help explain why privileged families choose Latin for their children. We try to explain the four mechanisms in as much detail as possible, even if this makes the chain of argumentation a bit complex.[3]

2.1 Choosing Latin as an immediate strategy of cultural distinction

Building on Bourdieu's theory of social class (Bourdieu 1984), the extent to which a certain behavior can be con-

sidered a "distinctive" cultural practice depends on three factors: its exclusiveness, the concealment of its utility, and its historically established symbolic meaning. We argue that learning Latin from grade five onwards matches all these characteristics and can therefore be considered a strategy of cultural distinction.

Exclusiveness: Learning Latin in the German educational system is only possible if students decide to attend the Gymnasium, the highest secondary track in Germany. At the Gymnasium students can decide to learn Latin from either grade five or grade six onwards, or to learn French or another modern language instead of Latin. In 2017, about 6 % of all students attending the Gymnasium learned Latin from grade five onwards, whereas about 30 % learned Latin from grade six onwards. Learning French was the most popular alternative, with more than 40 % of all students (Federal Statistical Office 2017). Hence, whereas learning French and Latin from grade six onwards is not exclusive at all, learning Latin from grade five onwards is.

Apparent uselessness: The most obvious function of learning foreign languages is the enhancement of one's communicational potential to communicate with people who speak another mother tongue.[4] Foreign languages increase the capability to interact with people in other linguistic regions of the world. Whereas English is in this respect the most useful language, followed by other modern languages such as Spanish, French, or Chinese, there is no obvious communicational benefit of learning Latin. Hence, Latin does not fulfill any direct function. Apparent uselessness is precisely one of the features that Bourdieu considers to be constitutive for a strategy of distinction which is typically practiced by academic social classes.[5]

Historically established symbolic meaning:[6] In order to understand the reputation attributed to people who have learned Latin, one must understand the role Latin played in the history of the German educational system. For centuries, Latin served as the European lingua franca

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3 We distinguish between three different functions of a foreign language in general and of Latin in particular. (1) A foreign language is first of all an instrument to communicate with other people; we call this the 'primary instrumental function' of a language. Since Latin is a language that is no longer spoken, Latin has no value in this respect. (2) However, a foreign language can have a 'secondary instrumental function'. For example, one needs Latin to study certain subjects; moreover, it is implied that knowing Latin makes it easier to learn other languages. (3) Finally, language can take on a 'symbolic function'. Knowledge of a language then serves solely to distinguish oneself from other people culturally. In this paper, we are primarily interested in the symbolic function of Latin. Choosing Latin is interpreted as a strategy of cultural distinction.

4 The primary instrumental function of a language and the communicational value of a language is described by de Swaan (2002) as its Q-Value.

5 "The true basis of the differences found in the area of consumption, and far beyond it, is the opposition between the tastes of luxury (or freedom) and the tastes of necessity. The former are the tastes of individuals who are the product of material conditions of existence defined by distance from necessity, by the freedoms or facilities stemming from possession of capital; the latter express, precisely in their adjustment, the necessities of which they are the product." (Bourdieu 1984: 177–178).

6 See Sawert (2018, 2019) for a more comprehensive overview of the historically established meaning of Latin in the German educational system.

of the upper classes. During the development of the German school system in the 19th century, learning Latin and ancient Greek became part of Humboldt's educational ideals (Fuhrmann 2002; v. Friedeburg 1992). Traditionally, 40 % of all schooling hours at the Gymnasium in Germany were spent on learning Latin and ancient Greek. Both languages were associated with the proclamation of an autonomous educational ideal. The humanist educational ideal was not only associated with the ideal of education for its own sake, but also with a highly exclusive and socially selective access to the Abitur (Herrlitz et al. 1993: 38; Sawert 2019). Even though Humboldt's Gymnasium gradually lost its importance because of educational expansion, the historical idea that learning Latin is something special and elite has remained. Whereas learning modern foreign languages is associated with an orientation towards acquiring educational knowledge to prepare for the labor market, acquiring classical knowledge is associated with an ideal of autonomous "elite" education (Sawert 2021).

Compared to other languages, learning Latin, especially from the fifth grade onwards, fulfils all requirements of a distinctive cultural practice: It is exclusive, its utility is not obvious, and it has a historically established meaning as "elite" education. Following Bourdieu, we expect privileged families and especially traditional academic families, in which not only parents but also grandparents have an academic degree, to follow an educational strategy directed towards cultural distinction.

Several empirical studies have shown that being from an educationally privileged family increases the probability of practicing distinctive educational strategies or distinctive leisure activities (e. g., Reimer & Pollak 2010; Kraaykamp 2003). More recent empirical studies have focused on the effect of the grandparents' educational background on the grandchildren's education (e. g., Sheppard & Monden 2018; Hällsten & Pfeffer 2017; Møllegaard & Jæger 2015) and grandchildren's leisure activities (Sawert & Gerhards 2019). These studies claim that the grandparents' cultural capital impacts on the acquisition of the cultural capital of the parents, which they again transmit to their children. Hence, whereas parents who originate from a household in which they experienced a distinctive cultural lifestyle develop such a taste for it themselves, parents who did not experience such a lifestyle have a lower probability of being oriented towards distinctive cultural practices even if they experienced educational mobility. Consequently, we assume that historically academic families (those in which parents and grandparents hold academic degrees) are more likely to prefer distinctive educational tracks such as learning Latin from grade five onwards.

2.2 Choosing a socially exclusive learning environment

The second mechanism of social closure involves learning Latin as an unintended consequence of the choice of a specific learning environment. The argument proceeds in three steps: First, it explains that learning environments differ between humanist Gymnasiums on the one hand and other Gymnasiums on the other. Second, it states that privileged classes more often prefer the learning environment of the humanist Gymnasium than lower strata. Finally, it requires that the selection of a learning environment dictates the choice of the language.

Socially exclusive learning environment: Baumert and colleagues (2010) show that humanist Gymnasiums in Germany are composed of socially selective student bodies in terms of academic performance of the students, and with respect to the social status and the educational level of the parents. This in turn has a twofold impact on pupils' development (Baumert et al. 2006; Rindermann 2007; Bellin 2009). First, the social composition of the student body is important for the interactions within the class and impacts on students' individual learning performance (Hoxby 2000; Schneeweis & Winter-Ebmer 2007). As children from higher educational classes on average perform better at school than students from lower educational classes (Jaksztat 2014), a socially selective school environment should provide a more efficient learning environment, hence, leading to a better skill development. Second, as pupils interact with their peers in school, the school environment might influence the development of normative and cultural orientations. The higher the educational level of a school environment, the more prevalent the culture of the upper-middle classes.

Preferences for a socially exclusive learning environment: There are four reasons why social strata might differ in their preferences for a socially selective learning environment. First, the differences in the learning environment can only affect the school choice if the family knows about these differences. It seems plausible to assume that this knowledge is more widespread among educationally privileged families than among less privileged families. Second, the cultural orientations prevalent in the humanist Gymnasium are more attractive to families with similar cultural orientations. Third, upper classes are more reliant on a good learning environment since they require educational success to maintain their status (Keller & Zavalloni 1964; Boudon 1974). Finally, educational expansion puts educationally privileged families under pressure to look for new ways to transmit their status to the next generation as an upper secondary cer-

tificate is no longer distinctive enough (Erikson & Jonsson 1996; Breen & Goldthorpe 1997).

Correlation between a socially exclusive learning environment and Latin as a mandatory language: If the school with the preferred learning environment requires students to learn Latin from grade five onwards, the language choice is determined by the choice of the learning environment. More generally, if the feasible set of language options correlates with the learning environment, the language choice will be affected by the choice of the learning environment. In practice, this is indeed the case, particularly for learning Latin from grade five onwards. Whereas most schools in Germany offer Latin and French from grade six onwards, the option to learn Latin from grade five onwards is only offered at humanist Gymnasiums.

To sum up our argument at this point: Educationally privileged families are more likely to choose Latin from grade five onwards than less privileged families due to their stronger preference for a socially selective school environment.

2.3 Secondary instrumental function of learning Latin

The third possible mechanism builds upon the idea that learning Latin may have a "secondary instrumental function". Building on transfer theories of learning (e. g. Greeno et al. 1993; Singley & Anderson 1985), several authors assume that learning Latin increases cognitive abilities in other fields, particularly students' linguistic skills in their mother tongue, their ability to learn Romance languages, and their ability to think logically. Although empirical studies do not support such hypotheses (Thorndike 1923; Haag & Stern 2000, 2003), the belief in positive transfer effects remains quite popular, as we have shown in a recently published paper, analyzing the ascription of positive transfer effects by parents of pupils attending the German Gymnasium (Gerhards, Sawert & Kohler 2019). Of course, families who believe in the positive transfer effects of learning Latin should be more likely to choose Latin at school than those who do not. The same is true for families whose offspring strives for occupations for which Latin skills are useful or necessary. Medical doctors, lawyers, priests, and historians are typical examples of such occupations. Using the University of Heidelberg as an example, we have listed elsewhere for which BA and MA programs knowledge of Latin is necessary or recommended (Sawert 2018: 79). As we have shown elsewhere (Gerhards, Sawert & Kohler 2019), the belief that learning Latin results in positive transfer effects is more prevalent among higher

educated families than among lower educated families. Hence, it seems plausible to argue that expectations about a secondary instrumental function of Latin might mediate an effect between educational background and learning Latin from grade five.

2.4 Spatial proximity between school location and socially privileged neighborhoods

The fourth mechanism linking social origin to language choice stems from the geographic location of families on the one hand, and the location of schools offering Latin from grade five onwards on the other hand. An important motive for the families' school choice is the sheer proximity of a school to the family's place of residence. The closer the school, the less time must be invested in transit, and the more time can be spent on other things. Starting from the assumption that humanist Gymnasiums are located closer to the neighborhoods of privileged social strata, choosing Latin becomes an unintended consequence of choosing the nearest school. Unfortunately, there are no representative data available to check to which degree humanist Gymnasiums are located in privileged neighborhoods across Germany. For Berlin, Sawert (2018) shows that the average rent of the neighborhoods in which humanist Gymnasiums are located is above the average rent in Berlin. In order to avoid biased estimates, we designed our study in a way to make sure that we can control for this mechanism to a reasonable extent.

2.5 Hypotheses

The theoretical arguments of the previous subsections are now formalized by means of Directed Acyclic Graphs (DAGs). DAGs can be seen as a generalization of the classical path diagram (Wright 1934). They provide formally proven rules for selecting control variables when estimating causal effects. Although DAGs are vividly discussed in the methodological community, they are not very often used in applied sociological studies. Unfortunately, space limitations only allow a very brief introduction at this point; however, a colloquial introduction streamlined to the content of this paper is given in the online-appendix. Furthermore, we refer to different excellent introductions to DAGs (Morgan & Winship 2007; Elwert 2013; Pearl et al. 2016; Schüssler 2018).

The DAG in figure 1 shows our assumptions about the *causal* relationships between those variables we regard

as relevant for the association between families' educational background and the decision to learn Latin. The DAG includes the parents' "educational background", the decision to "learn Latin", the three possible mechanisms, namely "cultural distinction", "secondary instrumental function", and "exclusive learning environment", the related variable "school choice" and finally "spatial social proximity structure". Aside from these variables of immediate theoretical interest, the DAG also includes three further relevant variables, namely "parents' age", "child's sex", and the "child's educational performance". Since these further variables are merely considered nuisances that require attention in the empirical analysis, they are drawn in light gray, allowing us to concentrate on the variables of immediate theoretical interest. The other variables will be discussed in more detail in subsection 3.1 below.

The DAG assumes that the family's educational background affects language choice directly and indirectly by three mechanisms: cultural distinction, socially exclusive learning environment, and the expected secondary instrumental function of learning Latin. The socially exclusive learning environment is thereby partly a consequence of the spatial-social proximity structure and is a cause of the school choice.
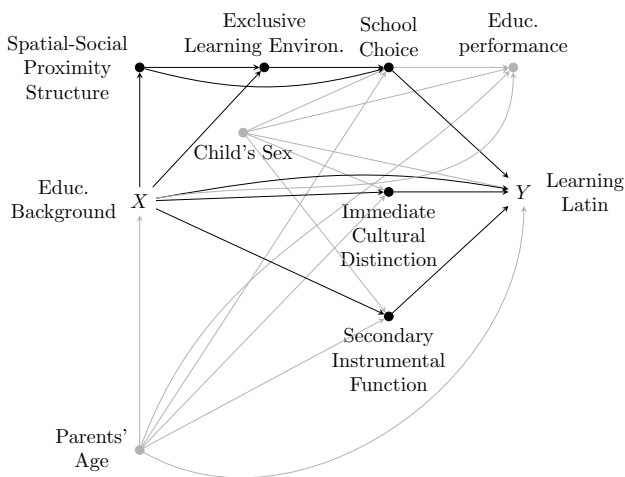

Figure 1: Directed Acyclic Graph of the mechanisms linking educational background and language choice

The three indirect effects of educational background on the decision to learn Latin constitute the *parameters of interest* of our paper, namely:

1. There is a positive indirect effect of educational background on learning Latin through cultural distinction. This indirect effect is, however, only expected for his-

torically academic families, whereas it should not be observed for non- or new academic families.[7]
2. There is a positive indirect effect of educational background on learning Latin through the choice of a socially exclusive learning environment. This indirect effect should exist for new academic and historically academic families alike as we expect both types of families to feel the same pressure to send their children to a distinctive educational environment.
3. There is a positive indirect effect of educational background on learning Latin through the beliefs in a secondary instrumental function of this choice.

3 Research design

The empirical analyses are based on two surveys we conducted. We interviewed both parents of children in the fourth grade (Primary School Survey) and the eighth grade (Gymnasium Survey). We will explain the two datasets and the variables in more detail below (3.2 and 3.3). Before we do that, we will illustrate how the design of the two surveys contributes to the identification strategy of the three parameters of interest. Since the entire research design is rather complex, we ask the reader to keep in mind for the next section that the Gymnasium Survey fully controls[8] for school choice and the Primary School Survey fully controls for the spatial-social proximity structure. We justify these two crucial characteristics of the two surveys below.

3.1 Identification strategy

The common design to identify the size of an indirect effect of some variable X on some outcome variable Y through the mechanism Z is to estimate the association between X and Y with and without adjusting for Z (commonly termed the "full" and the "reduced model") and then to compare the two associations. However, this identification strategy has serious risks for so-called "collider biases" (Breen

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7 An arrow in a DAG means that there is at least one unit for which the direct causal effect exists. Therefore, it is not necessary to encode this interaction in the DAG itself.

8 Adding some variables Z to a regression model is just one way to control the contribution of Z to the association between a treatment variable X and an outcome variable Y. Other techniques are holding constant, matching or randomization. Each of those techniques require their own set of assumptions. We stress that the common strategy of regression adjustment is by no means superior to the other techniques.

2018; Elwert & Winship 2014). Therefore, we will discuss whether and how the standard identification strategy can be applied to the three mechanisms in question. To ease the discussion, we provide a simplified version of figure 1 that shows how families' level of education impacts on the likelihood of learning Latin without taking into account the path through the chosen type of school (figure 2). This is exactly the situation underlying the Gymnasium survey because here the choice of the type of school has already been made (figure 2).

Given the situation depicted in figure 2, our first parameter of interest, namely the indirect effect of the educational background on learning Latin through cultural distinction, can be identified in a standard way: Just subtract the effect of the educational background net of cultural distinction from the total effect of the educational background. Thereby, the total effect of educational background on learning Latin can be estimated with a regression of learning Latin on educational background adjusting for parent's age. For the estimation of the controlled effect, the variables for immediate cultural distinction and child's sex must be added to the regression model. The additional adjustment of child's sex is non-standard but necessary to prevent the collider bias described by Breen (2018). However, since child's sex does not contribute to the total effect parents' educational background has on learning Latin, we further simplify the estimation by adjusting for child's sex in both models. The difference in the effects of educational background on learning Latin between both models is our first strategy to estimate the first parameter of interest.
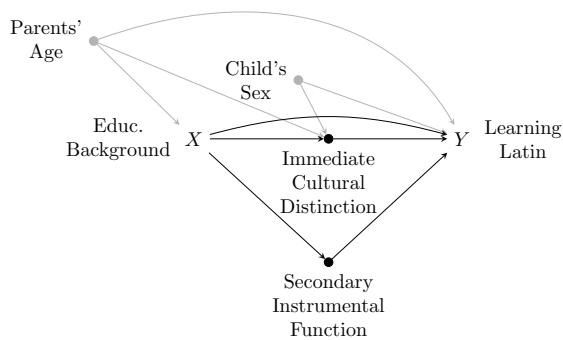

Figure 2: Simplified DAG for indirect effect through cultural distinction

A direct application of the standard research ritual would identify the indirect effect of educational background on learning Latin through "cultural distinction" by subtracting the association between educational background and

learning Latin adjusted for cultural distinction from the corresponding association without controlling for cultural distinction. It must be noted though that under the proposed data-generating process, the adjustment of the immediate cultural distinction would create the so called "collider bias" originating from the assumed role of child's sex (see Elwert and Winship 2014, or Breen 2018 for elucidations). The same problem would arise if the secondary instrumental function would be at least partly a cause of immediate cultural distinction (i. e., if there really should be an arrow from the secondary instrumental function to cultural distinction in figures 1 and 2). To prevent the collider bias through child's sex and to make the analysis more robust against possible flaws in the assumed data-generating process we estimate the indirect effect in three different ways:

(1) Under the conditions shown in figure 2, the difference between the regression coefficients with and without cultural distinction should be the same regardless of whether we additionally adjust for the secondary instrumental function or not. Thus, we replicate the first strategy using the secondary instrumental function as an additional control variable. Since this second strategy estimates the same parameter of interest, we regard this second strategy as a robustness check for the first strategy. (2) Another way to estimate the indirect effect in question is to again use the same principle but to adjust for educational performance as well (only shown in figure 1). While it is true that this additional adjustment variable introduces an endogenous selection bias into the estimation of the effects of educational background on learning Latin (Elwert 2013), this bias should be the same for the full and the reduced model. Thus, calculating the difference of the regression coefficients of the educational background with and without this additional control variable is a further estimate of the indirect effect in question. In the following, we refer to the three estimation strategies as the minimal, medium, and full adjustment set. Since we will use the Gymnasium Survey for all three strategies, we also adjust for school choice throughout (see section 3.2 below).

The identification strategy for parents' belief in the secondary instrumental function of learning Latin corresponds to the strategy for cultural distinction, except that this time the medium set contains cultural distinction instead of the secondary instrumental value. As before, all replications adjust for school type by using the design of the Gymnasium Survey.

The identification strategy for the exclusive learning environment is a bit more complicated. To clarify the situation, figure 3 shows those paths of figure 1 that create an
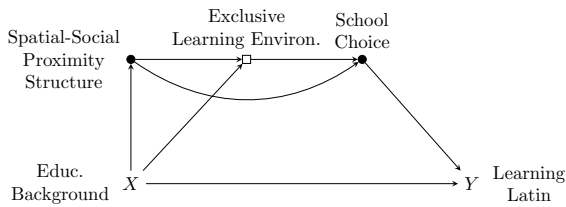
Figure 3: Simplified DAG for indirect effect through exclusive learning environment

association between educational background and learning Latin through an exclusive learning environment. The DAG makes clear that the standard strategy applied above would unavoidably fail here: If the DAG were correct, one could estimate the total effect of the educational background on learning Latin without further adjustment. The estimation of the effect of educational background on learning Latin, adjusting for the exclusive learning environment, will however also "unblock" the non-causal path from educational background to learning Latin through the exclusive learning environment, the spatial-social proximity, and school choice (see Elwert & Winship 2014 for an explanation).

In other words: Any adjustments of the learning environment in an analysis would in fact remove parts of the association between educational background and learning Latin, but at the same time would add an association that was not present in the unadjusted model. This is another example of a collider bias (Breen 2018). Unfortunately, running the analysis by comparing the effects of educational background with and without adjusting for school choice would also not suffice. This is because the adjustment of school choice not only removes the path from the educational background to learning Latin through the exclusive learning environment and school choice, but also the path through social-spatial proximity and school choice.

Given the assumptions of the data-generating process encoded in the DAGs of figure 3 (and 1), a feasible way to estimate the learning environment mechanism is as follows: first, to calculate the association between educational background and learning Latin with a regression that *solely* adjusts for spatial proximity; second, to calculate the corresponding association that solely adjusts for school choice; finally, to subtract both associations from one another.[9] To the extent that the Gymnasium survey

controls for school choice and the primary school survey controls for the social-spatial proximity structure but not for the learning environment, this estimation strategy boils down to compare the relevant association between these two datasets, which is what we will do. Again, the analysis is replicated using a minimal, medium, and full adjustment set. Thereby, the medium adjustment set adds both cultural distinction and the belief in the secondary instrumental function to the minimal set.

We are well aware that the described identification strategy is unusual and perhaps controversial. However, we would like to defend our strategy by making the most crucial underlying assumptions as clear as possible: The first assumption is that the two surveys either hold constant the social-spatial proximity structure or the school type. This will be explained in the next sub-section. The second assumption is that educational background affects school choice only through the social-spatial proximity structure and/or the exclusive learning environment – an assumption that is similar to the standard assumption of instrumental variable regression. Last, but not least, we assume that the estimated indirect effect is actually homogeneous across individuals; this, of course, mimics a standard assumption applied when inferring results of experimental research on special populations to larger populations (see Kohler et al. 2019; Pearl & Bareinboim 2014). More specifically, any argument suggesting differences in the effects of figure 1 between locations (i. e., states, cities) in the so-called "old states of Western Germany" would place a question mark behind the results of this article. We invite critics to present such an argument alongside a proposal for a better identification strategy for the learning environment hypothesis.

3.2 Data

The estimation of the indirect effects proposed by the hypotheses requires a dataset that allows to adjust for cultural distinction, beliefs in the secondary instrumental function of learning Latin, school choice, and spatial proximity. To the best of our knowledge, no available dataset enables such an analysis. We thus conducted a survey to interview both parents of children in the fourth grade (Primary School Survey) and the eighth grade (Gymnasium Survey). This section describes the survey in some

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9 Taking figure 3, the regression that adjusts for school choice estimates the direct path from educational background to learning Latin. The regression that adjusts for the social-spatial proximity structure estimates an effect that is a composed of both, the direct effect, and

the path through the exclusive learning environment. Hence the difference between the two models identifies the indirect effect through exclusive learning environment.

detail (see Arneth et al. 2021a, 2021b for a more thorough description); the dataset is available at the GESIS data archive.

In the Primary School Survey, parents of students who attended the fourth grade of a primary school were surveyed. In the German educational system, students usually attend primary school until the end of the fourth grade and then decide which secondary school to attend at the end of the fourth grade. The survey was conducted from 27 April to 9 May 2017. At this time, the families had already registered for the secondary school the child would be attending from the next school year onwards. The survey was conducted at primary schools in the city center of the German city Düsseldorf. Düsseldorf was selected because we found there several Gymnasiums that differ in their schooling profile but are located in close proximity. The primary schools were then selected from that area. Consequently, students living in this neighborhood can choose between different secondary school types within a very similar distance. Hence, the Primary School Survey holds constant the spatial-social proximity. We distributed 1132 questionnaires to parents living in 566 families, assuming each household consists of two parents and at least the child whose language decision was of interest to us. We received 420 questionnaires back from persons living in 229 different families. Hence, the response rate of the Primary School Survey was 37%. While this might be regarded as small, it should be noted that it is higher than the response rates achieved for the German sample of the European Social Survey in 2018 (28%; see ESS 2019: 107) and the ALLBUS, i.e., the German General Survey (32%; see GESIS 2018: viii). It should also be mentioned that 37% is a conservative estimate of the response rate as we did not consider single-parent families. Due to item nonresponse, we lost around 11% (n=26) of the total sample size, resulting in a total number of 203 families for our analysis.

The Gymnasium Survey targeted parents of students in the eighth grade of the Gymnasium. The schools were located in the West German states starting with secondary school at grade 5 (Rhineland-Palatinate, Hesse, Baden-Württemberg, North Rhine-Westphalia, Lower-Saxony and Schleswig Holstein)[10]. The schools included in the survey were the only ones with a humanist profile in the respective cities and offered the students the possibility to choose between Latin from grade five onward, from grade six onwards or no Latin at all. To the extent that the

learning environment is approximately the same for all classes in a school, the Gymnasium survey holds this variable constant. Hence, the decision for the school does not intervene with the decision for a language profile. We distributed 2994 questionnaires to 1497 families and received back 1102 questionnaires from 554 families, resulting in a response rate of the Secondary School Survey of again, 37%. In this survey we lost around 12% (n=68) of the families due to item-nonresponse, resulting in a total number of 483 families for the analyses.[11]

3.3 Variables

The outcome variable of all analyses is whether the children decided to learn Latin from grade five onwards or not. Note that in the Primary School Survey the answer to this question measures an intended choice. Students had already registered to learn Latin but had not actually started. For the Gymnasium Survey, the answers reflect that students started to learn Latin around three years ago. We do not differentiate between learning Latin from grade five onwards and learning Latin from grade six onwards, as Sawert (2018) shows that there is no effect of educational background on learning Latin from grade six onwards, but a substantial effect of educational background on learning Latin from grade five onwards.[12] The central explanatory variable is the educational background of the households. We distinguished three categories:

- *Non-academic*: neither parents, nor grandparents have an academic degree.
- *New academic:* at least one parent, but none of the grandparents have an academic degree.
- *Historically academic:* at least one parent *and* at least one grandparent have an academic degree.

The variable is constructed based on the information provided by each parent about their highest educational

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10 Bavaria was also included in the original sampling plan. See Arneth et al. (2021b: 14) for an explanation of why Bavaria was excluded.

11 To check for a potential bias in our estimates because of dropout between grade five and eight, we surveyed both, grade five and eight in one school and compared the distribution of educational background between both grades. Our results show that there is no substantial association between dropout between grade five and eight in our sample.

12 We estimated the effect of educational background on a dependent variable which differentiates between not learning Latin, learning Latin from grade six onwards, and learning Latin from grade five onwards. Our results are in line with the results of Sawert (2018). We do not find a direct effect of educational background on learning Latin from grade six onwards. The effects of learning Latin from grade five onwards are robust over the different operationalizations.

degree. Furthermore, the parents were asked about the highest educational degree of their parents.

Cultural distinction was operationalized by orientation towards highbrow activities[13] (see also Goßmann 2018).[14] We built this variable based on the frequency parents visit the theater, museums, arts galleries, the opera, the ballet, and classical concerts.[15] If two parents were available in a household, we would calculate the average of both parents' cultural activities.[16] In either case we distinguished three categories:

- *Rarely*, meaning never to a maximum of three times a year,
- *Regularly*, meaning four to five times a year and,
- *Often*, meaning more than five times a year.

The *belief in a secondary instrumental function* of learning Latin was operationalized by asking parents which foreign language they expect to be the best in terms of (1) deepening the understanding of the German mother tongue, (2) improving the skills in a foreign language, (3) improving logical thinking, and (4) realizing future studies. Both parents were asked these questions independently and could choose between English, French, Latin, and Spanish. Based on this information, a variable was generated, describing for each family whether modern languages or Latin are considered more useful. The variable consists of three categories:

- *Advantage Latin*: Both parents answered in three of the four dimensions that Latin is more useful.
- *Advantage modern languages*: Both parents answered in three of the categories that a modern language is more useful.
- *No difference*: The parents disagreed, or the parents' answers were inconsistent.

We coded "no difference" as the reference category. We expect that an ascribed advantage for modern languages reduces the probability of learning Latin, whereas an ascribed advantage for Latin increases the probability.[17]

3.4 Estimation

We used logistic regression models for the estimation of the effect of educational background on learning Latin. For the comparison between the regression coefficients of nested logistic regression models, we used the KHB correction suggested by Karlson and Holm (2011). The actual estimation was done with version 2.13 of the user-written Stata command KHB (Kohler et al. 2011). The significance level for significant indirect effects was set to α=0.05. Since our hypotheses suggest the direction of the indirect effect, we used one-sided significance tests and one-sided confidence intervals.

The effect of the socially exclusive learning environment mechanism is estimated by $d=b_{\text{Prim}} - b_{\text{Gym}}$, i.e. the difference between the coefficient of the educational background from a logistic regression based on data of the Primary School Survey b_{Prim} and the equivalent coefficient b_{Gym} based on data of the Gymnasium survey data. The standard error for the difference d is S.E.$(d) =$ $\sqrt{\text{Var}\left(b_{\text{Prim}}\right)+\text{Var}\left(b_{\text{Gym}}\right)}$, with Var$(b)$ denoting the squared standard errors of the regression coefficients (Clogg, Petkova & Haritou 1995: 1279).[18] The one-sided 95% confidence interval around d then is $[d - 1.65 \cdot \text{S.E.}(d),$ ∞], and $z = \dfrac{d}{\text{S.E.}\left(d\right)}$ is a standard normally distributed test statistic that should be larger than 1.65 in order to reject the hypothesis that the coefficient from the Primary School Survey is larger than the coefficient of the Gymnasium data.[19]

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13 Our data does not allow us to address the question of whether a high brow lifestyle continues to be a practice of distinction (see more recently Childress et al. 2021).

14 We are aware that we do not directly measure respondents' motivation for cultural distinction; instead, we infer their motivation to distinguish themselves from others from highbrow activities.

15 Cronbach's alpha, measuring the internal consistency of the variable, is 0.8139. The distributions of the single items used for the construction of the variable are presented in the publication of the dataset.

16 The results of our analyses are robust regarding other codings for this variable, e.g., summing up the attendance of both parents or only using the highest category of both parents.

17 We checked whether the effect of this variable is robust if one uses only the mother's information or only the father's information. We did not find any substantial differences. However, the effect when only the information of the mother is used is slightly larger, compared to the effect when only the information of the father is used, which indicates that the mother's evaluations are slightly more influential for the language choice than the father's evaluations.

18 Please note that the estimators of the regression coefficients from independent samples are stochastically independent so that one does not need to subtract the covariance between the regression coefficients in the denominator of the formula above.

19 The test statistic resembles the test statistic proposed by Augspurg and Hinz (2011), who use the χ^2 (1) distributed values of z^2. We use z here in order to report one-sided tests (and confidence intervals).

4 Results[20]

Table 1 shows the regression coefficients of educational background from a logistic regression of learning Latin from grade five onwards on educational background for both datasets, the Gymnasium and the Primary School Survey. While these coefficients are from logistic regression models without any other covariates, it is important to understand that they do not represent bivariate associations. Instead, the results based on the Primary School Survey represent the effects of educational background on learning Latin for families that have the same opportunity structure. Likewise, the results based on the Gymnasium Survey show the effect of educational background, holding the learning environment constant.

Results from the primary school data show that families with an academic background have a much higher probability of learning Latin than families without an academic background. However, there is only a small difference between new and historical academics. Results from the Gymnasium data show that the probability of new academics choosing Latin is three percentage points higher than for families without an academic background. The historically academic families, on the other hand, choose Latin substantially more frequently (16 percentage points). The difference between both is used below (section 4.2) to study the exclusive school environment mechanism in greater detail.

Table 1: Regression coefficients of educational background on learning Latin from grade five onwards while holding constant the opportunity structure (primary school data, N=203) or the learning environment (Gymnasium data, N=486).

	AME	Logit	Std. Err. (Logit)	Lower boundary 95 % CI (logit)
Primary school data				
Educational background (*Reference*: Non-academic)				
New academic	0.19*	1.54*	0.54	0.49
Historically academic	0.24*	1.81*	0.50	0.83
Gymnasium data				
Educational background (*Reference*: Non-academic)				
New academic	0.03	0.11	0.23	-0.27
Historically academic	0.16*	0.63*	0.24	0.23

*p < 0.05 (one-sided test)

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20 We included a correlation matrix in the appendix (table A3) which shows the bivariate correlation between all variables included in our analysis.

Table 2: Regression coefficients of cultural distinction and secondary instrumental function on learning Latin from grade five onwards while holding the learning environment constant (Gymnasium data, N=486).

	AME	Logit	Std. Err. (Logit)	Lower boundary 95 % CI (logit)
Highbrow events (Reference: Rarely)				
Regularly	0.02	0.07	0.19	-0.24
Often	0.28*	1.16*	0.34	0.61
Ascribed secondary function (*Reference: No difference*)				
Advantage modern language	-0.05	-0.20	0.29	-0.68
Advantage Latin	0.14*	0.58*	0.20	0.25

*p < 0.05 (one-sided test)

Table 2 shows the effect of the two other assumed mechanisms, namely cultural distinction, operationalized by attending highbrow events, and ascribed secondary value to foreign languages. The estimates are based on the Gymnasium data exclusively, and thus showing the bivariate effects holding constant the learning environment.

For the ascribed secondary instrumental function of Latin, the results show that seeing an advantage in learning Latin, compared to not seeing any difference between the usefulness of the language profiles, positively affects the choice of Latin by 14 percentage points. Ascribing an advantage to modern languages has a negative impact on learning Latin, although this effect is not significant at α < 0.05. We will investigate the relevance of this effect as an indirect path connecting educational background and language choice in section 4.3.

4.1 Cultural distinction mechanism

Table 3 shows estimates for the degree to which the effect of new and historically academic backgrounds on learning Latin can be attributed to "cultural distinction". The estimates are presented for new academic and historically academic families for the three different control sets. As the estimated indirect effects are very robust regarding the different adjustment sets, we will discuss the results of the medium set only.

Relying on the reduction of the average marginal effect (e. g., Auspurg & Hinz 2011) between the models with and without adjusting for cultural distinction, we observe that new academic families choose Latin more often (~2 percentage points) due to cultural distinction than families without an academic background. While

this indirect effect has the expected sign, we consider this to be a rather small mediation effect. It is also not statistically significant. However, it should be mentioned that the effect of a new academic background is already small in the reduced model.

Table 3: Indirect effect of educational background on learning Latin from grade five onwards via the path "cultural distinction" (Gymnasium data, N=486).

	AME	Logit	Std. Err. (logit)	Lower boundary 95 % CI (logit)
Educational background (*Reference*: Non-academic)				
New academic				
– Minimal set	0.03	0.12	0.08	-0.01
– Medium set	0.02	0.09	0.07	-0.03
– Full set	0.02	0.09	0.08	-0.03
Historically academic				
– Minimal set	0.05*	0.22*	0.11	0.04
– Medium set	0.04*	0.18*	0.11	0.00
– Full set	0.04*	0.17*	0.11	0.00

*p < 0.05 (one-sided test)

The expectation of hypothesis 1 was that cultural distinction particularly mediates the effect of historical academics. Relying again on the reduction of the average marginal effect, we see that historically academic families choose Latin more often (~4 percentage points) due to cultural distinction than families without an academic background. This is, in fact, a bit larger than the corresponding indirect effect of the new academics, but not much. Nevertheless, the mediation effect of the historically academic families has the expected sign and is statistically significant.

Overall, we find moderate support for the hypothesis that learning Latin from grade five onwards is associated with a general tendency to acquire a distinctive cultural status; this predisposition partly mediates the effect of educational background. However, the effect is rather small, and it remains debatable whether it is stronger for historical academics than for new academics.

4.2 Socially exclusive learning environment mechanism

Table 4 shows estimates for the degree to which the effect of new and historically academic backgrounds on learning Latin can be attributed to a socially exclusive learning environment. The indirect effect that is shown in table 4

is the difference between the effect of educational background on learning Latin in the Primary School Survey and the Gymnasium Survey and is estimated as outlined in section 3.4.

The results show that a substantial part of the effect of educational background can be attributed to the selection of the socially exclusive learning environment. For the new academic families, the effect is between 12 and 19 percentage points, depending on the adjustment set. For the historically academic families, the effect is between 11 and 15 percentage points. Hence, the indirect effect via the path of a socially exclusive learning environment is substantial for new and historically academic families in all adjustment sets. Additionally, it is statistically significant at α=0.05 for all estimated effects except for the indirect effect of new academics in the full set (p=0.08, one-sided test). Overall, we take the results as strong support for hypothesis 2: The selection of a socially exclusive learning environment is an important reason why families with an academic educational background start to learn Latin.

Table 4: Indirect effect of educational background on learning Latin from grade five onwards via the path "learning environment" while controlling for "cultural distinction" and "instrumental secondary function" (Gymnasium data, N=486 & Primary School data, N=203).

	AME	Logit	Std. Err. (logit)	Lower boundary 95 % CI (logit)
Educational background (*Reference*: Non-academic)				
New academic				
– Minimal set	0.19*	1.47*	0.62	0.45
– Medium set	0.15*	1.24*	0.67	0.13
– Full set	0.12	0.96	0.68	-0.17
Historically academic				
– Minimal set	0.12*	1.34*	0.58	0.38
– Medium set	0.15*	1.34*	0.64	0.28
– Full set	0.11*	1.08*	0.65	0.00

*p < 0.05 (one-sided test)

4.3 Belief that Latin has a "secondary instrumental function"

Table 5 shows estimates for the degree to which the effect of new and historically academic backgrounds on learning Latin can be attributed to the belief in its "secondary instrumental function".

The results show small changes in the average marginal effect between the models with and without the measure for secondary instrumental functions. Depending

on the adjustment set, the difference lies between 1 and 2 percentage points for new academic families and between 3 and 4 percentage points for historically academic families. Thus, the mechanism "secondary instrumental function" is overall almost as small as the mechanism of cultural distinction. The indirect effect of secondary instrumental function is only significant for the historically academic families.

With respect to hypothesis 3, the results are somewhat inconclusive. The indirect effect is small and not significant for the new academics. It is also small for the historical academics, but it is significant and about as strong as the cultural distinction mechanism. To be consistent, we thus conclude that there is moderate evidence that the belief in the secondary instrumental function operates as a mechanism for transferring social origin into language choice, but that it is not very important.

Table 5: Indirect effect of educational background on learning Latin from grade five onwards via the path "secondary instrumental function" (Gymnasium data, N=486).

	AME	Logit	Std. Err. (logit)	Lower boundary 95 % CI (logit)
Educational background (*Reference*: Non-academic)				
New academic				
– Minimal set	0.02	0.09	0.05	-0.00
– Medium set	0.01	0.06	0.05	-0.02
– Full set	0.01	0.06	0.05	-0.02
Historically academic				
– Minimal set	0.04*	0.17*	0.08	0.05
– Medium set	0.03*	0.13*	0.07	0.02
– Full set	0.03*	0.12*	0.06	0.01

*p < 0.05 (one-sided test)

5 Discussion

Educational expansion has reduced the distinctive value of once rare educational qualifications. Consequently, privileged families are looking for new strategies of distinction. The repertoire of compensatory activities of distinction is diverse. In this paper we asked whether the acquisition of a humanist education by means of learning Latin can be understood as a strategy of privileged families to set themselves apart from less privileged families.

We analyzed the effect of educational background on learning Latin from grade five onwards and the motives that led to this decision. The study is based on two different surveys we conducted at German schools. The results of our analysis indicate that in the transition from primary school to the Gymnasium, new academic and historically academic families both significantly and substantially tend towards learning Latin from grade five onwards (compared to non-academic families). Overall, historically academic families have the strongest tendency towards learning Latin from grade five onwards, followed by new academic families, leaving the non-academic families with the lowest probability of learning Latin from grade five onwards.

We focused on different mechanisms that can explain these associations: (1) cultural distinction, (2) selecting a socially exclusive learning environment, and (3) beliefs in a secondary instrumental function of learning Latin. In addition, we controlled for a fourth mechanism that might explain why families choose Latin: spatial proximity between the location of humanist Gymnasiums and the residential areas of privileged families (4).

For both academic groups, the socially exclusive learning environment is clearly the most substantial indirect path, being a little more relevant in explaining new academic families' tendency to learn Latin. The two other paths are substantially less influential. For the new academics they are close to being irrelevant, for the historical academics the paths through cultural distinction and beliefs in the secondary instrumental function of learning Latin are small but significant.

To sum up our findings: First, like at the beginning of the 19th century when learning Latin was obligatory for the elitist humanist Abitur of the time, learning Latin as a first foreign language from grade five onwards is still associated with a privileged social background. Second, our results suggest that the decision to learn Latin is predominately an unintended consequence of the selection of a socially exclusive learning environment. Once families have decided on a school that offers free choice between language streams, the difference between the two types of academic families and non-academic families becomes far less accentuated. There is, however, also evidence that for families in which parents and grandparents have academic degrees learning Latin can be seen as a strategy of cultural distinction.

Although the motives behind the acquisition of Latin may differ slightly between the two academic subgroups, they both earn a distinctive educational degree in times of educational inflation. However, one relevant question remains: Is it an investment that pays off? The surprising answer is yes: Applicants who learned Latin from grade five onwards do have better chances of getting an executive position than applicants who learned French or Latin from grade six onwards, as we have shown in another

paper based on a field experiment (Sawert 2016). As academic families are more likely to decide to learn Latin from grade five onwards and as this decision results in increased chances of attaining an executive position, learning Latin can be considered a mechanism in the reproduction of unequal access to privileged labor market positions.

Despite these findings, there are at least two short-comings that have to be mentioned, both relating to the data being used: First, the number of cases for the analysis is rather small as no large-scale survey provides both enough cases and the right variables to disentangle the different motives. Having large-scale data would allow us to conduct deeper and more complex analyses. More specifically, data from more schools located in a city like Düsseldorf and a larger number of schools in the Gymnasium sample would allow us to study the assumption of homogeneity of the indirect effect of the exclusive learning environment. The second major shortcoming is that the conjecture that learning Latin is an increasingly popular strategy of educational distinction could only be tested using longitudinal data. How the relation between the educational background and learning Latin has changed over time cannot be answered at this point. But we see that even 200 years after the educational reforms and half a century of educational expansion, the historically established ways of elite education are still working, leading to inequalities in the labor market and hence to unequal life opportunities.

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