

Cooperation and Turnover in Law Faculties

Shi-Ling Hsu[†]

shsu@law.fsu.edu

Florida State University College of Law

Abstract

In groups, greater stability generally brings about greater cooperation. An academic unit might follow this standard model, as stability might bring about cooperation and collaboration, except for the fact that many faculty are tenured. Tenure limits the ability to sanction noncooperation or other academically unproductive behavior. This article posits that faculty turnover may substitute as a disciplining mechanism. Replacing a colleague is costly and time-consuming, so the realistic prospect of losing colleagues might, somewhat counter-intuitively, lead to more faculty cooperation. This article sets forth a game-theoretic model showing how the possibility of exit may induce greater cooperation, and presents some empirical evidence in support of the hypothesis that faculty turnover short of some excessive amount does, in fact, produce higher levels of cooperation. The normative implications of this extend beyond the academy: it could be that employment protections such as tenure are counterproductive in terms of creating collaborative environments.

[†] D'Alemberte Professor of Law and Associate Dean for Environmental Programs, Florida State University College of Law. The author would like to acknowledge the help and comments of Joshua Gottlieb, Jake Linford, Jonathan Nash, Wayne Logan, Nicholas Georgakopoulos, Fred Tung, Jeffrey Kahn, Gregory Sisk, and especially Jon Lutz and Mary McCormick and the always-helpful FSU Law library staff. This article benefitted from the research assistance of Kevin Alford, Jazz Tomassetti, Daniel Wolfe, Alexandra Holliday and Jessica Farrell.

1. INTRODUCTION

Academic units work best when there is cooperation. Cooperation is a precursor to research collaboration, which is in turn a powerful predictor of creative productivity (Lee & Bozeman, 2005; Landry, et al, 1996; Adams, et al, 2005). Cooperation leading to collaboration is easiest when there is proximity, lowering the costs of interacting (Florida, et al, 2011). Dense urban areas lower the cost of personal interaction by creating physical proximity, with the result that these areas generate more innovative ideas and therefore more productive (Gleaser & Resseger, 2009; Florida, et al, 2011; Jacobs, 1969). Local agglomeration of research talent and interest is correlated with innovation or economic growth (Jaffe, et al, 1993, Rauch, 1993, Agrawal, et al, 2008). Well-designed workplaces do even better, maximizing the exchange of ideas and instantaneous feedback that fosters innovation and productivity (Schwab & Starbuck, 2016; Gertner, 2012). Proximity can be physical or social, so that certain social networks can be highly effective exchanges and producers of innovation (Agrawal, et al, 2008). In theory, academic units should be the most creatively productive places of all: not only are faculty researchers placed in physical proximity to each other, not only are they allowed to select their own colleagues so as to minimize social distance, but they are given tenure to provide freedom to interact with each other and, it is hoped, innovate.

But creative productivity has many conditions that are necessary but not sufficient. The revolutionary manager of Bell Labs during its heyday, Mervin Kelly, once said, "invention is to be neither scheduled nor coerced." (Gertner, 2012, p. 27) Academic units seem to fail more than they succeed: at most units or departments in most universities throughout the world, the median level of productivity tends to be low, while the within-unit variation tends to be quite large (Ramsden, 1994; Fox, 1983; Meltzer, 1956; Reskin, 1977). A significant part of this untapped potential appears to be low levels of collaboration (Landry, et al, 1996; Lee & Bozeman, 2005; Abramo, et al, 2009).

Why? It is difficult to measure the many idiosyncratic academic factors that could affect collaboration and productivity. Obviously, there are personal characteristics that influence a researcher's abilities and propensities to collaborate, as well as some structural characteristics, such as university, department, or unit policies (Ramsden, 1994). This article seeks to explore some of the determinants of cooperation, but examining in particular external indicators of U.S. law schools. U.S. law schools are extremely sensitive to external indices, most prominently the rankings published annually by U.S. News & World Report ("USNW"). It is no exaggeration, and a constant lament on the part of American law professors, that USNW rankings are the single greatest determinant for a large variety of important outcomes, such as job placements, starting salaries for graduates, and faculty productivity (Stake, 2006). That is the reality of life in American law schools.

But within this very hierarchical ecosystem, variation exists. Among similarly-situated law schools, some faculties are more cooperative than others, some more productive than others, and some experience greater faculty turnover than others. This paper seeks to tie together these and other factors in a study on faculty collegiality and cooperation. While these two dependent variables are not one and the same, they both measure to some extent the intellectual health of a faculty. It is true, of course, that the *raison d'etre* of every law school, even Yale, is legal

instruction. But since it is extremely difficult to measure quality of instruction, and since there is no evidence that quality of instruction affects tangible outcomes such as placement success or graduate starting salary levels, it seems futile to try and measure it. This paper does, however, take account of the highly variable need of law schools for attentiveness to teaching, so that law schools that emphasize teaching are not coded as "unproductive" or "uncollegial," just because they respond rationally to the tyranny of USNW rankings. This article seeks to address this question: given the external demands placed on law schools, what are some of the causal mechanisms of faculty cooperativeness?

Using the law school as the unit of analysis (but obviously not disclosing reporting information about specific law schools), this paper develops a game-theoretic model of *cooperativeness*, the propensity of a faculty to work together constructively and cooperate. Cooperativeness is estimated as a function of two sets of independent variables: the incidence of faculty turnover and extra-academic demands on time. This latter factor is of course heterogeneous within-law school, but some generalizations might be made about life outside work for a law school.

The primary thesis of this article is that counter-intuitively, law faculties with *higher* turnover – short of a level of discouragingly high level of turnover – are likely to be more collegial and more collaborative. I hypothesize that the reason for this is that faculty turnover actually plays a disciplining role in faculty relations. Since replacing departing faculty members is costly and time-consuming, the greater the turnover, the more likely it is that faculty members will attempt to cooperate in order to minimize losses. I also hypothesize that strong extra-academic demands on time negatively impact cooperation. A high quality of life outside of law school, or familial demands on time are examples of extra-academic demands on time that may, over the course of time, draw faculty members away from academic work. Heuristically speaking, cooperation begets cooperation, and shirking begets shirking, so a withdrawal from work is likely to induce others to also withdraw, fraying collegiality and reducing cooperation.

Game theory on cooperation in groups is fairly straightforward in one respect: in groups that are stable in composition over long periods of time, cooperation is more likely to evolve than in less stable, less long-lived groups (Ostrom, 1992). The repeat-play nature of stable groups creates the incentives necessary to punish defectors and free-riders, and creates the kinds of local institutions that effectively police against non-cooperative behavior. Members of stable groups "solve" the coordination problem by sanctioning defectors or non-cooperators.

But does this hold true for academic units? Venal academic politics and disarray are the stuff of lampoon. Political Science Professor Wallace Sayre once quipped that the "academic politics is the most vicious and bitter form of politics *because* the stakes are so low." (Otten, 1973, at 13) But is that kind of irrationality actually the driving force behind academic politics? Why should the triviality of academic matters make people less cooperative, rather than more? Fundamentally, why do some academic units function better than others? This project seeks to provide a game-theoretic analysis of cooperation within an academic unit. For the most part, the model is conventional in its assumptions about behavior.

I hypothesize that academic units with *greater* turnover are more likely to be cooperative than more stable ones. The nature of academic cooperation is such that exit can be a disciplining

force, so that members of unstable academic units may have a greater incentive to cooperate, for fear of losing their colleague. It is costly to replace a colleague. Moreover, there are no guarantees that a replacement will be any better than the departing colleague.

This theory is not inconsistent with the vast literature on cooperation. It simply shows how in an academic setting, certain subtle differences can change the predicted outcomes substantially. Of course, excessive faculty turnover can also be demoralizing, and can be a signal of internal strife. At excessively high levels, dealing with the loss of colleagues can be time-consuming, and can discourage cooperation.

This article debunks the notion that faculty turnover, by itself, is not a sign of ill health. In fact, up to a certain point, beyond which turnover is excessive and demoralizing, more turnover begets more cooperation. To the extent that tenure depresses faculty turnover, it may contribute to unproductive or uncooperative behavior. Beyond the academic setting this article serves as an entry point into a novel perspective on employment protections, and their effects on productivity or cooperation.

2. A MODEL

I assume that each individual faculty member can spend her time working on teaching, scholarship, or spend time outside of the law school altogether. The faculty member's utility function takes the form

$$U(T, S, H)$$

where T and S represent the time spent on teaching and scholarship, respectively, and H represents the time spent on all activities outside of law school life. T , S , and H are themselves functions of other variables:

$$T=T(C,L1)$$

$$S=S(C,L2)$$

$$H=H(P,D)$$

where

$L1$ =vector of law school characteristics affecting support of teaching excellence

$L2$ =vector of law school characteristics affecting support of scholarly production

C =faculty cooperativeness

P =vector of personal quality of life attributes

D =location-specific quality of life

An individual faculty member's time budget is $T + S + H = 1$. Assuming all functions are monotonically increasing and concave, so that there are always positive but diminishing marginal returns to spending more time at every activity, it must be true that in equilibrium the marginal utility of time spent in each of these activities are equal:

$$U_T = U_S = U_H$$

All academic endeavors are affected by the disposition and resources of the law school to support them, and also on collegiality of one's colleagues. If faculty collegiality depresses U_T and U_S , the individual will shift time away from teaching and scholarship and towards extra-academic activities, increasing the amount of time spent outside law school life until U_H is lowered to equate with U_T and U_S again. Also, if there are other pressing demands on an individual faculty member's extra-academic time H , increasing U_H will shift time toward extra-academic activities and away from teaching and scholarship until U_H is again lowered to U_T and U_S .

Quality of life outside of the law school may also bear on individual utility. A unique feature of this model is an attempt to determine the effect of external factors on faculty life. A high quality of life outside of the law school may enhance productivity by increasing happiness, but may also represent higher opportunity costs for working hard on teaching or scholarship. My hypothesis is that a high quality of life or strong demands on time outside the law school might actually lead to a *lower* amount of time on teaching or scholarship. Certainly, demographics such as age and the presence, number, and age of children could bear on the inclination and ability to work at academic matters. Time spent on teaching, scholarship, and extra-academic matters (such as enjoying local amenities, and spending time with family) are all competing expenditures of time.

On the other side of the balance, however, is academic life. To the extent law school support encourages academic endeavors, one might expect *more* of such activity, and a necessary decrease in time spent outside of law school. Also, to the extent that faculty collegiality encourages academic activity (be it teaching, scholarship or academic service), one can expect more of it, and less extra-academic activity.

As everyone recognizes, however, academic life is an interactive affair. Cooperation can be fragile, as shirking likely begets shirking. I posit that cooperation C is a function of other attributes:

$$C=C(R, P, D)$$

where

R =the likelihood of faculty exits, or faculty turnover

P =vector of personal quality of life attributes

D =location-specific quality of life

The following section thus sets out a game-theoretic model of cooperation.

This model also assumes symmetrical preferences for the two players. Of course, preferences are heterogeneous among different individual members within a faculty. A fuller model might account for this preference heterogeneity, as in Manser and Brown (1980), which modeled the effect of heterogeneous preferences on a marital relationship and household decision-making. This simplified model, however, is sufficient to illustrate the narrower assertion made in this paper, which is that cooperation is affected by the prospect of faculty turnover and by other external factors.

2.1 A Game-Theoretic Model of Cooperation

Consider a simple two-person game-theoretic model of two faculty members in an academic unit. In figure 1 below, each of two players A and B have the choice of "fighting" ("F") or cooperating ("C"). By "fighting," I mean actions within the academic unit that are on net destructive, but advantageous to the narrower interests of the fighter. By "cooperating," I mean actions that may compromise the narrow interests of the individual members, but on net, serve the interests of the academic unit as a whole. Obviously, violent differences of opinion can and do exist with respect to what is a "narrow" interest and what serves the broader interest of the academic unit as a whole. However, just about every professor would agree that both of these types of interests exist and are advocated by individual members or factions within academic units. And as noted above, this game-theoretic model makes the simplifying assumption that individual members of a faculty have identical preferences and payoffs.

Fig. 1

		B	
		F	C
A	F	3 3	8 4
	C	4 8	7 7

The most favorable outcome from the group standpoint is C-C, cooperation by both A and B. When individuals work together, their joint work product is likely to be greater, or at least more efficiently produced, in comparison with a work environment beset by infighting. In the game below, joint cooperation produces individual payoffs of 7 each for a group total of 14. However, if either player chooses to fight – over appointments, over administrative matters, over anything – then it may garner a slightly higher payoff (8), and impose upon the other a lower payoff (4), if the other does not retaliate. This assumes that A and B have different preferences for some academic matter. Fighting and getting the desired outcome is assumed to be slightly advantageous for the fighter, but greatly disadvantageous for the non-fighter. While the fighter will get what she wants, it will come at the cost of the fighting itself, which is time-consuming. The non-fighter suffers an additional loss in terms of losing some battle over a substantive issue, and having the faculty move in a direction inconsistent with her preferences. It could be, of course, that the disagreements are small, and the "losers" lose very little. But in practice, strong academic disagreements are common.

The unambiguously worst outcome is one in which both fight. Not only does nobody get what they want, but time and energy is spent fighting. Thus, fighting as a response to fighting yields an individual payoff even lower than that of cooperating.

As depicted, this is a "Hawk-Dove game, also known as a "game of chicken." (Sandler, 2001). The paradigmatic story used to illustrate this game is one in which two teenage boys drive a car at a high speed at each other, and the party that swerves to avoid a collision is deemed to have "lost." This game form illustrates the fragility of cooperation and the advantages of aggression. There are no stable equilibria in this game, although both of the outcomes F-C (A fights, B

cooperates) and C-F (A cooperates, B fights) are Nash equilibria. If the game is *repeated*, as it is in academic units, one would expect that neither Nash equilibrium is stable; A and B may take turns fighting, but periodic forays of aggression by either A or B are punished by retaliation by fighting back, with the result that the parties are pulled back into the C-C equilibrium. For most academic units, all four states exist at different points in time, albeit to widely varying degrees.

It is also common to observe that academic units are often caught in the unfortunate and unproductive F-F (both fight) state for puzzlingly long periods of time. One would expect that over time, punishment for fighting would become institutionalized, and individuals or factions would be pulled into the C-C outcome. The reason for this propensity to fight is specific to academic units: tenure. The penalties for unproductive fighting are not, as they are in most other employment settings, dire. Termination is extremely rare. There is thus little, at least in the form of formal sanctions, to deter faculty members from fighting.

In addition, faculty members have at their disposal one other unproductive response to conflict, also a product of the tenure system: *shirking*. Of course, there are also differences of opinion on what constitutes shirking, but again, just about every professor would acknowledge that this exists broadly in just about every unit. In this model, shirking could be the offloading of administrative work, or the lower productivity in terms of teaching or scholarship. From the viewpoint of the non-cooperative faculty member, the incentives are the same: the individual interests are served, while the institutional interests are disserved.

In this model, I conflate fighting and shirking. Shirking yields the same payoffs as fighting, both for the fighter/shirker, and for the cooperator. I posit that shirking and fighting inconvenience colleagues in different ways, but are comparable in terms of the degree of disamenity. A fighting colleague certainly makes life unpleasant. But so does shirking, as it sows resentment, requiring others to pick up the slack institutionally.

Academic units have more than two members but the value of this model is in illustrating types of responses to types of behavior. For example, if factions form in a law faculty, and are deemed to be pursuing self-serving goals that are viewed by others as being detrimental to the institution, then a likely response would be another faction pushing back, or fighting in response to fighting. Likewise, shirking begets more shirking. There are always some faculty members that are willing (or perhaps forced!) to take up the slack left by shirkers. These overworked members are bitter, of course (and will report low collegiality), but will ultimately perform the work. For purposes of this model, just as a chronically fighting faculty need not be unanimously bickering in order to be underperforming, a chronically shirking faculty need not be populated solely by shirkers in order to be underperforming.

2.2 The Possibility of Exit

This simple Hawk-Dove model omits an important third option for some faculty members: the possibility of *exit*. Exit can be a lateral move to another institution, to another job, or into retirement. In the absence of fighting or shirking, exit is costly, as moving to another institution and another city is time-consuming and stressful. But if there is fighting or shirking, exit provides an alternative to fighting and being mired in the F-F outcome. In Fig. 2 below, exit is

modeled as a superior outcome for B, the exiting faculty member, if her colleagues are fighters. Moving is costly and time-consuming, so even if B is heading for a more cooperative faculty, it would not be quite as good as staying put in a cooperative faculty. But it would be better than staying put in an uncooperative faculty.

For colleagues left behind, their payoff is assumed to be the same as fighting. Even if fighting is relieved by exit, replacing departed faculty members is time-consuming. There is also no guarantee of replacing the exiting colleague with someone more amenable. Or, consider the possibility of shirking: a departed colleague leaves behind a work vacuum similar to that of a shirking colleague. It could be that exit is even *worse* for the remaining colleagues than the F-F outcome, but it is sufficient to assume that the two outcomes yield the same payoffs.¹

Fig 2.

		B		
		F	C	E
A	F	3 3	8 4	3 5
	C	4 8	7 7	

This possibility of B's exit destabilizes the Nash equilibrium F-C (A fights and B cooperates). If B can exit, A's dominant strategy is to cooperate. Knowing that, B's dominant strategy is thus to fight. A stable equilibrium is thus C-F (A cooperates, B fights). This represents the existence of some leeway (within limits, of course) that are granted to those that have the possibility of exit.

What if A also has a possibility of exit? The game must then be modified further to account for that option available to A. This is shown in Fig. 3 below.

Fig 3.

		B		
		F	C	E
A	F	3 3	8 4	3 5
	C	4 8	7 7	
	E	5 3		

What the symmetrical exit option does is make cooperation the dominant strategy for those not exiting. If both players have the exit option, then cooperation becomes the dominant strategy for both. C-C becomes a stable equilibrium. However, C-C is only a stable equilibrium if there is the realistic possibility of exit. Apart from retirement, exit is only possible for faculty members that are productive.

¹ . This model is confined to the case where lateral moves as exit are possible, but not inevitable.

What the possibility of symmetrical exit introduces is a *disciplining effect* on a faculty that might otherwise be inclined to squabble or shirk. Even shirkers might be induced to shirk less, because if too many of their colleagues depart, their institution will eventually shrink, and ultimately, they might be called upon to do some work!

This model elides the possibility that exit will occur anyway, due to unambiguously higher payoffs from lateraling to a higher-ranked law school, or some compelling personal reason. In the hierarchical world of U.S. law schools, a lateral move to a higher-ranked and better-resources school could be such an attractive option that it is a dominant strategy regardless of how one's colleagues behave. But while this model only assumes that exit is possible, but not inevitable, even inevitable exits help to serve as a disciplining force.

The game-theoretic model essentially introduces some endogeneity into cooperation. Because the cooperation is interdependent upon others, it can be affected by external conditions, which would then enter functions for T and S indirectly as arguments in a cooperation function.

2.3 Summarization of Assumptions

To summarize, this model makes and depends upon the following assumptions:

Fighting when the other is cooperating (i.e., not fighting) produces a slightly higher individual payoff for the fighter, but the group payoff is lower. While fighting produces some individual satisfaction, the effort to obtain it is costly. Fighting is commonly observed in academic units, so there must be some individual utility involved. For the non-fighting cooperator, the outcome is clearly worse as compared to a cooperative C-C outcome. Without her consent, some change has occurred in the academic unit that conflicts with her academic life or academic vision. In that same vein, the lack of cooperation suppresses productivity and collegiality. Academic fighting is assumed to be a *negative* sum game. This is also true if instead of fighting, shirking occurs. Group outputs are lower, because non-shirkers are left to carry more of the administrative load, displacing productivity and reducing collegiality.

For the short term, cooperating as a response to fighting produces a higher individual payoff than that of fighting back. Fighting back (or shirking back) may, over the long term, discipline fighting or shirking, but not in the short term. While voting rules and governance procedures in faculties vary widely, academic units depend on comity for cohesiveness and for the generation of the knowledge spillovers so crucial to the productiveness of an academic unit. Mutual fighting is thus assumed to be an unproductive stalemate. Cooperation (or rather, in the face of fighting, capitulation) is thus preferable, because at least it saves on the time and effort spent fighting.

Exit as a response to fighting, for those who are able and inclined to exit, produces an individual payoff that is better than either fighting back or cooperating. Not everyone can exit, but for those that can, exit holds out the prospect of moving laterally to an academic unit that has less fighting or shirking, or has more resources and benefits. While moving is costly, the payoff of a prospective stream of cooperative outcomes over time may outweigh the transition costs.

Exit is a poor outcome for those left behind. Replacing a lost colleague is always costly. There is always the possibility that a lost colleague can be replaced by someone better, but there is a great deal of uncertainty in the hiring process.

2.4 Hypotheses

This model thus produces several testable hypotheses:

Faculties with greater turnover, up to a certain point, will have greater cooperativeness. The core hypothesis of this article is that up to a certain level of turnover – beyond which morale suffers and cooperativeness declines – faculties with higher turnover will have higher levels of cooperativeness. Denoting cooperativeness as C and turnover as R , I test

$$C_R > 0$$

Cooperativeness will generate more time spent on scholarship. Colleagues who engage in their colleagues' work improve it, and learn from it. The point of having academic units is to produce a situation where knowledge and ideas are freely exchanged, maximizing their positive spillover effects. Faculties with greater cooperativeness will induce its members to spend more time on scholarship. Denoting time spent on scholarship as S , I test

$$S_c > 0$$

Academic units with greater turnover will be more cooperative, and will generate more time spent on scholarship. Faculty in academic units that have higher turnover will report higher collegiality. This would produce more attention to scholarship.

$$\text{If } C_R > 0, \text{ and if } S_c > 0, \text{ then } S_R > 0$$

High location-specific quality of life detracts from time spent working on scholarship, will produce more shirking, which will lead to less cooperativeness. A high quality of life, whether it be due to the geographic location of the academic unit or other factors, will produce an incentive to shirk. A high quality of life will also decrease the likelihood of exit, which reduces the disciplining effect of exit, which produces a greater incidence of fighting, shirking, or both. Denoting location-specific factors that might make extra-academic activities more enjoyable at D , I test

$$C_D < 0$$

High location-specific quality of life, and certain personal factors that place competing demands on time, will lead to less time spent on scholarship. Not only might a high quality of life produce an incentive to shirk, certain personal factors might as well. Having small children, for example, is generally (but not always) an incentive to spend less time working. Denoting personal quality of life attributes that might detract from time spent on scholarship as P , I test

$$S_P < 0 \text{ and } S_D < 0$$

I do not pose hypotheses regarding cooperation and time spent teaching. Teaching time is less clearly affected by collegiality and cooperation, and it is unclear how it would be affected. It could be that cooperation in teaching would increase time spent teaching by making it more attractive to do so. But cooperation in teaching could also be time-saving, causing less time to be spent teaching.

3. DATA

3.1 Survey of Law Professors

I administered a survey via email of law professors in U.S. law schools, in May and June 2014. Email addresses were obtained from the directory of law professors published by the Association of American Law Schools. The survey asked respondents to self-report a number of things, most importantly faculty collegiality. Faculty respondents were asked to rate their faculty, on a scale of 1 to 10, with 1 being the worst and 10 being the best, on their faculty's collegiality. They were also asked to estimate the amount of time, in an *average* week, smoothing out over the course of the year,² they spent on: (i) teaching, (ii) scholarship, and (iii) administrative matters. The survey instrument also asked respondents for a number of personal factors, age, years in the legal academy, relationship status, number of children, and their own subjective evaluation of their extra-academic quality of life. Lastly, respondents were asked to identify their law school.

The survey generated 750 responses, about 35% of those opening the email containing the survey solicitation. Those actually receiving and opening the email constituted about 20% of all active legal personnel listed in the AALS faculty directories. Not all of these entries, however, represent tenure-tracked professors or instructors, and the 750 responses yielded roughly 555 usable responses. For this article, only tenure-track professors, Deans, and tenure-track Vice Deans and Associate Deans were included.

3.2 Cooperativeness

One measure of cooperativeness used in this study is thus the collegiality self-reported by professors in the survey instrument from 1 to 10. It is true that collegiality is not the same thing as cooperativeness. However, collegiality is an important precursor to cooperation (Laband & Tollison, 2000; Faria, et al, 2016; Jones, et al, 2012; Fox, 1983).

I also measured research cooperativeness by counting the number of co-authored articles, published in secondary sources – mostly law journals – included in the Westlaw database, from 2005 to 2015, inclusive, by two or more professors from the same law school. The goal of cooperation leading to collaboration is to produce co-authored articles. That ideal outcome is not always attained, but is an objective indicator of the extent of collaboration within a law faculty. I

² Respondents were asked to smooth out their workload over the course of a year, to account for the natural academic fluctuations over a calendar year: more teaching during the academic year, more scholarship over the summer.

utilize a measure that accounts for variations in faculty size: the *rate* of co-authorship, the number of co-authored articles divided by the average number of faculty members.

3.3 Faculty Turnover

Faculty turnover was measured by consulting the AALS faculty directories and manually counting, year by year and law school by law school, the number of new entrants and exits (including retirements) in each year every law school, from 2005 to 2013, except for one year, in which AALS failed to publish a faculty directory. As exit in the above model is some subjective probability of a future lateral move, the survey instrument also asked respondents to report past lateral moves from one law school to another, as a possible predictor of future lateral moves by that same respondent. Again, only changes to tenure-track faculty were counted.

There are two different ways of considering faculty turnover: the number of changes in faculty composition, which would include both newly-hired professors as well as losses to retirement and lateral moves; or just the number of losses. The former might measure the level of disruption accompanying either new hires or losses. The latter view might consider new hires a happy occasion, so that only the disutilities of losing a colleague are worth worrying about. Along a second dimension, in considering the magnitude of the change, turnover might be either the absolute number of changes or losses (depending on which is used), or the number of changes or losses as a fraction of the total faculty. The former might measure the absolute amount of work needed to adjust, while the latter might measure the work of adjustment spread out over the entire faculty. Four different measures were thus tested for turnover, denoted as *R*:

- (i) the total number of faculty losses, over six reported years (one year was missing, because AALS had not published its directory),
- (ii) the total number of faculty losses *plus* new hires, over six years,
- (iii) the faculty losses as a percentage of the average total faculty members during that seven-year period, and
- (iv) the total losses plus new-hires as a percentage of the average total faculty members over the seven-year period.

3.4 Resources

I hypothesize that cooperativeness affects work effort,³ which in the law school context is limited to scholarship.⁴ Collegiality and the inclination to cooperate, however, are strongly affected by resources. While USNW rankings do an infamously poor job of evaluating the quality of instruction or scholarship (Stake, 2006), a law school's resources are likely to be correlated with rankings. In addition, a supplemental ranking system was developed by University of Chicago Professor Brian Leiter and University of St. Thomas Professor Gregory Sisk (hereinafter the "Leiter-Sisk index"⁵). In the extremely hierarchical world of U.S. law

3 I do not measure work productivity directly. U.S. News & World Report reports not just rankings but scores for overall quality, a score provided by academic peers, and a score provided by lawyers and judges. It is an understatement to say that these rankings and scores should be taken with a grain of salt.

4 Administrative work was also included in the survey, but did not yield useful results.

5 The Leiter-Sisk index provides a ranking and citation count for the top 97 law schools. I filled in the bottom-ranked half of law schools with a value slightly more than half of the lowest-scored law school. I developed this by graphing the Leiter-Sisk scores from top to bottom, and estimating the best-fitting straight line extending out

schools, rankings determine the amount of resources devoted to all manner of faculty work. Lower-ranked law schools have higher teaching loads, and fewer resources to support scholarship, such as travel budgets, library support, and supplemental instruction. Lower-ranked law schools will commonly demand of its faculty members more administrative tasks. Given this vast disparity between have and have-not law schools, it is necessary, when considering collegiality and time spend on scholarship, to control for its status in the rankings, as a proxy for its resources. The hypotheses in this research posit that within the rankings, there is variation among similarly-situated law schools, and that this variation can be partially explained by some factors identified herein.

Direct measures are available as well, albeit through the highly-filtered and unreliable law school-reported expenditures that are part of the USNW rankings pretense. USNW reports expenditures per student for instruction, library, and support, and also their expenditures per student for financial aid. USNW also ranks law schools by faculty resources, but does not provide a dollar figure, as it does for student resources (instruction, library, support, financial aid). Respondents were also asked to rate their law school's support of teaching, scholarship, and service, respectively.

3.5 Extra-academic Demands on Time

The model also proposes the hypothesis that a high extra-academic quality of life places a competing claim on a faculty member's time. If a faculty member can be expected to place importance on some extra-academic expenditure of time – such as with small children – that is likely to subtract time from scholarship. The survey instrument asked respondents to rate their "quality of life outside of their law school life." To the extent that other personal factors such as children and relationships place extra-academic demands on time, survey data on this information is tested for significance as well.

In addition, I collected location-specific measures of quality of life for the locations of all U.S. law schools. Two sources of data, producing five indicators, were used. The Centers for Disease Control regularly conducts a survey, known as the Behavioral Risk Factors Surveillance System ("BRFSS"), which asks respondents a large number of health and well-being questions, but most prominently the question "In general, how satisfied are you with your life?" The question is meant to measure the respondents subjective well-being, so some vagueness is intentional and purposeful. Gleaser, Gottlieb & Ziv (2014) grouped respondents by metropolitan statistical area, and also adjusted raw happiness scores by demographics and by demographics and income. Those three measures -- raw BRFSS happiness scores, BRFSS scores adjusted for demographics, and BRFSS scores adjusted for demographics and income, were then assigned to each law school based on their location. Some law schools are not located in any metropolitan statistical area. Glaeser, et al also separated out and estimated happiness for respondents living in a *non*-metropolitan area. That applied, for example, to Grundy, Virginia (the home for the Appalachian School of Law), Urbana-Champaign, Illinois (the home of the University of Illinois College of Law), and Moscow, Idaho (the University of Idaho College of Law).

beyond the end of lowest-scored law schools, and taking the average values along that fitted line. While the lowest reported law school in the Leiter-Sisk index had 177 citations in the relevant period, I estimated the average citation count for the bottom half, unreported law schools, would be 99.

A second source of data for location-specific quality of life was derived from a long-running Gallup poll asking respondents to evaluate their city or town. Since the Gallup poll has been conducted for decades, their results do not map perfectly onto current Census metropolitan statistical areas, and there is no category of non-metropolitan places in each state, as there was in Glaeser et al. For law schools not in one of these Gallup-defined metropolitan statistical areas, I selected the nearest Gallup-defined metropolitan area, usually within-state, as a measure for quality of life in the law school location. For example, Valparaiso Law School, in Valparaiso, Indiana was coded as South Bend, the same location as Notre Dame, one hour away. Of course, there is bound to be some imprecision in this exercise.

Four different measures were tested for personal characteristics that might place extra-academic demands on a faculty member's time, denoted as *P*:

- (i) self-reported quality of life,
- (ii) age,
- (iii) number of children under the age of 18 (up to a maximum of three), and
- (iv) dummies for marriage (including civil unions and domestic partnerships) and for single ("In a Relationship" being a separate category, and lumped in with marriage when utilizing this dummy variable for being single).

Five different measures were tested for the location-specific measures of the quality of life, denoted as *D*:

- (i) the raw BRFSS happiness scores for metropolitan statistical areas,
- (ii) those BRFSS raw happiness scores adjusted for demographic characteristics, by Glaeser, et al,
- (iii) those BRFSS raw happiness scores adjusted for both demographic characteristics and income, also by Glaeser et al,
- (iv) Gallup scores in the 2013 Gallup poll of satisfaction with the City, and
- (v) Gallup scores in the 2013 Gallup poll of city well-being, a weighted index that combines self-reported perceptions of well-being and several health metrics, such as location-specific incidences of obesity and exercise frequency.

Certainly, law school resources have been challenged by a continuing decline in law school applications. When this survey was conducted in 2014, almost all law schools had undertaken some austerity measures in an attempt to compensate for declining applications. It is not clear how the new economic reality facing law schools might have affected the results. It is possible that the prospect of lateral moves had become so small due to economic conditions, that it might have ceased to be a realistic possibility, and therefore ceased to be the disciplining force that I hypothesize.

4. RESULTS

4.1 Cooperativeness

Recall the two dependent variable measures of cooperativeness: self-reported collegiality and co-authorship rates. Recall respondents were asked to rate their law faculty collegiality on a scale of

one to ten. Where cooperativeness was measured by self-reported collegiality, an ordered probit model was used to find determinants for self-reported faculty collegiality. Where cooperativeness was measured by the co-authorship rates, it was necessary to account for the censored nature of the data: 29 law schools had zero co-authored articles over the relevant time period. I used Tobit models in those cases. I test the hypotheses

$$C_R > 0 \quad \text{and} \quad C_D < 0$$

As noted above, resource disparities render faculty life at a top-ranked law school very different from life at a lower-ranked law school. Different measures used by USNW Report are employed to control for this source of disparities. USNW overall scores, peer scores, lawyer-and-judge scores, and academic ranking are tested for significance, as well as the Leiter-Sisk index. All of these were highly correlated, but of these, the USNW Report overall score, averaged over the years 2009-2014, turned out to be the most significant and consistently statistically significant measure to control for ranking effects. Also, as it turns out, self-reported measures of how much a law school supports scholarship is a very strong determinant of self-reported collegiality.

As noted above, the hypothesis is that *up to a certain point*, higher turnover produces higher cooperativeness. In some law schools, turnover is so high that it is demoralizing to the remaining faculty. Replacing departed faculty is time-consuming, so the constant loss of colleagues places real time constraints on cooperation on teaching or scholarship. That is the more familiar story of faculty turnover: that it is either a signal of internal strife or that it is a pure loss to those remaining. It is quite possible that at very high levels of turnover, self-reported collegiality could suffer.

What is that certain point? I dropped observations from respondents at law schools that had a loss rate greater than 42.5 percent, beyond which no significant statistical relations could be derived. A loss rate of 42.5 means that over a six-year period, the faculty would be replacing nearly half of their colleagues departing for either another job or retirement. This resulted in the discard of 35 observations from 20 law schools.

Tables 1a, 1b, 2a and 2b report results of regressions using different measures for two independent variables: faculty turnover and location-specific quality of life. I report these preliminary regressions to understand how to best operationalize these variables. Faculty turnover is new data; location-specific quality of life indicators is existing data used for a new study purpose. It thus seems prudent to fully report these preliminary results in the interests of disclosing the variations therein.

In Tables 1a and 1b, using *self-reported collegiality* as the dependent variable, and the individual respondent as the unit of observation, I report the results of ordered probit regressions to test for, respectively, the best measures of a) faculty turnover, and b) location-specific quality of life indicators. Table 1a reports the outcomes of a series of regressions to determine which measure of faculty turnover is the most statistically significant, choosing as a measure of location-specific indicators the most statistically significant one, as reported in table 1b. Conversely, table 1b reports the outcomes of a series of regressions to determine which measure of location-specific

indicators is the most statistically significant, choosing as a measure faculty turnover the most statistically significant one as reported in table 1a.

In tables 2a and 2b, using *coauthorship rate* as the dependent variable, and the law school as the unit of observation, I report the results of tobit regressions (because of the left-censored data) to again test for, respectively, the best measures of a) faculty turnover, and b) location-specific quality of life indicators.

Table 1a
Self-reported collegiality – faculty turnover measures

Variables	(1)	(2)	(3)	(4)	(5)	(6)
support scholarship	0.316 (13.19)	0.318 (13.26)	0.316 (13.18)	0.318 (13.27)	0.321 (13.41)	0.321 (13.42)
average USNW overall score 2009-2014	-0.011 (-3.63)	-0.012 (-3.73)	-0.013 (-3.69)	-0.014 (-4.02)	-0.014 (-4.02)	-0.014 (-4.46)
co-authorships per faculty member	0.678 (1.56)	0.667 (1.54)	0.675 (1.56)	0.669 (1.54)	0.614 (1.42)	0.612 (1.42)
married	0.195 (1.74)	0.198 (1.77)	0.199 (1.77)	0.203 (1.81)	0.195 (1.75)	0.199 (1.78)
turnover – losses				0.020 (1.85)		0.025 (2.29)
turnover – new-hires plus losses			0.007 (1.13)			
turnover – losses as fraction of total tenure-track faculty		0.865 (1.47)			1.238 (2.17)	
turnover – gains plus losses as fraction of total tenure-track faculty	0.023 (0.72)					
Gallup city satisfaction	-0.029 (-2.14)	-0.026 (-2.00)	-0.029 (-2.17)	-0.027 (-2.10)		
BFRSS happiness					-1.172 (-1.60)	-1.110 (-1.52)
Observations	500	500	500	500	500	500
Pseudo R^2	0.0885	0.0892	0.0888	0.0898	0.0886	0.0888

z values in parentheses

Table 1b
Self-reported collegiality – location-specific quality of life measures

Variables	(1)	(2)	(3)	(4)	(5)
support scholarship	0.321 (13.42)	0.321 (13.45)	0.321 (13.44)	0.318 (13.27)	0.318 (13.27)
average USNW overall score 2009-2014	-0.0150 (-4.46)	-0.0115 (-4.50)	-0.0152 (-4.54)	-0.0138 (-4.02)	-0.0140 (-4.13)
co-authorships per faculty member	0.612 (1.42)	0.628 (1.45)	0.635 (1.47)	0.668 (1.54)	0.710 (1.63)
married dummy	0.199 (1.78)	0.193 (1.73)	0.192 (1.72)	0.198 (1.77)	0.206 (1.84)
turnover – losses	1.362 (2.29)	1.206 (2.33)	0.025 (2.33)	0.020 (1.85)	0.025 (2.34)
BRFSS happiness	-1.110 (-1.52)				
BRFSS happiness adjusted for demographics		-0.674 (-0.89)			
BRFSS happiness adjusted demographics & income			-1.108 (-1.03)		
Gallup city satisfaction				-0.0275 (-2.10)	
Gallup city well-being					-0.044 (-1.81)
Observations	500	500	500	500	500
Pseudo R^2	0.0888	0.0881	0.0883	0.0898	0.0893

z values in parentheses

Viewed together, tables 1a and 1b seem to show that a statistically significant relationship between self-reported collegiality and *either* faculty turnover or location-specific indicators, but not both. The most statistically significant measure of faculty turnover is the absolute number of losses suffered by a faculty over the eight-year period. Also generally statistically significant is the number of losses divided by the total number of faculty. Interestingly, only these two measures of loss, and not the other measures of turnover – losses plus gains, and losses plus gains divided by the number of faculty, counter-intuitively suggesting that only losses, and not faculty additions, contribute to self-reported feelings of collegiality. In fact, these two measures

are statistically significant across most of the models; only in one of the models reported in table 1b are they statistically insignificant.

The most statistically significant, and in fact the only statistically significant measure of location-specific quality of life, was the Gallup index on city satisfaction. In fact, using this measure, none of the faculty turnover measures are statistically significant; using any other measure of location-specific quality of life, the faculty turnover measures become statistically significant. Note that in table 1b, the best measure for faculty turnover, the absolute number of faculty losses, is statistically significant in all models except for the one that includes the Gallup index on city satisfaction (column 4). Not also that in table 1a, measures for faculty turnover are statistically significant when paired with the second-best location-specific quality of life variable, the raw happiness index compiled by the BRFSS. This complementarity between faculty turnover and location-specific quality of life suggests some collinearity. It could be that faculty are inclined to move to places with higher indices for quality of life. Be that as it may, taken together, the results provide some modest evidence for the hypotheses that $C_R > 0$ and $C_D < 0$.

Both models included a dummy variable for the marital status of the respondent. It is possible that some personal quality of life attributes impact one's self-reported collegiality. Given the interactive nature of cooperation, it is possible that a colleague responding to the extra-academic personal demands on time might feel hostility, and report lower collegiality. More likely, however, these personal quality of life attributes place the respondent in a frame of mind that is reflected by their self-reported collegiality. None of the measures of personal quality of life were consistently significant, but the dummy variable for marital status was *almost* statistically significant, across all models.

Self-reported collegiality is one measure of propensity to cooperate. A more objective indicator might measure actual cooperation: articles co-authored with colleagues in the same faculty. To adjust for faculty size, a *rate* of co-authorship – the number of co-authored articles divided by the number of faculty – is used as a dependent variable. This is a censored dependent variable, since 29 of law schools had zero co-authorships. Tables 2a and 2b report Tobit regressions, using law schools as the unit of observation.

Note that in tables 1a and 1b, the unit of observation was the individual respondent, and externally-collected law school data was imputed to each respondent (who reported his or her law school). In tables 2a and 2b, the process is reversed: the unit of observation is the law school, and survey data about the law school is imputed to each law school. So for example, self-reported collegiality for a law school is taken by an average of all of the respondents from that law school. Law schools with no individual respondents at all (32) were dropped.

Table 2a
Co-authorship rate – faculty turnover measures

Variables	(1)	(2)	(3)	(4)
Constant	0.075 (0.30)	0.069 (0.29)	0.114 (0.46)	0.957 (0.39)
Self-reported collegiality	0.0169 (2.87)	0.0175 (3.00)	0.0175 (2.93)	0.0180 (3.05)
average USNW overall score 2009-2014	0.0040 (7.64)	0.0040 (7.60)	0.0036 (5.81)	0.0035 (5.74)
turnover – losses				0.0056 (2.44)
turnover – new-hires plus losses			0.0023 (1.69)	
turnover – losses as fraction of total tenure-track faculty		0.2601 (2.68)		
turnover – gains plus losses as fraction of total tenure-track faculty	0.1180 (2.08)			
Gallup city satisfaction	-0.0034 (-1.24)	-0.0034 (-1.25)	-0.0036 (-1.28)	-0.0034 (-1.24)
Observations	164	164	164	164
Pseudo R^2	-1.466	-1.523	-1.437	-1.499

t values in parentheses

Table 2b
Co-authorship rate – location-specific quality of life measures

Variables	(1)	(2)	(3)	(4)	(5)
Constant	-0.231 (-5.09)	-0.232 (-5.10)	-0.235 (-5.13)	0.069 (0.29)	-0.561 (-1.55)
Self-reported collegiality	0.0188 (3.30)	0.0192 (3.39)	0.0192 (3.39)	0.0175 (3.00)	0.0206 (3.51)
average USNW overall score 2009-2014	0.0039 (7.54)	0.0039 (7.52)	0.0039 (7.50)	0.0040 (7.60)	0.0038 (7.10)
turnover – losses as fraction of total tenure-track faculty	0.280 (2.89)	0.279 (2.87)	0.280 (2.89)	0.260 (2.68)	0.285 (2.92)
BFRSS happiness	-0.175 (-1.12)				
BRFSS happiness adjusted for demographics		-0.140 (-0.87)			
BRFSS happiness adjusted demographics & income			-0.223 (-0.99)		
Gallup city satisfaction				-0.0034 (-1.25)	
Gallup city well-being					0.005 (0.92)
Observations	164	164	164	164	164
Pseudo R^2	-1.516	-1.506	-1.510	-1.523	-1.508

t values in parentheses

This second set of results in tables 2a and 2b, using co-authorship rate as the dependent variable, produces slightly different conclusions from those suggested by tables 1a and 1b. First, self-reported collegiality did in fact result in more co-authorship. The converse was not necessarily true, as in tables 1a and 1b higher co-authorship rates did not cause respondents to self-report higher faculty collegiality.

Second, across all models, the measure for faculty turnover – faculty losses – was statistically significant. As opposed to the results reported in tables 1a and 1b, the results in tables 2a and 2b indicate quite clearly and robustly that faculty turnover positively affects co-authorship rates. This might be surprising since one might expect longer relationships and lower turnover to yield more co-authorships. Evidently not.

Third, none of the location-specific quality of life variables were statistically significant in any models reported in tables 2a and 2b. Taken together, all of the results provide some evidence that $C_R > 0$ but only a little evidence that $C_D < 0$. With the notable exception of one specific measure of location-specific quality of life – the Gallup city satisfaction measure – none were statistically significant.

Fourth, the higher the USNW overall score for 2009-2014, the higher the rate of co-authorship. Taking as a very large caveat the limitations of USNW data, it nevertheless makes intuitive sense that the higher the USNW score, the higher the rates of co-authorship. In the intensely hierarchical law school world, higher scores mean greater resources, smaller teaching loads and, possibly on average, more ambitious scholars. Co-authorship should be expected. However, the higher the USNW overall score for 2009-2014, the *lower* the self-reported collegiality. All other things being equal, self-reported collegiality *declines* as one moves up the USN&W food chain. All of this is also true using the Leiter-Sisk citation counts as well.

4.2 Time Spent on Scholarship

This article posits that collegiality would lead to more collaboration, which would result in greater scholarly activity. Recall that respondents were asked to report, in an average year, the number of hours per week spent in five categories: teaching, scholarship, some other community service of their law school, appointments matters, and other administrative matters. Self-reported scholarship time is the dependent variable in the regressions reported in Table 5. I test the hypotheses that time spent teaching and writing scholarship increases the greater the collegiality:

$$S_c > 0$$

And since faculty turnover affects collegiality, it may indirectly affect time spent teaching and writing:

$$S_R > 0$$

And finally, the hypothesis that external effects may impact collegiality, means that they may also indirectly detract from time spent teaching and writing. I therefore also test the hypotheses

$$S_P < 0$$
$$S_D < 0$$

One might not be surprised to find, and the data did in fact reveal, that a significant number of professors do not spend any time on scholarship at all. Given the censored nature of the data, Tobit models were used to test these hypotheses. Results reported in Table 3 are Tobit.

Table 3
Amount of Time Spent on Scholarship

Variables	(1)	(2)	(3)	(4)
collegiality	0.497 (2.89)	0.425 (2.55)	0.430 (2.57)	0.431 (2.58)
support scholarship	-0.565 (-2.71)	-0.582 (-2.86)	-0.556 (-2.72)	-0.645 (-3.17)
average USNW overall score 2009-2014	0.186 (8.45)	0.204 (8.11)	0.203 (8.12)	0.197 (7.83)
self-reported quality of life				0.722 (3.25)
number children under 18			0.963 (2.51)	
married		2.045 (2.31)		
age	-0.087 (-2.57)			
BRFSS happiness	11.41 (1.99)	9.47 (1.65)	10.48 (1.83)	10.78 (1.89)
Turnover – losses	-0.155 (-1.80)	-0.136 (-1.60)	-0.127 (-1.49)	-0.132 (-1.55)
Constant	13.94 (6.37)	8.55 (5.24)	9.27 (6.07)	4.82 (2.20)
Observations	490	500	500	498
Pseudo R^2	0.0202	0.0191	0.0193	0.0201

t values in parentheses

Collegiality *does* consistently and positively affect time spent on scholarship, providing evidence that $S_C > 0$. This suggests that collegiality make time spent writing and researching more enjoyable and more abundant.

Somewhat surprisingly, institutional support for scholarship actually *reduces* time spent on scholarship. In all model specifications, institutional support for scholarship is negative and statistically significant. However, this may make perfect sense: a law school that provides ample

research assistance for its professors could enable the professor to spend less time on scholarship, but perhaps more efficiently.

Personal characteristic variables that were hypothesized to reduce scholarship were statistically significant, but in the opposite direction. Unsurprisingly, the younger the professor, the more time spent on scholarship. But surprisingly, professors who are married, have children under the age of 18, and self-report a higher quality of life, also spend more time on scholarship. The results seem to reject the hypothesis that $S_P < 0$, at least as it is formulated in this article.

Location-specific measures of quality of life did not tend to be statistically significant. The measure that tended to have the largest statistical significance tended to be the BFRSS raw (unadjusted for demographics or income) happiness scores.

Finally, measures of turnover are not only statistically insignificant, but are of the wrong sign. The results in Table 5 thus provide no evidence that $S_R > 0$. It is surprising that turnover seems to be a determinant of co-authorship rates and perhaps self-reported collegiality, but not time spent on scholarship.

5. DISCUSSION

The results seem to support one central hypothesis of this article: that up to a certain point, collegiality *improves* with greater faculty turnover, rather than deteriorates. Without filtering out law schools that experience extremely high turnover – more than 42.5% over six years – the results would not have supported the hypothesis that $C_R > 0$. That should not be surprising. A certain amount of faculty turnover may be a healthy thing, or may be a healthy sign, but excessive turnover is likely to be exactly what we have been trained to expect it to be: demoralizing, a disincentive to invest in collegiality, and a time sink in replacing them. And with increased collegiality comes increased time spent on scholarship.

It is interesting that collegiality seems only to be much more affected by *loss* instead of the sum of *gains and losses*. In order for a faculty to remain collegial after a loss of a faculty member, it would need to replace that member without too much difficulty; otherwise a loss would be pure loss, with administrative work to be spread among fewer faculty members, and no fresh new faces to replace the lost ones. Further study, expanding on these preliminary results, is needed to understand how to distinguish these two types of measures of faculty turnover, and how they affect faculty collegiality. In any case, it would be prudent to emphasize that other factors, probably too idiosyncratic to measure in this type of study, likely play a larger role in faculty collegiality. Certain cultures may be robust or not, and may exist in certain faculties or not, for reasons not studied here. The results provide little or no support for the hypotheses that collegiality is affected personal circumstances or location-specific measures of local happiness or well-being.

Age, and not years in the academy, is a significant determinant in the scholarship time model. As one ages, professors spend less time on scholarship. That might comport with most expectations of law professors. Aside from age, other personal factors seemed important in determining scholarship time, only in the opposite direction from that hypothesized. The hypothesized

relationship in this article is that attractive and compelling uses of time outside of academia – a partner, children, and general local happiness and quality of life – would draw people away from academia and reduce the amount of time spent on scholarship. These factors actually seem to have the *opposite effect*. The higher quality of life enjoyed by law professors, the more children they tend to have (up to three), and the happier their particular metropolitan statistical area – the more time they spend on scholarship. Married professors (including those in a civil union or domestic partnership) and those in a relationship tend to spend more time on scholarship. More research is needed, but it seems likely that other factors, not considered in this study, have an even greater impact on the time spent on scholarship. It is hard to ignore the very strong relationship between USNW scores and time spent on scholarship. While causality would be hard to determine, it is certainly true that the higher the USNW ranking, the higher the expectations for scholarship. A game-theoretic model would do a poor job of modeling a within-faculty cultural effect.

It is also interesting – at least at first glance surprising – that institutional support for scholarship had the effect of *depressing* time spent on it. The model, as formulated here, would predict that institutional support would increase the marginal value of scholarship time, thereby increasing it. However, it is possible that institutional support for scholarship is a substitute for some scholarly tasks, such as research. Providing funds for research assistance may reduce time spent on scholarship, while potentially increasing output.

The results do not provide any evidence that time spent on scholarship are affected by faculty turnover. I hypothesized that if collegiality is affected by turnover (yes), and scholarship is affected by collegiality (yes), then scholarship would be affected by turnover. The results do not bear this out. It could well be that the linkages are too tenuous and outweighed by other factors. It could be, for example, that greater faculty turnover necessitate more time spent on appointments to replace lost faculty members. More research would be needed.

6. CONCLUSION

The results reported here provide some support for the central hypothesis: that up to a certain point, some faculty turnover either enhances collegiality, or is a sign of intellectual health, not strife. Furthermore, collegiality increases the amount of time spent on scholarship. The results do not go so far as to combine those two findings, as there is not statistically significant link between scholarship and turnover.

It is interesting that as far as life factors go – personal characteristics and location-specific measures of happiness or well-being – scholarship is actually positively affected. A high quality of life, the existence of competing demands for time, and other personal factors, cause professors to spend more time on scholarship, not less. Location-specific factors do not.

Certainly, it would be silly to encourage turnover for the sake of boosting collegiality. And certainly, at high levels of turnover, some serious endemic problem is likely to exist. What the results suggest is that faculty turnover is not necessarily a negative reflection on an academic unit, but may instead be a sign of intellectual health. It could be that a productive faculty means that some will be lost to lateral moves (or used to, before law schools experienced the financial

pressures they currently face, and contracting the lateral market). To the extent that central university administrations view faculty turnover as a failure – the more turnover the greater the failure – this article suggests that such a view could be mistaken. More profoundly, however, the notion that up to a point, more faculty turnover leads to more cooperation suggests that employment protections such as tenure may detract from cooperation, not enhance it. This may also have implications for group situations outside of academic settings: stability of group composition may inhibit cooperation, rather than promote it.

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