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## **Ties to the outside: An exploration of faculty interactions with external organizations**

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Faculty work now includes market-like behaviors that create research, teaching, and service opportunities. This study employs an embedded case study design to evaluate the extent to which faculty members interact with external organizations to mitigate financial constraints and how those relationships vary by academic discipline. The findings show a similar number of ties among faculty members in high- and low-resource disciplines, reciprocity between faculty members and external organizations, and an expanded conceptualization of faculty work.

**Keywords:** faculty work; financial constraint; academic disciplines

Over the past decade, the proportion of federal funding for colleges and universities that comes from the federal government and state allocations decreased substantially (Doyle & Delaney, 2009). While there are many adaptations and ramifications of this shift in resources for higher education on the administrative side of universities, this paper examines the implications for academics by exploring how faculty members obtain additional resources and opportunities outside of the ivory tower (Johnstone, 2001). In their discussion of academic capitalism Slaughter and Leslie (1997) stated that “the changes in funding of higher education and, in particular, the decline in the unit of resources have brought about major changes in academic behavior, changes in what faculty members do and how they allocate their time” (p. 112). By changing their behavior, faculty members may find alternative funding streams and alternative ways to pursue their work.

The purpose of this study is to explore variation among faculty members’ interactions with organizations outside of their respective universities (i.e. non-profit organizations and private firms). By comparing relationships with outside organizations for faculty across disciplines, I seek to better understand how faculty members engage with outside organizations. This study involves a comparison of faculty in high- and low-resource disciplines at two elite research universities, University of Pittsburgh (UPITT) and Massachusetts Institute of Technology (MIT), in order to explore differences between disciplines while also examining variations between institutions. As institutions with strong reputations for connections with outside organizations, these two universities

serve as pioneers in this area and may serve as a model for how colleges and universities evolve as financial constraints for higher education institutions continue.

This study is exploratory in nature and adds to the current body of literature by examining academic capitalist behaviors at the level of academic disciplines and individual faculty members. This project examines how institutional policies (i.e. conflict of interest or faculty handbook policies) serve as context for faculty members' pursuit of ties to external organizations. For the purposes of this study, faculty ties to external organizations is defined as any interaction between faculty members, non-profit organizations, for-profit firms, and government entities, in line with Barringer & Slaughter's (2016) definition of trustee "exchanges." Within that context, this study is guided by the following two primary research questions. First, to what extent and for what purpose do faculty members interact with external organizations? Second, does the extent and nature of these external relationships vary by academic discipline?

Building relationships with external organizations is one way in which faculty members might alter their behavior, or differently allocate their time to mitigate financial constraints. There are many reasons that necessitate the growth of faculty relationships with external entities. Symes (1999) suggests that external organizations are part of the new research enterprise, which functions among private industries. Additionally, Becher and Parry (2005), argue that, in light of market influences in higher education, universities must "develop closer associations with external agencies in order to finance research as well as teaching" (p.151); however, the extent to which academics pursue these opportunities may vary across disciplines. While there has been a substantial amount of scholarship dedicated to both disciplinary differences and ties between universities and outside industry, this project seeks to bring those two bodies of literature together to explore the different ways in which faculty members approach interactions with private firms, government entities, and non-profit organizations and how disciplinary differences influence those approaches.

Within colleges and universities, individual faculty members reside within specific academic disciplines, marked cognitive and social territories of knowledge (Becher & Kogan, 1992; Becher & Trowler 2008). Each discipline (i.e. Biology, English, etc.) has its own research methods and curricular components which faculty members, in accordance with academic freedom, disseminate to students differently based upon the norms and standards of each field. Scarcity of resources influences the ways in which these tasks are carried out (Slaughter & Leslie, 1997). Examples of this resource dependency include increasing class sizes and offering fewer sections of a course. Macintyre (2002) and Marginson (2002) both suggest that disciplines without a strong practice-based substantive component such as those in the humanities (e.g. Art History) are consistently neglected in terms of fiscal resources relative to other disciplines. That is not to say that limited resources do not also influence those programs with a practical component, but rather that they are less affected (Marginson, 2002). Academic disciplines with higher amounts of funding may be able to operate in a different way than those disciplines with lesser amounts.

As higher education institutions continue a path of credentialing and career preparation, the stratification between high-resource disciplines, practice-based fields and those that focus on hard sciences and low-resource disciplines such as the humanities and social sciences, will only increase (Rosinger, Taylor, Coco, & Slaughter, 2016). Therefore, faculty members in disciplines with fewer resources may not be able to respond fully and effectively to the teaching, research, and service components of their positions (Slaughter & Leslie, 1997; Volk, Slaughter & Thomas, 2001). This paper asserts that when resources are limited, the ramifications of financial constraints vary across departments within an institution. In an effort to minimize the influence of limited resources, faculty members find alternative ways to seek out revenue and carry out their work.

The findings of this study make three contributions. First, the results suggest that faculty members in high- and low-resource academic disciplines pursue relationships with external organizations to a similar extent, but that the substantive nature of these interactions differs. Additionally, the number of relationships between faculty members and external organizations indicates reciprocity in the pursuit of relationships. Lastly, the number of ties calls for an expanded understanding of faculty work, accounting for their roles in connecting universities and external organizations.

### **Theoretical Framework**

A combination of the theories of academic capitalism and resource dependence provide the theoretical underpinning of this study. Faculty relationships with constituents outside of the college or university may be one means of enacting academic capitalism, securing funding and opportunity in the wake of decreased financial support of higher education. Therefore, the notion that universities are becoming more enterprising and part of the larger economy serves as the backdrop of this study of academic capitalist faculty behaviors.

The proportion of federal and state funding for higher education has dramatically declined since the 1970s (Doyle & Delaney, 2009; John & Parsons, 2005). However, this is not a new phenomenon, Slaughter and Leslie's (1997) conceptualization of academic capitalism suggested that as a result of decreased financial support for higher education, faculty members engage in "market-like behaviors," including "competition for money, whether these are from external grants and contracts, endowment funds, university-industry partnerships" (p.11). This study argues that these changed academic behaviors is not only for financial resources but also others including prestige, recognition, ways to share research findings, and community partnerships among others.

This entrepreneurial behavior of faculty members with external organizations is one way to address changes (most often declines) in the availability of resources to do their work. To that end, this study is also driven by the resource dependence theory, which highlights the relationships between organizations (in this case, universities) and the sources of their financial, human, and other resources embedded in the context of the organizations' environmental conditions (Froelich, 1999; Pfeffer & Salancik, 1978). The current environmental conditions, fraught with diminished funds (proportionally) for

higher education from the state and federal government, emphasize the need for financial flexibility as they seek out new external funds and adapt to fiscal constraints (Baron, 1984; Barringer, 2016; Pfeffer & Salancik, 1978; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004). Given these varied resource dependencies, there are differentiated adaptations for those who work within universities and faculty ties to external organizations serve as one example of those adaptations.

### **Review of the Literature**

In *Academic Capitalism*, Slaughter and Leslie (1997) argue that since the 1973 recession the proportion of state and federal funding for higher education in the United States has declined significantly, while the revenues from student tuition and contracts with private industry have increased in response. In light of decreased funding, universities have taken up space in the marketplace by engaging in competition, fundraising, and other behaviors more commonly associated with for-profit corporations. In response, private firms are reciprocally treating universities like firms by seeking new knowledge from faculty members' intellectual property and university resources such as labs and other research facilities (Slaughter & Leslie, 1997).

In 1980, the Bayh-Dole Act drastically shifted the climate of academic research, allowing, and "The utilization of inventions arising from federally supported research... [and] to support the commercialization and public availability of inventions" (35 U.S.C. 200). Not only did the act grant universities the opportunity to patent inventions, it changed the approach to academic research from the faculty perspective as well. As the primary researchers within universities, faculty members' intellectual property became a revenue-generating opportunity for universities, which precipitated the greater reliance on federal research dollars and shifted the priorities of academic work, especially at research intensive universities.

The Bayh-Dole Act is just one example of how universities engage in behaviors similar to those of for-profit firms. As Neaves (2001) suggested, the rise of academic capitalism has only increased as federal funding for postsecondary education declines, leaving colleges and universities nationwide looking to private sources of funding. However, this approach is not without criticism. Kaplan (2009) for example, suggests that the privatization of research universities takes away from the public benefit, focusing on institutional goals instead.

As privatization increases, faculty members might secure private funding and opportunities to pursue their research, teaching, and service is through relationships with external organizations. From the perspective of academic capitalism, these relationships with for-profit firms, government entities, and non-profit organizations may result in funding and could also provide competitive advantage for universities with increased funding and collaborations with prestigious organizations (Barringer & Slaughter, 2016). Echoing the sentiments found in Slaughter and Leslie's (1997) conceptualization of academic capitalism, Weisbrod, Ballou, and Asch (2008) argue that universities are

engaging in “outsourcing” due to the financial constraints of decreased federal appropriations for higher education (Weisbrod et al, 2008). Outsourcing, in Weisbrod et al.’s (2008) terms, is when institutions “collaborate with private firms outside education, with nonprofit organizations, and with governments at various levels and with any other organizations if that will provide revenue or opportunity” (p. 206). While there is a substantial body of literature dedicated to exploring the commercialization of higher education and partnerships with organizations outside of the ivy-covered walls, less attention has been paid to the development and differences of these relationships at the level of individual faculty members and the resulting implications for academic work.

Traditionally, the faculty career has been designated into three distinct categories – research, teaching and service. Increasingly, though, the work of faculty is expanding to include other duties such as training students for technological jobs, obtaining research dollars through grants, and, most closely aligned with the purpose of this project, serving as a catalyst for industry (Mendoza & Berger, 2008; Slaughter, 1985). This component of the ever-changing faculty role is accompanied by a growing body of literature dedicated to the notion of entrepreneurial faculty members (Daniels & Hofer, 2003; Lee & Rhoads, 2004). Often this entrepreneurship refers to the efforts of faculty members to secure grants for research, which subsidizes their department and their research in an era of doing more with less in terms of fiscal resources (Lee & Rhoads, 2004). The idea that faculty members build relationships with organizations outside of the academy follows this idea of faculty entrepreneurship. Like other entrepreneurial behaviors, forming relationships with external organizations may provide faculty members with the means to pursue their research, recognition, as well as lecturing or consulting opportunities. Given the extensive literature surrounding the influences of disciplinary contexts within the academy, we can expect that the benefits and types of relationships built by faculty members from varying disciplinary homes would differ.

The academic disciplines within an institution serve both as organizational subunits, but of greater interest is Becher and Trowler’s (2008) conceptualization of academic disciplines as cultural tribes from which faculty members draw their professional identities, publishing norms, and career patterns. While, academic capitalism guides this study due to its explanation of adaptive academic behavior in the context of a more market-like academy, the theory is limited in its attention to disciplinary differences and the variation of how these market-like behaviors manifest differently in those distinct contexts (Slaughter & Rhoades, 2004; Ylijoki 2003;).

Identifying the possible variation in faculty members’ interactions with organizations outside of the university is addressed in this study by examining the differences between the behaviors of faculty across academic disciplines. In line with Rosinger, Taylor, Coco, and Slaughter (2016), I argue that, in light of the prestige economy in which institutions of higher education operate (i.e., an environment marked by competition for resources and prestige-seeking through rankings and other metrics), there is organizational segmentation within institutions, dividing academic disciplines into two groups. These two groups are divided based on the distribution of institutional resources. High-resource areas are “academic units that generate substantial revenues

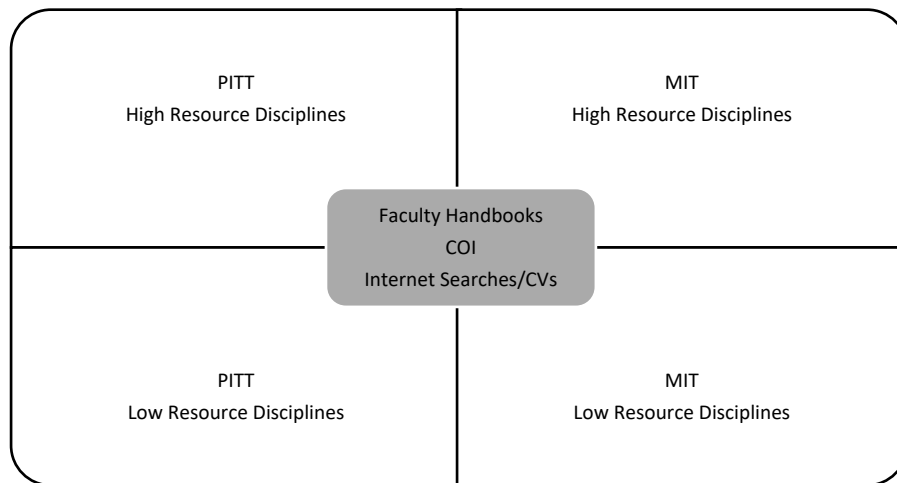
through research,” while low-resource departments, “do not generate high levels of research support” (Rosinger et al., 2016, p. 29). High-resource departments typically include the hard sciences disciplines such as chemistry, biology, etc. Meanwhile, low-resource disciplines most often include the social sciences and humanities fields. The differences in resource distribution as well as content between these two groups may influence how faculty members in either group pursue relationships with external organizations.

The exploratory nature of this study lends itself to examining the variation of faculty relationships with external organizations by academic discipline. Although, limited in scope this study highlights changes in academic behavior as part of the larger shift in the academy towards market-like behaviors.

## **Methods**

In this study, I examine the following: how institutional policies influence faculty interactions with external organizations, the extent to which faculty members interact with external organizations, and how faculty members’ external relationships vary by academic discipline. To examine this study’s research questions, I utilized an embedded case study design at two institutions, MIT and UPITT. This methodological approach seemed most appropriate given the layered nature of the disciplinary- and institution-level comparisons. The embedded design at two sites, depicted in Figure 2, allows for the comparison of the same units of data across both institutions and between high- and low-resource fields (discipline). The nature of this study is to understand a process that cannot be quantified, so a qualitative and exploratory method is necessary to identify nuances in this complex phenomenon (Yin, 2004). These two institutions, MIT and the UPITT, were chosen using purposive sampling for this case study based on their high levels of connectedness to outside organizations (Barringer & Slaughter, 2016). In their study, Barringer and Slaughter (2016) explored the extent to which university trustees serve as bridges between universities and the larger economy. They found that UPITT and MIT were the most connected public and private institutions connected to firms, non-profit organizations, and government entities through their trustees. Their finding suggests that there is a culture of connectivity to external organizations at those universities starting from the top down and the boundaries between these elite research universities and external organizations is perhaps more porous than at most other colleges and universities. As a result, these universities and the faculty members who work at them constitute exemplars for these entrepreneurial and boundary-spanning behaviors. The extent to which these two institutions are connected to external organizations provides a means to explore both the number and substantive nature of these ties for faculty members in both high- and low-resource disciplines. For each institution, there are two embedded cases, comprised of ten high-resource faculty members and ten low-resource faculty members, for a total of four embedded cases consisting of 40 faculty members in all, chosen using a random sampling strategy to provide variation across faculty members included in the study.

To select the faculty members involved in this study, I generated a list of all the departments at both MIT and UPITT from both university websites. I included departments in the School of Humanities, Arts, and Social Sciences and the School of Science at MIT and the Kenneth P. Dietrich School of Arts and Sciences at UPITT. I compared the lists of departments and excluded any that were not found at both institutions. I divided the departments into the two aforementioned categories, either high-resource or low-resource, and assigned the faculty members within those departments to one of the four groups. Each faculty member was assigned a unique identification number and then ten were randomly selected from each of the four groups using a random number generator. Ultimately, the MIT sample of this study included five Assistant Professors, one Associate Professor, and fourteen Professors from the following academic disciplines: Biology, Math, Physics, Chemistry, Neuroscience, Literature, Philosophy, Economics, History, Anthropology, and Political Science. Meanwhile, the PITT sample included five Assistant Professors, seven Associate Professors, and eight full professors, representing the following disciplines: Chemistry, Biology, Computer Science, Geology, Anthropology, English, History, and Political Science. The purpose of splitting this study into four distinct cases is to account for the unique context of each disciplinary type. Figure 2 illustrates the division of cases and institutional contexts.



The units of data collection within each of these four cases consist of the following publicly available documents: institutional faculty handbooks, the curriculum vita of each faculty member, the institutional conflict of interest policies, and the results of internet searches for each faculty members on the respective university website. Utilizing faculty handbooks and institutional conflict of interest policies provides a way to understand the institutional context from which faculty members establish relationships with external organizations. Reviewing the regulations surrounding these interactions contextualizes



why certain relationships may be more or less common, in addition to why some relationships are more challenging to navigate than others. Analyzing the curriculum vitae of the chosen faculty members and also the results of internet searches, serve as evidence of the types of relationships that exist between faculty members and external organizations. Accounting for both the relationships disclosed on the faculty members' curriculum vitae and those found on the internet searches, ensures greater accuracy in the number of relationships and the amount of detail, describing the nature of each relationship. By collecting information for each, specific faculty member, relationships can be categorized and then compared across and within disciplinary categories as well as between institutions.

This study is not widely generalizable, but rather exploratory for the two institutions involved. MIT and UPITT are very distinct research universities, most connected to outside organizations compared to the other 58 American Association of Universities (AAU) institutions (Barringer & Slaughter, 2016). For this reason, findings from this study cannot be applied to other institutions, but they may serve as examples for similarly elite research universities and their faculty members. Additionally, this study, in its exploratory approach, does not seek a causal relationship between external relationships and increased funding or opportunities for faculty members. Instead, this study seeks to explore the general nature of these relationships and to consider the implications of those interactions for both high- and low-resource disciplines, for MIT and UPITT, as well as the evolution of academic work. To ensure trustworthiness of the data, I used multiple sources of evidence including several types of documents (i.e., faculty handbook policies, conflict of interest policies, curriculum vitae, and internet searches), a strict data collection protocol, and several iterations of coding.

In coding the data, I first came up with a list of *a priori* codes founded in my understanding of the theory of academic capitalism and previous studies. The list of *a priori codes* included the following: Previous Education, Fellowship, Grants, Awards, Advisory Boards, Professional Associations, Administrative Positions, Academic Positions, Consulting, Service, Colleagues, and Research Partnerships. These are the types of relationships I initially expected faculty members to have with external organizations. As I analyzed the data, I used open coding and refined my list of *a priori* codes, eliminating codes, Service and Colleagues, that were not relevant and adding codes, Editorial Boards and Endowed Positions, as they emerged from the data (Stemler, 2001). I ended with a list of twelve codes (see Table 2) to thematically represent the varied nature of faculty interactions with external organizations. Each of the codes represents ways in which faculty members are connected to organizations (firms, non-profit organizations, and government entities) and the substantive nature of those interactions.

## Findings

This section begins with the context of faculty members' ties to external organizations by evaluating institutional faculty handbook policies regarding external employment for faculty members and the conflict of interest policies at MIT and UPITT.

From there, I present the results of curriculum vitae and internet searches completed for ten high-resource faculty members and ten low-resource faculty members at both MIT and UPITT. While these sources of evidence do not exhaust the institutional policies and instances of external relationships for their faculty members, I argue that these units of analysis are the most central in facilitating how faculty members extend their reach beyond their home campus. These sources of evidence provide information about faculty members' relationships with external organizations from several perspectives, contextualizing the environment from which faculty members pursue these relationships as well as the evidenced ties.

### *Faculty Handbook Policies*

Faculty handbooks serve as resources for individual faculty members, providing requirements for tenure and promotion, information about their role in governance in addition to standards and procedures surrounding outside relationships and relationships with external entities. In both the MIT and UPITT faculty handbooks, the language is simultaneously supportive, encouraging faculty member to pursue external relationships, and prescriptive, stating the legalities and necessary reporting measures for engaging with external entities. The encouraging components of the faculty handbooks read as follows:

The Institute believes that its educational program and effective teaching in all its aspects can flourish only when sustained by continuous, active participation of its faculty in research, enriched in many cases by interaction with industry, business, government, and other activities and institutions of our society (MIT, 2014).

The University recognizes the obligation to make the special knowledge and intellectual competence of its faculty members available to government, business, labor, and civic organizations; as well as the potential value to the faculty member and the University (University of Pittsburgh Academic Affairs, 1988).

From these passages, it is evident that UPITT and MIT consider faculty ties to external organizations in a very broad sense, emphasizing their additive nature as well its importance for serving the public good.

This interaction, including outside consulting service to and research for government and industry, is of greatest value when it contributes significantly to the public welfare, offers an opportunity for professional challenge and growth, or otherwise enhances the effectiveness of a faculty member's service to the Institute (MIT, 2014).

In addition to civic engagement and the enrichment of research, teaching, and service, the MIT faculty handbook requires all faculty members to report any involvement with organizations outside of the Institute to be reported through their department heads. In large part, these reporting procedures are put in place to eliminate risks related to conflict of interest on the part of the individual faculty member.

Standards and Criteria: Personal responsibility, integrity, and high ethical standards are the principal factors in avoiding conflicts of interest, and the Institute expects that all members of the Faculty will conduct their outside activities in a manner that reflects credit on themselves, their profession, and the Institute without need for specific criteria or rules of conduct. The principal safeguards against abuse are the standards required by professional colleagues and the rigorous process by which the Institute evaluates and selects individuals for appointment and promotion (MIT, 2014).

While faculty members are required to report their outside engagements at MIT, policies at UPITT are less formal. Rather than reporting relationships and agreements with external organizations, UPITT simply lists restrictions on faculty members working with outside organizations. A sample of these restrictions are listed below:

For the protection of the interests of all parties, the faculty member must ensure that such outside interests do not:

- Conflict with responsibilities assigned within the University
- Lead to a conflict of interest
- Since the primary responsibility of the faculty member is to the University, time given to outside activities is not to exceed one day per week (University of Pittsburgh Academic Affairs, 1988)

The MIT and UPITT faculty handbooks both set a precedent for ethical and additive relationships with external organizations but in different ways. In this way, the policies housed within the faculty handbook at MIT emphasize a civic-minded approach to interactions with external organizations and seek to protect faculty members from conflict of interest infringements. In contrast, the passages in UPITT's faculty handbook position faculty members as personally responsible for conflict of interest infractions, relying on self-governance in relationships with outside entities. Overall, the faculty handbook policies detail the requirements of external pursuits and highlight the priority placed on the outside involvement of faculty members for their own scholarly development as well as the reputation of the institution as a whole.

### *Conflict of Interest*

Institutions' conflict of interest policies are relevant to interactions between faculty members and external organizations in that they exist to prevent the influence of personal interest in the sharing of faculty members' intellectual property and to regulate, to an extent, the knowledge-driven relationships between faculty members and organizations outside of the university. Examining institutional conflict of interest policies is essential to understanding the context from which faculty members interact with external organizations, as documented in this study's internet searches. Through this policy, MIT communicates some of its values surrounding these external relationships while simultaneously addressing some associated hazards. Conflict of interest definitions for MIT and UPITT are as follows:

A conflict of interest (COI) can be any situation in which financial or other personal considerations have the potential to compromise a researcher's professional judgment and objectivity in the design, conduct or reporting of research...MIT policy, therefore, requires that MIT officers, faculty, and staff and others acting on its behalf avoid or mitigate real or perceived financial conflicts of interest and ensure that their activities and interests do not conflict with their obligations to MIT or its welfare (MIT Office of Sponsored Programs, 2013).

A potential or actual COI exists when commitments and obligations to the University or to widely recognized professional norms are likely to be compromised, or perceived to be compromised, by a person's outside interests or commitments, especially financial (University of Pittsburgh Research Administration, 2013).

These definitions, while fairly broad, demonstrate the institutional administration's role in maintaining ethical standards in the midst of interactions with organizations outside of the university. These definitions also focus on the diffusion of knowledge for the public good. Both definitions indicate that there are blurry distinctions surrounding conflict of interest. The conflict of interest and faculty handbook policies about external relationships place external ties high on the list of institutional administrators' priorities. These policies apply to both high- and low-resource disciplines within both institutions. Every faculty member, regardless of their respective discipline, must abide by these standards and ethical procedures. In accordance with the university missions of both institutions, these policies reinforce the core purpose of relationships with external organizations: sharing knowledge, serving the public good, and maintaining ethical standards in terms of personal interest throughout the duration of the relationship.

#### *Internet Searches & Curriculum Vitae*

The internet searches and curriculum vitae of individual faculty members provide publicly available evidence of the nature of the relationships between faculty members and organizations outside of MIT and UPITT. Table 1 shows the total number of ties with external organizations for each institution and each disciplinary category within both universities.

Table 1. Total number of faculty ties by academic discipline for both institutions

Academic Discipline	MIT	UPITT
High-Resource	128	169
Low-Resource	226	141

For MIT, there were approximately one hundred more ties for low-resource faculty members than those in the high-resource disciplines. Alternatively, UPITT had a fairly even mix of ties among disciplinary categories. At UPITT, there is a fairly even split of

external ties between the two disciplinary categories. In addition to differences in the number of ties, there were also differences found in the nature of the ties themselves. Table 2 shows the differences in the types of relationships between faculty members and external organizations for the two disciplinary categories at both universities.

Table 2. Nature of relationships to outside organizations by disciplinary category (Percentage of total disciplinary category ties)

Type of Relationship to External Organizations	MIT High-Resource	MIT Low-Resource	UPITT High-Resource	UPITT Low-Resource
Previous Education	15.63	5.31	9.47	14.18
Fellowship	16.41	16.81	7.10	11.35
Grants	7.03	4.42	37.87	12.77
Awards	29.69	15.93	15.38	13.48
Editorial Boards	3.91	14.16	1.18	4.26
Advisory Boards	7.81	14.60	-	2.84
Professional Associations	3.13	4.87	13.01	6.38
Administrative Positions	3.13	3.10	-	2.84
Academic Positions	11.72	9.29	15.98	9.93
Consulting	-	4.24	-	21.99
Endowed Positions	2.34	0.88	-	-
Research Partnerships	0.78	11.95	-	-

A few of the types of relationships had similar occurrences for the two disciplinary categories such as Academic Positions (i.e. previous academic appointments) and Administrative Positions. For other types of relationships, however, there was a more noticeable difference within and across the disciplinary categories at both institutions

Within MIT, low-resource faculty members had a higher number of ties overall. Of those ties, low-resource faculty members had more service-oriented ties than high-resource faculty members (i.e. editorial board, advisory board, professional associations). Meanwhile, faculty members in high-resource disciplines at MIT had higher instances of Award ties. At UPITT, there were fewer ties across both disciplinary categories than MIT. High-resource faculty members had higher instances of Professional Association and Grant ties. On the other hand, low-resource faculty members at UPITT had a high number of Consulting ties whereas high-resource faculty members had none.

Across both institutions, UPITT has a much closer number of external ties between disciplinary categories than MIT. Additionally, MIT has external ties for Endowed Positions (i.e. endowed appointments at other institutions) as well as Research Partnerships while UPITT has none in either category. Similarly, though, the spread of external ties for faculty members in the low-resource disciplines covers many more types

overall than for low-resource disciplines. The high-resource faculty members at both MIT and UPITT have more concentrated ties, in general, than low-resource faculty members.

In addition to examining the nature of the relationships between faculty members and external organizations in terms of their substantive nature, I also examined the organizations with which faculty members interact. Given the differences in the number of ties between the two disciplinary categories, the spread of relationships among organizational types seems consistent. The distribution of organizational types is shown in Table 3.

Table 3. External organizational types by academic discipline  
(Percentage of total disciplinary category ties)

Organizations Tied to Faculty Members	MIT High-Resource	MIT Low-Resource	UPITT High-Resource	UPITT Low-Resource
Private Industry/Firm	3.13	1.77	1.18	-
Non-profit (professional associations, journals, foundations, etc.)	85.94	82.74	75.74	90.78
Government Organizations (e.g. NSF and NIH)	10.94	15.49	23.08	9.22

As illustrated in Table 3, there are fewer ties between faculty members and private firms for both across both institutions. The largest number of relationships for both MIT and UPITT includes those between faculty members and non-profit organizations (i.e. professional associations, scholarly journals, and foundations). MIT has a higher number of faculty relationships with for-profit firms, although these ties are rare. At UPITT, faculty members in low-resource disciplines partner with nonprofit organizations almost exclusively, while high-resource faculty members have the highest number of government ties among the four disciplinary categories.

### Discussion and Implications

Overall, this study was designed to explore interactions between faculty members and organizations external to the university. Additionally, I examined possible variation in these relationships between both institutions and between two disciplinary categories, high- and low-resource. From the results of this study, there is variation among the types of relationships with external organizations across disciplinary categories and institutions. While some relationships rest upon the previous educational experiences of faculty

members and the networks developed at those institutions, others are directly tied to funding opportunities such as grants, endowed positions, and fellowships.

The evidence from this study suggests that faculty members in high-resource departments have higher proportions of relationships with external organizations that may generate funds (i.e. Grants and Awards) than their counterparts in low-resource departments. Examining even further, it seems that many types of relationships are related to service, specifically affiliations with professional associations, editorial board positions, advisory board positions, and even some administrative positions. While these relationships may not directly generate funds for the institution, they may contribute to the perceived prestige of these institutions or the execution of everyday operations, which could indirectly provide funds through those channels. However, those relationships that do not involve the direct exchange of funds may be just as fruitful as those that do involve the direct exchange of funds but through different means. Thus, in institutions' and faculty members' pursuits of new resource streams, it is important to expand the notion of resources to mean more than revenue generation and include other factors such as faculty contributions to their discipline, administrative work, reciprocal relationships with the community, and opportunities for students among others.

Within the scholarly research, examinations of university-industry partnerships are limited to inter-organizational dynamics and those partnerships related to high-resource science, engineering, technology, and math programs; however, this study suggests that low-resource disciplines are engaging in these relationships to a similar extent. The finding of this study suggest that low-resource faculty members are seeking out opportunities, whether financial, or a means to pursue their research and knowledge production, at a similar rate when compared to their counterparts in high-resource departments. This finding suggests, in line with Rosinger et al. (2016), that there is organizational segmentation within institutions and consequently, low-resource departments compete with high-resource departments for funds and opportunities both within and outside the institution.

At the same time faculty members are pursuing these relationships, the findings suggest that external organizations are reciprocally seeking out these relationships with university faculty members as well. Based on the high numbers of ties between external organizations and both high- and low-resource departments, it seems that, in accordance with Slaughter and Leslie (1997), universities are increasingly considered part of the market. Therefore, corporations, non-profits, and government organizations partner with universities by way of their faculty members to gain access to institutional resources

In terms of the climate from which faculty members pursue relationships with external organizations, the information found in both the faculty handbooks and the conflict of interest policies place external relationships at a high priority for both universities. Due to the public good mission of these institutions, these relationships seem to be a component of knowledge sharing with the larger public. While high-resource disciplines may have greater opportunity for these relationships given their proximity to the market, faculty members in low-resource disciplines are engaging in these relationships very similarly per the results of this study (Mathies & Slaughter, 2013).

For faculty members, higher education administrators, and graduate students aspiring to the professoriate, the findings of this study also have significant implications for faculty work. Although exploratory, the results of this study suggest revisions to university policies in light of changing faculty behavior as financial constraints persist. Often, university policies regarding outside work for faculty members only address opportunities with direct income sources, usually consulting. However, the external ties presented here suggest that many relationships between faculty members and external organizations are neither explicit nor are they typically associated with direct sources of income.

The variety of external ties suggests reevaluation of the service component of the faculty career, and faculty work more broadly. While external service, even consulting, has previously been included in definitions of faculty services, the varied nature and high number of ties among faculty members and external organizations found in this study again suggests the need to clarify the service responsibilities of academics (Ward, 2003). Often, promotion and tenure guidelines do not emphasize service at the same level as research and teaching; however, some of the relationships found in this study take a substantial amount of time and have potentially positive consequences for both faculty members and their institutions. Therefore, an expanded conceptualization of what constitutes the service component of faculty work is needed in addition to a reevaluation of how service is counted in the tenure and promotion process for university faculty members as these interactions with external organizations become more pronounced portions of academic work.

As resource constraints within institutions of higher education persist, one way that individual faculty members may seek to mitigate those limitations is through relationships with corporations, non-profits, and government organizations outside of their universities. The findings of this study demonstrate that both the number and substantive nature of these relationships varies by academic discipline (i.e. high-resource and low-resource). The differences in external relationships between disciplinary categories suggests that there is competition for resources between the two groups. The purpose of these relationships is sometime to directly generate revenue, however it can also lead indirectly to resources including not only revenue but other externalities such as prestige and recognition for both the individual faculty member and their institution. Finally, these external relationships may constitute an additional component of faculty members' service roles, expanding typical understandings of faculty work.

### **Limitations**

There are three limitations of this study that should be discussed and addressed in future research. First, there are different norms for faculty members' curriculum vitae across disciplines. Therefore, there may have been different information provided for faculty members across the two disciplinary categories. While this cannot be helped, there may be other forms of data that could be utilized in future studies. For example, at some universities faculty members are required to submit an application whenever they engage in any type of academic activity with an external organization. While this type of



evidence would be difficult to obtain, it would provide a more accurate picture of the current state of relationships between faculty members and organizations outside of universities.

Second, this study does not include all of the disciplines and faculty located within the School of Arts, Humanities and Social Sciences and the School of Science at MIT and the Kenneth P. Dietrich School of Arts and Sciences at UPITT. Due to the comparative nature of this embedded case design, I eliminated academic disciplines from the sample population if they did not exist at both institutions. For example, UPITT does not have an academic program that is comparable to the Earth, Atmospheric, and Planetary Sciences program at MIT, so that discipline and those faculty members were left out of this study. Future studies could strive to include a greater number of academic programs and faculty members to obtain a more nuanced perspective and potentially different ties to external organizations among faculty members.

Third, this study does not address potential variation in the number of faculty ties to external organizations by gender, race, or academic rank. While these factors may strongly influence the number and type of relationships between faculty members and external organizations, those considerations fall outside the scope of this study. Academic rank, in particular, may significantly influence the extent to which faculty members pursue ties to external organizations. In this study, Associate and Full Professors had higher numbers of ties to external organizations, which may be due changes in their professional responsibilities as compared to their junior, tenure-track colleagues. However, given the random sampling procedure used in this study, there were higher numbers of tenured professors in the sample than Assistant Professors, so further study is needed to tease out nuances in external ties across academic rank in addition to considerations of gender and race.

### **Future Directions**

Given the increasing financial constraints and adaptations of universities, more research is needed to evaluate how faculty members develop relationships with organizations outside of colleges and universities, one way in which universities can pursue external funds and opportunities to share knowledge with the larger public (Slaughter & Leslie, 1997). Qualitative research, especially interviews with individual faculty members, could provide a more nuanced approach to understanding this phenomenon and could shed light on the motivations of faculty members to pursue external relationships. At the same time, research is needed that addresses the motivations of private firms and non-profit organizations to engage with university partners. Overall, there is still much more work to be done in this area of higher education research, which will continue to grow as financial constraints continue and colleges and universities find innovative ways to adapt to those declines.

## Disclosure Statement

No potential conflict of interest was reported by the authors.

## References

- Baron, J. N. (1984). Organizational perspectives on stratification. *Annual Review of Sociology*, 10(1), 37-69. <http://dx.doi.org/10.1146/annurev.so.10.080184.000345>
- Barringer, S. N. (2016). The changing finances of public higher education organizations: Diversity, change and discontinuity. *Research in the Sociology of Organizations*, 46, 223-263. <http://dx.doi.org/10.1108/S0733-558X20160000046008>
- Becher, T. & Kogan, M. (1992). *Process and Structure in Higher Education* (2<sup>nd</sup> ed.). London, England: Routledge.
- Becher, T., & Parry, S. (2005). The endurance of the disciplines. *Governing Knowledge* Dordrecht, Netherlands: Springer.
- Becher, T., & Trowler, P. R. (2008). *Academic tribes and territories*. New York: Open University Press.
- Barringer, S. N., & Slaughter, S. (2016). University trustees and the entrepreneurial university: Inner circles, interlocks, and exchanges. In S. Slaughter & B. J. Taylor (Eds.), *Higher education, stratification, and workforce development: Competitive advantage in Europe, the US, and Canada* (pp. 151-171). New York, NY: Springer.
- Creswell, J.W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches* (4<sup>th</sup> ed.). Thousand Oaks, CA: Sage.
- Daniels, G., & Hofer, C. (1993). Characteristics of successful and unsuccessful entrepreneurial faculty and their innovative research teams. *Frontiers of Entrepreneurship Research*, 598-609.
- Doyle, W. R., & Delaney, J. A. (2009). Higher education funding: The new normal. *Change: The Magazine of Higher Learning*, 41(4), 60-62. <http://dx.doi.org/10.3200/CHNG.41.4.60-62>
- Froelich, K. A. (1999). Diversification of revenue strategies: Evolving resource dependence in nonprofit organizations. *Nonprofit and Voluntary Sector Quarterly*, 28(3), 246-268. <http://dx.doi.org/10.1177/0899764099283002>
- Gumport, P. J., & Snyderman, S. K. (2006). Higher education: Evolving forms and emerging markets. In W. W. Powell, & R. Steinberg (Eds.), *The non-profit sector: A research handbook* (2<sup>nd</sup> ed., pp. 462-484). New Haven, CT: Yale University Press.
- John, E. P. S., & Parsons, M. D. (Eds.). (2005). *Public funding of higher education: Changing contexts and new rationales*. Baltimore, MD: Johns Hopkins University Press.
- Johnstone, D. B. (2001). Higher education and those 'out-of-control costs'. In P. G. Altbach, P. J. Gumport, & D. B. Johnstone (Eds.), *In defense of American higher education* (pp.144-180). Baltimore, MD: Johns Hopkins University Press.

- Kaplan, Gabriel. (2009). Governing the privatized public research university. In Morphew, Christopher C. and Peter D. Eckel (Eds.). *Privatizing the public university: Perspectives from across the academy* (pp. 109-133). Baltimore, MD: Johns Hopkins University Press.
- Lee, J. J., & Rhoads, R. A. (2004). Faculty entrepreneurialism and the challenge to undergraduate education at research universities. *Research in Higher Education*, 45(7), 739-760.
- Macintyre, S. (2001, July). *Funny you should ask for that: higher education as a market*. Paper presented at the Australia Institute Conference on The Idea of a University: Enterprise or Academy? Canberra: Australian National University.
- Marginson, S. (2000). Rethinking academic work in the global era. *Journal of Higher Education Policy and Management* 22(1), 23-36.  
<http://dx.doi.org/10.1080/713678133>
- Mathies, C., & Slaughter, S. (2013). University trustees as channels between academe and industry: Toward an understanding of the executive science network. *Research Policy*, 42(6), 1286-1300.  
<http://dx.doi.org/10.1016/j.respol.2013.03.003>
- Mendoza, P., & Berger, J. B. (2008). Academic capitalism and academic culture: A case study. *Education Policy Analysis Archives*, 16(23), 1-24.  
<http://dx.doi.org/10.14507/epaa.v16n23.2008>
- MIT Office of Sponsored Programs (2013). Policy. *Financial conflicts of interest in research*. Retrieved October 1, 2014, from <http://coi.mit.edu/research/policy>.
- MIT (2014). Faculty rights and responsibilities. *MIT Policies and Procedures*. Retrieved October 1, 2014, from <http://web.mit.edu/policies/4/4.5.html>.
- Neaves, G. (2001). Governance, change, and the universities in Western Europe. In W.Z. Hirsch & L. E. Weber (Eds.), *Governance in higher education: The university in a state of flux* (pp. 52-67). London, UK: Economica.
- Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective*. Palo Alto, CA: Stanford University Press.
- Rosinger, K.O., Taylor, B.J., Coco, L., & Slaughter, S. (2016). Organizational segmentation and the prestige economy: Deprofessionalization in high- and low-resource departments. *The Journal of Higher Education*, 87(1), 27-54.  
<http://dx.doi.org/10.1353/jhe.2016.0000>
- Slaughter, S. (1985). From serving students to serving the economy: Changing expectations of faculty role performance. *Higher Education*, 14(1), 41-56.  
<http://dx.doi.org/10.1007/BF00155652>
- Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. Baltimore, MD: Johns Hopkins University Press.
- Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, state, and higher education*. Baltimore, MD: Johns Hopkins University Press.

Slaughter, S., & Taylor, B. (2012) The executive science network: University trustees and the organization of university industry exchanges. National Science Foundation Grant submission.

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation*, 7(17), 137-146.