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The Internationalisation of Economics and Business Studies: Import of Excellence, Cosmopolitan Capital, or American Dominance?

*Thierry Rossier & Felix Bühlmann**

Abstract: »Internationalisierung der Volks- und Betriebswirtschaftslehre: Exzellenzimport, kosmopolitisches Kapital oder amerikanische Dominanz?«. In recent times internationality has become an indicator for scientific excellence arguing that it will create talent, diversity, and inspiration. But what does "internationality" really stand for in science? In order to answer this question we study two of the most hierarchized and internationalised disciplines – economics and business studies – in one of the most internationalised academic labour markets – Switzerland. Based on a historical database of 411 (full and associate) university professors of economics and business studies at three benchmarks (1957, 1980, and 2000), we investigate the evolution of internationality during the second part of the 20th century, and its link to scientific prestige and recognition. For both disciplines we find an increase in foreign professors and internationalisation of Swiss professors due to doctoral and postdoctoral phases spent in the US and other shorter stays abroad. This development can first be observed in economics, but business studies have managed to "catch up." Using three negative binomial regression models we show that Switzerland imports excellence among professors and that high scientific prestige is linked to stays abroad, especially in the dominant US fields of economics and business studies.

Keywords: Internationalization, economics, business studies, professors, science, excellence, cosmopolitan capital.

1. Introduction¹

Science is 'universal,' 'global,' and 'international.' This is the mantra of funding agencies, university rankings, and politicians. In the last decades, internationality has increasingly become a central indicator for scientific excellence, with the argument that it will provide more talent, diversity, and mutual inspiration. But

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what does ‘internationality’ really stand for in the context of science? Scientific internationality has taken many forms over the 20th century: the international circulation of ideas, international mobility of individual researchers, international research collaborations and publications, transnational research centres, etc. Despite the inclusive discourse of scientific policy makers, a closer look at the different forms of international scientific practices quickly reveals the hierarchies between nations, disciplines, and individual scholars. Scientific resources and scientific prestige are unequally distributed among national science spaces. This unequal distribution creates relations of opposition and dependence between ‘centres’ and ‘peripheries’ (Dubois, Gingras and Rosental 2016). At the disciplinary level, some scientific fields have managed to spread and homogenise their theories and methods on an international scale, while others remain national or regional in their orientation. These differences are reflected in the internal structures of these disciplines and also have repercussions for the size and scope of their audiences and recruiting pools. Finally, at the individual level, endowment with different types of capitals linked to internationality can contribute to the scientific recognition and prestige of scholars and participates, therefore, in the hierarchisation of the relations between them. This dynamic of internationalisation raises the question of whether ‘international scholars’ enjoy a higher scientific reputation and, therefore, are able to exert more power in the scientific field than ‘national’ or ‘local’ scientists.

Economics and business studies are two increasingly dominant scientific disciplines, both in academia and in political and economic domains (Fourcade 2009; Lebaron 2001, 2006; Pühringer 2016).² As we can see in the *curricula* available on their personal pages on the university departmental websites, the professors of those disciplines highly value research and teaching experiences abroad. They participate regularly in international scientific conferences, apply for travel grants, and enjoy fellowships in various countries. Their scientific activities involve international collaboration, co-authorship and publications in the most prestigious peer-reviewed journals of their field at the transnational level. International resources seem to be intimately tied to specific scientific capital in economics and business studies. Among all those activities, those related to the US field of economic sciences seem to be particularly valued. The US and its most prestigious universities are placed at the top of an international hierarchy within the disciplines. In economic sciences, this international hierarchy is sharper than in other disciplines of the social sciences, in law, or

² In Switzerland, since the 1990s, professors of economic sciences have frequently been elected university vice-chancellors, more than representatives of all other disciplines. Furthermore, besides law professors, they are the most strongly represented discipline in the Swiss political and administrative elite (members of the Swiss Parliament or the high civil service). They also are by far the first-most-represented group of professors within the Swiss economic elite (members of the executive or non-executive boards of the 110 largest Swiss companies) (Rossier 2017).

the humanities (Rossier, Beetschen, Mach and Bühlmann 2017; Fourcade, Ollion and Algan 2015). Our aim is to describe the internationalisation of the economic sciences in the second half of the 20th century and to examine the relationship between scientific prestige and internationality. To do this, we study Switzerland, one of the most internationalised academic labour markets.

To investigate the relations between scientific prestige and international resources, this paper is based on a historical database of 411 extraordinary (associate) and ordinary (full) professors of economics and business studies at the three benchmark dates of 1957, 1980, and 2000. To understand the evolution of the internationality of economics and business studies, we ask how it has evolved in Switzerland during the second part of the 20th century, and we study how the international (and specifically US) orientation of professors is related to scientific capital. We then ask what specific meaning different forms of ‘internationality’ – such as foreign citizenship, a PhD obtained in another country, or a prolonged research stay abroad – have for these professors’ careers. By conceptualising international resources as ‘import of excellence’ and ‘cosmopolitan capital,’ we study the value they have for scientific prestige, understood as scientific capital and measured by the number of citations in the Web of Science citation index. Does Switzerland import ‘scientific excellence,’ i.e., do foreign professors generally have a higher scientific reputation than their Swiss colleagues, or is scientific recognition related to international experience as such – do those who have stayed abroad and are generally at ease in an international context enjoy a higher scientific prestige? Finally, could it be that scientific reputation is mainly derived from stays in the US, the globally dominant scientific field in economics and business studies?

The article is organized as follows: first, we discuss the internationalisation of economic sciences and the different forms of meaning that have been attributed to ‘internationality’ in the literature. Drawing on this theoretical discussion, we formulate the two research questions guiding this article and then present our data and analytical strategy. In the result section we first show descriptively how the economic sciences in Switzerland were internationalised during the second part of the 20th century and then focus on an explanation of the relationship between internationality and scientific reputation. In the conclusion, we summarize our findings and discuss their relevance in light of the broader debates in the sociology of science.

2. Theory

2.1 The Internationalisation of (Economic) Sciences

National fields³ often experience influences from other national or transnational fields (Bühlmann et al. 2017). There exist numerous examples in which either the stakes of the field correspond to practices or knowledge related to international dynamics or where the field boundaries transcend national borders (Krause 2017; Buchholz 2016; Go and Krause 2016; Schmidt-Wellenburg 2017; Bourdieu 2000, 339-50). In the second half of the 20th century, science has become one of the most internationalised fields (Dubois, Gingras and Rosental 2016; Mosbah-Natanson and Gingras 2013). Through circulation of persons, texts and objects, through methods of knowledge production and through research funding, science has acquired an international dimension, and the specific capital⁴ of this field, scientific capital,⁵ seems to be increasingly linked to internationality and to be intertwined with resources acquired abroad (Gingras 2002, 31; Bourdieu 2004, 76). During a large part of the 20th century, scientists with international resources were more independent from local or national forms of political (or economic) power and were therefore rather situated at the 'scientific pole' (against the 'worldly pole') of the scientific field. However, the internationalisation of business relations and the rise of supranational forms of government may have led to new forms of integration of international scientists into transnational fields of power (Bourdieu 1988) – the internationalized scientist may no longer be so clearly situated at the scientific pole of the field.

Economics and business studies are among the most internationalised academic disciplines. In the recent period, they have become the disciplines with the highest rate of international collaborations and research among the social sciences and the humanities (Gingras 2002, 35). We can assume that in the economic sciences,⁶ the conversion of international resources into scientific

³ A field is a relatively autonomous social space. Inside this space, agents struggle for specific resources or capitals, which enables them to occupy a more or less dominant position within the field (Bourdieu 1996; Savage and Silva 2013, 113; Lahire 1999, 24-6).

⁴ Capitals are inherited or acquired resources or assets, which allow individuals to obtain a certain advantage over others in a particular field (Bourdieu 1986; Savage, Warde and Devine 2005).

⁵ Scientific capital is a "set of properties which are the products of acts of knowledge and recognition performed by agents engaged into the scientific field and therefore endowed with the specific categories of perception that enable them to make the pertinent distinctions, in accordance with the principle of pertinence that is constitutive of the nomos of the field" (Bourdieu 2004, 55).

⁶ In this article, we refer to economics and business studies as 'economic sciences.' In Switzerland, they correspond to the two main disciplines studying the economy, either in its private

resources is particularly central. For example, the discursive construction of scientific excellence, a device for academic distinction, is often linked to (and based on) the internationalization of the profession (Maesse 2017). This is also – and maybe even especially – true for a country such as Switzerland. Countries of small or medium size and centrality tend to unilaterally import people, experience, and modes of producing knowledge from dominant scientific centres (Heilbron 2001). As a smaller country, Switzerland is surrounded by (culturally and linguistically) ‘big’ and ‘central’ neighbours and has imported scientific personnel, ideas, and resources first from these neighbouring countries. In economics, the Swiss academic space had undergone direct German and French influence since the 19th century (Jost 1997). Already in the early 20th century and even more so after the Second World War, the economic sciences in Switzerland came under the influence of the US and its scientific culture (Jurt 2007).

2.2. Import of Excellence, Cosmopolitan Capital, or American Dominance?

What is the larger rationale behind processes of internationalisation in science? In the following section, we present three arguments that can be found in the literature: import of excellence, cosmopolitan capital, and American dominance.

Import of excellence: A first, rather prosaic thesis about the relationship between internationalisation and scientific reputation might simply state that particularly small and (financially) attractive scientific fields, such as the Swiss field, are able to import scientific excellence. These mechanisms might bear on the comparatively high salaries and advantageous research conditions at Swiss universities. In addition, the fact that German and French are spoken at Swiss universities might encourage German and French researchers to migrate to Switzerland rather than to another country whose native language they do not speak well. In the case of Germany, we can also emphasize structural similarities between the university systems, based on similar federal structures and comparable university cultures and influenced by the Humboltian system (Charle and Verger 2007; Rüegg 2004; Fumasoli and Goastellec 2015). In both Germany and German-speaking Switzerland, the *Habilitation* is an important precondition for the recruitment of professors and therefore facilitates the transfer from German to Swiss-German Universities. For Swiss universities, German-speaking and French-speaking countries are important enlargements of their recruitment pools and allow them to broaden the selection of their future

or public form. They often emerged in the same institutions and were, sometimes, taught by the same professors, before experiencing a process of relative differentiation. However, in the recent period, economics and business have again become very ‘close’ to each other (Fourcade and Khurana 2013; Jovanovic 2009). In addition, finance has emerged as a third autonomous sub-discipline.

professors. Therefore, we can presume that Swiss universities are able to ‘import’ foreign professors with an excellent scientific reputation. As a consequence, it is likely that, on average, foreign professors enjoy a particularly high scientific reputation, whereas their Swiss colleagues might be recruited on the basis of their local networks and on other ‘worldly’ grounds.

Cosmopolitan capital as symbolic resource: In the recent literature, ‘internationality’ has also been conceptualised as cosmopolitan (or international) capital. This form of capital can be defined as a variety of cultural, linguistic, economic, social, or symbolic resources linked to familiarity with more than one country (Wagner and Réau 2015, 34). This capital enables actors to ‘feel at home,’ even in places that are geographically far away. Individuals possessing a high amount of cosmopolitan capital speak foreign languages, are familiar with foreign countries, have friends and family in several places around the world, are used to travel, and are at ease in exchanges with people from different countries (Bühlmann, David and Mach 2013, 215; Wagner 2007, 43). These resources can be inherited (for example, through a foreign national ‘origin’) or acquired (for example, via an education abroad). Career spells abroad can become a way of acquiring and accumulating cosmopolitan resources. They can be converted into further symbolic resources in a new country or reinforce a position in one’s country of origin (Araujo and Bühlmann 2015; Dezalay 2004; Dezalay and Garth 2006; Karady 1998, 2002). Therefore, in the context of a particularly internationalised field, cosmopolitan capital can work as a multiplier of specific symbolic capital. We can presume that the recognition of scientific ‘excellence’ is closely associated with cosmopolitan capital.

American dominance: the recent literature on economics and business studies shows that national fields in these disciplines have become strongly hierarchized and dominated by the US. In economics, US standards of work and professional practices, such as mathematical economics, econometrics as well as the intellectual and methodological universalism of neoclassical economics, have spread all over the world. Furthermore, many foreign students and researchers went to US universities for studies and training. Scholars who stayed in the US brought home an ‘American scientific style’ to their countries and in this way contributed to a worldwide standardization of the profession (Fourcade 2006). Already, between the 1930s and the 1950s, influent economists in Europe (Nützenadel 2005, 61), Latin America (Fourcade-Gourinchas and Babb 2002; Heredia 2014; Klüger 2017) or Asia (Dezalay and Garth 2006) were trained in the US and were able to convert this particular type of cosmopolitan capital into positions of power when they returned to their countries. Currently, in scientific economics (but also in business studies), most of the prestigious journals are American (Fourcade, Ollion and Algan 2015). Also, when it comes to teaching, European universities are inspired by US teaching methods, for example through the global spread of the Masters of Business Administration (MBAs) and business schools (Moon and Wotipka 2006; Khurana 2007; Pavis

2008). Switzerland is no exception: both economics and business studies have experienced a process of ‘Americanization’ during the second part of the 20th century (Burren 2007; Jurt 2007; David and Schaufelbuehl 2015). We can therefore posit that the experiences and relations with the US field of economic sciences are important for Swiss university professors’ scientific prestige.

2.3 Research Questions

Drawing on these theoretical insights and previous research findings, our empirical analyses will be guided by two sets of research questions:

- First, we address the internationalization of economics and business studies in Switzerland: How has the share of international professors developed over time and from which countries do professors migrate to Switzerland? How have international experiences, such as PhDs received abroad and spells as researchers in other countries, especially the US, developed?
- Secondly, we seek to investigate the relationship between internationality and scientific prestige: Is Switzerland mainly importing scientific excellence, and are foreign professors *per se* scientifically more renowned than their Swiss colleagues? Is it, rather, about cosmopolitan capital as a symbolic resource? Do professors with an experience abroad have a higher scientific prestige? Or is scientific reputation built on learning and mastering the scientific culture of the globally dominant US field?

The first set of research question will be addressed in the descriptive results section (Section 4) focusing on the historical internationalisation of the professors of economics and business’ profiles. We then turn to the second set of questions in Section 5 emphasising international resources and scientific reputation.

3. Data and Analytical Strategy

3.1 Sample

Our data stem from a historical database on Swiss elites. They were collected as part of the project “Academic Elites in Switzerland 1910-2000: between Autonomy and Power.”⁷ We took into account all ordinary (full) and extraordinary (associate) professors of economics and business studies of all ten cantonal universities and the two Federal Institutes of Technology in three benchmark years: 1957, 1980, and 2000.⁸ The sample was collected on the basis of the

⁷ This project (N° 100017_143202) was funded by the Swiss National Science Foundation and was directed by Felix Bühlmann, André Mach, and Thomas David.

⁸ These three benchmark dates were initially used for research projects on Swiss economic, political, and administrative elites and were chosen because for these years, data were widely

Swiss university directories (*Annuaire des universités suisses*), which contains the complete list of the Swiss academic personnel. Table 1 gives an overview of the sample:

Table 1: Economic Sciences Professors at Swiss Universities (1957-2000)⁹

	1957	1980	2000	Total
Total professors of economic sciences	65	161	261	411
Professors of economics	38	86	118	193
Professors of business studies	27	75	143	218

3.2 Indicators

Descriptive and Independent Variables

We investigate the growing importance of foreigners by using the indicator of the *nationality at birth* of the professors (Swiss vs. Non-Swiss). This variable allows us to test the effect of the potential importation of excellence. Secondly, we focus on the internationalisation of the careers of the Swiss professors. To do so, we add a second independent variable accounting for the *stays abroad* during the career that allows us to picture international resources with more precision. We distinguish between Swiss citizens with at least a one-year stay abroad during their early professional career (between the age of 21 and 50)¹⁰ and Swiss citizens without an international stay.¹¹ In the descriptive part, we use a variant of this indicator, measuring the *mean time (in years) spent in different countries between the age of 21 and 50*. Finally, we investigate the importance of the USA as a place of stay: we use the *place of the doctorate* and the *share of the professors with a stay of at least one year in the US between 21 and 50*. Thus, we distinguish between Swiss citizens without experience abroad, Swiss citizens with experience abroad (except the US), Swiss citizens with experience in the US, Non-Swiss professors without experience in the US, and Non-Swiss with experience in the US.

available. For this project on Swiss academic elites, the years were kept, in order to be able to compare the academic elites to economic, political, and administrative elites. These three dates allow a comparison between three cohorts, separated from each other by roughly 20 years.

⁹ Note that if we sum up the three benchmarks, this amounts to 487 professors. This is because some professors are present at two dates. The same individual is only counted once.

¹⁰ We limited our analysis to the period between 21 and 50 years, since the youngest professor of the 2000 cohort was 50 in 2015 when we collected the data.

¹¹ Stays of less than one year have not been taken into account.

Dependent Variable

The dependent variable in this study is *scientific capital*, measured by the number of citations of the ten most cited publications in the citation index of the *Web of Science* database for each professor. The Web of Science citation index is currently run by Clarivate Analytics (formerly Thomson Reuters) and compiles the citations of around 12,000 scientific journals considered as the most ‘important’ for each discipline. This base consists of a selection of ‘prestigious’ journals and is therefore a good measure of excellence, prestige, and recognition among peers. Two characteristics of the Web of Science index must be emphasised: First, it focuses mainly on scientific journals that enjoyed high prestige in the most recent past. One could argue that, therefore, there is a historical bias in the selection of journals. However, certain selected reviews were prestigious journals even at the beginning of the 20th century, such as the *American Economic Review* (1911), *Econometrica* (1933), *The Quarterly Journal of Economics* (1886), or the *Journal of Political Economy* (1892). The indicator covers the period from 1900 to this day. Secondly, the Web of Science is centred on the Anglo-American space and mostly covers English-speaking scientific journals. Therefore, one could argue that it tends to neglect the influence of other linguistic areas. Nonetheless, some journals from other languages, endowed with a high scientific prestige, are selected: *Kyklos* (1947) or the *Jahrbücher für Nationalökonomie und Statistik* (1863) in German, or the *Revue d'économie politique* (1887) in French are examples. Therefore, to some extent, this index is useful, even if its focus is on English-speaking journals.¹² It is particularly relevant for Switzerland, which has one of the most internationalized academic fields (Busino, Hofer and Miévielle 1991; Goastellec and Pekari 2013). In addition, Swiss economics and management studies have only a few important journals on the basis of which scholars could build up local scientific capital. Therefore, citations in international journals are important in Swiss academia, and the Web of Science can be considered as a relevant indicator for scientific capital in Swiss economic sciences.

Control Variables

We control for the following variables: *sex*, *discipline* (economics or business), *linguistic region* (professors who teach in the German-speaking part of Switzerland vs. in the French and Italian speaking-part) and *historical period* related to the function at one of the three benchmarks mentioned above (1957, 1980, and 2000).

¹² See the list of journals of the Social Science Citation Index here: <http://mjl.clarivate.com/publist_ssci.pdf> (Accessed November 11, 2017).

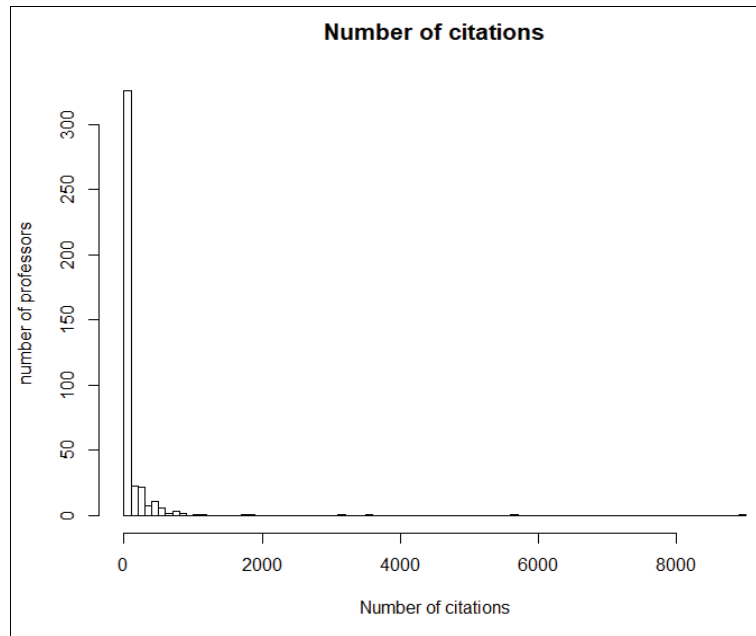
3.3 Methods

Since our dependent variable (scientific capital measured by the number of citations) is of count nature (meaning that we count for each professor the number of citations), we use the ‘sub-family’ of count regressions. Count regressions are part of generalized linear models (GLM) (Long 1997; Long and Freese 2006; Fox 2008; Zeileis, Kleiber and Jackman 2008). The most widely used count model is the Poisson count regression, which is able to deal with dependent variables following a Poisson distribution. However this type of regression sometimes underestimates the variance in the data (Long 1997, 230; Zeileis, Kleiber and Jackman 2008, 4-5; Fox 2008, 392). This is a problem when the data are over-dispersed. When looking at our dependent variable [Figure 1], we see that it clearly shows a case of over-dispersion (mean = 136.05; variance = 359,841.30; sd = 599.87): the variance is more than 2,600 times higher than the mean. This is explained by the fact that many professors are never or hardly ever cited. However, a small group of professors have an extremely high number of citations (maximum = 8,978 citations amongst the 10 most cited articles). *Negative binomial* models are particularly fitted to assume negative binomial distribution and, thus, to model over-dispersed data (Zeileis, Kleiber and Jackman 2008, 5). In order to perform this type of regression, we use the *MASS* package in *R* (Venables and Ripley 2002). In this type of regression, the coefficients can be interpreted as follows: for a one unit increment in the independent variable, the difference in the logs of expected counts of the dependent variable is expected to increase by the respective regression coefficient, holding all other variables constant.¹³ To be more easily readable, the coefficients of a negative binomial regression can be converted into incidence risk ratios (IRR), which are similar to odds ratios for logistic regressions. IRR simply correspond to the exponent of the corresponding coefficient. IRR can be interpreted as follows: for a one unit increment in the independent variable, the dependent variable is expected to increase by the respective incidence rate ratio, holding all other variables constant (Hilbe 2007). This type of regression also allows us to retain the maximum amount of information on the dependent variable. In order to test for diverse effects on a numeric dependent variable, researchers usually use either linear regression models, by trying to establish a linear relation between the dependent variable and other numeric independent variables (often transforming the dependent variable by means of squared numbers, square roots, logarithms, or exponentials to ‘force’ the relation to be linear), or by logistic regression models, by dichotomizing the

¹³ See: ‘Negative Binomial Regression | Stata Annotated Output’, UCLA: Statistical Consulting Group. Online link: <<https://stats.idre.ucla.edu/stata/output/negative-binomial-regression/>> (Accessed August 29, 2017).

dependent variable in two modalities (1 or 0/yes or no). The loss of information related to these transformations can be avoided with count regression models.

Figure 1: Dispersion of the Number of Citations in the Web of Science Citation Index



4. Internationalisation of the Profile of the Professors of Economic Sciences

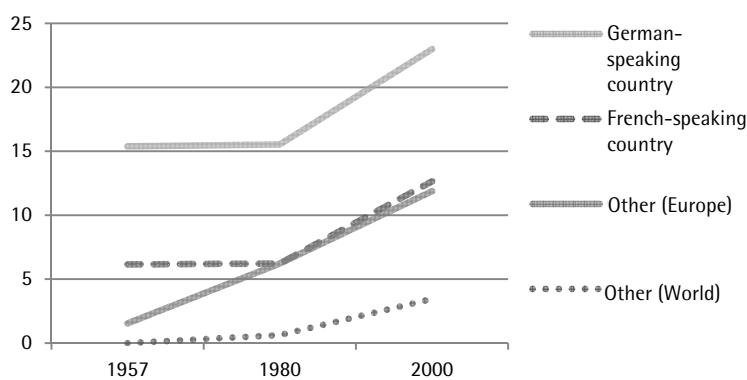
In this first descriptive part, we focus on the modalities of internationalisation of the economic sciences in Switzerland. We investigate the share of international professors, the internationality of the Swiss professors' careers, and the share of professors who have stayed in the US. In order to render visible disciplinary cultures, we distinguish systematically between economics and business studies.

4.1 Internationalisation and Diversification of the National Origins of the Professors

Economics and business studies have experienced an increasing internationalisation during the second half of the 20th century. One of the principal forms of

internationalisation is the exchange of academic personal and the circulation of scholars (Gingras 2002, 31; Dubois, Gingras and Rosental 2016). In this way, scientific paradigms, theories and methodologies circulate between countries. In the international scientific landscape, Switzerland has long been considered to be one of the most internationalised countries in Europe. This can be related to the small size of the country as well as to the proximity to large and weighty neighbours. Already, in 1915, for example, 27% of all university professors and 26% of all post-doctoral university teachers (*Privatdozenten*) had no Swiss passport (Busino, Hofer and Miéville 1991). More recently, findings show that Switzerland was the most international country of Western Europe in the period 2007-2010, as 50% of professors and postdoctoral researchers engaged at Swiss Universities were not of Swiss nationality (Goastellec and Pekari 2013, 231).

Figure 2: Proportions of Professors of Economic Sciences, by Nationality (in %)



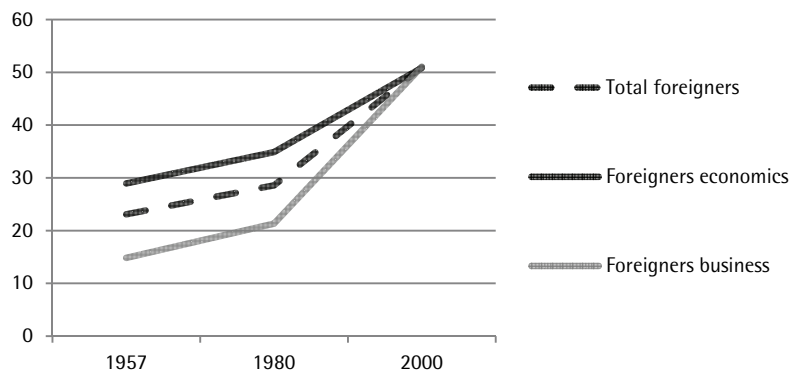
Source: Swiss Elite Database. N: 65 in 1957, 161 in 1980, and 261 in 2000.

In 1957, 23% of the professors are non-Swiss, in 1980, the figure rises to 28% and in 2000, the percentage tops 51%. It is, therefore, especially during the very recent period that economic sciences become more international. Generally, economics and business are among the most internationalised disciplines in Switzerland.¹⁴ Figure 2 shows the detail of this internationalisation by indicating the geographical origin of professors.

¹⁴ Data from the 'Swiss Elites Database' allow us to compare the share of non-Swiss professors to other disciplines: Law: 8% of foreign professors in 1957; 16% in 1980; 21% in 2000. Medicine: 10% in 1957; 15% in 1980; 35% in 2000. Technical and engineering sciences: 10% in 1957; 18% in 1980; 40% in 2000. Social sciences: 21% in 1957; 37% in 1980; 32% in 2000. Mathematics, experimental and natural sciences: 20% in 1957; 25% in 1980; 41% in 2000. Humanities: 25% in 1957; 34% in 1980; 45% in 2000. On average, the share of non-Swiss professors is: 18% in 1957; 24% in 1980; 39% in 2000. Therefore, except for social

Citizens from German-speaking countries (mostly Germany and Austria) are the biggest group. Their share stays relatively stable between 1957 and 1980. From 1980 to 2000, it rises from 16% to 23%. The French-speaking countries (France, French-speaking Belgium, and French-speaking Canada) experience a similar rise (from 6% to 13%). Generally, internationality increases from 1957 to 2000, but it remains geographically and linguistically ‘close.’ Most international professors are from neighbouring countries, in which people speak the same languages as in Switzerland. Germany’s influence remains especially important; this can be explained by the fact that Germany and the German speaking-part of Switzerland are institutionally closer to each other than France and the French-speaking part of Switzerland. Both Germany and the German-speaking part of Switzerland require candidates to possess a *Habilitation* to apply for a professorship position. Already, in the 19th century, the structural weakness of the Swiss academic institutions led to a massive influx of professors from Germany (Busino, Hofer and Miévielle 1991), which at that time was the globally dominant scientific field (Karady 1998, 95-7; 2002, 49-51), in particular in economics and business studies (Fourcade-Gourinchas 2001, 2002; Brockhoff 2012).

Figure 3: Proportions of Non-Swiss Professors in Economics and Business Studies (in %)



Source: Swiss Elite Database. N: 65 in 1957, 161 in 1980, and 261 in 2000.

We also observe a linear increase (2% in 1957, 6% in 1980, and 12% in 2000) of the number of professors coming from other European countries. Finally, we

sciences in 1980 and humanities in 1957 and 1980, economic sciences are the most internationalised group of scientific disciplines in Switzerland. Furthermore, economic sciences have undergone a particularly strong internationalization in the recent period (Rossier, Beetschen, Mach and Bühlmann 2015; Rossier, Bühlmann and Mach 2017).

can notice a very modest growth of professors coming from extra-European countries (from 1% to 3%). In this category, only five professors in 2000 have the American citizenship. The US, as the most dominant national field in economic sciences, exports few professors to Switzerland. Very likely, US professors of economic sciences prefer to stay in their own national field, which both enjoys the highest scientific legitimacy and offers very advantageous conditions to the best scholars. It is now interesting to differentiate between economics and business studies [Figure 3].

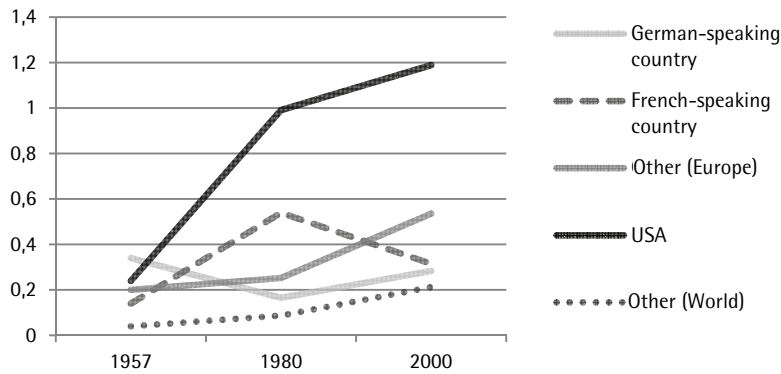
We see that in both disciplines the share of foreign professors increases. However, in 1957, business studies are much less internationalised than economics. This might be explained by the discipline's links to local firms and the teaching duties of its professors, which include techniques that cater for the local commercial, insurance, or industrial sector. However, the 'scientification' of management and marketing studies since the 1980s does, increasingly, create an international market for business studies. Possibilities are opened for researchers coming from abroad to become professors at Swiss universities (Burren 2007). Economics has been international since the 19th century (Jost 1997; Rossier 2017). Therefore, the slope of increase of foreigners is flatter in this discipline. In 2000, with business studies catching up rapidly (Fourcade and Khurana 2013), both disciplines have about the same share of international professors.

4.2 The Internationalisation of Swiss Professors' Careers

In order to investigate internationality in more detail, we must also examine how the internationality of professors with Swiss citizenship develops. An examination of these professors' careers shows that while in 1957, only 20% of the Swiss professors experience training or a professional stay outside of Switzerland between the age of 21 and 50, this share increases to 44% in 1980 and to 56% in 2000.¹⁵ The scientific culture of Swiss professors of economics and business gets more international. Figure 4 shows the average length of stays of professors in several countries.

¹⁵ Between 1957 and 2000, both disciplines increase at the same rate, but Swiss professors of economics stay more international than do professors of business: in 1957, 30% of the Swiss professors of economics have spent at least one year abroad between the age of the 21 and 50, 57% in 1980, and 71% in 2000 as compared to Swiss professors of business, with 9% in 1957, 32% in 1980, and 44% in 2000.

Figure 4: Average Length of Stays (in Years) between the Age of 21 and 50 Years in Geographical Zones Abroad – Only Professors with Swiss Citizenship



Source: Swiss Elite Database. N: 50 in 1957, 115 in 1980 and 127 in 2000. Mean times spent in Switzerland are the following: 29.04 in 1957, 27.97 in 1980 and 27.46 in 2000.

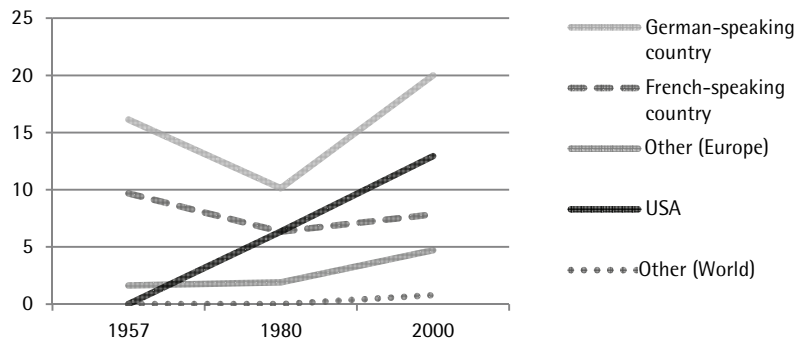
Swiss professors of economic sciences only stay about one year abroad in 1957, two in 1980, and two and a half in 2000. The increase of duration is particularly important for US visits. The average duration of stays in the US increases from around 0.2 year in 1957 to 1 year in 1980 and to 1.2 years in 2000. Swiss professors are increasingly oriented towards the US, the most prestigious academic field in the discipline. The academic reputation they acquire during stays at US universities can then be converted into academic or scientific resources in the Swiss academic space. This is the first hint at the importance of US academia in economic sciences. We now investigate in more detail the importance of the American field, by examining the place of doctorate acquisition and by examining stays in the US more generally.

4.3 The Growing Importance of the US

For all professors, a doctorate acquired abroad, especially if it has been obtained in a dominant national space, is one of the most easily convertible resources. A PhD from a foreign university confers the status of a privileged intellectual, which is equivalent to a symbolic “knighting” (Karady 1998, 102). Therefore, not only foreign professors import the value of their educational credentials acquired in their home-country. Also Swiss professors come back with this type of symbolic resource and the *savoir-faire* attached to it. In 1957, 27% of all professors of economic sciences obtained a PhD from a university outside Switzerland; this percentage dropped to 25% in 1980 and rose to 46%

in 2000.¹⁶ Internationality is particularly important for the professors of the most recent cohort: the figures almost double between 1980 and 2000 [Figure 5].

Figure 5: Share of Professors of Economic Sciences Who Obtained Their PhD Outside of Switzerland (in %)



Source: Swiss Elite Database. N of the professors who obtained a PhD: 62 in 1957, 158 in 1980, and 255 in 2000.

The German-speaking space produces the highest share of diplomas among professors of economic sciences in Switzerland. It experiences a slight (and statistically hardly significant) decline between 1957 and 1980 (from 16% to 10%), but the percentage then increases to 20%. The share of PhD degrees in francophone countries remains more or less stable during the period (between 10% and 6%). The relative importance of German-speaking countries is due to the long-lasting German influence on the Swiss economic sciences since the 19th century (Jost 1997, 90). The recent rise of German-speaking PhDs can be explained by the concomitant rise of the number of professors from this area that hold Swiss chairs of economics and business.

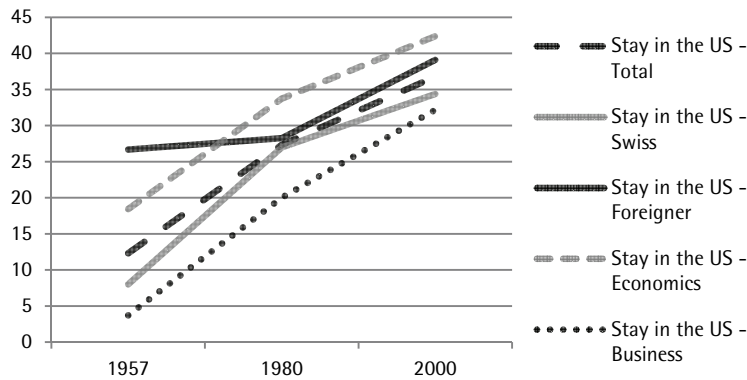
Compared to this 'close' internationality, other European countries and overseas areas are hardly represented. Merely 5% of the professors earned a degree in another European country in 2000.¹⁷ However, the country with the steepest growth is the US (0% in 1957, 6% in 1980, and 13% in 2000). This confirms our precedent findings and shows the increasing importance of stays

¹⁶ Again, economics is more international than business studies during the period: in 1957, 35% of the professors of economics obtained a PhD abroad; this rate fell to 33% in 1980 and rose to 50% in 2000, compared to the professors of business with 16% in 1957, 15% in 1980, and 43% in 2000.

¹⁷ 80% of these are obtained in the UK, another large and dominant European scientific space.

in the US for economists in the Swiss field of economic sciences as well as the import of the ‘American’ way of doing science.¹⁸

Figure 6: Share of Professors of Economic Sciences with a Stay in the US between the Age of 21 and 50, by Nationality and Discipline (in %)



Source: Swiss Elite Database. N: 65 in 1957, 161 in 1980, and 261 in 2000.

As Figure 6 shows, stays in the American scientific field grow in importance during the second part of the 20th century. While in 1957, foreign professors are more internationalised than their Swiss colleagues, this difference disappears in 1980 and 2000. This conversion is, at least in parts, the result of the introduction of a system of scientific grants for research stays abroad (1-2 years) by the Swiss National Science Foundation. We also see that professors of economics more frequently visit the US than do professors of business.

Overall, the descriptions of national origin, stays abroad, and places of PhD show that the profiles of professors of economics and business studies in Switzerland have become increasingly international. Scientists from neighbouring countries, particularly Germany and France, come to teach as professors at Swiss universities. But Swiss professors themselves also become more international and spend time abroad, in the US, in particular. Overall, increasing

¹⁸ Recent research on the place of the doctorate of professors at Swiss universities shows that the economic sciences are more internationalised than most of the other social science and humanities disciplines (Rossier, Bühlmann and Mach 2017, 313-314). Law: 12% of the professors obtained their doctorate abroad in 1957; 16% in 1980; 14% in 2000. Social sciences: 28% in 1957; 31% in 1980; 32% in 2000. Humanities: 30% in 1957; 30% in 1980; 45% in 2000. Furthermore, professors of economic sciences are clearly more tuned towards the US. Law: 1% of the professors obtained their doctorate in the US in 1957; 0% in 1980; 0% in 2000. Social sciences: 5% in 1957; 6% in 1980; 4% in 2000. Humanities: 0% in 1957; 3% in 1980; 6% in 2000.

shares of economics and business professors have obtained a doctorate in the US and cultivate close links to this dominant scientific field. Considering those results, we must now test the influence of these diverse types of international resources on their scientific reputation.

5. The Relations between International Resources and Scientific Reputation

5.1 The Distribution of Scientific Capital according to the Professors' Characteristics

In this second part, we investigate how the internationality of professors relates to their scientific prestige. For this purpose, we perform three negative binomial regressions. In Table 2, we give a descriptive overview of the average number of citations according to the used categories.

First, women tend to retain more scientific capital than do men. This is because women appear in those positions only in the recent cohorts, who generally have higher numbers of citations than do the previous cohorts.¹⁹ We can make the hypothesis that the younger cohorts of professors are more cited because Switzerland has recently opened more widely to international scientific journals and networks. The scientific production is now denser than before and is more oriented towards journal articles and less to books, which are not taken into account in the Web of Science. Furthermore, professors of economics are, on average, more frequently cited in the Web of Science than their colleagues in business studies. Finally, professors at French or Italian-speaking universities have lower numbers of citations than do professors at the German-speaking universities in Zürich, Basel, Bern, and St. Gallen as well as the Zürich Institute of Technology. Secondly, we see that Swiss professors have many fewer citations than do the foreign professors who have moved to Switzerland. But differences within the group of Swiss professors are quite strong: those who have stayed abroad during their career are distinctively more cited than those who always stayed in Switzerland. Thirdly, a stay in the American field seems to multiply the amount of citations of Swiss professors. Quite the contrary seems to be the case for foreign professors: those that stayed in the US seem to

¹⁹ It could also be that women who evolve in a particularly masculine environment, such as economics and business studies disciplines, must be extremely scientifically productive to become and work as professors. However, the projection of gender as an illustrative variable in a multiple correspondence analysis on this space of professors with different scientific and extra-academic capital forms as active variables shows no significant difference between men and women (Rossier 2017, 246-9). This point, as well as the modalities of the feminization of the disciplines, must be investigated more in detail.

be a bit less endowed with scientific capital than those who have never been to the US. All these effects, of course, need to be tested by controlling for the effects of all the other factors with regression models.

Table 2: The Average Amount of Citations in the Web of Science Database, according to the Characteristics of the Professors

Professor is...	Number of citations	N
Swiss	65.14	242
Non-Swiss	237.59	169
Swiss without stay abroad	17.62	139
Swiss with stay abroad (in general)	129.27	103
Swiss with stay abroad (except US)	46.14	42
Swiss with stay in the US	186.51	61
Non-Swiss without stay in the US	261.69	108
Non-Swiss with stay in the US	194.92	61
Woman	150.22	18
Man	135.40	393
1957	7.02	65
1980	49.33	161
2000	208.55	261
Business	92.14	218
Economics	185.65	193
French (and Italian)-speaking part of Switzerland	104.02	182
German-speaking part of Switzerland	161.50	229
Total	136.05	411

5.2 The Relationship between Internationality and Scientific Prestige

What is the relationship between internationality and scientific reputation? High levels of citation are an indicator of recognition within the fields of economics and business studies and are therefore a very distinctive resource. In order to investigate the effects of internationality on scientific capital, we run three negative binomial regression models. These regressions allow us to test the three points of inquiry formulated earlier: the *first regression* tests the influence of being a Swiss professor (reference category) vs. a foreign professor on scientific capital. It tells us whether Swiss universities have imported excellence, i.e., professors who enjoy a much higher scientific prestige than their local or Swiss colleagues. In a *second regression*, we differentiate among the professors with Swiss nationality. It tells us whether Swiss professors who have

had a longer stay abroad and who are thus endowed with symbolic cosmopolitan capital have more scientific prestige than the professors without a professional stay abroad (reference category) – and we examine how these two categories of Swiss professors compare to international professors. In a *third regression*, we explore the significance of connections to the US as the dominant scientific field in the economic sciences. It tells us about the importance of stays in the US between the age of 21 and 50 for different categories of professors: Swiss professors without a stay in the US (reference category), Swiss professors with a stay abroad but not in the US, Swiss professors with a stay in the US, foreign professors without a stay in the US, and foreign professors with a stay in the US.

The first hypothesis posits that excellence is imported to Switzerland by hiring foreign professors, whose scientific prestige is generally higher than their Swiss colleagues'. The first model seems to confirm this assumption. Non-Swiss professors have a significantly higher amount of citations in the Web of Science. However, when we compare foreign professors with Swiss colleagues who have stayed abroad for an extended period (*Model 2*), these differences disappear. *Model 2* also shows the importance of symbolic cosmopolitan capital. Those Swiss professors who have stayed abroad clearly have more scientific prestige than their compatriots who never were abroad. The most important model, however, is *Model 3* (as suggested by measures of fit)²⁰: it shows that it is not some general and symbolic cosmopolitan capital that matters. Instead, scientific prestige is explained by connections to the US scientific culture, acquired, for instance, through research stays in the US. The distinction between Swiss professors with a stay abroad but not in the US and those who were in the US is telling. While solely 'general cosmopolitan' capital – a stay abroad, but not in the US – has little effect on the scientific prestige (IRR = 2.89), this effect is enormous for those who were in the US (IRR = 29.9). The comparison even shows that Swiss professors who have been in the US have a much higher scientific prestige than their foreign colleagues with the same type of stay in the US.

²⁰ There exist no standardized measures of fit for count regressions, such as R^2 and Pseudo R^2 for linear and logistic regressions. However, there exist several unstandardized indicators: for the Akaike information criterion (AIC), the Bayesian information criterion (BIC) and the deviance criterion, the lower value indicates the 'best' model. For the log likelihood ratio, the highest value is the best.

Table 3: Negative Binomial Regression: Number of Citations in the Web of Science

	Model 1: Importation of excellence		Model 2: Cosmopolitan capital		Model 3: US dominance	
	Coeff.	IRR	Coeff.	IRR	Coeff.	IRR
Intercept	0.58	1.79	-1.72	0.18	-0.14	0.87
Non-Swiss	0.94 ^{***}	2.56	2.45 ^{***}	11.57	-	-
Swiss	Ref.		-		-	
Swiss with stay abroad	-	-	2.65 ^{***}	14.11	-	-
Swiss without stay abroad	-	-	Ref.		Ref.	
Swiss with stay abroad (except in the US)	-	-	-	-	1.06 [*]	2.89
Swiss with stay in the US	-	-	-	-	3.40 ^{***}	29.90
Non-Swiss without stay in the US	-	-	-	-	2.39 ^{***}	10.95
Non-Swiss with stay in the US	-	-	-	-	2.54 ^{***}	12.73
AIC	3160.91		3124.79		3121.44	
BIC	3197.07		3164.97		3169.66	
Log Likelihood	-1571.45		-1552.39		-1548.72	
Deviance	401.18		399.53		399.41	
Number of Observations	411		411		411	

*** p < 0.001, ** p < 0.01, * p < 0.05.

Control variables include: sex, cohort (1957, 1980, and 2000), discipline (economics and business), and linguistic region.

Summing up these findings, we can say that all types of internationality have a certain effect on the scientific prestige of professors of economics and business. When compared to all professors with Swiss nationality, foreign professors enjoy generally a higher scientific prestige. The competitive salaries and good working conditions as well as the cultural closeness to neighbouring countries such as France and Germany do allow Swiss universities to import excellence from abroad. We also see that an experience abroad enhances professors' scientific prestige – this is shown by a comparison of Swiss professors who have experience abroad with those who have not. Having worked abroad probably facilitates the exchange with foreign colleagues, stimulates the development of creative thinking, and allows professors to be more accurately informed about new research topics or methodological standards. However, behind the rather symbolic category of 'stay abroad' there lurks the strong influence of exchange with American science culture. Not going abroad, as such, has an impact on scientific prestige. It is specifically about being in contact with the globally dominant scientific field. Stays in the US are, perhaps, both: an indicator for

symbolic ‘American capital’ *and* an indicator for the appropriation of a certain way of doing science. In the US, scholars learn to develop interests for specific questions, using particular methods or data, and writing and publishing in specific journals. It can also be a place to obtain a particular form of social capital with a high transferable value. All these aspects might contribute to the increase of scientific capital of professors of economics and business studies.

6. Conclusions

In this study, we investigated the internationalisation of economics and business studies in Switzerland and showed how it relates to the internal hierarchy of the discipline in terms of scientific prestige. With a sample of $N = 411$ professors of three cohorts (1957, 1980, and 2000), we first demonstrated that the economic sciences in Switzerland have, in general, become more international in the second half of the 20th century. The share of professors of foreign origin (coming from increasingly diverse destinations) grew, the careers of Swiss professors became more internationalised (in the form of relatively short stays), and the importance of the US as a (doctoral or professional) destination rose dramatically. While economics was still more internationalised in 1957, business studies managed to ‘catch up’ on internationality in recent decades. In a second step, we explained the relations between internationality and scientific capital by three negative binomial regression models. We showed that Switzerland imports excellence among professors and that stays abroad are positively linked with a higher scientific prestige. Most importantly, however, it is exchanges with the dominant US field of economic sciences that increases the scientific prestige of professors in Switzerland.²¹

Of course, it can be said that the influence of intensive contact with US scientific culture on a measure of scientific prestige, which itself is a product of that US scientific culture, is somewhat of a circular argument. Indeed, the

²¹ In the recent decades, scholars in Switzerland have adopted American standards in economics and business studies. For example, scholars write more in English than before: in 1957, not a single economics and business professor had written his doctoral dissertation in English as compared to 9% in 1980 and 26% in 2000 (2% of them having not obtained a PhD in an English-speaking university in 1980 and 9% in 2000; Rossier 2017, 184–5). Furthermore, professors use mathematics more frequently as a theoretical tool: in 1957, only 13% of the professors had used mathematics in their doctoral dissertation, against 45% in 1980 and 73% in 2000 (Rossier 2017, 87). Also, in 1957, virtually no professor was using econometrical tools and methods. Since the 1980s, the most (scientifically) dominant professors of the space use econometric methods. The same trend was observed for subfields such as experimental and behavioural economics (Rossier 2017, 253–8). Finally, in the very recent period, corporate finance and financial economics are amongst the most prestigious topics in Swiss universities (Rossier 2017, 98–9). Therefore, the whole American ‘package’ has currently been incorporated in Swiss economics and management university departments.

science citation index of the Web of Science comprises citations in a predetermined list of journals amongst the most prestigious in economics and business studies, as well as other disciplines. These journals (such as the *American Economic Review*, the *Journal of Economic Literature*, *Econometrica*, the *Journal of Finance*, the *Journal of Financial Economics*, the *Journal of Management*, and the *Academy of Management Journal*, among the most prestigious) are English-language journals and are published in the US or the UK. On the other hand, one could argue that this apparently circular conclusion is particularly full of insights on how internationality works in science. Our analyses show that internationality has no value as such. What is important is not the difference between the local, national, or international, but the international hierarchy of scientific fields (Heilbron 2001). In disciplines such as economics, where this hierarchy is particularly clear and legitimate, we see that in smaller and generally less prestigious national science cultures, links with dominant players are important and function as ‘hierarchized cosmopolitan capital.’ This insight also helps us to understand the efficiency of cosmopolitan capitals in other scientific disciplines or even other fields; for instance, in the economic field or in the field of art. We can assume that, also, in those disciplines and fields, the efficiency of cosmopolitan capital is not about a kind of ‘generalised internationality.’ Its conceptualization has to situate countries within an international hierarchy, which is not necessarily the same in every field. Internationality or experiences with the US might have a very different meaning in humanities or in other social sciences in which the international hierarchy is less clear and in which countries other than the US might be important as well.

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