Global inequality in the academic system: Effects of national and university symbolic capital on international academic mobility

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Abstract

The global academic system is hierarchically structured between a center, a semi-periphery and a periphery. We analyze to what extent the position of a country and a university within this hierarchy of scientific reputation shapes doctoral students' chances of international mobility. We conducted an exploratory experimental study using fake applications of international doctoral students sent to German sociology professors, who were asked to serve as supervisors during a planned research visit. Our fake applicants come from the core and periphery of the global academic system: Yale, Pennsylvania State University, National University Singapore, and Vietnam National University, Hanoi. The results show that applicants from both US institutions get more positive and more personal feedback than the other applicants. This points to the importance of national scientific reputation. Moreover, we can show that universities' symbolic capital seems to be more important than the quality of a department.

Introduction

The global academic system—like many other areas of world society—is hierarchically structured (Marginson 2006, 2008; Münch 2014; Schott 1998). There are poor countries and very wealthy ones, states that shape world politics in decisive ways and others that are insignificant in world political terms. Likewise, there are also countries whose universities are at the core of the system, and those that—justifiably or not—occupy a peripheral position. We suspect that university graduates from countries at the upper end of the scientific reputation hierarchy benefit from their country's and university's symbolic capital, because this scientific reputation is attributed to him or her.[1] This mechanism is also likely to result in unequal opportunities to become internationally mobile

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[1] We use the term "symbolic capital", "reputation" and "prestige" interchangeably in this study.

and thus to gain access to the centers of the global academic system. In this article, we analyze the influence of the scientific reputation of a doctoral student's country and university of origin on his/her likelihood of acquiring doctoral supervision during a research stay abroad. Does the symbolic scientific capital of a country or a university lead to different chances of success at the individual level?

This question is particularly relevant in light of the increasing internationalization of higher education and research. The proportion of students studying abroad, whether temporarily or for the entire duration of their degree has risen sharply in recent years (UNESCO 2014). In Germany, more than 235,000 international students enrolled in higher education in 2015; this is equivalent to almost nine percent of enrolled students (DAAD 2016). While many students study abroad as part of institutionalized exchange programs, among doctoral students the proportion of direct applications addressed to specific supervisors is particularly high.[2] Almost everyone who is employed in the academic field in Germany and who has the right to supervise doctoral degrees will be familiar with the requests, usually sent by email from abroad, looking for a doctoral supervisor. In many cases, these applications remain unanswered. Especially in such informal selection situations, the reputation of the doctoral student's country (e.g., USA, France, Poland, or Vietnam) and university (e.g., Yale, Paris Sorbonne (Paris IV), Uniwersytet Wrocławski, or Vietnam National University) could decisively influence whether or not he or she receives a positive answer.

We investigate the influence of a country's and university's symbolic capital on the international mobility opportunities of doctoral students using an experimental research design. Specifically, we sent fictitious emails with the same content to all sociology professors in Germany. In these emails, foreign applicants requested doctoral supervision in the context of a planned research stay in Germany. The only factor we varied was the country of origin (USA, Singapore, and Vietnam) and the university (Yale University, Pennsylvania State University, National University of Singapore, Vietnam National University, Hanoi). The assumption that underpins this design is that the recipients' response behavior will be influenced by the symbolic capital he or she associates with the country or the university of the sender. When selecting the treatment variables, we took into account the academic prestige of the country and the university as well as the performance of the sociological department of origin. In so doing, we can at least in part determine the extent to which symbolic capital alone, i.e., the scientific reputation of a country or a university, can influence

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[2] In Germany, according to data from 2014/15, around 81% of all doctoral students in the social sciences, law and economics were not enrolled in structured doctoral programs (Statistisches Bundesamt 2016).

applicants' chances of being accepted by a doctoral supervisor abroad, independent of the department's quality.[3]

Our study makes two contributions to the existing literature on stratification in the academic field. First, to the best of our knowledge, we provide the first empirical study demonstrating the impact of national and university symbolic capital on mobility chances on the *international* academic market, controlled by individual academic achievement. So far, empirical research on the effects of symbolic capital on scientific careers has focused on national contexts only, despite the dramatic rise in international academic mobility and the emergence of a global academic field in recent decades. Second, in conceptual terms, we combine Pierre Bourdieu's theory of the academic field with insights from world-systems theory. The empirical part of our paper shows that this theoretical perspective can account very well for processes of stratification within an emerging global academic field.

In the following section, we outline this conceptual framework by describing the literature relevant to our study. Then we move on to describe the design of our experiment, before presenting the results. We analyze whether the recipients responded to the request and agreed to provide supervision, and show the results of a more detailed content analysis of the answers. They point to the ongoing high relevance of national symbolic capital in an emerging global academic field.

Conceptual framework

Firstly, we will describe the hierarchical structure of the global academic system with reference to the work of Pierre Bourdieu (1). We then turn to the literature analyzing the returns that can be gained from degrees from a renowned university (2). Finally, drawing on theories of signaling and discrimination, we describe how the symbolic capital of a country or university can influence the international mobility opportunities of doctoral students (3).

(1) Our study is linked to recent works on the development and structure of a global academic system (Marginson 2006, 2008; Münch 2014). In their theoretical orientation, these works draw on Bourdieu's (1988, 1996) analyses of the academic field and on world-systems theory and connect both strands of literature with each other.

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[3] We are aware that a study looking at just four different universities cannot hope to depict the international system in all its complexity. Our study thus has an exploratory character.

As is well known, Bourdieu analyzes the French higher education system as a differentiated social field (Bourdieu 1988, 1996). Within this field, various actors—students, academics, and universities—strive to improve their own position in relation to other actors. This mainly involves the acquisition of "symbolic capital", which is akin to social recognition or reputation. It refers to "the form that the various species of capital assume when they are perceived and recognized as legitimate" (Bourdieu 1989, p. 17) within a certain field. Academics can acquire symbolic capital in the scientific field due to high-impact research and institutional affiliation. In the French higher education system described by Bourdieu, which is extremely vertically structured, the socially exclusive elite institutions at the top of the field are particularly capable of accumulating and conferring symbolic capital.[4] In a sense, the titles they award function like titles of nobility in the competition for social positions on the academic and non-academic labor market for their graduates.

Bourdieu's studies on the higher education field, however, remain limited by his "methodological nationalism". They merely reconstruct the hierarchical structuring and positional struggles within the higher education system in France, without taking into account the increasing globalization of higher education and science that has occurred in recent decades. In order to fill this research gap, scholars have recently developed approaches that combine Bourdieu's conceptual framework with a world-systems perspective (although the link between the two is rather loose) (Marginson 2006, 2008; Münch 2014; Heilbron 2014). World-systems theory, which is based on Immanuel Wallerstein's work, analyzes how states and regions are integrated into a global economic and political hierarchical structure between the core and the periphery (for an overview, see Chase-Dunn and Grimes 1995). By the same measure, one can also identify the emergence of an increasingly global academic system. It is structured hierarchically between a core—consisting primarily of elite universities in the USA and the UK—and a periphery—including the educational institutions in most countries in Latin America, Africa, and parts of Asia.[5]

Indicators pointing to the existence of a global academic system that is structured around a core and periphery include university rankings and the distribution of prestigious prizes. For instance,

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[4] It remains an open question how exactly the symbolic structure of the academic field relates to its material infrastructure, i.e. the distribution of economic resources, the diffusion rate of publications or the relationship to state power etc. Following Bourdieu, we assume that the two dimensions are largely interdependent, while displacements may occur, for example, when an institution manages to live on a reputation built up in the past.

[5] Of course, as Simon Marginson highlights (2006), not all institutions of higher education are integrated into the global academic field to the same degree. He speaks of a segmentation between a "world market of elite universities" on the one hand, and lower-status national/local institutions on the other, who operate according to specific national field logics (Marginson 2006, p. 21). Nevertheless, national academic fields are increasingly restructured according to global competition dynamics.

the Stockholm Nobel Foundation, probably the most important body in allocating scientific reputation, awarded 72 Nobel Prizes (excluding those in Literature and for Peace) to researchers born in the USA in the period from 2000 to 2016. Eighteen winners were born in the United Kingdom, 16 in Japan, seven in Germany, five in France, four in Russia, three in Australia, Canada, China, and Norway.[6] Given that there are more than 190 recognized states on the planet, the majority of which have their own universities and research facilities, this is an extremely unbalanced distribution. Looking at the various university rankings, we see a very similar order, despite all the differences in measurement and the indicators used: At the top, we find US universities, followed by a few British ones. The next spots in the ranking are shared by institutions in other Western European countries as well as in Israel, Japan, Australia, Russia, and the quickly rising Asian countries, especially China (e.g. Jöns and Hoyler 2013). Very often, the last spots in the ranking are no longer differentiated in the table, but are instead presented as an aggregate category—e.g., rank 501 to 600.

(2) The vertical structure of the higher education landscape influences the attractiveness of the different universities for students, especially on an international level. The most coveted destination by far was, and still is, the United States—18 percent of internationally mobile students go there, followed by the United Kingdom (eleven percent) and then France (seven percent), Australia (six percent), and Germany (five percent). These five countries host almost half of all international students (UNESCO 2014). The centrality of these countries within the network structure of international student mobility reflects their economic and political power and is largely consistent with their position within the world system (though the relationship is, of course, more complex than a mere homology) (Chen and Barnett 2000).

Universities that are at the core of the global academic system and are among its elite institutions attract students for a number of reasons. They (probably) not only ensure a good education; they also award an educational credential that is associated with high returns for their owners and can be converted into other forms of capital or advantages. Studies from the USA (summarized by Gerber and Cheung 2008) and Great Britain (Chevalier and Conlon 2003) clearly demonstrate that a degree from an elite university is not just associated with high symbolic capital (see, for example, Rivera 2011). It also facilitates—via alumni organizations—career contacts among its graduates (see Lee and Brinton 1986 for the example of South Korea), helps them to acquire further prestigious educational credentials (Eide et al. 1998), provides access to better jobs, and allows them to earn higher average incomes (e.g., Brewer et al. 1999). In other words, a degree

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[6] According to the data provided by the Nobel Foundation, see www.nobelprize.org/nobel_prizes/lists/countries.html. Accessed 6 January 2017.

from a highly reputed university can be converted into economic, social, and cultural capital (Bourdieu 1984). For those who wish to rise to an elite social position, there seems to be no way around such educational institutions. This is especially true in countries with highly vertically structured academic landscapes such as the USA, France, and the UK (Useem and Karabel 1986; Bourdieu 1996; Hartmann 2007).

Degrees from prestigious universities lead to returns within the academic labor market. Especially for the USA, numerous studies have shown that the prestige of the university or the department of origin influences chances of obtaining high-ranking entry positions and later achieving high academic merits. Val Burris (2004) speaks of an "academic caste system."

However, the studies outlined above all refer to returns that graduates could achieve *within their home countries.* The influence of institutional prestige on chances of *international mobility* has hitherto remained unexplored, although some authors assume such a connection in theory (e.g., Sklair 2001; Findlay et al. 2012). This is the issue our research seeks to address. We analyze the influence of a country's and a university's symbolic capital on doctoral students' international academic mobility chances.

(3) Bourdieu remains ambiguous on how exactly an applicant's stock of "symbolic capital" shapes selection in situations such as job applications and interviews. To clarify potential underlying mechanisms, we argue that it essentially works as a signal that may trigger discrimination. Economists distinguish between two types of discrimination: First, taste based discrimination, which refers to an unequal treatment based on preference of or aversion to a group displaying certain characteristics, in such a way that the discriminating actor is even willing to incur costs in order to satisfy his or her tastes (Becker 1971). In the case of discrimination based on taste a professor will not necessarily want to admit the *best* student—in terms of scientific productivity—but the student with the highest level of symbolic capital—such as a prestigious educational degree from the US—in order to associate him-/herself with that elite group.

In contrast, statistical discrimination is not based on preferences, but on information deficits (Phelps 1972). A professor wishes to select the best applicants. However, the relevant characteristics—e.g., students' actual performance—are often difficult to determine. Therefore, decisions have to be made on the basis of other, more easily observable features, e.g., the applicants' membership in a particular group. Conclusions about individual applicants are drawn based on average group characteristics—e.g., based on the presumed higher productivity of elite-university

graduates compared to graduates of less illustrious institutions. Therefore, in this case, symbolic capital can be interpreted as a "proxy" for expected average group characteristics.[7]

Apart from these two forms of discrimination, we assume that symbolic capital can work in a third way in selection processes. Actors are primed to select applicants with known characteristics over the unknown, the familiar over the un-familiar (Gigerenzer et al. 1999). However, what characteristics—in our case: characteristics of the academic system—are known and unknown is not random, but depends on the position a country and a university holds in the academic world system. To be well known is a reflection of the symbolic capital a country and a university posses. Assuming that the US-American academia occupies a hegemonic position within the academic world system, as outlined above, a German professor is expected to be more familiar with US-American than South-East Asian universities, and therefore, following simple heuristics, prefer applicants from the US.

In our study, we cannot exactly determine the mechanism according to which symbolic capital works in the selection process of international applicants. However, we can show which signal functions as a symbolic capital within the German academia—be it because German professors have a certain preference for specific universities, or because they use the name of a university as statistical discriminator, or simply because they are more familiar with some universities.

In our experiment, professors receive three types of signals on the applicant (which mutually influence each other): (1) The first signal is the scientific reputation of a country, which is the cumulative effect of its universities and research facilities, but rests on other, non-scientific factors as well. The US higher education system is, for example, the most prestigious, occupying center stage in the global academic system according to a variety of indicators mentioned above. (2) The second signal is the reputation of the individual university, as assessed in the various national and international rankings. It will mostly depend on the research quality of its departments, but could also develop a "halo" of its own due to its tradition and marketing capacity. (3) Finally, the universities differ in the quality of their departments. Thus, an individual department may have an excellent reputation, even if it is located at a rather mediocre university. We argue that, by looking at the response behavior of German professors to these three different signals, we can infer which of the three different signals function as symbolic capital on the German academic market.

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[7] These conclusions may be wrong in individual cases. Statistical discrimination regularly occurs on labor markets that are characterized by asymmetric information about the applicants' abilities and motivations (Spence 1973), or if decisions have to be taken quickly.

Assuming that the professor who has received an application is a "rational" actor with full information on the world academic system, we expect him/her to revert to statistical discrimination based on the applicant's department of origin, since it is likely a more accurate predictor of sociological ability than the university or country of origin.[8] Based on this assumption, we empirically analyze to what degree the reputation of foreign doctoral students' countries and universities of origin affect selections made by German university professors, as compared to the influence of the relatively best predictor of an applicants' sociological ability, i.e. his or her department of origin.

Data and methods of analysis

In order to determine the influence of the symbolic capital of countries and universities on doctoral students' international mobility opportunities, we conducted a field experiment. We simultaneously sent the same supervision requests by fictitious doctoral students to university professors in Germany. The subject (sociology) and other characteristics of the applicants were held constant. We only varied the symbolic capital of the country, university, and the department of origin as treatment variables and analyzed how they determined the response behavior of the recipients. To determine the relative dominance of the three signals, e.g., the importance of the country's scientific reputation as against that of the university and the department, we distinguish between four distinct contexts of origin:[9] Yale University (USA), Pennsylvania State University (USA), National University of Singapore (Singapore), Vietnam National University, Hanoi (Vietnam).[10]

(1) As far as the symbolic capital of the national higher education system is concerned, the USA is ahead of the Asian countries in all reputational surveys. However, there is a clear difference between Singapore, a successful "tiger state," and socialist Vietnam. Applicants from Yale and the Penn State should therefore have the most symbolic capital, followed by those from NU Sin-

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[8] It is virtually impossible to measure differences in scholarly quality objectively. Thus, it is important to note that our argument here is not about "objective" differences between applicants, but about the relative reliability of different quality signals. We assume that a department's reputation (according to whichever criteria) is probably a better predictor of a student's scholarly ability than his or her university or country, given that the "margin of error" of the prediction is lower. A university might have some excellent departments that constitute its overall prestige, but a mediocre sociological department. Thus, using university affiliation as a predictor of sociological ability leads to a less reliable estimation of a student's ability. This applies to our case in particular, since sociology professors should be most interested in reliably predicting the subject-specific (i.e. sociological) abilities of the applicants.
[9] The selected countries cover important origin contexts for foreign students at German universities, see www.wissenschaftweltoffen.de/daten. Accessed 30 May 2016.
[10] In the following: Yale, Penn State, NU Singapore, and VNU Hanoi.

gapore. Applicants from VNU Hanoi should be at the very end of the list. Moreover, the gap between the two US universities and the two Asian ones is likely to be significantly higher than that between the two Asian universities.

(2) As far as the reputation of the individual universities is concerned, we used the rankings of the "Times Higher Education World University Ranking" (THE) and the "QS World University Ranking" (QS). For 2015/2016, a clear ranking emerges: Yale (no. 12 and 15), NU Singapore (no. 26 and 12), Penn State (no. 75 and 101), and VNU Hanoi (not listed). Note that in terms of the university ranking, NU Singapore lies ahead of the US-American institution Penn State.[11]

(3) As an indicator of the scientific quality of the departments in question, we use the rankings of the "US News and World Report Graduate School Ranking" (US News) of 2013 as well as the "National Research Council" (NRC) of 2010. The US News ranking is based on peers' professional judgments. The NRC ranking uses a combination of different indicators (such as publications per scientist), which are selected and weighted by peers. Here, Penn State performs significantly better than Yale; it is ranked no. 17 in the "US News" ranking and is positioned at interval no. 3–8 in the "NRC" ranking. By contrast, Yale only occupies position no. 20, or interval no. 59–85. For the two Asian universities, a scientific evaluation of this kind was not available. Therefore, when assessing the role of a department's reputation, we only use the two American universities.

This theory-driven selection of universities allows us to determine empirically the extent to which these signals function as symbolic capital in German academia. If national origin is more important than a university's reputation, the fictitious applicants from Penn State should receive more positive and detailed answers than applicants from NU Singapore. Otherwise, the reverse would be true. In addition, the difference between American and Asian universities would be more pronounced than the differences among the Asian countries. If a department's scholarly reputation is more important than the university's overall reputation, applicants from Penn State should receive more positive answers than those from Yale.

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[11] Though not perfect, these rankings are the best available indicators of university reputation, as they rely largely on surveys among academics, combined with other indicators. In fact, these rankings even contribute to constituting hierarchies of reputation between universities (Münch 2014). We remain agnostic as to how well such rankings actually measure scholarly quality.

We assigned different names and surnames to the fictitious applicants. To control for the influence of gender and ethnic origin, we concentrated solely on male applicants and selected typical Singaporean-Chinese surnames for all applicants: Chan, Chia, Chua, and Tan.[12] The Chinese population of the USA is relatively large and there is also a Chinese upper class in Vietnam. Therefore, it is quite plausible that an applicant from Vietnam or the USA could have a surname of this kind. Since Chinese surnames are complicated for Europeans, and given the trend in Singapore and among Asians to assign American first names, we used a selection of the most frequently given first names in the USA in 1992 (the fictitious birth year of the doctoral student): Christopher, Jacob, Justin, and Michael. By combining the first and last names and universities, we created the following applicant profiles: Jacob Chan (Yale), Michael Chia (NU Singapore), Christopher Tan (Penn State), and Justin Chua (VNU Hanoi). We created four email accounts (gmail.com) that included the applicant's name and year of birth: justin.chua1992, tan.christopher1992, michael.chia1992, and chan.jacob1992.

Using these accounts, we emailed all 399 professors of sociology in Germany[13] between June 15 and 19, 2015 (i.e., during the summer semester). We included junior professors[14], but excluded emeritus professors, professors in departments other than sociology, professors in non-university institutions, private lecturers, honorary professors, interim professors, and adjunct professors). The four applicant identities were randomly distributed among the target population. The majority of replies were received within ten days of sending; the survey period ended on October 1, 2015.

The *application email* asked whether the recipient would be willing to supervise the applicant's research stay in Germany in the context of a doctorate. The fictitious applicants stated that they had completed college and had gained admission to a PhD program in sociology that would start at the end of the year.[15] As part of their doctoral program, they would have the opportunity to go

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[12] These names are among the most frequent Chinese surnames in Singapore (in 2000), see http://web.archive.org/web/20080223075738/http://www.singstat.gov.sg/pubn/papers/people/chinesesurnames.html. Accessed 30 May 30 2016.

[13] The selection is based on the sociology programs listed by the German Sociological Association (DGS) www.studium.org/soziologie/suche/?q=&view=uni. Accessed 30 May 2016.

[14] The German "junior professor" is equivalent to the North American "assistant professor".

[15] As fictitious applicants, we chose students that have not yet begun their doctoral studies, because those already enrolled in a doctoral program are usually listed on the university's website and have an institutional email address. In the case of more advanced doctoral students, the absence of these signals of institutional affiliation could have raised the recipients' suspicions. While this choice might have had a negative effect on the overall response rate, it did not bias the results, as it is unlikely that the absence of such signals of institutional affiliation interacts in any way with the treatment variables. Furthermore, German professors might not find such an early supervision request from an international student unusual, given that early planning of a research stay abroad is a common practice at German universities.

to Germany for a research stay. The following factors were taken into account when formulating the application email:

(1) The email is the first attempt to make contact and inquires whether the professor in question would be willing in principle to supervise a research stay abroad. No dissertation topic was specified and no proposal was sent. The email merely emphasized that the applicant was familiar with the recipient's research and that this would fit into his own research plans *("I have read a number of your publications, and your research profile fits perfectly with my own first dissertation ideas")*. This allowed us to send the same email to all recipients and ensured that differing levels of compatibility between applicants' and potential supervisors' research questions did not influence the professors' response behavior (the email is reproduced in Appendix I).

(2) As the professor's willingness to supervise an applicant may be influenced by his/her English skills, the English-language application email emphasized that the applicant also speaks German and the recipient can also respond in German.

(3) Since the likelihood of a professor agreeing to provide supervision declines as the required expenditure of time and money increases, the emails emphasized that the professor's costs and investment of time would be low. The doctoral student only asked for guest status, meaning that the student would bring the necessary financing for the research stay. The professor's responsibility for the success of the dissertation would be low as well, since the thesis would be submitted to the home university. The expenditure of effort would solely consist of supervisory meetings during the research stay. For these reasons, the pressure to make the wrong decision is low; the recipient's decision-making situation is a low-cost one (Diekmann and Preisendörfer 2003).

Our *dependent variable* is the response behavior of the university professors we contacted; the key independent variables are the applicant's country, university, and department of origin, along with the associated symbolic capital. In addition, for all recipients, we collected data on the age, employment status (junior / W1 professor to W3 professor[16]), the research activity (projects funded by the national German Research Foundation (DFG) since 2008), international experience (degrees obtained abroad) and the country of birth. We included these variables because we suspected that professors with more research experience or with a more international career would be more open to international applications than others will.

After analyzing the response behavior, we subjected the responses to a *content analysis*. Using an inductively generated coding scheme, we measured the detailedness of the answers (number

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[16] In Germany, "W1", "W2" and "W3 professors" refer to their salary band and are the equivalent of assistant, associate and full professors.

of words and information content) and the degree of informality (explicit expressions of interest, emotional expressions, informality of the salutation). We will describe the categories used in the content analysis in the second part of the following section.[17]

Results

Who receives a positive response?

There are four different options for responding to the fictitious request for supervision. The addressed professors could (a) not respond—54.1 percent, (b) refuse to provide supervision (7.5 percent), (c) agree to provide supervision (0.5 percent) or (d) show a basic interest, but ask for more information (37.8 percent). In the following analysis, we use a dichotomous dependent variable: "no response" and "rejection" were coded as "not interested in providing supervision"; agreement or a request for further information were coded as "potentially interested in providing supervision."

Before we turn our attention to the central analytical dimension, the origin of the fictitious sender, we briefly consider the extent to which the response behavior is influenced by the recipient's characteristics. Neither the gender nor the research activities of the professors have any influence on their willingness to supervise a foreign doctoral student. Nevertheless, younger age cohorts—and thus junior professors—are more likely to provide supervision than older ones. But the most significant differences emerge as a result of the university professor's country of birth and the country in which he/she completed a university degree. Fifty percent of the professors who were born abroad or who completed their studies abroad answered positively. The same was true of only 29 percent of German-born university professors, and 35.5 percent of those who studied in Germany.

However, our main research question aims to find out whether the symbolic capital associated with the applicants' country and university of origin has an impact on the chances of being invited

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[17] A note on the ethics of field experiments. We are aware that such an experiment breaches the requirement of informed consent when dealing with human subjects (the legal position in Germany is summarized by Klose and Kühn 2010). Therefore, it may only be conducted when there is no other way of generating the data, and under the condition that the potential damage for research participants is close to zero. Both applies to our case. Due to social desirability, the way respondents talk about discrimination will differ from what they actually do. Furthermore, our study does not inflict any damage on our subjects. First, we fully protect the anonymity of the professors included in this study. Second, their investment of time and other resources is minimal, since replying to an email takes no more than a couple of minutes. Third, by addressing university professors, we target a non-vulnerable group. We also argue that the results of our study might even have positive ethical consequences for the sociological community, by raising awareness among professors to make more informed selection decisions, and to rely less on unsubstantiated signals of symbolic capital.

as a guest doctoral student. Table 1 provides information on this. This table shows—for each of the four universities and collectively for the two regions of origin—what proportion of the fictitious applicants received a positive, a negative, or no response.

Table 1: A doctoral candidate's chances of supervision according to origin (in %)[18]

	Yale	Penn State	NU Singapore	VNU Hanoi	Total USA	Total ASIA
Positive response	51.0	43.4	30.0	29.0	47.2	29.5
Negative / no response	49.0	56.6	70.0	71.0	52.8	70.5
N	100	99	100	100	199	200

The results are clear. The fictitious applicants from the two American universities got much more positive answers (positive responses and requests for further information) than the students from the two Asian universities. While the difference between Singapore and Hanoi is marginal and not significant—both universities are obviously lumped together—the difference between Yale and Penn State is slightly more pronounced. Hence, it seems that, in the German academic field, the Ivy League university Yale has the highest symbolic capital, followed by the public university Penn State, then NU Singapore, and finally VNU Hanoi.

What conclusions can be drawn from these results regarding the relevance of the three treatment variables—country of origin, university of origin, and department of origin—for doctoral students' prospects of securing supervision? First, the applicant's country of origin appears to be more relevant than the home university, at least for the cases we are investigating. US applicants are more likely to receive a positive response to their requests for supervision than applicants from Singapore and Vietnam. This is despite the fact that NU Singapore is ranked more highly than the American institution Penn State. The reputation of the American system of higher education is thus more important than the reputation of individual universities (in terms of their international ranking).

Looking next at the ranking within the USA, the prestige of the university of origin is more likely to determine the prospects of supervision than the performance of the particular department. In both the NRC and US News rankings, sociology in Penn State performs better than sociology in Yale. Nevertheless, applicants from Yale are much more likely to receive a positive response. The Ivy

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[18] There are statistically significant differences between the two Asian universities and Yale ($p < 0.01$) and Penn State ($p < 0.05$), but not between the two American ($p = 0.14$) and the two Asian universities ($p = 0.44$). These significance values are only of limited use, since, first, the number of cases is low, and second, the data set in question is not based a sample, but contains information on the entire population of sociology professors in Germany. Hence, we assume there are differences between Penn State and Yale that are larger than those between the two Asian universities.

League label therefore seems to have a greater international appeal than the actual research performance of the department in question—even within professional circles.

The data in table 2 confirm that the symbolic capital associated with the country's higher education system is more relevant than an individual university's reputation, which, in turn, is more important than a department's scholarly quality. The table shows bivariate correlations for each of the three levels—country, university, and department; the correlations are between the university professors' response behavior and the expected ordinal ranking regarding the applicant's symbolic capital according to their origins. It emerges that this relationship is greatest with respect to the higher education system, but does not exist for the department's scientific quality.

Table 2: Correlation between symbolic capital and chances of supervision

Reputation of	Expected Ranking	Correlation		
		Gamma	Tau b	p
Country	Yale / Penn State > NU Sing. > VNU Hanoi	0.30	0.17	<0.05
University	Yale > NU Sing. > Penn State > VNU Hanoi	0.18	0.11	<0.05
Department	Penn State > Yale	-0.15	-0.08	>0.05

Even when controlling for university professors' gender, age, salary band, research activity, country of birth, and degrees from universities abroad, multivariate analyses reveal that applicants from Yale are the most likely to receive a positive response, and applicants from NU Singapore and the VNU Hanoi the least likely. At the same time, professors do not seem to differentiate between the last two groups (results reported in Appendix II). Given that we randomly allocated the applicants to the university professors, this finding was, of course, to be expected. The ranking of the universities in terms of the positive response rates is also more or less independent of the professors' individual characteristics. In all groups, there is a strong preference for the US university system. Surprisingly, however, preferences for applicants from Yale compared to those from Penn State are much more pronounced among women, those born abroad, those who are more research-oriented, older people, and those in the highest salary band W3. Clearly, greater levels of experience are not accompanied by a greater appreciation for the scholarly quality of the department of origin, as we had originally assumed.

Overall, it is, first, the symbolic capital of a national university system such as that of the USA and, second, the prestige of an Ivy League university such as Yale, that makes it easier for their doctoral students to access international university mobility. However, both of these factors are less predictive of the *individual* performance of a doctoral student than the reputation of his department of

origin. While the department of origin probably takes great care to recruit and educate good sociologists, this is less likely for the university and hardly applies at all to the national higher education system.

Detailedness and informality of communication

In addition, we analyzed the content of the response emails to determine whether applicants were treated differently depending on the symbolic capital associated with their background. Since the reputation of the national university system has proven to be a decisive factor, we grouped the four universities into two categories, comparing only the differences between responses to American and Asian applicants.

Because of the hierarchical structure of the international higher education landscape, we assume that the professors deal with applicants differently depending on their origins. Since the German higher education system ranks behind the American one, but ahead of the various Asian systems, professors could communicate on equal terms with applicants from the USA but could "talk down" to or be more distant towards Asian applicants. In order to test this assumption empirically, we analyzed the responses with respect to two dimensions: detailedness and informality. In order to avoid distortions due to different rejection rates for American and Asian applicants, we only considered positive responses. This again reduced the number of cases, meaning the findings should be interpreted carefully.

The *detailedness* of the response is operationalized via the average number of words in the reply email and its informational content. For example, some responses mention the possibility for the doctoral student to join a graduate school or participate in colloquia; others describe the infrastructure that is available at the university or offer to establish contact with other professors in Germany. We coded the response as "1" if it contains at least one of the pieces of information mentioned above; other responses are coded as "0."

The *informality* evident in the communication indicates the extent to which the university professor engages with the doctoral student personally or whether he/she adopts a distanced tone. It was operationalized by two variables. First, the professors use words and formulations that express personal interest or emotional enthusiasm for the applicant's request, e.g., *"This sounds very interesting, please tell me more."* Second, some professors address the doctoral students by their first name. This creates an atmosphere of informality, collegiality, and personal attention. Here, a response is also coded as "1" if it contains one of the elements; otherwise it is coded as "0."

As the results depicted in table 3 show, the responses to American applicants are on average about five words, and thus about one sentence longer than those sent to Asian applicants. This difference, however, is not statistically significant. Furthermore, nearly 14 percent of American doctoral students who receive a positive response receive additional information on supervision, but only five percent of Asian doctoral students do.

Table 3: Detailedness and degree of informality of positive responses according to origin

	Detailedness of response		Informality of response	
	Average number of words	Percentage including extra information	Percentage including expressions of emotion / interest	Percentage using first name in salutation
USA (N = 94)	59.1	13.8%	28.7%	40.4%
Asia (N = 59)	54.2	5.1%	11.9%	18.6%
Correlation / Group Difference	eta^2 = 0.004 $t = 0.81$	tau b = 0.14 $z = 1.72^*$	tau b = 0.20^{**} $z = 2.44^{**}$	tau b = 0.23^{**} $z = 2.81^{**}$

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

In the degree of informality, there are clearer differences between the responses to American and Asian applicants. First, American doctoral students much more frequently receive emails with explicit expressions of interest and emotion regarding the request for supervision (28.7 percent and 11.9 percent respectively).[19] Second, German professors correspond with American doctoral students in a more personal way. This is shown by the significantly more frequent use of first names in the salutation (40.4 percent versus 18.6 percent).[20]

Hence, both the content analysis of the responses to our fictitious requests for supervision and our analysis of the response behavior itself indicates that the symbolic capital associated with the applicants' origins structures the response behavior of the university professors—and thus also the doctoral students' chances of being accepted as guest doctoral students in Germany.

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[19] An alternative coding of the informality and personal engagement evident in the response using the number of positive adjectives such as "great", "interesting", "happy," or "open" confirms our results.

[20] It is also possible that German professors address US students more often with their first name because they are aware that communication is more informal in the US. However, as this indicator points in the same direction as the percentage of expressions of emotions and interest, we interpret it as showing a professor's closer engagement with the applicant.

Summary and outlook

By means of a field experiment, we have attempted to determine the extent to which the reputation hierarchy of the global academic system, which manifests itself in the distribution of the symbolic capital across countries and universities, influences the international mobility chances of doctoral students. We are aware that the study is an exploratory study, which, of course, cannot entirely represent the complex structure of the global academic system. This would require a broader study with other countries and universities, in particular from the semi-periphery. The inclusion of other, more highly globalized subjects that have greater internal agreement on subject-specific quality standards (e.g., mathematics) would also lead to interesting results. Nevertheless, in the cases we studied, the results support our assumption that differences in the scientific reputation of countries and universities have an impact on doctoral students' chances of gaining a supervisor for a research stay abroad. PhD students from the world-renowned Ivy League university Yale are most likely to receive a positive response to their request for supervision, followed by the public Pennsylvania State University. The two universities from Singapore and Vietnam, whose applicants received positive responses in similarly small numbers, are clearly behind the American universities. In addition, responses to US applicants are more informative and personal than the responses to Asian applicants.

We do not exactly know how these different signals determined the selection decisions of German professors. They might simply have a marked preference for associating with Ivy League students, in turn accepting that they are not using the most reliable predictor of sociological ability when selecting doctoral applicants. Alternatively, they could have discriminated statistically, but lacking full information about the current state of the global academic system as displayed in university rankings. To investigate these and other potentially unobserved selection criteria further, a qualitative extension of our study would be particularly beneficial, which would also allow to unpack the "cultural matching" (Rivera 2012) strategies of professors when responding to international applicants. Overall, however, our data can be plausibly interpreted in terms of the effects of the symbolic capital of an applicant's university and country of origin on selection decisions. Now, what do these results reveal about processes of stratification in an emerging global academic field?

Our study provides the first direct empirical evidence of how the symbolic capital of a country and a university determines the international mobility chances of students, controlled by their individual academic performance. Two empirical findings stand out in this regard. First, we find that national symbolic capital is still of predominant importance in the global academic field. This is illustrated by the poor response rates to applicants from NU Singapore – a university that in several international league tables consistently ranks among the top institutions worldwide, but in our data is

lumped together with the unlisted VNU Hanoi. In other words, despite its success as a university, it does not seem to have been able to shake off the label of a scientifically (semi-) peripheral Southeast-Asian country (at least in the eyes of many German university professors). Second, we find that, even within the sociological field, an Ivy League university (Yale) provides a higher symbolic capital than a nationally top-ranked sociological department at a less renowned university (Penn State). This is significant, given the fact that we might expect professors to be more susceptible to subject-specific quality signals than potentially less accurate university-level indicators. Thus, it seems that in the global academic field, the symbolic capital of an elite university can "trump" the reputational hierarchies of specific subfields, such as sociology. Taken together, these two results point towards the emergence of a "global academic caste system" (to borrow Val Burris' expression), with elite universities in core countries such as the US or the UK at the top, with significant consequences for how the international mobility of students and academics is channeled.

Our results also have normative implications. In his famous essay "Science and democratic social structure" Robert K. Merton (1949) described the four basic principles that constitute a differentiated science system ("universalism," "communism," "disinterestedness," and "organized skepticism"). In the context of our work, the concept of "universalism" is particularly significant. It means that the quality of scientific "products" (for example, in the form of publications and inventions) should be assessed independently of the author or inventor. Neither the gender, social, national or ethnic origin, nor the religion or scientific reputation should play a role in quality assessments. Looking at the results of our study with this criterion in mind, the discrimination against applicants based on their origins can claim different degrees of legitimacy. The selection of applicants based on the department of origin has the highest degree of legitimacy, because we can assume that the research achievements of a sociological department is a more accurate predictor of the scholarly quality of its doctoral students than their university affiliation or country of origin. In turn, discrimination on the basis of the entire country's scientific reputation can claim the lowest degree of legitimacy because it is the least related to the individual research profile of a doctoral student and is rather an ascriptive feature. Our study hence points to a normative problem: that the national origin of doctoral students is the primary influence on their international mobility chances.

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Appendix I: Letter of request

Subject: Yale/Penn State/NU Singapore/NU Vietnam PhD student seeks academic mentor in Germany

Email: XY@gmail.com

Dear Professor A:

I hope this message finds you well. My name is XY, and I was recently accepted to the PhD Program in Sociology at Yale University/Pennsylvania State University/National University of Singapore/Vietnam National University. My program offers me funding to spend a year abroad, and I am planning to come to Germany during the 2016-17 academic year to work on my dissertation.

Although it is still quite early, I would already like to reach out to you, as I am looking for an academic mentor to support me during my stay in Germany. I have read a number of your publications, and your research profile fits perfectly with my own first dissertation ideas. If mentoring me is something you would possibly be open to considering, that would be wonderful. I would be happy to provide you with further information about myself and my dissertation plans.

Sie könnten mir auch gerne in Deutsch antworten, weil ich habe mein Minor in Deutsch gemacht. Ich verstehe es ganz gut, auch wenn sprechen noch schwierig geht.[21]

Viele Grüße

XY

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[21] English translation: You are welcome to answer in German as I made my minor in German. I understand it quite well although speaking is still difficult. Best regards, XY

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Appendix II: Multivariate Analysis

Table A1: Effects of the university of origin on the chances of supervision, controlled by recipient characteristics (logistic regression)

	Model1	Model 2
University of origin (category of reference: VNU Hanoi)		
Yale	2.55**	2.49**
Penn State	1.88*	1.88*
NU Singapore	1.05	1.04
Recipient characteristics		
Gender: female		0.92
Age		0.97
Country of birth: non Germany		1.86
Degree: non German university		1.59
Salary band		0.84
Research activity: At least one DFG-project since 2008		1.22
Constant	0.41***	2.14
N	399	399
Pseudo-R²	0.027	0.060

Logistic regression; odds ratios reported. Controlled for, but not reported: dummy variables for missing information on recipients. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.