

# Degrees of 'eliteness' in higher education systems: A comparison between Germany and France

Oliver Winkler  | Reinhold Sackmann

Institute of Sociology, Martin Luther University Halle Wittenberg, Halle, Germany

## Funding information

Deutsche Forschungsgemeinschaft, Grant/Award Number: 279117829

## Abstract

Education systems worldwide differ in their degree of eliteness. They range from being non-elitist with dominant patterns of horizontal differentiation (e.g., Germany) to being strongly elitist and having established elite education sectors (e.g., France). Quantitatively, it remains relatively unclear how the eliteness of education systems can be assessed and evaluated. We identify several theoretical mechanisms that are assumed to increase or decrease vertical differentiation between education institutions. For the analyses, we use two large secondary datasets of student beginners' higher education choices in Germany and France and test different measures of inequality and concentration (Gini index, Duncan's *D*, inverse Pareto coefficient, percentile ratios) to describe the degree of eliteness. We estimated the shares of students from higher status groups (high achievers, upper-tier service class academic milieu) in higher education institutions and fields of study and compared their distribution. Our findings indicate that analyses of percentiles, percentile ratios and inverse Pareto coefficient confirm an expected stronger concentration of high achieving students in the top of the distribution of higher education institutions and fields of study in France than in Germany. In comparison to students' achievement, social origin proved to be less important for country-specific differences in concentration.

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2020 The Authors. Higher Education Quarterly published by John Wiley & Sons Ltd

### Abstrakt

Bildungssysteme unterscheiden sich im Grad ihrer Elitisierung. Ihre Spannweite reicht von nicht-elitären Systemen mit überwiegend horizontaler Differenzierung (z.B. Deutschland) bis hin zu stark elitisierten Systemen mit Elitebildungssektor (z.B. Frankreich). Quantitativ ist bislang kaum untersucht worden, wie der Grad von Elitebildung in Bildungssystemen eingeschätzt und bewertet werden kann. Die Studie benennt mehrere theoretische Mechanismen, die die vertikale Differenzierung zwischen Bildungseinrichtungen verstärken oder schwächen können. In der empirischen Analyse werden zwei große Sekundärdatensätze von StudienanfängerInnen in Deutschland und Frankreich verwendet, in denen verschiedene Ungleichheits- und Konzentrationsmaße (Gini-Index, Duncans D, inverser Pareto-Koeffizient, Perzentil-Quotienten) getestet werden, um den Elitisierungsgrad zu beschreiben. Wir schätzen Anteile von Studierenden aus höheren Statusgruppen (Höchstleistende, obere Dienstklasse, akademisches Milieu) in Hochschulen und Studienfächern und vergleichen ihre Verteilungen. Unsere Ergebnisse zeigen, dass anhand der Analyse von Perzentilen, Perzentil-Quotienten und Pareto-Koeffizienten bestätigt werden kann, dass in Frankreich Studierende mit sehr guten schulischen Leistungen stärker an der Spitze der Verteilung von Hochschulen und Studienfächern konzentriert sind als in Deutschland. Im Vergleich zu Bildungsleistungen sind Konzentrationen bezüglich der sozialen Herkunft in beiden Ländern weniger stark ausgeprägt.

## 1 | INTRODUCTION

The recent populist wave in Western politics is driven in part by criticism directed at established elites who are deemed out of touch with the needs of common people. Occasionally this criticism is hypocritical as some self-declared populists are in fact part of the same elite group they are attempting to demonise. However, in a number of countries, such as the United States, Great Britain and France, the anti-elitist criticism aimed at a part of their education system is well established. It would therefore seem unsurprising that one of President Macron's main reactions to the populist wave of the *gilets jaunes* (Yellow Vests) protests in 2018 and 2019 in France was to propose closing the country's leading elite high school, the *École nationale d'administration*. In Germany, by contrast, similar criticisms of elite education as well as the force of populist waves seem to be less strong. At present, both

public criticism and the defence of elite education systems share the same weakness, namely, that there are numerous qualitative studies on elite education institutions and their actors, but hardly any quantitative data have been derived from testing the 'eliteness' of education systems.

Societal elites gain elite status on the basis of different determinants like wealth, fame, expertise, and even chance. Among the important selection mechanisms is elite education. At the same time, its institutions are one of the most visible signs of upper-class separation from the middle classes. As mass higher education has become a general trend in global society, elite higher education institutions have gained importance for parents, and even for countries, as a means of symbolising vertical differentiation. The wider backlash against elites has therefore focused on this differentiation and made elite higher education a predictable target of criticism. Given that the functional necessity of a separate elite stratum of higher education institutions is also controversial both within and among societies, being able to discuss these issues on the basis of empirical data is of paramount importance.

Therefore, the first aim of this article is to establish theoretical tools for analysing the degree of eliteness of an education system. Second, it describes the primary features of the higher education systems in Germany and France. The third objective, and major focus, is how to test different measures of the degree of eliteness in education systems. To analyse levels of vertical differentiation in higher education systems, we used large longitudinal datasets of students entering the higher education systems in Germany and France. Our work was guided by the question of how we can best measure the degree of eliteness in education systems.

## 2 | THEORETICAL FRAMEWORK

Only a small subsection of the sociology of educational inequality focuses on elite education. The pioneering work of Bourdieu (1996) drew attention to the modes of reproduction of class power in etatist models of elite education. Later, a number of qualitative studies tried to substantiate this view of elite education institutions (Daverne & Dutercoq, 2008; Kalthoff, 2006; Maxwell & Aggleton, 2016). More recent work has sought to explain the wave of elite education that we have witnessed in a number of countries over the last three decades. Different root causes have been proposed for this. Tuition at elite American universities, for example, has risen at such a disproportionate rate that many middle-class families can no longer afford it (OECD, 2019). In addition, members of a new upper-middle class have tried to shift education systems towards more exclusionary practices that will benefit their own children, creating clear-cut signs of vertical difference (Ball, 2003; Van Zanten, 2009). Furthermore, since the 1980s, the neoliberal discourse has attempted to quantify knowledge in the form of rankings, which has served to intensify competition between education institutions (Espeland & Sauder, 2016). Finally, the expansion of global markets has led to a growing awareness of the interconnected systems of education around the world, thereby giving rise to such concepts as 'world-class universities' and a global elite (Deem, Mok, & Lucas, 2008).

Within the last decade, a German research group developed a theoretical tool for a mechanisms approach to the comparative analysis of elite education (Deppe & Krüger, 2016; Sackmann, 2019). It defines *elite education systems* as those which produce a high degree of vertical differentiation between education institutions—a differentiation that is especially pronounced among the top group of education organisations and separates the top 1 to 5 per cent of the educated populace from the rest. Sociologists are usually interested in the degree of class segregation that accompanies this process of elite formation as well as processes that lead to the segregation of a cognitive elite.

This mechanisms model identifies four social processes that strengthen or decrease the degree of eliteness: *choice* by pupils or parents, *distinction* by education institutions, *selection* by education institutions, and *cohesiveness* of the pupil or student body. 'Choice' refers to the parents' or young person's choice of an institution that is perceived to be vertically superior (cf. Ball, 2003). Through the mechanism of 'distinction', education institutions can create an image for themselves that can be understood as vertically distinct; and/or they can use the mechanism of 'selection' to discriminate among applicants using concrete (often institutionalised) procedures

(cf. Bourdieu, 1996). ‘Cohesiveness’ means the expression of a collective identity that is promulgated in both internal and external communication as being different from other groups (cf. Elias & Scotson, 1994). Each of these processes can be augmented by *valorisation* mechanisms (cf. Lamont, 2012), which formalise these social processes. Comparative analysis—mainly in the form of qualitative studies (Helsper, Dreier, Gibson, Kotzyba, & Niemann, 2018; Sackmann, 2019)—shows that ‘selection’ and ‘valorisation’ are the most important determinants of a high degree of eliteness in an education system. If education institutions can select future students on the basis of standardised entrance exams, and these entrance exams are valorised by using nationally standardised forms, one will find a strong tendency to establish an effective vertical differentiation among education institutions at the top of this hierarchy. This status then becomes public knowledge and is objectified by indicators. The increased use of SATs as entrance exams for American universities and the reintroduction of a national university entrance test in China are examples of this (Allouch, 2017; Wu, 2017).

Within the vast literature on social inequality in education systems, it is hard to find any study on how to prevent the development of an elite education system. One quantitative study found almost no differences in educational elite formation in England, Australia and the United States, which is attributed to elite parents’ high level of adaptability in using their resources to this end (Jerrim, Chmielewski, & Parker, 2015; cf. Alon, 2009). Similar quantitative analyses within the United States have shown that institutionalising the use of grades instead of entrance tests reduces elite reproduction (Alon & Tienda, 2007). Marginson (2016) gives a good overview of policies influencing educational stratification in higher education expansion but hardly offers any comparative measurement of their effects. The reason for this scarcity in analyses of the mechanisms involved in elite formation is because it is often just a footnote to patterns of inequality; non-elitist education systems can be nearly as unequal as elitist ones. However, given that the existence of an elite system has an important symbolic meaning for the political and cultural system, it seems useful to look at it separately.

Germany seems to have an education system with a rather low level of eliteness despite having a high degree of horizontal differentiation and a rather strong degree of vertical differentiation in the middle stratum of the education system. Historical analysis (Deppe, Helsper, Kreckel, Krüger, & Stock, 2015; Zymek, 2014) has shown that legal restrictions on general entrance exams both at the start of secondary school and upon entering university are a major reason for this. Given the four mechanisms of elite formation in the education system, Germany and France are rather similar with regard to unrestricted parental choice and the institutional option to show distinction. Where they differ is with regard to the mode of selection. In Germany, selection is done by grades awarded at secondary school, whereas the French elite universities use entrance exams. For our data analysis, the higher degree of cohesiveness among the rather small French elite institutions in comparison to their German counterparts is not of especial interest.

On the basis of these theoretical considerations, we hypothesise that the patterns of educational inequality within the total distribution are different from the patterns of elite inequality. This comes down to the fact that there are specific mechanisms that produce educational elites. We further expect that the French education system will show a higher degree of elite inequality than the German one despite not having a higher degree of total inequality within the distribution of education. Before turning to an analysis of the data, let us briefly sketch the higher education systems in France and Germany to provide some context for our study.

### 3 | COMPARING ELITENESS BETWEEN HIGHER EDUCATION SYSTEMS: FRANCE AND GERMANY

#### 3.1 | Higher education institutions

France and Germany differ strongly in their degree of vertical and horizontal differentiation (Table 1). The most salient difference in vertical stratification is the existence of an elite sector in France (Brauns, Steinmann,

**TABLE 1** Comparing institutional differentiation in the French and the German higher education system

Drivers	France	Germany
Upper-secondary diplomas	<ul style="list-style-type: none"> <li>• Various types and series of upper-secondary diplomas channel students into corresponding academic vs. technical/vocational HE</li> </ul>	<ul style="list-style-type: none"> <li>• Traditional and vocational upper-secondary schools and their corresponding diplomas channel students into universities or universities of applied sciences</li> </ul>
Final grades in upper-secondary school	<ul style="list-style-type: none"> <li>• No vertical stratification between fields of study because admission into a field of study is not selective in universities</li> <li>• Vertical stratification between university vs. elite sector (e.g., obtaining a 'très bien' can facilitate direct admission to some <i>grandes écoles</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Vertically stratified fields of study through selectivity according to students' achievement in upper-secondary diploma (via <i>numerus clausus</i>, NC) [e.g., psychology (high NC) vs. sociology (no/low NC)]</li> </ul>
Entrance exams	<ul style="list-style-type: none"> <li>• Vertically stratified types of HEIs and their study programmes according to selectivity in achievement (e.g., universities [non-selective], STSs and IUTs [moderately selective], <i>grandes écoles</i> [highly selective])</li> <li>• Vertical stratification within the field of <i>grandes écoles</i> according to selectivity of entrance exam (<i>concours</i>)</li> </ul>	<ul style="list-style-type: none"> <li>• Entrance exams mainly exist in schools for the fine arts, in private HEIs, and in some MA programmes</li> </ul>
Excellence initiatives and rankings	<ul style="list-style-type: none"> <li>• Vertical stratification within the university sector according to universities' achievements in research activities</li> </ul>	<ul style="list-style-type: none"> <li>• Vertical stratification within the university sector according to universities' achievements in research activities</li> </ul>
Regional diversification	<ul style="list-style-type: none"> <li>• Vocational/technical HEIs are often located in smaller cities</li> <li>• Vertical stratification within the university sector through delocalisation</li> <li>• (e.g., a university's main campus vs. branch campus)</li> </ul>	<ul style="list-style-type: none"> <li>• Vocational/technical HEIs are often located in smaller cities</li> </ul>
Tuition-based stratification	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Public/private funding	<ul style="list-style-type: none"> <li>• High degree of public funding</li> </ul>	<ul style="list-style-type: none"> <li>• High degree of public funding</li> </ul>

Kieffer, & Marry, 1999; Duru-Bellat, Kieffer, & Reimer, 2008; Powell, Graf, Bernhard, Coutrot, & Kieffer, 2012; Windolf, 1992). Elite higher education institutions, called *grandes écoles*, are often public and prepare students for careers as higher-level civil servants, professors and researchers, engineers, and company managers. To become enrolled, upper-secondary-school graduates usually take part in a selective two-year preparatory course (*classes préparatoires aux grandes écoles*, or CPGE) that are part of France's higher education system but are carried out within the secondary school system (Buisson-Fenet & Draelants, 2013). After having completed the intense and demanding CPGE, students take part in *grandes écoles* examinations. These examinations are competitions (*concours*) that allow only the most 'brilliant' students to enrol. Several of the political studies institutes (e.g., *instituts d'études politiques*, or IEP, generally known as *Sciences Po*) do allow students who obtained a 'très bien' on their upper-secondary diploma, an excellent final grade that is rarely awarded, to request admission based on qualification and without having to take the written examination. Among the approximately 200 *grandes écoles*, some of them, such as the *École polytechnique*, *École normale supérieure*, and *École nationale d'administration*, have earned reputations for being particularly selective, with the latter being the alma mater of many French prime ministers. Therefore, stratification also exists among the *grandes écoles* (Bourdieu, 1996). Achievement notwithstanding, enrolment in the most elitist and prestigious institutions is strongly dependent on social origin. In comparison to

students with an upper-tier service-class background, students with a working-class background are 23 times less likely to gain access to these schools (Euriat & Thélot, 1995). However, social inequality among the 'elite' educational level has decreased slightly across cohorts (Falcon & Bataille, 2018).

Educational reform in both countries has led to a definite expansion in second-tier higher education and to the creation of new types of higher education institutions (HEIs) (Givord & Goux, 2007; Schindler & Reimer, 2011). In Germany, this differentiation is rather horizontal and can be described as binary segmentation (Kreckel, 2011; Teichler, 2008). It divides higher education into the traditional university sector and a more vocationally oriented sector for universities of applied sciences (*Fachhochschule*). Additionally, there are vocational academies (*Berufsakademien*) that combine vocational training and academic higher education to provide a university degree as well as a vocational degree at once. Differentiation in higher education is accompanied by a differentiation in types of upper-secondary schools and diplomas that control access to the different types of HEIs. For example, a subject-specific upper-secondary diploma (*Fachhochschulreife*) can be acquired in vocational upper-secondary schools (e.g., *Fachoberschulen*) that normally do not allow students to enter traditional universities. The *Abitur* (general upper-secondary diploma) obtained in traditional upper-secondary schools (*Gymnasium*) provides access to all types of HEIs. In contrast to Germany, French upper-secondary schools (*lycées*) are strongly stratified according to their individual reputation and the achievements of their students. While each type of upper-secondary school is connected to a certain type of diploma in Germany, three types of upper-secondary education and corresponding diplomas are integrated within the French *lycée* (Farges, Tenret, Brinbaum, Guégnard, & Murdoch, 2016): a general (*bac général*), a technical (*bac technologique*) and a vocational track (*bac professionnel*). Each type is differentiated into subject-specific series or specialisations (e.g., literature specialisation in the *bac général*, management and business sciences and technologies (*sciences et technologies du management et de la gestion*, or STMG) in the *bac technologique*). French higher education is threefold with a selective elite sector, a technical and vocational sector, and a non-selective university sector. Those who hold a *bac techno* or a *bac pro* generally pursue quite different trajectories in higher education compared to holders of a *bac général*. They mostly continue their education within the technical and vocational track. A portion of technical and vocational higher education is offered in special branches of *lycées* (*section technicien supérieur*, or STS) that lead to a technician certificate (*brevet de technicien supérieur*, or BTS). Besides the STS, school leavers can also choose to access the more selective institutes of technology (*instituts universitaires de technologie*, or IUTs) that are affiliated with universities (Deer, 2005). There are also specialised schools in French higher education (e.g., medical, engineering, trade or design schools). Universities provide non-selective 'mass' higher education in France and grant each upper-secondary graduate a basic path to pursue higher education (Goastellec, 2010). Similar to the German *Abitur*, the *bac général* offers the greatest number of possibilities to access the manifold types of higher education. Most students in a CPGE have previously obtained a *bac général* (MENSUR-DEPP, 2016). As for *bac techno* and *bac pro* holders, their upper-secondary education does not normally provide adequate preparation for both universities and CPGE.

In both countries, the creation of second-tier HEIs has a geographical dimension, although configurations are to some extent different between them. France has built a large number of its newly founded IUTs and STSs in medium-sized or small cities. The same is true for the German universities of applied sciences. A particularity in France is the establishment of local campuses (*antennes universitaires*) that are branch universities of larger universities and serve the needs of students who live in rural areas. Generally speaking, local campuses have less favourable reputations and their students obtain lower grades in their upper-secondary diplomas (Deer, 2005; Filâtre, 2003; Levy & Jegou, 2013).

### 3.2 | Fields of study

Horizontal differentiation is associated with the diversification of fields of study depending on the type of HEI in both countries. In France and Germany, the traditional academically oriented fields of study are offered in

universities, that is to say, in their undergraduate and graduate degree programmes. In Germany, there is specialisation within the sector of traditional universities with technical universities providing degrees in engineering. Similarly, these degrees can be obtained in special engineering schools in France. Often, these engineering schools are *grandes écoles* and therefore deeply selective. German *Fachhochschulen* and French STSs and IUTs provide education for professions within technical occupations, business and management, social work or the service sector. In France, these are generally short-cycle study programmes. In Germany, some fields of study—for example, engineering or business studies—exist in both *Fachhochschulen* and traditional universities. In *Fachhochschulen*, however, these subjects are less research-oriented and do not necessarily allow access to PhD programmes.

In France, selection in public higher education is strongly dependent on the type of HEI, and French universities were not at all selective until 2018. In Germany, by contrast, universities can be selective according to fields of study. Traditionally, access to certain fields of study in universities has been nationally or locally organised through *numerus clausus*. *Numerus clausus* involves selection based on achievement by vertically ranking eligible candidates according to the average grade of their upper-secondary diploma. Entrance examinations, normal in many types of French HEIs, are not common in Germany and can mostly be found in specialised schools (e.g., schools for the fine arts). Besides selection, verticalisation of fields of study is created through national rankings. Since 1998, the German Centre for Higher Education (CHE) institute has ranked fields of study in all kinds of HEIs according to different indicators such as research and teaching reputation. Comparable rankings in France make use of publicly available data on student achievement and student success rates in labour-market integration. Some French rankings, such as the one issued by the consulting and rating agency SMBG, focus on a certain field of study such as business studies and therefore apply largely to business schools.

## 4 | MEASURING 'ELITENESS'

Next, we will focus on measuring the degree of eliteness in higher education systems. Elites are a distinct topic in the analysis of social inequality because they highlight the fact that certain resources are strongly (or even extremely) unequally distributed between social groups. The literature provides numerous indices to measure inequality. In our empirical analysis, we focused on the Gini coefficient, which is the most-used indicator for analysing social inequality. It expresses the degree of inequality in the distribution of a resource within a population. We also used the dissimilarity index *D* (Duncan & Duncan, 1955), which depicts inequality between subgroups of a population and their shares between organisational units (e.g., higher education institutions). The Gini coefficient and dissimilarity index *D* have been criticised for being more sensitive to changes in the middle of the distribution than to changes at the top or bottom of the distribution (Allison, 1978). This could potentially make them less useful for studying degrees of eliteness. However, we argue that it is important to examine general indices of social inequality because we need to assess the total amount of social inequality within a society—especially when an elite education system is a key feature within a country. Besides inequality indices, degrees of eliteness can also be studied by focusing on possible concentrations of a resource's distribution. Among other adequate concentration measures, we used percentiles, percentile ratios and power-law distributions (i.e., the inverse Pareto coefficient).

In our empirical analysis, we selected high-performing students, students from an academic milieu, and upper-tier service class. We then examined the degree of inequality and concentration in their distribution between French and German HEIs and fields of study.

### 4.1 | Measurements

The Gini index is commonly used for continuous variables (e.g., income) and is based on the Lorenz curve. When it is used with income, the cumulative proportion of the population is plotted against the cumulative proportion

of the income in this population. Gini is calculated by dividing the area ( $A$ ) that lies between the line of equality (the line at  $45^\circ$ ) and the overall area under the line of equality and the Lorenz curve ( $A + B$ ). The index is limited to values between 0 and 1, whereby 0 indicates a perfectly equal distribution of income in the population and 1 indicates that a single person possesses all the income volume of the population (perfect inequality). Unlike income, final grades do not have a volume: it is impossible to think of an individual person who accumulates all of the 'very good' final grades in a population. However, high achievers and their human capital can be accumulated by HEIs. The same is true for students' cultural and economic capital. However, taking the absolute number of 'elite' students in the  $i$ th HEI and comparing their distribution between HEIs would replicate differences in the size of organisations. The same problem would occur by using the share of elite students within the  $i$ th HEI relative to the total number of all elite students in the student population. Instead, we suggest using the share of elite students relative to the total number of students in the  $i$ th HEI. A value of  $G = 0$  indicates that all HEIs have the same share of elite students;  $G = 1$  expresses that a single HEI holds all the elite students.

The dissimilarity index  $D$  is also based on the Lorenz curve and operates with only two groups (elite and non-elite students, denoted by  $E$  and  $N$ ) by comparing them between units (universities, denoted by  $U$ ). For example,  $N_u$  would indicate the number of non-elite students in unit  $u$ . The units ( $u$ ) are ranked by increasing ratios of  $(N_u/E_u)$ . Then, the cumulative values of the shares ( $H_u/H$ ) on the  $x$  axis are plotted against the cumulative values ( $E_u/E$ ) on the  $y$  axis. The curve obtained in this way is called the segregation curve. The dissimilarity index  $D$  is calculated by the equation

$$D = \frac{1}{2} \sum_{u=1}^U \left| \left( \frac{E_u}{E} \right) - \left( \frac{N_u}{N} \right) \right|$$

The value of  $D$  also ranges from 0 to 1 and can be interpreted as the fraction of (non-)elite students that would have to change their HEI in order to produce an even distribution of elite and non-elite students in all HEIs.

Power-law distributions are mostly used in economics to describe variables that are heavily skewed (e.g., wealth) and indicative of strong inequality. A popular distribution among the family of power-law functions is the Pareto distribution. Pareto observed that if the log income of persons with incomes above a certain threshold is plotted against the log cumulative proportion of the population with this income, the resulting graph is a straight line. The cumulative distribution function of the Pareto distribution is described as

$$F_P(x) = \begin{cases} 1 - \left( \frac{x_m}{x} \right)^\alpha & \text{for } x \geq x_m \\ 0 & \text{for } x < x_m \end{cases}$$

where  $x_m$  is a scale that indicates the minimum value of  $x$  and  $\alpha$  is a positive shape parameter. Variables follow a Pareto distribution if the coefficient  $\alpha$  (Pareto index) is approximately 1.16. This would result in a distribution where 80 per cent of a population holds 20 per cent of the total income within the population. In economics, an 'inverse coefficient'  $\beta$  of the Pareto index  $\alpha$  is widely used to describe the amount of inequality in distributions:  $\beta = \alpha/\alpha - 1$ . The higher the value of  $\beta$ , the greater the concentration of income. Empirically, the inverted Pareto coefficient typically ranges from close to 1.5 (low inequality) to 3.5 (very high inequality). An index of 1.5 indicates that the average income above a certain threshold is 1.5 times higher than the value of that same threshold (e.g., persons who own more than 1 million euros own 1.5 million euros on average) (Piketty, 2014).

## 4.2 | Study design

Analyses that make use of segregation and inequality indices often rely on census data, administrative data or large-scale survey data that include all or a large number of entities in a population (e.g., schools or HEIs) as well



as information about the social status of persons within those entities. For our empirical analysis, we used representative secondary cross-sectional survey data of students in Germany and France. Specifically, we used data from the national survey on the living conditions of students in France (*Conditions de vie des étudiants en France*, or CdV) by the *Observatoire de la vie étudiante* (OVE) and analysed their scientific use files (SUFs) from 1994 to 2006. Beginning in 2010, CdV altered its sampling methodology and discontinued its previous ID of HEI. This made it impossible to match this dataset to others via the HEI. We therefore only used the SUFs from 1994 to 2006. For Germany, we used the survey of new students (*Studienanfängerbefragung*, or SAB), which was conducted by the German Centre for Higher Education Research and Science Studies (*Deutsches Zentrum für Hochschul- und Wissenschaftsforschung*, or DZHW) from 1983 until it was discontinued in 2011. The French and German databases similarly collect information on students' eventual choice of HEI and their socio-economic characteristics (i.e., previous school trajectories, school achievements, type of HEI and field of study, distance from home town, parental educational and occupational background).

In our initial step, we analysed distributions of students between HEIs. For this investigation, one has to bear in mind that the SAB and CdV sampling differs: In the SAB, the sample of first-year students was drawn from a sample of HEIs. In the CdV, a sample of students was drawn from every university, STS and CPGE. Since the sample of HEIs in the SAB changed in each of the 20 SUFs, there is a high possibility that almost every university and university of applied sciences was included at least once in the SAB. Since only first-year students were surveyed in the SAB, we only used data on students in their first semester in the CdV. In the French data, the number of students in private HEIs or in the CPGE of *grandes écoles* is very low. Therefore, we aggregated these HEIs into two categories (private HEI and CPGE). We excluded persons who did not state the precise name of their HEI. By pooling eighteen SUFs from SABs and five SUFs from CdV, we obtained 90 HEIs in the CdV and 78 HEIs in the SAB.

In our second step, we compared distributions of students between fields of study. In the German SAB data, information on a student's chosen field of study is available as a grouped variable with eight main categories (humanities; economics and social sciences; mathematics and science; medicine; agricultural sciences, forestry, and nutrition; engineering; fine arts; and law) and as a more detailed variable with 52 single fields of study. We excluded one field of study ('general mathematics and science'), which was studied by only five persons in our sample. In the French CdV, there are only grouped data for a given field of study: literature; languages; humanities and social sciences; law and political sciences; economics; administration; science; engineering; life sciences; sports; and health sciences. The variable has seven additional categories according to the course type in the STS (secondary/tertiary sector), IUT (secondary/tertiary sector) and CPGE (literature/commerce/science). These categories are not very indicative of the actual field of study, which is a limitation of our study. We therefore regrouped them into three categories (STS, IUT and CPGE) to capture the general effect of study programmes (especially selective and elite study programmes) that are related to the types of HEIs (see Tables A1 and A2 in the appendix for sensitivity analyses that were calculated with the original categorisation as well as without the fields of study in STS, IUT and CPGE. The results are robust to these configurations). In the French data, the final variable for the field of study has fourteen categories.

We used three dimensions for our indices: parental occupation, parental educational degree and a student's final grade in upper-secondary education. In accordance with the French grading system in upper-secondary school, the French students were asked for the *mention* (distinction) in their *baccalauréat* (1 'very good' to 4 'sufficient') but not for the number of points out of twenty they received (in France, graduates receive a *mention* when their final grade is  $\geq 12$  points out of 20; *très bien*  $\geq 16$  points; *bien*  $\geq 14$  points; *assez bien*  $\geq 12$  points; no *mention* or sufficient = 10–11.9 points). The German students were required to indicate their final grade in their *Abitur*, which is determined to one decimal point (1.0 'very good' to 4.0 'sufficient'). In both the French and German datasets, students were asked for their parents' final degree (primary, lower-secondary, intermediate, upper-secondary, short-cycle or professional tertiary, and tertiary education). In the German data, parents' occupational position was measured as self-employed persons (proprietors of small, medium or large businesses), freelancers,

non-manual labourers (higher or lower tier), lower-tier professionals, civil servants (lower, intermediate, higher-tier service) and manual workers (skilled, semi-skilled, unskilled). In the French data, occupations were surveyed according to the *Professions et catégories socioprofessionnelles* (PCS) classification scheme: self-employed persons (as well as self-employed farmers; PCS 1 and 2), managers and higher-tier intellectual professions (*cadre*; PCS 3), intermediate professions (PCS 4), non-manual occupations (in administration or commerce; PCS 5), and manual workers (PCS 6). Educational achievement and a person's social origin (i.e., parental occupational status and educational degree) were not surveyed using international standardisations (e.g., the International Standard Classification of Occupations, or ISCO, or the International Standard Classification of Education, or ISCED) in the two datasets but according to country-specific designs. Although this means that they are not perfectly comparable, we aimed for as much comparability as possible in our operationalisation of higher-status groups in France and Germany. For Duncan's *D*, we constructed the following dichotomous variables. First, we compared high-achieving students with all of the remaining student body. In the French CdV, we compared the *mentions très bien* to all other grades. Among first-year students in France, less than 3 per cent obtained *très bien* as a final grade. In the German SAB, we took the distribution of the final grades and used the top 3 per cent (grade < 1.2). Secondly, we compared social origin by using the upper-tier service class (i.e., large-scale proprietors, higher-tier non-manual laborers, higher-tier civil servants) versus all other occupations in Germany. In the French data, we compared *cadre* to all other occupations. Occupations were only collected between 1997 and 2006 in the CdV, which restricts our sample to this period when analysing this variable. Lastly, we investigated educational background by comparing students from families with an academic educational background to those with non-academic backgrounds. For the Gini index *G* and inverse Pareto coefficient  $\beta$ , we took the number of high achievers, academic milieu and upper-tier service class within the *i*th HEI divided by the total number of students in the *i*th HEI. The same procedure was applied for the field of study. In our sample, some HEIs can have a share of zero high achievers. We calculated the Gini coefficient using *ineqdec0* for Stata by Jenkins (1999), which allows one to calculate the Gini index when values of the variable of interest are negative or zero.

## 5 | RESULTS

Between 1994 and 2006, first-year students in France had most frequently obtained 'sufficient' (63.2 per cent) as their final grade in upper-secondary education. The average final grade for these students is 3.5. Therefore, the distribution of grades is left-skewed ( $sk = -1.44$ ). Students in Germany received better grades. Their average grade is 2.4. The distribution of the mean achievement is barely skewed in Germany ( $sk = -0.08$ ). This finding strongly highlights the distinct institutionalisation of grading in the French and German secondary-school systems.

### 5.1 | Inequality in HEIs

Overall, the Gini index of the shares of high-achieving students in HEIs is 45.9 per cent across all cohorts in Germany (Table 2). In comparison, the overall Gini index for France is slightly higher at 46.7 per cent. Compared to the distribution of high-achieving students, the Gini index is much lower in both countries when we observe students who originate from a family with an academic or higher-tier service class background. However, the Gini index has a higher value in France. These differences in the Gini index with regard to social origin reflect social selectivity in elite higher education in France that is not paralleled in Germany.

If we turn our attention to Duncan's *D*, we can see that segregation across HEIs is highest for students' achievement. It is much lower when we consider parental educational background or occupational class. Segregation between students who received a grade better than 1.2 compared to all other students is moderate at 35.1 per cent. In France, segregation of HEIs according to students' achievements is a little lower than in Germany because

TABLE 2 Gini and percentiles of the distribution of shares of students and their resources in French and German HEIs

	Germany (1983–2011)			France (1994–2006)		
	Share of high-performing students	Share from academic milieu	Share from upper-tier service class	Share of high-performing students	Share from academic milieu	Share from cadre (1997–2006)
Gini	0.459	0.153	0.102	0.467	0.226	0.252
Duncan's D	0.351	0.213	0.102	0.297	0.195	0.201
Percentiles						
1%	0	0.242	0.175	0	0.103	0.068
5%	0	0.280	0.219	0	0.154	0.136
10%	0.004	0.306	0.231	0.005	0.192	0.158
25%	0.007	0.402	0.259	0.012	0.227	0.185
50%	0.015	0.493	0.301	0.020	0.292	0.235
75%	0.035	0.589	0.342	0.037	0.365	0.326
90%	0.053	0.672	0.375	0.064	0.526	0.469
95%	0.062	0.705	0.388	0.107	0.639	0.500
99%	0.079	0.743	0.409	0.121	0.727	0.800
Percentile ratios						
90/10	13.4	2.2	1.6	12.4	2.7	3.0
95/10	15.8	2.3	1.7	21.0	3.3	3.2
99/10	20.0	2.4	1.8	23.8	3.8	5.1
90/50	3.5	1.4	1.2	3.1	1.8	2.0
95/50	4.1	1.4	1.3	5.2	2.2	2.1
99/50	5.2	1.5	1.4	5.9	2.5	3.4
N						
No. of higher education institutions	78	78	78	90	90	90
No. of students in sample	152,008	150,344	151,577	29,720	28,968	23,682
No. of students of interest	3,889	72,504	49,656	854	9,023	7,556

Source: DZHW Studienanfängerbefragung 1983–2011, OVE Conditions de vie des étudiants en France 1994–2006. Own calculations.

France's mass institutions (universities) are not selective compared to their German counterparts: between students who received the best *mention (très bien)* and all other students, the dissimilarity in HEIs is 29.7 per cent. With regard to social origin, the overall institutional segregation according to parental educational background is similar between both countries. As far as students' social class is concerned, first-year students whose parents are in higher-tier occupational classes are more segregated from other occupational classes within French HEIs than in German HEIs.

As for the shares of high achievers, the somewhat similar inequality (Gini index) between German and French HEIs in France—despite its highly selective elite sector—is not in line with our expectations. On closer inspection, this is not surprising because the Gini index and Duncan's *D* are based on the Lorenz curve and are potentially less sensitive to concentrations in the top segment. We will look at this issue in the next section.

## 5.2 | Concentrations in HEIs

Differences between the two countries do become visible when looking at the percentiles of the distributions. The top 1 per cent of French HEIs have a share of high-achieving students greater than 12.1 per cent among their student body, whereas the top 1 per cent of German HEIs only have a comparable share of 7.9 per cent. This suggests that the degree of concentration of high-achieving students is much higher in the distribution of French HEIs than in the distribution of German HEIs. This is also indicated by the results of the percentile ratios: if we compare the upper and lower ends of the distribution, the share of high-achieving students in the bottom 10 per cent of HEIs relative to the top 1 per cent is around twenty-four times greater in France and twenty times greater in Germany. In comparing the bottom 10 per cent and top 5 per cent of HEIs, the ratio is twenty-one for France and only sixteen for Germany. As for differences between the upper end and the middle of the distribution, the ratios between the top 1, 5, and 10 per cent versus the median (50 per cent) are relatively similar between both countries. Since the Gini coefficient is more sensitive to changes in the middle area of distributions, it is not surprising that similar values were obtained for the French and German Gini index. The results reflect the strict process of selection by achievement for France's elite HEIs, which has no equivalent in Germany.

The distribution of the share of students with an academic family background is slightly more concentrated in French HEIs, which is indicated by the higher percentile ratios. Also, concentration according to parents' social class is greater in France: in the top 1 per cent of French HEIs, the social origin of 80 per cent of students is *cadre*; in Germany, only 40.9 per cent of the top 1 per cent have a higher-tier service-class background. It is, however, important to note that the share of higher-tier social classes and academic milieu is much higher in Germany when analysing the bottom percentiles. Among the bottom 10 per cent of HEIs, the share of students from an academic milieu is 15.4 per cent in France and almost twice as high (28 per cent) in Germany. Even if we consider only the bottom 50 per cent of HEIs, the difference in the share of students with an academic family background remains relatively high. This suggests that social origin plays an important role in Germany in the decision to continue one's educational career in the higher-education system instead of the vocational education and training system. Therefore, the number of students with an academic family background is higher than in France, where only the elite sector is highly selective according to social origin.

## 5.3 | Inequality in fields of study

Now let us look at the distribution of high-achieving students according to field of study (Table 3). For grouped fields of study, the Gini index is 39.4 per cent in Germany. For all fields of study, the Gini index is only slightly higher at 43.3 per cent. In the French data, only grouped fields of study are available; the Gini index is 49.5 per cent. This suggests that shares of students who graduated from upper-secondary education with a very good average

**TABLE 3** Percentiles of the distribution of shares of students and their resources in fields of study in France and Germany

	Germany (1983–2011)				France (1994–2006)			
	Grouped fields of study		Single fields of study		Grouped fields of study		Single fields of study	
	Share of high-performing students	Share from academic milieu	Share from upper-tier service class	Share of high-performing students	Share from academic milieu	Share from upper-tier service class	Share of high-performing students	Share from academic milieu
Gini	0.394	0.106	0.076	0.433	0.098	0.068	0.495	0.207
Duncan's D	0.280	0.112	0.041	0.341	0.132	0.073	0.407	0.228
<i>Percentiles</i>								
1%	0.009	0.403	0.271	0	0.330	0.206	0.001	0.085
5%	0.009	0.403	0.271	0.005	0.359	0.258	0.001	0.085
10%	0.009	0.403	0.271	0.007	0.388	0.262	0.004	0.158
25%	0.013	0.415	0.301	0.010	0.438	0.293	0.007	0.237
50%	0.022	0.486	0.320	0.020	0.500	0.315	0.024	0.297
75%	0.042	0.597	0.378	0.039	0.557	0.338	0.039	0.358
90%	0.087	0.683	0.409	0.059	0.622	0.352	0.056	0.457
95%	0.087	0.683	0.409	0.078	0.671	0.380	0.140	0.545
99%	0.087	0.683	0.409	0.11	0.689	0.415	0.140	0.545
<i>Percentile ratios</i>								
90/10	10.2	1.7	1.5	8.4	1.6	1.3	13.9	2.9
95/10	10.2	1.7	1.5	11.0	1.7	1.5	34.4	3.4
99/10	10.2	1.7	1.5	14.8	1.8	1.6	34.4	3.4
90/50	3.9	1.4	1.3	3.0	1.2	1.1	2.3	1.5
95/50	3.9	1.4	1.3	3.9	1.3	1.2	5.7	1.8
99/50	3.9	1.4	1.3	5.2	1.4	1.3	5.7	1.8
<i>N</i>								
No. of fields of study	8	8	8	52	52	52	14	14
No. of students in sample	152,632	150,960	152,200	152,632	150,960	152,200	36,792	36,024
No. of students of interest	3,894	72,775	49,853	3,894	72,775	49,853	1,316	11,042

Source. DZHW Studienanfängerbefragung 1983–2011, OVE Conditions de vie des étudiants en France 1994–2006. Own calculations.

grade are less evenly distributed across fields of study in France than in Germany. Results from cross tables (not displayed) show that high-achieving students in France are most frequently enrolled in a study programme of a CPGE (47.1 per cent), whereas their high-achieving peers in Germany most frequently choose medicine (9.2 per cent) among all the available fields of study.

In terms of social origin, the shares of students with an academic and upper-tier service-class background are more evenly distributed across fields of study in Germany. This is underlined by the relatively low Gini indices. This finding is robust regardless of whether the grouped variable or all fields of study are used in the estimations.

In France, 40.7 per cent of students who were graded *très bien* in their *baccalauréat* would need to change their field of study in order to obtain an even distribution of students in each field of study. In Germany, it is the other way around. This is because segregation among German higher-education institutions is more pronounced than it is for field of study. If we compare HEI and field of study in France, segregation is higher for field of study.

## 5.4 | Concentrations in fields of study

In the top 5 per cent of fields of study, the share of students with a very good upper-secondary diploma is around 7 to 8 per cent in Germany. In France, that figure is almost twice as high (14 per cent). In Germany, the level of concentration of achievement across fields of study is quite similar to the level across HEIs. In France, by contrast, selection into a field of study by achievement is considerably greater than it is for the HEIs. This finding is related to the pattern of institutional differentiation among fields of study in France. Traditionally, they are more vertically differentiated than in Germany. The stratified domains in the *baccalauréat* in the French upper-secondary schools have a strong effect on channelling students into subsequent paths within higher education that relate to vertically ordered types of HEIs and their study programmes. For example, students who obtain the *bac technologique* STMG often enroll in the post-secondary trade and business study programmes within the STS of a *lycée*.

Concerning social origin, the percentile ratios do not indicate much inequality between the upper and lower deciles of fields of study in Germany. Percentile ratios in France, on the other hand, are three times higher on average. Again, shares of students from an academic milieu in fields of study are substantially higher in Germany than in France. The differences are particularly striking in the bottom percentiles: in the bottom 10 per cent of all fields of study, 38.8 per cent of students in Germany have an academic family background. The same is true for only 15.8 per cent in France. This emphasises that social selectivity in French higher education is smaller in mass higher education and stronger in the elite sector. In comparison, the academic milieu and upper-tier service class in Germany are less exclusively concentrated in certain fields of study because accessing the higher education system in general is socially selective.

## 5.5 | Concentrations in HEIs and fields of study: Pareto coefficient

Lastly, we analysed the inverted Pareto coefficient (Table 4). We took the upper 20 per cent and upper 10 per cent tail of the distribution of HEIs and fields of study to capture concentration in the top segment. The coefficient is always higher in France than in Germany regardless of whether social origin or achievement is used. Concentration in France is highest when high-achieving students are considered: with a coefficient of 2.1, the accumulation of high performers is moderate within the top 20 per cent of HEIs. In terms of social origin,  $\beta$  is even lower. Compared to field of study, the values of  $\beta$  for HEIs are generally higher. We find the same pattern for Germany in both HEIs and fields of study.

**TABLE 4** Inequality of HEI and field of study according to students' achievements and family background (inverted Pareto coefficient)

	HEI		Grouped field of study		Single fields of study	
	$x_m = 80\%$	$x_m = 90\%$	$x_m = 80\%$	$x_m = 90\%$	$x_m = 80\%$	$x_m = 90\%$
<i>Germany (1983–2011)</i>						
High-performing students	1.4	1.2	1.6	n/a	1.6	1.3
Academic milieu	1.1	1.0	n/a	n/a	1.1	1.1
Upper-tier service class	1.1	1.0	1.0	n/a	1.1	1.1
<i>France (1994–2006)</i>						
High-performing students	2.1	1.8	1.6	1.8		
Academic milieu	1.4	1.2	1.2	n/a		
<i>Cadre (1997–2006)</i>						
	1.4	1.2	1.1	1.1		

Source. DZHW Studienanfängerbefragung 1983–2011, OVE *Conditions de vie des étudiants en France* 1994–2006. Own calculations. n/a denotes insufficient observations.

## 6 | DISCUSSION

The aim of this study was to test different measures of the eliteness in higher education systems. Theoretically, we assumed specific mechanisms for the production of educational elites, which in turn would lead to varying patterns of educational inequality and elite inequality. We expected that distributions and concentration of higher-status groups (high achievers, upper-tier service class and academic milieu) within higher education would differ greatly between countries that feature an elite higher education sector (France) and countries with a more horizontally segmented higher education system (Germany). By way of explanation, we would argue that the French elite system uses institutionalised entrance exams, whereas in Germany the 'selection of elite subjects' mechanism is performed according to final grades in the upper-secondary school diploma. For our analyses, we used French and German secondary data of first-year students and calculated the shares of higher-status groups within single HEIs and fields of study. We then tested different measures of social inequality (Gini, Duncan's *D*, inverse Pareto coefficient, percentile ratios) to compare their distributions.

Our major finding is that there is a sharp concentration of high-achieving students in the distribution of HEIs and fields of study that is indeed stronger in France than in Germany. This is mainly indicated by percentiles of shares of high achievers in both HEIs and fields of study. The same result is attained when using the inverse Pareto coefficient and analysing the upper 20 per cent of HEIs and fields of study. These results demonstrate that French higher education has stronger achievement-based selection at the top. First, French higher education is traditionally separated into mass and highly competitive elite sectors, and this division is based on selection. High-achieving students are most likely to succeed and enrol in 'elite' HEIs. Secondly, there is a relationship between fields of study and the vertically differentiated HEIs, which are ordered by the degree of selectivity (i.e., eliteness). The 'verticalisation' of fields of study strongly reflects the stratification of types of French HEIs (e.g., CPGE vs. universities) and their study programmes. Given that we included selective and elite study programmes in our systematisation with only fourteen fields of study, it is not surprising that inequality is slightly more pronounced in fields of study than in HEIs in our data. The results are even more pronounced when we test a more detailed version of fields of study (see Table A1 in the appendix). In contrast, inequality and segregation in Germany are less pronounced because some fields of study involve greater achievement-based selection for admission (*numerus clausus*) than others. These more demanding fields of study (e.g., medicine, psychology) have entrance selections according to secondary-school grades. However, the level of achievement-based selection in France is unparalleled owing to the lack of elite higher education in Germany.

Using general inequality indicators based on the Lorenz curve does not end up drawing an adequate picture of the degree of eliteness. The Gini index denotes comparable inequality by achievement in both countries. Duncan's *D* is even lower in France. These puzzling results are most likely due to the indicators being less sensitive to differences in the top area of a left-skewed distribution. Comparing HEIs and fields of study in Germany, percentiles and inverse Pareto coefficients confirm that there are stronger concentrations of high-achieving students according to fields of study.

When compared to achievement, social origin is less important for differences in concentrations of high-achieving students. The results of the Gini index and Duncan's *D* show that inequality and segregation by social origin are higher in France. Of course, this can be attributed to the existence of an elite sector that contributes to the reproduction of social stratification. But this is just part of the story. Germany has relatively similar shares of higher-status groups in each percentile. In France, the increase across percentiles is steeper, which leads to higher values for the Gini index and Duncan's *D*. However, the base rate of higher-status groups in each percentile is much higher in Germany than in France. Thus, social inequality in Germany is actually greater when the small top segment of higher education is ignored. This can be explained by country-specific differences in higher education structures: the French higher education system has created a great deal of differentiation at the second tier of higher education, which is more vocational. The subject-specific upper-secondary diplomas (e.g., *bac pro*) channel students into these vocational tracks that are a part of the higher education system but are implemented in secondary education institutions. In Germany, comparable vocational education and training is mostly provided outside the higher education system and requires upper-secondary education or intermediate education. The latter does not allow access to higher education. In Germany, students from the lower or middle classes are either more likely to have intermediate education or are more likely to become enrolled in the non-academic vocational training system after their upper-secondary education. In comparison, French higher education absorbs a larger share of students from the lower or middle classes.

This study thus allows us to quantify the degree of eliteness within the education system. This seems to be fruitful as elite differentiation has a myriad influence on society in general. For instance, a quantitative comparative analysis of patterns of access to elite positions in business and politics shows that the lower degree of eliteness in the German education systems is connected with a higher degree of openness of the 'ruling class'. This stands in stark contrast to elites in the United States and Brazil, who are more likely to have graduated from elite education institutions (Schneickert, 2018). Countries with a higher degree of eliteness in their education systems also tend to develop anti-intellectual discourses. This has become manifest in the success of populist parties and in counter-policies to curb expert public administration, such as has happened in the United Kingdom (Du Gay, 2008). Marginson (2016) concluded that in the transition from elite to mass higher education, the important degree of vertical stratification within higher education is mainly determined by the degree of funding from public sources and the steepness of institutional stratification. Our current study comparing France and Germany shows that even in systems with a high degree of public funding, a higher level of elite differentiation at the top can be upheld by institutional stratification. The results demonstrate that the use of entrance exams as selection procedures in France tends to produce higher vertical separation at the top than the field-specific use of grades for selection as is the case in Germany. Differing degrees of elite separation at the top of national higher education systems seems to be of particular importance for the reproduction of differences between middle classes and upper class. This would appear to be a timely issue as a rhetoric of resentment directed against elites has become quite common in recent Western populist revolts. One way to safeguard against this would be to limit the degree of vertical differentiation within the higher education system.

A first step towards mitigating the stratification effects of higher education would be for studies in the field of higher education to collect better data on the degree of eliteness in HEIs. Our study has sought to make a contribution to this. That said, it also has its limits. These result from the rather small number of countries we have been able to compare in terms of the degree of eliteness of their education systems. To extend our theoretical approach as well as our broader knowledge of the causes and effects of this phenomenon, it would be helpful to



have further comparisons. These might include Scandinavian countries, which have a similar educational tradition to Germany; Anglo-Saxon countries like the United States or England, where tuition fees have a strong effect on elite formation; and East Asian countries, where entrance tests are used at different stages of people's careers.

## ACKNOWLEDGEMENT

We thank the anonymous reviewers for their helpful comments.

## ORCID

Oliver Winkler  <https://orcid.org/0000-0001-8431-9577>

## REFERENCES

- Allison, P. D. (1978). Measures of inequality. *American Sociological Review*, 43(6), 865–880. <https://doi.org/10.2307/2094626>
- Allouch, A. (2017). *La société du concours*. Paris, France: Seuil.
- Alon, S. (2009). The evolution of class inequality in higher education: Competition, exclusion, and adaptation. *American Sociological Review*, 74(5), 731–755. <https://doi.org/10.1177/000312240907400503>
- Alon, S., & Tienda, M. (2007). Diversity, opportunity, and the shifting meritocracy in higher education. *American Sociological Review*, 72(4), 487–511. <https://doi.org/10.1177/000312240707200401>
- Ball, S. J. (2003). *Class strategies and the education market: The middle classes and social advantage*. London, UK: Routledge.
- Bourdieu, P. (1996). *The state nobility. Elite schools in the field of power*. Cambridge, UK: Polity Press.
- Brauns, H., Steinmann, S., Kieffer, A., & Marry, C. (1999). Does education matter? France and Germany in comparative perspective. *European Sociological Review*, 15(1), 61–88. <https://doi.org/10.1093/oxfordjournals.esr.a018255>
- Buisson-Fenet, H., & Draelants, H. (2013). School-linking processes: Describing and explaining their role in the social closure of French elite education. *Higher Education*, 66(1), 39–57. <https://doi.org/10.1007/s10734-012-9587-3>
- Daverne, C., & Dutercq, Y. (2008). L'implication des responsables d'établissement dans la formation scolaire des élites. *Education et Sociétés*, 21, 33–47. <https://doi.org/10.3917/es.021.0033>
- Deem, R., Mok, K. H., & Lucas, L. (2008). Transforming higher education in whose image? Exploring the concept of the 'world-class' university in Europe and Asia. *Higher Education Policy*, 21(1), 83–97.
- Deer, C. (2005). Higher education access and expansion: The French experience. *Higher Education Quarterly*, 59(3), 230–241. <https://doi.org/10.1111/j.1468-2273.2005.00293.x>
- Deppe, U., Helsper, W., Kreckel, R., Krüger, H.-H., & Stock, M. (2015). Germany's hesitant approach to elite education. In A. van Zanten & S. J. Ball (Eds.), *World yearbook of education* (pp. 82–94). London, UK: Routledge.
- Deppe, U., & Krüger, H.-H. (2016). Elite education in Germany? In C. Maxwell & P. Aggleton (Eds.), *Elite education* (pp. 104–113). Abingdon, UK: Routledge.
- Du Gay, P. (2008). Keyser Sütze elites: Market populism and the politics of institutional change. In M. Savage & K. Williams (Eds.), *Remembering elites* (pp. 80–102). Malden, MA: Blackwell.
- Duncan, O. D., & Duncan, B. (1955). A methodological analysis of segregation indexes. *American Sociological Review*, 20(2), 210–217. <https://doi.org/10.2307/2088328>
- Duru-Bellat, M., Kieffer, A., & Reimer, D. (2008). Patterns of social inequalities in access to higher education in France and Germany. *International Journal of Comparative Sociology*, 49(4–5), 347–368. <https://doi.org/10.1177/0020715208093081>
- Elias, N., & Scotson, J. L. (1994). *The established and the outsiders*. London, UK: Sage.
- Espeland, W. N., & Sauder, M. (2016). *Engines of anxiety*. New York, NY: Russell Sage Foundation.
- Euriat, M., & Thélot, C. (1995). Le recrutement social de l'élite scolaire en France: Evolution des inégalités de 1950 à 1990. *Revue Française de Sociologie*, 36(3), 403–438. <https://doi.org/10.2307/3322163>
- Falcon, J., & Bataille, P. (2018). Equalization or reproduction? Long-term trends in the intergenerational transmission of advantages in higher education in France. *European Sociological Review*, 34(4), 335–347. <https://doi.org/10.1093/esr/jcy015>
- Farges, G., Tenret, E., Brinbaum, Y., Guégnard, C., & Murdoch, J. (2016). The long-term outcomes of early educational differentiation in France. In H.-P. Blossfeld, S. Buchholz, J. Skopek, & M. Triventi (Eds.), *Models of secondary education and social inequality. An international comparison* (pp. 287–303). Cheltenham, UK: Edward Elgar.
- Filâtre, D. (2003). Les universités et le territoire: Nouveau contexte, nouveaux enjeux. In G. Felouzis (Ed.), *Les mutations actuelles de l'université* (pp. 19–45). Paris, France: PUF.
- Givord, P., & Goux, D. (2007). France: Mass and class-persisting inequalities in postsecondary education in France. In Y. Shavit, R. Arum, A. Gamoran, & G. Menahem (Eds.), *Stratification in higher education: A comparative study* (pp. 220–239). Stanford, CA: Stanford University Press.

- Goastellec, G. (2010). Access to higher education in France: Between equality of rights and meritocracy, a long walk to equality of opportunities? In F. Lazin, M. Evans, & N. Jayaram (Eds.), *Higher education and equality of opportunity: Cross-national perspectives* (pp. 253–269). Lanham, MD: Rowman & Littlefield.
- Helsper, W., Dreier, L., Gibson, A., Kotzyba, K., & Niemann, M. (2018). *Exklusive Gymnasien und ihre Schüler*. Wiesbaden, Germany: Springer.
- Jenkins, S. P. (1999). INEQDECO: Stata module to calculate inequality indices with decomposition by subgroup (Version S366007): Boston College Department of Economics. Retrieved from <https://ideas.repec.org/c/boc/bocode/s366007.html>
- Jerrim, J., Chmielewski, A., & Parker, P. (2015). Socioeconomic inequality in access to high-status colleges: A cross-country comparison. *Research in Social Stratification and Mobility*, 42, 20–32. <https://doi.org/10.1016/j.rssm.2015.06.003>
- Kalthoff, H. (2006). Doing/undoing class in exklusiven Internatsschulen. In W. Georg (Ed.), *Soziale Ungleichheit im Bildungssystem* (pp. 93–122). Konstanz, Germany: UVK.
- Kreckel, R. (2011). Zwischen Spitzenforschung und Breitenausbildung. Strukturelle Differenzierungen an deutschen Hochschulen im internationalen Vergleich. In H.-H. Krüger, U. Rabe-Kleberg, R.-T. Kramer, & J. Budde (Eds.), *Bildungsungleichheit revisited* (pp. 237–258). Weisbaden, Germany: Springer.
- Lamont, M. (2012). Toward a comparative sociology of valuation and evaluation. *Annual Review of Sociology*, 38, 201–221. <https://doi.org/10.1146/annurev-soc-070308-120022>
- Levy, R., & Jegou, L. (2013). Diversity and location of knowledge production in small cities in France. *City, Culture and Society*, 4(4), 203–216. <https://doi.org/10.1016/j.ccs.2013.06.003>
- Marginson, S. (2016). The worldwide trend to high participation higher education: Dynamics of social stratification in inclusive systems. *Higher Education*, 72(4), 413–434. <https://doi.org/10.1007/s10734-016-0016-x>
- Maxwell, C., & Aggleton, P. (2016). *Elite education*. Abingdon, UK: Routledge.
- MENSR-DEPP. (2016). L'état de l'Enseignement supérieur et de la Recherche en France. 50 indicateurs. Retrieved from [http://cache.media.education.gouv.fr/file/etat26/13/4/depp-etat-ecole-2016\\_675134.pdf](http://cache.media.education.gouv.fr/file/etat26/13/4/depp-etat-ecole-2016_675134.pdf)
- OECD. (2019). *Under pressure: The squeezed middle class*. Paris, France: OECD.
- Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge, MA: Belknap Press of Harvard University Press.
- Powell, J. J. W., Graf, L., Bernhard, N., Coutrot, L., & Kieffer, A. (2012). The shifting relationship between vocational and higher education in France and Germany: Towards convergence? *European Journal of Education*, 47(3), 405–423. <https://doi.org/10.1111/j.1465-3435.2012.01534.x>
- Sackmann, R. (2019). Mechanismen der Elitebildung: Theoretisches Konzept und empirische Trends im deutschen Bildungssystem und im internationalen Vergleich. *Zeitschrift für Pädagogik Beiheft* 65, 41–60.
- Schindler, S., & Reimer, D. (2011). Differentiation and social selectivity in German higher education. *Higher Education*, 61(3), 261–275. <https://doi.org/10.1007/s10734-010-9376-9>
- Schneickert, C. (2018). Globalizing political and economic elites in national fields of power. *Historical Social Research*, 43(3), 329–358.
- Teichler, U. (2008). Diversification? Trends and explanations of the shape and size of higher education. *Higher Education*, 56(3), 349–379. <https://doi.org/10.1007/s10734-008-9122-8>
- Van Zanten, A. (2009). *Choisir son école*. Paris, France: Presses Universitaires de France.
- Windolf, P. (1992). Cycles of expansion in higher education 1870–1985: An international comparison. *Higher Education*, 23(1), 3–19. <https://doi.org/10.1007/bf00141141>
- Wu, X. (2017). Higher education, elite formation and social stratification in contemporary China: Preliminary findings from the Beijing college students panel survey. *Chinese Journal of Sociology*, 3(1), 3–31. <https://doi.org/10.1177/2057150X16688144>
- Zymek, B. (2014). Ausleseverfahren und Institutionen der nationalen Elitebildung und ihre internationalen Herausforderungen. *Zeitschrift für Erziehungswissenschaft*, 17(3), 59–79. <https://doi.org/10.1007/s11618-014-0522-5>

**How to cite this article:** Winkler O, Sackmann R. Degrees of 'eliteness' in higher education systems: A comparison between Germany and France. *Higher Educ Q*. 2020;74:353–372. <https://doi.org/10.1111/hequ.12269>

## APPENDIX

**TABLE A1** Percentiles of the distribution of shares of students and their resources in fields of study in France with the original categorisation of fields of study in STS, IUT and CPGE

	France (1994–2006)		
	Grouped fields of study		
	Share of high-performing students	Share from academic milieu	Share from cadre (1997–2006)
Gini	0.544	0.259	0.257
<i>Percentiles</i>			
1%	0.001	0.083	0.070
5%	0.001	0.083	0.070
10%	0.004	0.090	0.080
25%	0.010	0.219	0.179
50%	0.024	0.297	0.247
75%	0.051	0.409	0.372
90%	0.116	0.574	0.442
95%	0.158	0.605	0.533
99%	0.158	0.605	0.533
<i>Percentile ratios</i>			
90/10	28.5	6.4	5.5
95/10	38.8	6.8	6.6
99/10	38.8	6.8	6.6
90/50	4.8	1.9	1.8
95/50	6.5	2.0	2.2
99/50	6.5	2.0	2.2
<i>N</i>			
No. of fields of study	18	18	18
No. of students in sample	36,792	36,024	29,232
No. of students of interest	1,316	11,042	9,190

Source. OVE *Conditions de vie des étudiants en France 1994–2006*. Own calculations.

**TABLE A2** Percentiles of the distribution of shares of students and their resources in fields of study in France without STS, IUT and CPGE

France (1994–2006)			
Grouped fields of study			
	Share of high-performing students	Share from academic milieu	Share from <i>cadre</i> (1997–2006)
Gini	0.350	0.138	0.145
<i>Percentiles</i>			
1%	0.001	0.158	0.152
5%	0.001	0.158	0.152
10%	0.004	0.237	0.198
25%	0.015	0.259	0.214
50%	0.027	0.302	0.250
75%	0.039	0.358	0.338
90%	0.051	0.409	0.372
95%	0.056	0.457	0.378
99%	0.056	0.457	0.378
<i>Percentile ratios</i>			
90/10	12.5	1.7	1.9
95/10	13.9	1.9	1.9
99/10	13.9	1.9	1.9
90/50	1.9	1.4	1.5
95/50	2.1	1.5	1.5
99/50	2.1	1.5	1.5
<i>N</i>			
No. of fields of study	11	11	11
No. of students in sample	23,928	23,445	19,030
No. of students of interest	637	7,343	6,105

Source. OVE *Conditions de vie des étudiants en France 1994–2006*. Own calculations.