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Time to Go? (Inter)national mobility and appointment success of young academics

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TIME TO GO? (INTER)NATIONAL MOBILITY AND APPOINTMENT SUCCESS OF YOUNG ACADEMICS**

ABSTRACT

We analyze whether and how young researchers' (inter)national mobility affects their later appointment success. We use data on 330 researchers from business and economics in Germany, Austria and the German-speaking part of Switzerland and measure appointment success by (a) the time it takes a young researcher to get tenure and by (b) whether the researcher succeeded in getting tenure at a highly ranked institution. We find that international mobility is positively related to the likelihood of getting tenure at a highly ranked institution whereas pre-tenure national mobility is negatively related to both measures of appointment success. The latter effect stems from the period when post-doctoral pre-tenure national mobility was uncommon and created a negative stigma -- an effect that vanishes after the introduction of *Juniorprofessorships*.

JEL Classification: I23, J24, J6.

Keywords: Academic Mobility; Career Success; Human Capital; Social Capital, Signaling.

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TIME TO GO? (INTER)NATIONAL MOBILITY AND APPOINTMENT SUCCESS OF YOUNG ACADEMICS

1 Introduction

Based on a survey of business professors in German-speaking countries, Fiedler and Welpe (2008) find a researcher's international experience to be of considerable importance in appointment decisions – in addition to a candidate's job fit and his or her publication record. But why should appointment committees appreciate a candidate's international experience? Why should international experience be judged to have a value in itself?

With this article we try to shed light on this question by analyzing whether and how international experience actually influences appointment decisions – over and above potentially boosting an applicant's publication record (see Franzoni, Scellato, and Stephan (2014) for the latter effect). While there is first tentative evidence by Schulze, Warning, and Wiermann (2008) that a researcher's international experience may in fact reduce the time it takes him or her to get tenure, there is no study that comprehensively analyzes the relation between an upcoming researcher's international mobility and his or her appointment success. We go beyond the existing literature and (a) distinguish between different durations of a researcher's stay abroad, and (b) do not only look at the time it takes an upcoming researcher to get tenure but also at whether (s)he succeeds in being appointed to a highly reputable institution or not. The latter is an attempt to add a quality dimension to the outcome variable “appointment success”. Further, we (c) analyze different “appointment regimes” and separately study the situation before and after the Fifth Amendment to the Framework Act on Higher Education (*Fünfte Novelle des Hochschulrahmengesetzes*). Last not least, we (d) explicitly compare the effects of international mobility with those of national mobility, i.e. with the effects of a researcher's change of affiliation within one country – in an attempt to find out more about the underlying mechanisms that make appointment committees appreciate international mobility in comparison to national mobility. In so doing, we are the first to analyze a potential direct link between a researcher's national mobility and his or her appointment success – over and above the effect national mobility might have on a researcher's publication record (for the latter see e.g., Bäker (2015); Bolli and Schläpfer (2015); Fernández-Zubieta, Geuna, and Lawson (2015)).

With our study, which is largely explorative in nature, we seek to address the following research questions:

1. Do appointment committees value international experience in itself? I.e., does international experience positively impact career success when controlling for a potentially boosted publication record? And if so, does the value of international experience depend on the length of the stay abroad?
2. Are there any differences in the effects of international mobility and national mobility? If yes, what does this teach us about the motives behind appointment committees valuing international experience?
3. Is there any indication that the value associated with (inter)national mobility changes during time? Can we distinguish different “regimes” for the appointment of professors?

To address these questions, we analyze a data set of 330 researchers in business and economics in Germany, Austria and German-speaking Switzerland. We focus on upcoming researchers and study whether and how (inter)national mobility before the first appointment to the position of a full professor affects their career success. With respect to the measurement of career success, we regard both, the probability that an upcoming researcher gets tenure within the next given time span and the probability that (s)he is appointed to a highly reputable institution.

The remainder of the paper is structured as follows: In section 2 we present our conceptual framework and elaborate on why appointment committees might value upcoming researchers with (inter)national academic experience. Section 3 describes the data, measures and empirical strategy, and section 4 presents our results. Section 5 contains a discussion and points to potential implications.

2 Conceptual Background: Why Appointment Committees Might Value (Inter)National Experience

2.1 Investment in Human and Social Capital

A first theoretical explanation of why appointment committees might care about an applicant’s *international experience* is that international experience is seen as an investment in the researcher’s human and social capital broadening the applicant’s knowledge base and generating new contacts that might prove useful in the future. In the business context, there is empirical evidence that both skill and network development represent important

motives for employees to go abroad (see Lähtenmäki and Paalumäki (1993); Stahl and Cerdin (2004); Dickmann and Harris (2005); Dickmann, Doherty, Milly, and Brewster (2008)). Also in the context of academia, researchers go abroad because they expect to increase their knowledge base via access to new literature, methods, trainings and courses that help to develop their professional and personal skills and to increase and strengthen their networks (Kyvik, Karseth, Remme, and Blume (1999); Fries-Britt (2000); Richardson and McKenna (2003); Melin (2004); Pellens (2012)).

While part of this investment in a researcher's human and social capital might already be reflected in his or her publication record when (s)he enters the job market, part of it might only payoff at a later point in time (in terms of future publications or enhanced chances to be granted third-party money). E.g., Fiedler, Welpe, and Picot (2008) show that upcoming researchers often do not have that many publications when they enter the job market and often the variance in publication output between the job market candidates is not that high. Hence, appointment committees might rely on additional indicators and acknowledge a researcher's international experience in the appointment process in addition to his or her current publication record – hoping to be able to participate in future returns from the past investment in human and social capital (e.g., when jointly applying for third-party funding or when being ranked for their research strength as a faculty). If international mobility is seen as an investment, longer stays abroad should rather increase a researcher's appointment success than shorter stays since arguably the increase in human and social capital should be larger if the researcher spent more time abroad.

When it comes to *national mobility*, i.e. a researcher's past experience at different national institutions, this might also be seen as an investment in a researcher's human and social capital. Having worked at different institutions and with different academic advisors could in principle increase the probability that the upcoming researcher has been exposed to different “schools” of knowledge and different research styles. Further, a researcher's network will typically increase when changing affiliations – be it outside the country or within.

2.2 Signaling

A second reason why an appointment committee might care about a researcher's mobility is that it can be seen as a signal for his or her future productivity, which is one of the major concerns of appointment committees. In this context, *international experience*, i.e. a researcher's decision to go abroad, can be interpreted as a positive “signal” (Spence

(1973), see Connelly, Certo, Ireland, and Rentzel (2011) for an overview of signaling theory applied in management studies) for otherwise unobservable, but still desirable traits, e.g., a researcher's flexibility, open-mindedness, or career-orientation – traits that can be expected to positively affect a researcher's visibility in the future and might hence benefit the appointing institution. An appointment committee might then rightfully value a researcher's international mobility in the appointment process. Accordingly, one would again expect a researcher's *international mobility* to positively affect his or her appointment success.

However, *national* academic mobility is different. Unlike international mobility, national mobility could also be seen as signaling disloyalty or fickleness in general, with both characteristics being viewed unfavorably by appointment committees. Furthermore, a change of affiliation within the country could – more than a temporary stay abroad – also signal *involuntary* mobility, i.e. resulting from the doctoral granting institution not having offered a new contract. This is particularly true in the institutional regime before the Fifth Amendment to the Framework Act on Higher Education, when *Juniorprofessorships* did not exist and young researchers typically stayed with their doctoral degree granting institution until they finished their *Habilitation*, and then moved on to a full professorship at another university. However, this might have changed in the course of the introduction of the *Juniorprofessorship* in 2002 rendering pre-tenure changes in national affiliation more common. As a result, there might well be a “regime change” when it comes to appointment committees' assessment of the signaling value of national academic mobility. We propose that a “regime change” might have occurred in the context of the Fifth Amendment to the Framework Act on Higher Education which took effect in 2002 (see e.g., Chlosta and Pull (2010) on a theoretical analysis of the associated career effects). Among others, the Fifth Amendment to the Framework Act on Higher Education introduced the *Juniorprofessorship* targeting upcoming researchers who recently obtained their doctorate (i.e. around 2000 or later). *Juniorprofessors* have to change affiliation at least once before getting tenured and if they are on a tenure track they need to change before they become a *Juniorprofessor*. Further, since positions for *Juniorprofessors* are not as prevalent as traditional positions for university assistants after their doctorate, even those *Juniorprofessors* that are not on a tenure track often change their affiliation before becoming a *Juniorprofessor* (see Fiedler, Welpe, and Picot (2006)). This will, as we argue, lead to pre-tenure national mobility becoming more common and thus more acceptable. Altogether, for the younger cohorts we expect national mobility to be no longer a negative signal and ultimately even become a positive one.

2.3 Theoretical Predictions

Concluding, we derive the following theoretical predictions:

1. Given that it increases a researcher's human and social capital and is further likely to be seen as a positive signal, *international academic mobility* positively affects a researcher's appointment success.
2. National academic mobility might positively affect a researcher's human and social capital, but it might also be seen as a negative signal. Hence, from a theory perspective, it is unclear, whether and how *national academic mobility* will affect a researcher's appointment success.
3. For the *younger cohorts*, national academic mobility might no longer be associated with a negative signal and might ultimately even be associated with a positive signal.

3 Data, Measures, and Empirical Strategy

3.1 Sample and Data Collection

Our empirical analysis is based on a sample of 330 researchers in business and economics from Austria, Germany, and the German-speaking part of Switzerland who participated in an online survey in 2010. The survey was sent out to the members of an online portal by the German Economic Association, the *Portal Forschungsmonitoring*, that contains quality-approved data on researchers' journal publication output, the year and the institution where the researcher obtained his or her doctorate and the year and institution where (s)he received tenure plus demographic information, such as gender and year of birth. In our additional survey, we collected information on stays abroad and a set of controls. For the respondents, we further hand-collected data on national changes of affiliation from researchers' CVs.

3.2 Measures

The following two measures are used to proxy our dependent variable "appointment success": (a) the time span between obtaining one's doctorate and getting tenure (*time to tenure*) and (b) whether the tenure-granting institution is among the highest-ranked institutions in Austria, Germany, or German-speaking Switzerland (*reputation*). Unfortunately we do not have reputation rankings for all years when a researcher in our data set

was appointed to a tenured position for the first time. What we have and use, are quite recent faculty rankings issued by the *Handelsblatt* (business faculty ranking 2009, economics faculty ranking 2011). Whereas the specific rank of a faculty will typically vary from year to year, whether a faculty is among the “top 10” should be comparatively more stable (even though not time invariant) over time. Therefore, we did not use the exact rank of an institution in the 2009 or 2011 ranking, but – as a rough proxy – instead created a dummy variable taking the value “1” if the institution belonged to the top 10 institutions within Austria, Germany, or German-speaking Switzerland according to the respective *Handelsblatt* ranking, and “0” otherwise (for a discussion of rankings, including the *Handelsblatt* ranking, see Albers (2011); Backes-Gellner (2011); Frey and Rost (2010); Reinartz (2011); Rost and Frey (2011)).

Our main *explanatory variables* are national and international academic mobility. The dummy variable *national mobility* is coded as “1” if a researcher changed affiliation on a national scale while being a Post Doc, and “0” otherwise. Analogously, the dummy variable *international mobility* is coded as “1” if a researcher stayed abroad for research purposes before getting tenure and “0” otherwise. To analyze whether the *duration* of the stay abroad is of relevance, we chose four different operationalizations of our dummy variable international mobility, defining stays abroad as lasting at least one month, four months, six months, or one year.

To concentrate on the direct effect of (inter)national mobility on appointment success, we control for *publication productivity* measured by a researcher’s journal publications per year since the researcher published his/her first article (adjusting for co-authors and applying quality weights according to the *Handelsblatt* journal ranking, see Krapf (2011) for details). Since some articles might have been accepted by a journal but not yet published at the time of application for a full professorship, we include all journal publications up to and including the year after obtaining tenure. Acknowledging the literature on gender differences (e.g., Kahn (1992); Bailyn (2003)), we further control for gender (*male*). Furthermore, and analogous to Joecks, Pull, and Backes-Gellner (2014), we include a dummy variable for whether a researcher has *children* or not. Additionally, we control for the field of research (e.g., Heining, Jerger, and Lingens (2007); Schulze et al. (2008)) and distinguish between *business* and economics. The variable *year of birth* is meant to control for cohort effects, e.g., with respect to different job market situations. To control for the fact that a researcher’s scientific environment affects his or her productivity (see e.g., Fiedler, Welpe, Lindlbauer, and Sattler (2008)) we include the dummy variable *reputation doctorate* (see Bedeian, Cavazos, Hunt, and Jauch (2010)). It is coded

as “1” if the doctorate granting institution is among the top 10 institutions within Austria, Germany, or the German-speaking part of Switzerland according to the *Handelsblatt* ranking, and “0” otherwise. Lastly, we control for whether the researchers had taken part in a formal¹ or informal *mentoring* relationship before obtaining tenure (see Long and McGinnis (1985); Muschallik and Pull (2015)).

3.3 Empirical Strategy

To test for the effect of national and international academic mobility on appointment success, we need to apply different empirical methods. For our first dependent variable, the time it takes a researcher to get tenure (*time to tenure*), survival analysis or proportional hazard models are appropriate. Here we run Cox proportional hazard models (Cox (1972), see also Schulze et al. (2008) for the same approach). Cox proportional hazard models estimate the likelihood (hazard rate) of getting tenure in the next marginal time period, given that the researcher has not received tenure (“survived”) so far. In order to calculate this conditional probability of receiving tenure in the next marginal time period, the estimation method needs observations of both tenured and (so far) untenured researchers. Similar to multivariate regression models, effects of covariates can be analyzed (see e.g., Lane, Looney, and Wansley (1986) or Lunn and McNeill (1995)). For our second dependent variable (*reputation*), which refers to whether a researcher who already got tenure was appointed at a faculty belonging to the “top 10 faculties” (dummy variable ‘1’) or not (dummy variable ‘0’), Logit regressions are appropriate. By definition, the Logit regressions only include researchers that already got tenure.

3.4 Descriptive Statistics

Table 1 shows the means of all variables used in our regressions. The Cox proportional hazard models analyzing the determinants of the time it takes a researcher to get tenure are based on the full sample, i.e., the tenured and the not yet tenured (see *table 1*, column 1). Per definition, the Logit regressions analyzing the determinants of whether the tenure-granting institution is highly ranked or not can only rely on the data of those that already

¹ Formal mentoring refers to researchers that took part or still take part in a formal mentoring program set up e.g. by a university. Informal mentoring refers to researchers which are not involved in a formal mentoring program, but rather state that they have an informal mentoring relationship such that mentor (which is not their academic advisor) and researcher have not been formally assigned to each other, but instead the mentoring relationship emerged “informally” and evolved gradually over time.

got tenure (see *table 1*, column 2). The bivariate correlations of the variables can be found in *tables A1* and *A2* in the Appendix.

Table 1 about here

4 Results

Table 2 presents the results of the Cox regression analysis testing whether there is an effect of (inter)national mobility on *time to tenure* when controlling for a researcher's publication productivity. Interestingly and contrary to our first prediction, for *international mobility* there is no statistically significant effect on time to tenure. That is, when controlling for publication productivity, researchers who went abroad do not get appointed faster to a tenured position – irrespective of whether they went abroad for one month or for a year. To the contrary, we find *national mobility* to be statistically significantly and negatively related to the likelihood of the researcher to get tenure, giving some support to our second theoretical prediction. Depending on the model specification, a national change of affiliation decreases the likelihood of getting tenure by 13–14%.²

Table 2 about here

Table 3 presents the results of the Logit regression analysis with respect to our dependent variable *reputation*. Provided that a stay abroad lasts at least four months, international mobility positively and significantly increases the likelihood of being granted tenure at a top 10 institution, supporting our first theoretical prediction. The effect size is considerable with research stays of at least four months increasing the likelihood of receiving tenure at a highly ranked institution by about eight percentage points, and longer stays further increasing the likelihood of being appointed to a top 10 institution. To the contrary and referring to our second prediction, for national mobility we find a statistically significant negative effect on *reputation* in all four model specifications. Specifically, a national change of affiliation before getting tenure is associated with a decrease of about nine percentage points in the likelihood of getting tenure at an institution that is ranked among the top 10 in model (1) and about seven to eight percentage points in models (2) to (4).³

² Controlling for the time a researcher has spent working as a practitioner (in months) between having obtained the doctorate and having received tenure as robustness check does not change our results on the relation between (inter)national mobility and time to tenure. The same is true for using the duration of international mobility in months instead of dummy variables. All results of the different robustness checks are available from the authors upon request.

³ When using the duration of international mobility in months instead of dummy variables, the negative effect of national mobility on the likelihood of getting tenure at a highly ranked institution disappears. All other results remain unchanged.

Table 3 about here

To analyze whether the value associated with (inter)national mobility has changed over time (prediction 3), we distinguish between different “appointment regimes” and separately analyze the data for researchers who obtained their doctorate before 2000 and for those who obtained their doctorate in 2000 or later, arguing that the latter were already affected by the potential “regime change” in 2002.⁴

Table 4 presents the results of the Cox regression analyses for researchers who obtained their doctorate before 2000 (*Panel A*) and for researchers who obtained their doctorate in 2000 or later (*Panel B*). We find that *national academic mobility* for researchers who obtained their doctorate before 2000 is associated with a significant and negative effect on the likelihood of receiving tenure. That is, researchers who obtained their doctorate before 2000 and changed affiliation within the country before obtaining tenure needed more time to be appointed to a tenured position. Post-millennial, that is for researchers who obtained their doctorate after 2000, we find no significant effects in all of our four specifications, supporting our third theoretical prediction. That is, our results for the whole sample (*table 2*) are driven by researchers who obtained their doctorate before 2000. For *international mobility*, similar to our results for the whole sample in *table 2*, we find no statistically significant effect on the likelihood of receiving tenure (neither for Panel A nor for Panel B).⁵

Table 4 about here

Table 5 presents the results of the Logit regression analyses for researchers who obtained their doctorate before 2000 (*Panel A*) and for researchers who obtained their doctorate in 2000 or later (*Panel B*). Concerning *national academic mobility* we find the following: For researchers in the “old regime”, changing affiliation is associated with a negative and significant effect on the likelihood of being granted tenure at a highly ranked institution. For researchers obtaining their doctorate in the year 2000 or later we find only in models (3) and (4) a significant impact of national academic mobility. Interestingly, this significant effect is a positive one, which — again — is in line with our prediction 3. For *international mobility* in Panel A, we find no significant effect on the likelihood of

⁴ As a further robustness check, we alternatively chose “2001” and “2002” as potential cut-off points for the presumed regime change. While many of our results remain robust to this variation in the cut-off year, having obtained a PhD either before 2000 or in 2000 or later seems to mark the most pronounced regime change.

⁵ Controlling for the time a researcher has spent working as a practitioner (in months) between having obtained the doctorate and having received tenure does not change these results. Further, the results are robust when using the duration of international mobility in months instead of the different dummy variables.

receiving tenure at a highly ranked institution. However, for researchers obtaining their doctorate in the year 2000 or later (Panel B) (similar to our findings in *table 3*) for a stay abroad that lasts at least four months, international mobility positively and significantly increases the likelihood of being granted tenure at a top 10 institution. That is, while the positive effects of international mobility in the whole sample were apparently driven by the researchers who obtained their doctorate in 2000 or later, the negative effects of national mobility were clearly driven by the researchers who obtained their doctorate before 2000 – with researchers who obtained their doctorate in 2000 or later even showing a slight indication of national mobility starting to be even *positively* valued by appointment committees of highly ranked institutions.⁶

Table 5 about here

5 Discussion and Conclusions

Motivated by the finding that appointment committees care for international experience (Fielder and Welpel (2008)) and that international experience can reduce the time to get appointed to a full professorship (Schulze et al. (2008)), we set out to dig deeper into the effects of pre-tenure (inter)national academic mobility on upcoming researchers' career success.

Surprisingly, unlike Schulze et al. (2008), we do not find an effect of international mobility on time to tenure. However, we do find a significant and positive effect of international mobility on the “quality dimension” of career success: stays abroad of at least four months duration increase the likelihood of being granted tenure at a top 10 institution by at least eight percentage points. This positive effect of international mobility on career success, though found only for highly reputed faculties, is in line with our first theoretical prediction based on human and social capital theory on the one hand and signaling theory on the other. Consequently, the positive effect might be due to human and social capital gains caused by a stay abroad and/or international mobility being perceived as a positive signal.

Comparing the effects of *international* mobility and *national* mobility sheds further light on the reasons why appointment committees might value international experience

⁶ The results on national mobility are robust when using the duration of international mobility in months instead of the different dummy variables. For international mobility we still find the positive effect, however this is now significant for researchers who obtained their doctorate before 2000 and not after.

more than they value national mobility. We find that in contrast to international mobility, pre-tenure national mobility (i.e. changes of affiliation within the country) is negatively related to both measures of career success (time to tenure and reputation of tenure granting institution). Specifically, researchers who changed their affiliation within the country before getting tenure need more time to be granted tenure and are less likely to be offered their first tenured position at a top 10 institution. This suggests that national mobility is indeed interpreted as a negative signal by appointment committees, over-compensating a potentially positive effect on human and social capital.

Given the trend towards more mobility and the fact that the institutional framework for careers in academia within Germany has recently been reformed, preferences of appointment committees might be changing over time (as the results of Fiedler and Welpé (2008) suggest). Supporting this line of thought, we find that the positive effect of international experience on the likelihood of being appointed to a top 10 institution stems from observations under the ‘new regime’, i.e. the institutional framework associated with the Fifth Amendment to the Framework Act on Higher Education and the introduction of *Juniorprofessorships*. Under the ‘old regime’, stays abroad were apparently not valued positively in general. This is first evidence that the value of international experience is indeed increasing over time. Specifically, going abroad for research purposes has only recently become a means of increasing the likelihood of being appointed to a tenured position at a highly ranked institution.

Focusing on national mobility, the results for the two different appointment regimes show further evidence of the existence of a regime change. While under the old regime national mobility increased the time it took to get tenure, for researchers under the new regime, no such negative effect can be observed. Even more striking are the results for our dependent variable ‘reputation of tenure granting institution’: For researchers under the old regime, national mobility had a negative effect on the likelihood of being appointed to a highly ranked institution. For researchers under the new regime, we even find a positive effect in some model specifications. This shows that with the change of the institutional framework, specifically the introduction of *Juniorprofessorships*, the preferences and perceptions of appointment committees seem to have changed as well, and national mobility is apparently no longer perceived as a negative signal. With the introduction of *Juniorprofessorships*, pre-tenure national academic mobility thus has the chance to become the norm in the German-speaking system and lose a negative “stigma” that it seems to have had under the old regime.

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Table 1: Mean Values of all Variables

	Full sample (Cox regressions)	Tenured (Logit regressions)
Time to tenure (years)	6.897	7.34
Reputation (n=219)	0.270	0.146
International mobility (≥ 1 month, 1=yes)	0.521	0.484
International mobility (≥ 4 months, 1=yes)	0.412	0.342
International mobility (≥ 6 months, 1=yes)	0.336	0.292
International mobility (≥ 1 year, 1=yes)	0.230	0.228
National mobility	0.639	0.616
Publication productivity (publication points per year)	0.115	0.110
Male (1=yes)	0.833	0.900
Children (1=yes)	0.524	0.580
Business (1=yes)	0.588	0.635
Year of birth	1967	1965
Reputation doctorate (1=top 10 rank)	0.270	0.251
Mentoring (1=yes)	0.264	0.219
<i>n</i>	330	219

Table 2: Determinants of the Probability to Get Tenure in the Next Marginal Time Period According to Cox Regression: Estimated Hazard Ratios

	Time to Tenure			
	Model (1)	Model (2)	Model (3)	Model (4)
International mobility (≥ 1 month, 1=yes)	0.871 (-0.99)			
International mobility (≥ 4 months, 1=yes)		1.047 (0.33)		
International mobility (≥ 6 months, 1=yes)			1.016 (0.11)	
International mobility (≥ 1 year, 1=yes)				1.161 (0.96)
National mobility	0.865* (-1.92)	0.865* (-1.92)	0.863* (-1.93)	0.869* (-1.85)
Publication productivity (publication points per year)	5.428** (-2.90)	5.534** (0.33)	5.508** (2.92)	5.404** (2.90)
Male (1=yes)	1.559** (2.02)	1.541** (1.97)	1.542** (1.96)	1.494* (1.8)
Children (1=yes)	0.822 (-1.46)	0.821 (-1.47)	0.821 (-1.47)	0.087 (-1.58)
Business (1=yes)	1.852*** (4.13)	1.940*** (4.53)	1.930*** (4.48)	1.969*** (4.62)
Year of birth	1.047*** (4.90)	1.045*** (4.70)	1.045*** (4.78)	1.045*** (4.75)
Reputation doctorate (1=top 10 rank)	0.893 (-0.75)	0.894 (-0.74)	0.895 (-0.73)	0.902 (-0.69)
Mentoring (1=yes)	1.117 (0.7)	1.087 (-0.74)	1.090 (0.55)	1.077 (0.47)
BIC	2215.204	2216.065	2216.163	2215.278
<i>n</i>	330	330	330	330

Notes: Estimated hazard ratios displayed; z-values in parentheses; after testing for the proportionality assumption changes of affiliation is included as time-varying covariate; BIC: Bayesian Information Criterion;

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Determinants of Reputation According to Logit Regression: Estimated Margins

	Reputation			
	Model (1)	Model (2)	Model (3)	Model (4)
International mobility (≥ 1 month, 1=yes)	0.016 (0.047)			
International mobility (≥ 4 months, 1=yes)		0.083* (0.044)		
International mobility (≥ 6 months, 1=yes)			0.108** (0.043)	
International mobility (≥ 1 year, 1=yes)				0.093** (0.045)
National mobility	-0.089* (0.046)	-0.078* (0.043)	-0.073* (0.042)	-0.074* (0.043)
Publication productivity (publication points per year)	0.269 (0.205)	0.240 (0.210)	0.250 (0.207)	0.223 (0.208)
Male (1=yes)	0.039 (0.094)	0.038 (0.095)	0.028 (0.092)	0.029 (0.093)
Children (1=yes)	0.010 (0.048)	0.009 (0.048)	0.005 (0.048)	0.011 (0.047)
Business (1=yes)	-0.065 (0.048)	-0.060 (0.046)	-0.061 (0.046)	-0.060 (0.047)
Year of birth	0.008** (0.004)	0.007** (0.003)	0.008** (0.003)	0.008** (0.003)
Reputation doctorate (1=top 10 rank)	0.077 (0.052)	0.076 (0.053)	0.080 (0.053)	0.080 (0.053)
Mentoring (1=yes)	-0.031 (0.060)	-0.034 (0.060)	-0.034 (0.058)	-0.032 (0.059)
Pseudo R ²	0.082	0.099	0.111	0.101
<i>n</i>	219	219	219	219

Notes: Marginal effects are displayed; standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: “Regime Change”: Researchers Who Obtained Their Doctorate Before and After 2000: Effects on the Probability to Get Tenure in the Next Marginal Time Period

	<i>Time to Tenure</i>				<i>Time to Tenure</i>			
	<i>Panel A: Researchers who obtained their doctorate before 2000</i>				<i>Panel B: Researchers who obtained their doctorate in 2000 or later</i>			
	Model (1)	Model (2)	Model (3)	Model (4)	Model (1)	Model (2)	Model (3)	Model (4)
International mobility (≥1 month, 1=yes)	0.809 (-1.22)				0.816 (-0.87)			
International mobility (≥4 months, 1=yes)		0.916 (-0.52)				1.221 (0.88)		
International mobility (≥6 months, 1=yes)			0.919 (-0.49)				1.065 (0.27)	
International mobility (≥1 year, 1=yes)				1.018 (0.09)				1.410 (1.28)
National mobility	0.601** (-2.85)	0.596** (-2.88)	0.595** (-2.90)	0.603** (-2.81)	1.186 (0.67)	1.183 (0.68)	1.159 (0.59)	1.168 (0.63)
Publication productivity (publication points per year)	2.767 (1.09)	2.778 (1.10)	2.770 (1.10)	2.798 (1.11)	14.399** (2.68)	15.386** (2.71)	14.089** (2.62)	14.770** (2.67)
Male (1=yes)	1.360 (1.07)	1.358 (1.06)	1.362 (1.08)	1.356 (1.07)	2.018** (2.13)	2.003** (2.04)	1.981** (2.03)	1.837* (1.79)
Children (1=yes)	0.874 (-0.81)	0.870 (-0.85)	0.871 (-0.84)	0.861 (-0.91)	0.970 (-0.13)	0.979 (-0.09)	0.968 (-0.13)	0.922 (-0.33)
Business (1=yes)	1.801*** (3.53)	1.906*** (4.05)	1.901*** (4.01)	1.947*** (4.19)	1.927** (2.94)	2.023** (2.94)	1.986** (2.86)	2.032** (2.89)
Year of birth	1.041*** (3.53)	1.040*** (3.49)	1.040** (3.48)	1.039** (3.39)	1.197*** (3.83)	1.181*** (3.53)	1.187*** (3.69)	1.180*** (3.52)
Reputation doctorate (1=top 10 rank)	0.946 (-0.31)	0.953 (-0.27)	0.953 (-0.27)	0.946 (-0.31)	0.735 (-1.20)	0.767 (-1.05)	0.757 (-1.09)	0.802 (-0.88)
Mentoring (1=yes)	1.232 (1.09)	1.209 (1.00)	1.215 (1.02)	1.201 (0.97)	1.107 (0.39)	1.016 (0.06)	1.047 (0.18)	0.993 (-0.03)
BIC	1305.617	1306.767	1306.803	1307.012	670.141	670.088	670.760	669.282
<i>n</i>	163	163	163	163	167	167	167	167

Notes: Estimated hazard ratios displayed; z-values in parentheses; BIC: Bayesian Information Criterion; ***p<0.01, **p<0.05, *p<0.1.

Table 5: “Regime Change”: Researchers Who Obtained Their Doctorate Before and After 2000: Effects on Reputation of the Tenure-Granting Institution

	Reputation (Panel A: Researchers who obtained their doctorate before 2000)				Reputation (Panel B: Researchers who obtained their doctorate in 2000 or later)			
	Model (1)	Model (2)	Model (3)	Model (4)	Model (1)	Model (2)	Model (3)	Model (4)
International mobility (≥1 month, 1=yes)	0.052 (0.055)				0.066 (0.087)			
International mobility (≥4 months, 1=yes)		0.076 (0.051)				0.156** (0.070)		
International mobility (≥6 months, 1=yes)			0.077 (0.051)				0.214*** (0.060)	
International mobility (≥1 year, 1=yes)				0.051 (0.050)				0.210*** (0.065)
National mobility	- 0.182*** (0.055)	- 0.171*** (0.051)	- 0.168*** (0.050)	- 0.173*** (0.053)	0.129 (0.102)	0.144 (0.099)	0.167* (0.100)	0.172* (0.097)
Publication productivity (publication points per year)	0.248 (0.233)	0.245 (0.234)	0.236 (0.234)	0.222 (0.235)	0.487 (0.336)	0.433 (0.329)	0.486 (0.305)	0.368 (0.325)
Male (1=yes)	0.078 (0.122)	0.079 (0.121)	0.083 (0.119)	0.075 (0.123)	0.012 (0.123)	-0.012 (0.115)	-0.053 (0.120)	-0.027 (0.121)
Children (1=yes)	-0.016 (0.052)	-0.017 (0.051)	-0.019 (0.051)	-0.013 (0.050)	0.165 (0.104)	0.159* (0.097)	0.157 (0.098)	0.144 (0.099)
Business (1=yes)	-0.045 (0.056)	-0.042 (0.054)	-0.044 (0.054)	-0.049 (0.056)	-0.085 (0.100)	-0.101 (0.096)	-0.122 (0.087)	-0.123 (0.099)
Year of birth	0.009** (0.005)	0.008* (0.005)	0.008* (0.005)	0.009* (0.004)	0.052*** (0.019)	0.050*** (0.018)	0.048*** (0.018)	0.046** (0.018)
Reputation docto- rate (1=top 10 rank)	0.099 (0.064)	0.095 (0.064)	0.093 (0.064)	0.097 (0.064)	0.169 (0.121)	0.179 (0.123)	0.205 (0.127)	0.195 (0.127)
Mentoring (1=yes)	0.020 (0.069)	0.019 (0.068)	0.013 (0.068)	0.020 (0.067)	-0.108 (0.106)	-0.109 (0.105)	-0.099 (0.098)	-0.083 (0.106)
Pseudo R ²	0.154	0.163	0.163	0.152	0.193	0.240	0.287	0.269
<i>n</i>	143	143	143	143	76	76	76	76

Notes: Marginal effects are displayed; standard errors in parentheses; *** p<0.01, ** p<0.05, *p<0.1.

Appendix 1.

Table A1: Correlation Matrix: Time to Tenure-Sample

	1	2	3	4	5	6	7	8	9	10	11	12
1. Time to tenure (years)												
2. International mobility (≥1 month, 1=yes)	0.02											
3. International mobility (≥4 months, 1=yes)	0.01	0.67*										
4. International mobility (≥6 months, 1=yes)	0.05	0.58*	0.85*									
5. International mobility (≥1 year, 1=yes)	0.03	0.42*	0.65*	0.77*								
6. National mobility	0.11*	0.08	-0.01	-0.01	-0.05							
7. Publication productivity (publication points per year)	-0.21*	0.07	0.05	0.07	0.08	-0.04						
8. Male (1=yes)	0.11*	0.01	0.03	0.06	0.17*	0.04	0.07					
9. Children (1=yes)	0.19*	-0.07	-0.04	0.01	0.05	-0.05	-0.04	-0.00				
10. Business (1=yes)	-0.23*	-0.20*	-0.07	-0.08	-0.10*	-0.12*	-0.07	-0.03	-0.02			
11. Year of birth	-0.57*	0.17*	0.11*	0.04	-0.03	0.09*	0.10*	-0.21*	-0.25*	0.07		
12. Reputation doctorate	0.02	-0.03	-0.01	-0.01	-0.07	0.00	0.02	0.05	-0.04	-0.09	-0.01	
13. Mentoring (1=yes)	-0.11*	0.16*	0.06	0.04	0.05	0.06	-0.00	-0.10*	-0.02	-0.02	0.11*	0.05

Note: n = 330, ***p<0.01, **p<0.05, *p<0.10.

Table A2: Correlation Matrix: Reputation-Sample

	1	2	3	4	5	6	7	8	9	10	11	12
1. Reputation												
2. International mobility (≥1 month, 1=yes)	0.07											
3. International mobility (≥4 months, 1=yes)	0.16*	0.75*										
4. International mobility (≥6 months, 1=yes)	0.19*	0.66*	0.89*									
5. International mobility (≥1 year, 1=yes)	0.18*	0.56*	0.75*	0.85*								
6. National mobility	-0.10	0.03	-0.08	-0.09	-0.11							
7. Publication productivity (publication points per year)	0.12*	0.07	0.10	0.06	0.13*	-0.09						
8. Male (1=yes)	0.05	0.08	0.05	0.05	0.07	0.02	0.12*					
9. Children (1=yes)	-0.04	-0.05	0.04	0.04	0.00	0.01	0.02	-0.07				
10. Business (1=yes)	-0.09	-0.21*	-0.13*	-0.12*	-0.15*	-0.09	-0.06	-0.19*	-0.01			
11. Year of birth	0.13*	0.12*	0.06	0.02	0.02	0.17*	0.03	-0.13*	-0.17*	0.10		
12. Reputation doctorate	0.09	0.01	0.00	-0.02	-0.04	0.05	-0.01	0.16*	-0.10	-0.04	-0.07	
13. Mentoring (1=yes)	-0.03	0.13*	0.01	0.02	0.03	0.05	-0.01	-0.01	-0.02	-0.01	-0.01	0.08

Note: n = 219, ***p<0.01, **p<0.05, *p<0.10.