Specialization, Firms, and Markets: The Division of Labor within and between Law Firms

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This article uses confidential microdata from the Census of Services to examine law firms' field boundaries. We find that the share of lawyers working in field-specialized firms increases as market size increases and lawyers field specialize, indicating that transaction costs among lawyers, and not just complementarities in clients' demands, affect law firms' field boundaries. Moreover, we find that this pattern is mainly true when looking at fields where lawyers are involved in dispute resolution rather than in structuring transactions. We then analyze which combinations of specialists tend to work in the same firm and which tend not to do so. We relate our results to theories of law firms' boundaries from the organizational economics literature. Our evidence leads us to eliminate risk sharing as an important determinant of firms' field boundaries and narrows the set of possible monitoring or knowledge sharing explanations. (*JEL* D23, J44, L14, L84)

1. Introduction

Economists since Adam Smith have observed that individuals tend to become more specialized as the size of the market increases. Once individuals specialize, economic institutions become necessary to structure relationships among them. When do firms efficiently govern relationships between specialists? When do markets? This organizational issue has become increasingly salient

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as human-capital-intensive sectors such as services have grown, and as public policy controversies about outsourcing in such sectors have arisen.[1]

This article investigates these questions in the context of the US legal services industry. In doing so, we seek to illuminate the role firms play in the organization of human-capital-intensive production. Our empirical analysis relies on confidential law office-level data collected by the Bureau of the Census. A key question in the survey form law offices receive asks how many lawyers in the office specialize in each of 13 areas of the law. This question provides evidence not only on law firms' field boundaries but also on the scope of individual lawyers' expertise. It allows us to examine central issues in the organization of human capital because it provides evidence on both patterns of individual specialization and how specialists are organized into firms.

We employ two empirical approaches. The first approach investigates whether and how law firms' field boundaries are sensitive to the division of labor. We investigate whether lawyers field specialize more as market size increases, and if so whether the share of lawyers working in field-specialized firms increases as well. This provides evidence regarding whether law firms' boundaries reflect only the distribution of individual clients' demands or also reflect Coasian organizational trade-offs: whether firms or markets minimize transaction costs between lawyers. If organizational trade-offs are irrelevant, then firms' boundaries should be insensitive to the division of labor; thus, the share of lawyers working in field-specialized firms should not increase with market size, even if the share of lawyers that field specialize does. Finding instead that both the share of lawyers that field specialize and the share of lawyers working in field-specialized firms increases with market size is consistent with the hypothesis that organizational trade-offs affect firms' boundaries. To ensure that our estimates capture the effects of market size rather than differences in the composition of demand, this approach focuses only on small, relatively isolated geographic markets.

The second approach examines which types of specialists tend to work in the same firm and which tend not to do so. Unlike the first approach, it provides no evidence on whether law firms' field boundaries are sensitive to changes in the division of labor since individuals' fields are held constant. But it provides more detailed evidence with respect to law firms' field composition. We use this evidence to examine various hypotheses regarding the specific organizational trade-offs that affect law firms' boundaries: if law firms' boundaries reflect Coasian organizational trade-offs, what is the nature of such trade-offs? These hypotheses focus on the benefits and costs of revenue-sharing arrangements. In particular, we consider the possibility that law firms' field boundaries reflect variation in the value of knowledge-sharing, risk-sharing, and monitoring costs.

Our first set of results indicates that the share of lawyers who work in field-specialized firms increases with market size, holding constant variables that

1. In the United States, the service sector's share of GDP (not including financial services) increased from 12% to 22% between 1970 and 2000; this sector is currently about 40% larger than manufacturing. In contrast, manufacturing's share fell from 24% to 16% during this time. See *Economic Report of the President*, February 2002, p. 336.

proxy for the distribution of clients' demands. Law firms' field boundaries reflect transaction costs between lawyers, and not just complementarities in clients' demands. We find in addition that this pattern differs across the areas of the law. We find no evidence that law firms' field boundaries narrow as individuals specialize in fields where they are mostly involved in transactional work, where lawyers work in structuring contractual relationships: for example, fields such as corporate law tend to be covered in the same firm as other fields regardless of whether these other fields are covered by the same lawyer. In contrast, we find strong evidence that law firms' field boundaries narrow as lawyers specialize more in fields where expertise is applied in litigation and dispute resolution: fields such as insurance law tend only to be covered in the same firm as other fields when insurance law and other fields are covered by the same lawyer. These patterns indicate that transaction costs between lawyers lead to a segmented market in which transactional services tend to be supplied by law firms that consist of lawyers in multiple fields, but litigation-related services tend to be supplied by field-specialized law firms.

Our second set of results generates the following patterns. We find that lawyers in each of the transactional fields work disproportionately at the same firm as lawyers in nearly all the other transactional fields, regardless of whether these other fields serve business or individual clients. For example, specialists in corporate law tend to work at the same firm as specialists in banking law and probate law, but not specialists in insurance or criminal law. An exception to this general pattern is that patent lawyers generally do not work at the same firm as specialists in other ex ante fields. We also find that lawyers are more likely to work at the same firm with other lawyers in the same field than in any other field.

We conclude that these patterns provide little support for the hypothesis that law firms' field boundaries reflect the risk-sharing benefits of revenue-sharing arrangements. They provide considerable, though not universal, support for the hypothesis that firms' field boundaries reflect differences in the value of referrals. They provide limited support for the proposition that law firms' field boundaries reflect differences in agency costs related to fields' cognitive closeness. Additional evidence, preferably direct evidence on referral and monitoring patterns, is needed to distinguish definitively among these hypotheses.

The rest of the article is organized as follows. Section 2 describes our analytic framework, relates it to the context of law firms, and generates a series of testable hypotheses. Section 3 presents the data. Section 4 presents results from our first approach, which investigates whether and how firms' boundaries change with the division of labor. Section 5 presents and discusses results from our second approach, which analyzes patterns in law firms' field composition. Section 6 concludes.

2. Understanding the Boundaries of the Law Firm

2.1 Law Firms and the Scope of Client Demands

A prevailing view of the field boundaries of law firms is that they are *client centered*. Support for this view can be found in the study of Heinz and

Laumann (1982) of the Chicago bar.[2] This study, which is perhaps the leading sociological analysis of the organization of professional services, stresses how the type of client served shapes the organization of legal services. Heinz and Laumann conclude that the bar is divided in two "hemispheres" that correspond to client type: the corporate bar and the individual bar. Lawyers in these two hemispheres are so distinct in their training, practice, and socioeconomic characteristics so as to be considered within different professions. These authors conjecture that this division of the bar's social structure is reflected by a sharp distinction between law firms that serve corporate and individual clients; those that serve corporate clients do not serve individual clients and vice versa. Within each of these "hemispheres," and particularly in the corporate one, lawyers will tend to specialize, but the firm will "feel the pressure to serve a broad range of the demands of the firm's clients" (1982: 131).

An analogous, demand-centric view of firms' scope exists within the industrial organization literature as well. This view posits that scope economies can be demand based, derived from "one-stop-shopping" economies. A precise modern statement of this view holds that in the presence of *shopping costs*,[3] multiproduct firms exist to "offer a variety of products at a single destination" (Klemperer and Padilla 1997: 472).[4] The scope of the firm is then shaped by firms' desire to capture externalities between product lines due to these shopping costs. As applied to legal services, this view has implications that are similar to the sociological view depicted above: law firms' field boundaries should reflect the scope of client's needs. Transaction costs associated with mediating relationships between lawyers in different fields play no role in this analysis.

An implication of a purely demand-centric view of law firms' field boundaries is that doubling market size by simply replicating the demands of existing clients should not affect law firms' field boundaries, since replicating demands does not alter the scope distribution of clients' demands. More narrowly, this view implies that the share of lawyers working in field-specialized firms should not increase as market size increases, even if the share of lawyers who field specialize does.

2.2 Organizational Trade-offs and Law Firm Boundaries

Since Coase (1937), economists have viewed firms and markets as alternative institutional structures through which economic activity is coordinated. Whether firms or markets efficiently mediate the division of labor, and thus best promote specialization, depends on which structure minimizes transaction

2. The study is based on hour-long interviews with 777 Chicago lawyers. Being the first in-depth study of a profession, it is now considered a classic in sociology.

3. Shopping costs are the real or perceived costs of using additional suppliers (Klemperer 1992).

4. Strategy researchers have also argued that offering demanders one-stop shopping is a particular advantage of broad scope (e.g., Porter 1985).

costs. Modern theories of organization have since built from Coase by proposing what differentiates transacting within versus between firms, then analyzing the trade-offs associated with using firms and markets. Although the details of these theories differ, they share the general view that firms' boundaries reflect *organizational trade-offs*; in this context, that they reflect whether transaction costs between lawyers are minimized within firms or by markets. What distinguishes this view from the demand-centric views above is that it emphasizes that firms' boundaries are determined not only by demand patterns (e.g., whether clients find expertise in different fields complementary) but also by how relationships between suppliers are best organized.

In contrast to the purely demand-centric view, the Coasian view can easily accommodate the possibility that a replication of demands (and concomitant increase in the number of lawyers) could lead law firms' boundaries to change through changes in the degree lawyers specialize. Suppose lawyers field specialize in large markets, but not small markets. In small markets, law firms will not be field specialized because the lawyers themselves are not; a law firm can be no more specialized than any of its lawyers. But in large markets, law firms may or may not be specialized, depending on whether firms or markets minimize transaction costs between lawyers who specialize in different fields. Finding that lawyers are more likely to work in field-specialized firms as market size increases, holding constant the distribution of demands, is therefore consistent with the proposition that organizational trade-offs, and not just the scope of clients' demands, shape law firms' field boundaries. Note that this implication does not depend on whether fields are defined broadly or narrowly, as long as field boundaries are defined consistently across markets and when considering individuals and firms. Note also, however, that the empirical usefulness of this implication depends critically on lawyers field specializing more as market size increases; we show below in Section 4 that this is indeed the case across a broad range of fields and market sizes.

But which specific organizational trade-offs matter in determining law firms' boundaries? Analysis of this question requires more detailed knowledge of the context and the relevant organizational theory. The subsections that follow characterize fields of the law, how law firms' boundaries are defined, and the existing theoretical literature, and generate specific testable implications with respect to various classes of theories of law firms' field boundaries.

2.2.1 Characterizing Fields of the Law. Fields of the law vary in the source and timing of demand. Some fields are "individual" fields: the bulk of demand comes from individuals rather than businesses. Examples of such fields include criminal law, domestic relations law, and probate law. Other fields are "business" fields; these tend to be demanded by businesses and include fields such as corporate law and tax law. Within these categories, fields vary in their contractual timing. Some are "ex ante" fields that are demanded before a contractual arrangement is agreed upon, when lawyers are involved in drafting agreements and predicting the contingencies that agreements should address.

Table 1. Share of Time on Business Clients, Days per Month in State or Federal Court—Selected Fields

Specialty	Share of time business clients (%)	Days per month in state or federal court	*n*
Commercial law: banking	91.3	6.4	8
General corporate	86.1	1.8	12
Municipal law	35.6	0.5	6
Environmental law	82.3	2.8	12
Real estate	69.9	2.9	43
Tax	64.7	1.3	32
Patents, trademarks, or copyrights	89.8	2.0	25
Personal injury—defendant	88.3	11.6	20
Personal injury—plaintiff	7.6	13.9	16
Criminal	10.0	16.7	9
Divorce (including family, adoption, etc.)	8.0	16.7	7
Probate (wills and trusts)	3.8	6.0	4

Source: Chicago Lawyers II survey.
Fields are as listed on Chicago Lawyers II survey forms.

Others are "ex post" fields that tend to be demanded after contractual terms are agreed upon and take force, when lawyers may be involved in dispute resolution and litigation.

Table 1 reports evidence on how fields differ in these dimensions. We report results from an extensive interview-based survey (Chicago Lawyers II) of Chicago lawyers completed in 1995 by Jack Heinz and Bob Nelson of the American Bar Foundation.[5] Questions in this survey ask privately practicing lawyers what share of their time they spend on business, nonbusiness organizational (e.g., governmental), and individual clients, and how many days per month they spend in state and federal court. Days per month in court is a good indicator for the degree to which lawyers provide "ex ante" or "ex post" services. We report the average response for fields that closely match those defined in our data.[6] The table indicates a sharp break in the share of time lawyers in

5. These data were collected as a follow-up project to Heinz and Laumann (1982). Heinz and Nelson surveyed a random sample of Chicago-based lawyers taken from the State of Illinois' lawyer registration records. They collected the data by conducting 1-hour interviews with subjects at their offices. In all, 788 lawyers from this random sample were interviewed, 526 of whom were in private practice. See Heinz et al. (1998) for more details. We are extremely grateful to Jack Heinz and Bob Nelson for sharing their data.

6. Even these do not always match perfectly. For example, the Chicago Lawyers II survey does not include a separate category for "insurance law," but the Census data does. Jack Heinz reported to us that he believes that most of those reporting "insurance law" to the Census would classify themselves in the Chicago Lawyers II survey as "personal injury defendant." Fifteen lawyers in the Chicago Lawyers II report themselves to be specialists in "securities"; these lawyers would probably be classified as "corporate" in the Census data. These lawyers' responses to the time allocation and days in court questions are very similar to the "general corporate" lawyers reported in Table 1.

Table 2. Lawyers by Primary Field of Practice, 1982–92

	Number of lawyers			Share of lawyers			Change in share	
	1982	1987	1992	1982 (%)	1987 (%)	1992 (%)	1982–87 (%)	1987–92 (%)
Total	296,344	378,277	435,219	100.0	100.0	100.0		
Banking	10,672	20,715	20,700	3.6	5.5	4.8	1.9	−0.7
Corporate	21,866	35,462	36,678	7.4	9.4	8.4	2.0	−0.9
Governmental	3829	5709	6235	1.3	1.5	1.4	0.2	−0.1
Environmental			7051			1.6	N/A	N/A
Tax	10,656	13,307	12,023	3.6	3.5	2.8	−0.1	−0.8
Real estate	16,078	28,341	26,663	5.4	7.5	6.1	2.1	−1.4
Negligence defendant	16,861	26,587	29,303	5.7	7.0	6.7	1.3	−0.3
Patent	5067	6482	8716	1.7	1.7	2.0	0.0	0.3
Insurance	10,584	19,125	26,664	3.6	5.1	6.1	1.5	1.1
Criminal	5691	7446	9752	1.9	2.0	2.2	0.0	0.3
Domestic	6501	9756	11,295	2.2	2.6	2.6	0.4	0.0
Negligence-plaintiff	13,509	23,179	31,631	4.6	6.1	7.3	1.6	1.1
Probate	12,543	14,416	15,005	4.2	3.8	3.4	−0.4	−0.4
Other	31,601	51,441	66,997	10.7	13.6	15.4	2.9	1.8
General practice	130,886	116,311	126,506	44.2	30.7	29.1	−13.4	−1.7

Source: Bureau of the Census (1984, 1990, 1996).
Note: Environmental law was a new category on the survey form in 1992.

different fields spend on business clients. Specialists in personal injury (on the plaintiff's side of the bar), criminal, divorce, and probate law spend almost all of their time on individual clients. The rest (except specialists in municipal law, which predominantly have governmental clients) spend the majority of their time on business clients. Likewise, personal injury, criminal, and divorce specialists spend more days in court than lawyers in any of the other specialties, consistent with the idea that demands for expertise in these fields tend to be more "ex post" than other fields. Although the number of observations is very low, probate specialists appear to spend less time in court than other specialists that serve individual clients, reflecting that the demand they face tends to be more for "ex ante" services.

2.2.2 How Are Fields Related to One Another? Fields of the law are related to each other in ways not fully captured by the classification above. One way is that aggregate demand for expertise in some combinations of fields tends to be correlated. Part of this correlation reflects that demands in some business fields are procyclical and part reflects that litigation leads to demands on both sides of the bar. Table 2 provides evidence of this. Here, we report the Census' published estimates of the number and share of lawyers in each field in 1982, 1987, and 1992, and the changes in these shares. One important pattern is that the share of lawyers specializing in banking law, corporate law, and real estate law

increases sharply between 1982 and 1987, then decreases sharply between 1987 and 1992.[7] We believe that this reflects cyclical changes in demand for expertise in these fields, which increased during the mid-1980s economic expansion and decreased after the 1987 stock market crash and during the early 1990s recession. Another notable pattern is that the share of lawyers specializing in insurance law and in negligence work on the plaintiff's side of the bar increased throughout this period. We believe that this reflects that litigation-related demands have steadily increased throughout this period and beyond.

A second way fields are related to each other is through cognitive connections. Fields are distinguished by the area of the law from which they draw, but some areas of the law are cognitively closer than others. Direct evidence of cognitive connections is unavailable. However, some indirect evidence is available from which combinations of fields nonspecialists cover, since one would expect nonspecialists' field coverage to reflect scope economies in learning as well as the scope of their individual clients' demands. We cannot analyze nonspecialists' field coverage with our data, but such evidence is available in Heinz et al. (1998), who analyze the "patterns of co-practice" of 788 randomly selected Chicago-based lawyers. An important finding from this study is that, whereas some business-oriented fields have strong cognitive overlap, others do not. It is not unusual, for example, for nonspecialist lawyers who work in corporate law to also work in banking and tax law, but it is highly unusual for them to work in some of the other business-oriented fields: none of the lawyers in their sample who spend at least 5% of their time in corporate law also spend at least 5% of their time in real estate law, environmental law, or government-related subfields such as utilities and municipal law. The fact that individuals who work in corporate law rarely also work in real estate law or environmental law is particularly interesting because demanders of expertise in corporate law generally also demand expertise in these other fields; it is thus highly suggestive that corporate law has a very weak cognitive relationship to real estate and environmental law.[8]

In sum, one can characterize business fields along several dimensions, in addition to whether lawyers in these fields serve individuals or businesses. One is along the lines of the timing of demands: whether the field is an "ex ante" or "ex post" field. Another concerns the degree to which demands are correlated: demands for expertise in corporate law, banking law, and real estate law appear to be strongly correlated at the macrolevel during the period leading up to our sample. A third revolves around fields' cognitive connections: banking and tax law seem to have closer cognitive connections to corporate law than other business fields such as environmental and real estate law. The next subsection discusses the theoretical literature's analysis of the

7. A similar pattern holds for negligence defendant between 1982 and 1987, but the decline in this share between 1987 and 1992 is far smaller than for banking, corporate, and real estate.

8. The results of Heinz et al. (1998) are similar to those in Heinz and Laumann (1982), which analyzes data from 1975. One of these authors' main inferences is the conclusion we reach below: the organization of legal services does not simply reflect cognitive relationships between fields.

benefits and costs of organizing lawyers in the same versus different firms, and how these benefits and costs might vary along these dimensions.

2.2.3 Law Firms' Field Boundaries and the Benefits and Costs of Revenue-Sharing Arrangements. Regardless of their legal form of organization, law firms in the United States are always structured around "ex ante" revenue-sharing arrangements among the firm's partners, that is arrangements that are in place before individuals obtain information about specific economic opportunities and have the feature that all individuals receive some share of revenues from the services any of them supply (although the share the involved individuals receive may be higher). We assume throughout that firms' field boundaries correspond to the fields that partners cover.[9] From the perspective of the partnership, whether a field is covered by the firm is equivalent to whether an individual with expertise in the field is included in the revenue-sharing arrangement. Thus, when discussing the organizational trade-offs with respect to law firms' field boundaries, we emphasize the benefits and costs associated with ex ante revenue-sharing arrangements.[10]

The benefits and costs of revenue-sharing arrangements, as applied to firms' horizontal boundaries, have been analyzed by Gilson and Mnookin (1985) and Garicano and Santos (2004). These articles differ in their analysis of the benefits; the former emphasizes revenue-sharing arrangements' risk-sharing properties, the latter emphasizes how such arrangements affect individuals' incentives to share knowledge with each other. In both, the cost of such arrangements is that they encourage free riding.

Risk Sharing and the Correlation of Demands. Gilson and Mnookin (1985) theorize that the benefit of revenue-sharing arrangements is that they facilitate risk sharing, insuring lawyers against fluctuations in demand for their expertise. In an example, they show that this provides a rationale for specialists in securities law and bankruptcy law to be partners in the same firm; clients' demand for the former and latter tends to peak at different points in the business cycle. This view of the benefit of revenue-sharing arrangements implies that law firms' field boundaries should be shaped by correlations between

9. Thus, we rule out the possibility that the only individual in a firm that covers a particular field is an associate.

10. We focus on issues that bear on revenue-sharing arrangements' effect on firm scope. Revenue-sharing arrangements may have other roles as well, such as encouraging the hiring of high-ability individuals (Levin and Tadelis 2005). Similar to Holmstrom and Milgrom (1994) and Holmstrom (1999), our account emphasizes how firms can outperform markets by weakening individual incentives. Because the trade-offs we investigate are different, so are our predicted relationships between specialization (job design) and optimal organizational form. We do not address other incentive problems, such as those deriving from the risk of expropriation of specific investments (Klein et al. 1978) or to the role of physical assets in providing incentives in the presence of incomplete contracts (Grossman and Hart 1986; Hart and Moore 1990), which may be more important in other environments.

fields' demands: the greater the positive correlation between fields' demands, the less likely it should be for specialists in these fields to work in the same firm.

The time series evidence in Table 2 suggests that demands for expertise in banking, corporate, and real estate law are positively correlated during the period leading up to 1992, the time of our sample. Finding that specialists in banking law, corporate law, and real estate law tend to work disproportionately with specialists in other fields and not each other would therefore suggest that risk sharing is an important determinant of law firms' field boundaries. Conversely, finding that specialists in these fields tend to disproportionately work with one another would indicate that, whereas revenue-sharing arrangements may benefit lawyers by shielding them from risk to some extent, other factors are generally more important in shaping the patterns we uncover with respect to law firms' field boundaries.

Referrals and the Timing of Demand. Garicano and Santos (2004) propose that the benefit of ex ante revenue-sharing arrangements is that they facilitate the exchange of referrals: knowledge about economic opportunities. The logic of their analysis, discussed in the context of legal services, follows.

Suppose a client approaches a lawyer with a problem that the lawyer could solve himself, but does not have a comparative advantage in solving. It would therefore be efficient for the lawyer to refer the problem on to another lawyer. But the lawyer faces a dilemma. If he simply tells the other lawyer about the client and the client's problem, this gives away information about the opportunity and the rents associated with his knowledge of the opportunity. As a consequence, referrals take place under asymmetric information, with an information asymmetry that favors the referrer. This information asymmetry would lead lawyers to be concerned that other lawyers will only refer the least valuable opportunities. For standard reasons related to adverse selection, it follows that there will be too little trade in referrals, and lawyers will hold on to problems they do not have a comparative advantage in addressing.

The analysis of Garicano and Santos (2004) shows how ex ante revenue-sharing arrangements—revenue-sharing arrangements that are agreed upon before parties know exactly which opportunities they will encounter—facilitate the exchange of referrals. Once in place, these arrangements weaken lawyers' incentives to hold on to problems that their partners have a comparative advantage in solving because they share revenues with their partners even when no referral takes place. It follows that the benefit of ex ante revenue-sharing arrangements—of transacting "within a firm"—should be greater, the more valuable are referrals.

The extent to which referrals are valuable varies with clients' ability to diagnose the scope of their legal problem themselves; referrals are not valuable when clients can easily match themselves to the lawyer or lawyers who have a comparative advantage in addressing their problem. One would expect referrals to be valuable when clients have ex ante demands because it tends to be difficult at that point in contractual time for nonexperts to diagnose the field

scope of their legal problem.[11] Clients demand ex ante services in anticipation of potential future disputes among parties or conflicts with the law; these problems often potentially can involve many different areas of the law. (Does this deal have important tax implications or create regulatory problems?) Legal expertise is valuable for determining which of these areas are important, and this would make referrals valuable. In contrast, one would expect cross-field referrals to be less valuable for ex post demands, as it tends to be far easier for clients demanding ex post services to determine the range of relevant legal expertise. The interaction between a client's situation and the law is often clear, even to nonexperts. For example, expertise in insurance law is valuable for a company with a complicated insurance claim; expertise in torts is valuable to a company being sued for negligence. Although legal expertise is generally valuable for such clients, referrals across specialists in different areas of the law tend not to be because the scope of clients' legal problems has been revealed at this point in contractual time.

Applying this to our context, if ex ante revenue-sharing arrangements facilitate the exchange of referrals, then one would expect law firms' field boundaries to reflect this: specialists in ex ante fields should work disproportionately with specialists in each of the other ex ante fields, but not with other specialists in their own field or in ex post fields. In contrast, specialists in ex post fields should tend to work in field-specialized firms.

Free Riding, Monitoring, and Cognitive Connections between Fields. The general drawback to revenue-sharing arrangements, the drawback to transacting within firms in this context, is that free-rider problems emerge. Individuals do not appropriate the full value of their efforts under such arrangements, and this weakens effort incentives (Alchian and Demsetz 1972; Holmstrom 1982). Revenue-sharing arrangements could weaken lawyers' incentives to do high-quality work. The agency costs associated with such arrangements is one reason firms' boundaries might narrow as market size increases and individuals specialize.

Agency costs associated with free riding should vary with fields' cognitive connections if such connections allow lawyers to monitor each other more effectively. Partnerships have other incentive instruments in addition to revenue-sharing arrangements, such as bonuses, which can mitigate free-rider problems and thus decrease the cost of transacting within firms. Using these effectively requires that lawyers be able to assess each others' output, and this would be more difficult when lawyers work in fields where the fundamental legal doctrines have less overlap.

It follows that, other things being equal, lawyers in fields with strong cognitive connections should be more likely to work in the same firm than those with weak connections, since the monitoring cost of transacting within firms is lower. In

11. An exception to this is when clients have in-house lawyers, whose duties often include determining which outside lawyers to hire. An interesting question that we cannot investigate with our data is whether the presence of in-house counsel affects law firms' field boundaries.

light of the evidence presented above, one would therefore expect specialists in corporate law to work disproportionately with specialists in banking and tax law, but not with specialists in real estate and environmental law, since the cognitive connections between corporate and these latter fields appear to be weaker.[12]

3. Data

Our data are from the legal services portion of the 1992 Census of Services. Like in other industries, the Census surveys individual establishments in this industry. Forms are sent to all law offices that surpass a size threshold (approximately 10 employees) or that are part of multioffice law firms. In addition, forms are sent to a random sample of smaller offices, where the sampling rate is set to obtain reliable Metropolitan Statistical Area (MSA) and national-level estimates. In all, the Census sends survey forms to law offices that account for approximately 80% of revenues in each MSA, and in the industry as a whole. The Census publishes MSA-level estimates derived from this survey in Bureau of the Census (1996). In this article, we use establishment-level data that are not publicly available. Our data are therefore at the law office level; when an office is part of a multioffice firm, we can identify the firm of which it is part.

Along with standard questions regarding revenues, payroll, and employment, the survey asks law offices industry-specific questions that provide detailed information about the distribution of lawyers across fields of the law (see the Appendix for the survey form). It asks respondents to classify the lawyers who work in the office by their primary field of specialization and report how many are in each category: how many lawyers at the establishment work primarily in corporate law, for example. Respondents are asked to classify "lawyers who are not primarily engaged in a single specialized field" as general practitioners. Note that the label "general practitioner" here need not imply that a lawyer works in all fields; it instead means that his or her work commonly extends across more than one of the fields the Census defines. The survey thus provides unusually detailed information about organization and specialization at the establishment level. We use data from 1992 because it is the most recent year for which the Census asks about lawyers' fields.[13]

12. Similar implications would obtain from other theories where fields' cognitive connections affect the benefits or costs of transacting within firms, but for reasons other than agency problems. For example, a theory in the spirit of Levin and Tadelis (2005) in which closer cognitive connections increase the efficiency of firms relative to markets by permitting lawyers to better insure the quality of their coworkers would generate similar implications.

13. There is one small ambiguity in the survey: the form is not clear on whether lawyers should report according to their range of marketable expertise or the fields in which they actually worked during the sample year. This distinction matters for lawyers who are knowledgeable in multiple fields, but happens to work in only one field during the sample year. We do not see a way of definitively resolving this ambiguity. We discuss our results presuming that lawyers fill out the survey in a way that classifies themselves in the same way they present themselves to each other and clients—that is, according to the range of their marketable expertise—but we do not have any way of knowing for sure. We suspect that this distinction matters for a small fraction of lawyers; most lawyers probably work in all the fields in which they have marketable expertise at some point during the year.

Table 3. Summary Statistics—Lawyers, Law Offices, and Law Firms

	Lawyers	Offices	Firms
N	219,033	26,151	23,465
Average number of lawyers		3.56	3.65
Share specialized	0.71	0.37	0.28
Share multiestablishment	0.28	0.05	0.02

Averages and shares computed using sampling weights supplied by the Bureau of the Census.

In all, the Census received responses to these organizational questions from about 28,000 law offices. We omit from our sample law offices with inconsistent responses for the total number of lawyers; for example, those where the number of lawyers summed across fields do not equal the number of partners plus the number of associates. Omitting these offices, our "full sample" includes 26,151 law offices and 219,033 lawyers. These constitute about 17% of law offices and 50% of privately practicing lawyers in the United States in 1992.

Table 3 contains some summary statistics. All averages and shares are computed using sampling weights supplied by the Census. The average law office has 3.56 lawyers and the average firm has 3.65 lawyers, a reminder that the average law firm in the United States is a very small, single-establishment enterprise. Seventy-one percent of the lawyers specialize in one of the Census-defined fields. Thirty-seven percent of law offices and 28% of firms are specialized, in the sense that all lawyers in the office or firm specialize in the same field.[14] Twenty-eight percent of lawyers work in multiestablishment firms, but only 5% of offices are part of multiestablishment firms. Although only 2% of the law firms have multiple locations, those that do are much larger than most single-establishment firms.

Table 4 provides a more detailed look at specialization patterns. We report these patterns for each of the Census-defined fields. To facilitate analysis both here and below, we present patterns for groups of fields that differ in the source and timing of demands. "Individual fields" are those where all or nearly all demands come from individuals; in our data, these include criminal, domestic relations, negligence-plaintiff, and probate. We label the rest of the fields, fields where a substantial part of demand comes from businesses, as "business fields." We classify fields within these groups by whether they are "ex ante" or "ex post" fields, following both the evidence we describe in Table 1 and Abrams' (2000) detailed account of what lawyers who specialize in different fields do. Among the business fields, we classify insurance and negligence defendant as ex post fields, and the rest as ex ante fields. Expertise in insurance law is generally demanded to assess insurance claims or provide defense for

14. If all lawyers in a firm are classified in "other specialized field," we do not count this as a field-specialized firm because we do not know whether the lawyers are all in the same field (e.g., antitrust law) or multiple fields (e.g., antitrust law and labor law).

Table 4. Shares of Lawyers in Specialized Fields, Offices, and Firms

	Share of lawyers in specialized fields	Share of lawyers in specialized offices	Share of lawyers in specialized firms	Fraction of specialists in specialized firms (%)
Ex ante business field	0.270	0.047	0.044	17.4
Banking	0.047	0.006	0.005	12.9
Corporate	0.083	0.004	0.004	4.8
Environmental	0.016	0.001	0.001	6.2
Governmental	0.015	0.002	0.002	13.7
Patent	0.020	0.014	0.014	70.4
Real estate	0.062	0.014	0.013	22.7
Tax	0.028	0.005	0.005	17.9
Ex post business field	0.128	0.044	0.044	34.5
Insurance	0.061	0.025	0.023	40.8
Negligence defendant	0.066	0.018	0.018	27.2
Other specialized field	0.155			
Individual field	0.158	0.071	0.071	44.9
Criminal	0.024	0.012	0.012	49.7
Domestic relations	0.026	0.009	0.009	34.8
Negligence-plaintiff	0.074	0.042	0.041	57.1
Probate	0.035	0.008	0.008	23.1
General practice	0.289			

All shares computed using Census-provided sampling weights.

parties covered by insurance. Expertise in negligence is demanded by defendants in tort-related matters. Among individual fields, we classify probate as ex ante and the rest as ex post.[15]

The first column of Table 4 reports the share of lawyers in each of the Census fields and groups of fields. Twenty-seven percent of lawyers specialize in an "ex ante" business field; about a third of these are corporate law specialists. Thirteen percent specialize in an "ex post" business field. Fifteen percent specialize in an individual field; about half of these are classified as "negligence-plaintiff." The second and third columns report the share of lawyers working in specialized offices and firms, by field. These figures are very similar because individual offices within large multiestablishment firms are generally not specialized by field: if a multiestablishment firm contains lawyers in different fields, its offices usually do as well. The final column reports the fraction of specialists who work in specialized firms, by field. With the exception of patent lawyers, ex ante business specialists are less prone to work in a specialized firm than ex post business or individual specialists. Over a third of ex post specialists and nearly half of individual specialists work at specialized firms, but less than 20% of ex ante specialists do. The lowest fraction among

15. We report the individual fields together in Table 4 because there is only one ex ante individual field.

the fields is for corporate law: only 5% of corporate law specialists work at firms with only corporate law specialists.

Table 4 thus provides some initial evidence regarding law firms' boundaries. However, the fact that ex post business and individual specialists are more likely to work in field-specialized firms than most ex ante business specialists may just reflect differences in the scope of clients' demands. Furthermore, it provides only limited evidence on the boundaries of nonspecialized firms: with which other lawyers do lawyers in ex ante business specialties work? Our empirical work below provides evidence on these fronts.

3.1 The Size and Distribution of Demand

Below we examine whether the firms' boundaries change with increases in the size of demand, holding constant the distribution of demands. We merged our office-level Census data with data from 1992 County Business Patterns (CBP) to obtain our right-hand side variables. CBP provides county-level information regarding the distribution of employment across industries and the employment size distribution of establishments. We compute employment shares for each of seven major (one-digit) industries (e.g., manufacturing) for each county; although information is available for more detailed industry definitions for many counties, the Census withholds more detailed data in many cases because of confidentiality-related restrictions.[16] The Census reports the distribution of establishments across employment size categories at the county-industry level. We use this to compute an estimate of employees per establishment for each major sector within each county by multiplying the share of establishments within these employment size categories by the midpoints of the employment size categories, then summing over these products.

The CBP data provide information about the distribution and size of local demand for legal services. The employment shares characterize the local economy and depict the extent to which local demand for legal services comes from different classes of firms: manufacturing versus financial services, for example. They also depict whether local demanders are small or large firms overall and within sectors. For example, counties where the average establishment size in financial services is large contain the country's most important financial districts. If the employment shares capture differences in the distribution of local demand well, one can think of increases in total employment, conditional on these shares, as *rotations* in the demand curve for legal services: proportionate increases in the various legal problems encountered by individuals and businesses located in the county.[17]

16. We have run specifications with two-digit controls, using imputations for county sectors for which the Census does not report figures. None of the results differ from those reported below, that use one-digit controls.

17. Bresnahan and Reiss (1991) use rotations in the demand curve to identify relationships between competitive conduct and entry in concentrated markets. The main issues in this article—the specialization of individuals and firms' scope—play no role in their analysis. See also Campbell and Hopenhayn (2005).

An important concern in our empirical work is that variation in county-level employment, conditional on our controls, captures differences in the size and not the distribution of demands faced by lawyers based in the county. This condition seems *a priori* more plausible in some contexts than others. It may be reasonable when comparing relatively small, isolated counties: to a first approximation, the demand for legal services in Lubbock, TX, which is about twice as large as Abilene, TX, in terms of employment, may be simply two times that in Abilene. But agglomeration economies may mean that the demand faced by lawyers in very large cities is not just a "scaling up" of those faced by lawyers in very small cities; businesses may choose to locate in very large cities precisely because they require special services that are only available in such cities. Holding constant the employment shares described above, the demand faced by lawyers in Houston may not be simply 18 times that in Lubbock. Furthermore, the distribution of demands addressed by lawyers based in similarly sized suburban and nonsuburban counties may differ, if suburban clients are served by lawyers who are based in nearby cities.

We address this concern by basing this empirical exercise on a part of our sample where problems associated with agglomeration economies and market definition are relatively small: counties that are either part of single-county MSAs as defined by the US Census or that are not part of MSAs.[18] The Census combines counties into a single MSA on the basis of their degree of economic and social integration. Restricting the analysis to counties that fit the above criterion eliminates all counties that are economically integrated with other neighboring counties; it excludes all suburban counties and all but four of the 50 largest MSAs in the United States.[19] These four single-county MSAs—Honolulu, Las Vegas, San Diego, and Phoenix—are much larger than the rest of the single-county MSAs; we exclude these as well.[20] A full list of the MSAs in our "small market subsample" is in the Appendix. The counties in this subsample are all relatively small and have a low level of economic integration with other counties. The largest of these is Pima County, AZ (which contains the city of Tucson), which has 212,068 employees.

We examine the degree to which this sample restriction and our controls hold constant the field distribution of demands by exploiting an additional variable in our data. The Census asks offices to report the distribution of revenues

18. The Census defines an MSA as "a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core." To qualify as an MSA, an area must have at least 50,000 population.

19. The Census combines two counties into the same MSA if at least 15% of inhabitants of one commute to the other counties or at least 15% of employees in one commute from the other.

20. There are two natural breaks in the employment size distribution of single-county MSAs. The four MSAs listed here all have more than 335,000 employees. There are no such counties with between 215,000 and 335,000 employees. There are then six (Albuquerque, NM; El Paso, TX; Fresno, CA; Lancaster, PA; Madison, WI; and Tucson, AZ) with between 170,000 and 215,000 employees, then none again with between 145,000 (Flint, MI) and 170,000 employees. The results reported below include the six counties with between 170,000 and 215,000 employees; they are virtually the same when excluding these six counties.

by client type: what share of revenues comes from individual clients, business clients, and government clients? We regress the share that comes from individual clients on county employment and our controls, weighting each office by the number of lawyers who work there. Finding that this fraction decreases with county employment would imply that our controls do not completely soak up market size–related differences in the distribution of demands: lawyers in larger markets handle disproportionately business and government demands. In contrast, finding no relationship between the "individual client share" and county employment would indicate that the distribution of revenues across clients stays constant with market size, thus lending support to the assumption that, conditional on our controls, the field distribution of demands more generally does not vary with county-level employment.

Table 5 contains the results from this exercise. The first four columns use the small market subsample. The first of these columns reports coefficients from regressions that contain only a set of market size dummies and not controls. (The excluded dummy is that associated with markets with fewer than 20,000 employees.) The coefficients on these indicate that the individual client share tends to fall with market size, even within the small market subsample. The second column includes our set of controls. All the coefficients are small and none are statistically significantly different from zero. The fact that the coefficients decrease between the second and first column provides evidence that the controls pick up differences in the distribution of demands for legal services. The third and fourth replace the market size dummies with ln(county employment); the coefficient on this variable in the fourth column, a specification that includes our controls, is once again not statistically significantly different from zero. These results thus lend support to the assumption that, conditional on our controls, the size but not the distribution of demands varies with employment within this subsample.

The other columns repeat this exercise using the full sample. These results indicate a relationship between the individual share and employment that persists even after including the controls, particularly when comparing very large with smaller markets. This indicates that the distribution of demands varies with employment when using the full sample. Although we will show that the patterns that we uncover within the small market subsample also appear when using the full sample, we will base our inferences on results from the small market subsample.[21]

3.2 Other Issues

Several empirical issues remain, even when restricting the analysis to the small market subsample. One concerns market definition for lawyers working in

21. We have also investigated whether lawyers' per capita varies systematically with market size across our small market subsample. This addresses a possibility not covered by the evidence in Table 5: the distribution of demand could differ with market size even if the sectoral revenue shares do not if lawyers in larger markets serve more out-of-market demands from both individual and business clients. However, the number of lawyers should increase disproportionately with market size if this is the case. We report the results of this exercise in Garicano and Hubbard (2007); we find no evidence that lawyers' per capita is higher in larger markets within this subsample.

Table 5. Share of Revenues from Individual Clients and Market Size

	Small market subsample				Full sample			
Employment 20K–100K	**−9.77** **(1.88)**	−2.59 (2.02)			**−8.75** **(1.47)**	1.04 (2.03)		
Employment 100K–200K	**−13.14** **(2.27)**	−1.05 (3.31)			**−20.27** **(2.49)**	−4.00 (2.90)		
Employment 200K–400K	**−17.99** **(9.33)**	0.45 (8.27)			**−27.50** **(2.23)**	−5.97 (3.37)		
Employment 400K–1M					**−36.19** **(3.09)**	**−11.85** **(4.11)**		
Employment > 1M					**−43.74** **(2.76)**	**−19.11** **(4.31)**		
ln(employment)			**−5.10** **(0.71)**	−1.57 (1.07)			**−8.46** **(0.75)**	**−4.42** **(0.82)**
C								
Includes controls?	No	Yes	No	Yes	No	Yes	No	Yes
N	5780				24,984			

The omitted dummy in the first, second, fifth, and sixth column is "Employment 0–20K." Small market subsample includes law offices in non-MSAs and in single-county MSAs with less than 225,000 employment. Standard errors are clustered at the country level and are reported in parentheses. Bold indicates statistically significantly different from zero, using a two-sided *t*-test of size 0.05. The number of observations differs from that in other results because of missing values for the dependent variable. Dependent variable: percentage of law office's revenues that come from clients who are individuals.

multioffice firms. If lawyers in multioffice firms serve clients based in all the regions in which their firm is located, using employment in the county in which the lawyer is based as a measure of market size understates the actual market the lawyer potentially serves, and could bias our estimates of relationships between specialization and market size. Although this issue would appear to be relatively minor with respect to our small market subsample—only 10% of lawyers in this sample work at multioffice firms, and very few of the nation's largest law firms have offices in these counties—we investigated it nonetheless. Following the approach described in a working paper version of this article (Garicano and Hubbard 2003b), we allowed market size to be a function of employment in all the counties a lawyer's firm has an office rather than just the county in which the office is located. There is no difference in our results when we do so. This is not a surprise, since the working paper version of this article had shown that accounting for this had little effect on the results when using our full sample—a sample that includes big-city law firms with sizeable networks of offices.

A second issue is that individuals as well as businesses demand legal services, and employment-based measures may not capture the size and distribution of individual demand well. Better measures of individual demand would be population based rather than employment based, and demographic variables might capture certain demands well (e.g., the demand for probate work should be higher in regions with many elderly residents). We have run specifications that use such controls. Although some of the controls do help explain crossmarket differences in specialization patterns, none of our results of

interest—which concern relationships between specialization and market size—change when including these additional controls.[22]

Finally, a third issue is whether our results persist when controlling for firm size. Although this exercise is of empirical interest, it has an uneasy relationship with a view taken throughout the article that individuals, not firms, are the fundamental units of production. From this perspective, like in the organizational economics literature, firms are viewed as one possible institution through which relationships among individuals are governed. In this light, firm size is not something to control for; rather, since firms' size in part reflects their scope, it is something that our analysis illuminates.

This is not the only possible view of firms, however. In neoclassical theory, firms are the unit of production, and some scale and scope economies (or diseconomies) are defined at the firm level. Suppose that firm-level scale and scope economies are intertwined, so that it is only efficient for firms to be field specialized if their scale is sufficiently high. For example, suppose it is inefficient for a two-lawyer firm to be field specialized but more efficient for a seven-lawyer firm to be. Then, if firms tend to be larger in larger markets, they would also be more field specialized as well, but for reasons that need not have to do with the contracting issues we discuss above, which revolve around increases in the division of labor across individuals.

We investigate this by examining whether the relationships we uncover between market size and the share of lawyers working in field-specialized firms persist when controlling for the number of lawyers in the office.[23] If law firms' field boundaries tend to narrow with market size only because of scale effects, there should be no relationship between the share of lawyers working in field-specialized firms and market size once one controls for firm size. As we show later, we do not find this to be the case: if anything, relationships between the share of lawyers who work in field-specialized firms and market size become stronger once we control for the number of lawyers in the firm.

3.3 Empirical Specifications

We run two sets of regressions. One takes the form:

$$s_k = X_j\beta_1 + Z_j\gamma_1 + \varepsilon_{1k}, \tag{1}$$

s_k is the share of lawyers in law office k that specialize in one of the 13 Census-defined fields, and X_j our proxy for local market size, ln(county employment).

22. We do not report these results here because they are very similar to those reported below, and releasing results from multiple, closely related specifications can raise disclosure issues for the Bureau of the Census. The additional controls include county population and population growth, percent black, percent Hispanic, percent with high school degree, percent with college degree, the serious crime rate, the government share of employment, and variables that depict the age distribution of the population.

23. We have also run specifications where we control as well for the number of nonlawyers in the office; the results are nearly identical.

Z_j is a vector of other observable characteristics of county j. This vector controls for differences in the distribution of local demands for legal services. β_1 is the coefficient of interest; it captures relationships between individual specialization and local market size.

We estimate analogous specifications for particular fields and for groups of fields. These, for example, relate market size and composition to the share of lawyers who specialize in corporate law, or in any one of the ex ante business fields.

The other set of regressions takes the form:

$$s_k^{sf} = X_j\beta_2 + Z_j\gamma_2 + \varepsilon_{2k}, \tag{2}$$

where s_k^{sf} is the share of lawyers at office k who work in a field-specialized firm and we weight observations by the number of lawyers. Note that $s_k^{sf} = 0$ if lawyers at office k do not share the same field as all other lawyers in their firm and $s_k^{sf} = 1$ if they do; this is a discrete dependent variable model.[24] As above, we estimate analogous specifications for individual fields and groups of fields. β_2 captures relationships between the share of lawyers who work in field-specialized firms and local market size.

In both sets of regressions, we weight each observation by the number of lawyers it represents; each is thus a grouped-data version of a linear probability model. For a given sample of law offices, the coefficient estimates of β_1 and β_2 have the same scale, and their statistical properties are the same.[25]

Combined, β_1 and β_2 depict how much individual specialization increases with market size, and whether increases in the individual specialization are associated with an increase in the degree to which lawyers work in field-specialized firms. They thus provide evidence regarding whether law firms' field boundaries merely reflect the scope of individual clients' demands. If $\beta_1 > 0$ and $\beta_2 = 0$, this indicates that although individuals specialize more as market size increases, the share of individuals working in field-specialized firms does not. This pattern is consistent with purely demand-centric views where law firms' field boundaries reflect the distribution of clients' demands, and not transaction costs between lawyers. In contrast, if $\beta_1 > 0$ and $\beta_2 > 0$, this indicates that both the share of individuals who specialize and the share of individuals who work in field-specialized firms increase with market size. This is inconsistent with purely demand-centric views, but consistent with the hypothesis that organizational trade-offs affect firms' boundaries. When $\beta_1 > 0$,

24. Very few lawyers work in field-specialized offices that are part of nonspecialized multi-office firms. Thus, our results and conclusions would be exactly the same if we analyzed relationships between market size and the specialization of law offices rather than firms. Also, our results are unchanged if we define a specialized firm as one where most of the lawyers (rather than all) share the same field, for example, as one where 75% or 90% do.

25. See Greene (1990: 666), for a discussion of grouped-data estimation of discrete dependent variable models. Our specification is only notable because the groupings in our data are such that one of our dependent variables is always zero or one, but the fact that one of our dependent variables is binary but the other is not does not affect the properties of our coefficient estimates.

Table 6. Market Size, Lawyer, and Law Firm Specialization: Small Market Subsample

Dependent variable	Share any specialized field	Share ex ante business field	Share ex post business field	Share individual field
Market size and individual specialization regressions (β1)				
ln (country employment)	**0.136**	**0.029**	**0.027**	**0.047**
	(0.012)	**(0.007)**	**(0.007)**	**(0.009)**
Market size and law office specialization regressions (β2)				
ln (country employment)	**0.066**	0.004	**0.011**	**0.031**
	(0.011)	(0.003)	**(0.003)**	**(0.008)**
β2/β1	0.49	0.14	0.41	0.66

N = 6032. Controls include share of employment in seven major sectors, average establishment size within each of these sectors, and a state capital dummy. Small market subsample includes law offices in non-MSAs and in single-county MSAs with less than 225,000 employment. Standard errors are clustered at the county level and are reported in parentheses. Bold indicates statistically significantly different from zero, using a two-sided *t*-test of size 0.05.

β_2/β_1 is a measure of the degree to which increases in individual specialization are associated with increases in the share of lawyers in field-specialized firms. It reflects the likelihood that once an individual field specializes, transaction costs will lead relationships between this lawyer and lawyers in other fields to be mediated by markets rather than firms.[26]

4. Results: Market Size, Specialization, and Organization

Table 6 contains results from eight regressions that use observations from our small market subsample. All specifications include our full set of controls, and all standard errors are Eicker-White.

The first row of the first column reports our estimate of β_1, the coefficient on ln(county employment), in a specification where the dependent variable is s_k, the share of lawyers at law office k who are specialized in one of the fields described above. This estimate is positive and significant: the share of lawyers who field specialize is greater in larger markets. The point estimate of 0.136 indicates that doubling county employment is associated with a 9.5% point increase in the predicted share of specialists. Moving from the 25th percentile to the 75th percentile, employment level is associated with approximately a 27% point increase in the share of lawyers who field specialize.[27] We report

26. The ratio β_2/β_1 is an instrumental variables estimate of the effect of lawyer specialization on law firm specialization if county employment is a valid instrument for lawyer specialization. This can be seen by writing the ratio as "$\beta_2/\beta_1 = [\partial s_k^{sf}/\partial(\ln(\text{countyemployment}))]/\partial s_k/\partial(\ln(\text{countyemployment}))] = \partial s_k^{sf}/\partial s_k$.". This identification strategy requires that market size be related to firms' boundaries only through its effect on lawyers' specialization decisions. In Garicano and Hubbard (2003a), we discuss why this assumption is plausible in human-capital-intensive contexts in light of recent organizational theory. We do not emphasize causal interpretations of β_2/β_1 in this article.

27. County employment for the 25th and 75th percentile lawyer within this subsample is about 12,000 and 90,000, respectively. These figures are about 140,000 and 750,000 for the full sample. Thus, in both cases, moving between these percentiles increases ln(employment) by approximately 2.

our analogous estimate of β_2 in the bottom panel. This estimate is positive and significant as well: as market size increases, a greater share of lawyers works in field-specialized firms. The point estimate is 0.066, indicating that doubling market size is associated with a 4.6% point increase in the share of lawyers working at specialized firms. This is about one-fourth of the sample mean of 16.2%. The ratio of the point estimates, β_2/β_1, equals 0.49, indicating that about half of the overall increase in the division of labor is happening between rather than within firms. This evidence is consistent with the hypothesis that transaction costs between lawyers, which appear only when fields are covered by different individuals, influence firms' boundaries.

The other three columns break things down by classes of fields. In the upper panel, the dependent variables are the share of lawyers who specialize in one of the ex ante business, ex post business, and individual fields, respectively. In each case, our estimate of β_1 is positive and significant; lawyers specialize more within each of these groups of fields in larger markets. The bottom panel contains analogous estimates of β_2. In the second column, the dependent variable is the share of lawyers that work at an office where all lawyers specialize in a single ex ante business field. The coefficient on ln(county employment) is very small and not statistically significantly different from zero. The estimate in the top panel indicates that as market size increases, lawyers specialize more in these fields; that in the bottom panel does not indicate that they are more likely to work in field-specialized firms. The ratio β_2/β_1 is approximately 0.14, indicating that practically all of the increase in the division of labor is occurring within rather than between firms. In contrast, in the third column of the bottom panel, the dependent variable is the share of lawyers who work at an office where all lawyers specialize in a single ex post business field. Here, the coefficient on market size is positive and significant. From the top panel, as market size increases, more lawyers become insurance and negligence-defendant specialists. Here, we see that a substantial fraction of these specialists work in specialized law firms. The ratio β_2/β_1 provides an estimate of this fraction: 41%. Like the ex ante business fields, the division of labor increases with market size; unlike the ex ante business fields, a significant fraction of it happens between rather than within firms.

This result indicates that ex post business fields tend only to be covered in the same firm as other fields when they are covered by the same person, but ex ante business fields tend to be covered in the same firm as other fields even when they are covered by different individuals. Assuming that variation in our market size proxy captures differences in the size but not the distribution of demand, demand for services that involve each of these fields of the law exists in smaller markets, but the individuals supplying these services tend not to be specialized. For example, lawyers who advise clients on insurance law issues might also advise clients on corporate and tax law issues. When individual lawyers cover multiple fields, so do firms. As market size increases, lawyers specialize more: different lawyers begin to advise clients on different areas of the law. As lawyers specialize, some fields remain within the firm and some are

spun off: the fields covered within the firm continue to include corporate and tax law, but it often no longer includes insurance law.

The last column in Table 6 reports results for the same exercise for the individual fields. In both the panels, the coefficient on ln(county employment) is positive and significant. The ratio β_2/β_1 equals 0.66. Lawyers specialize more in individual fields as market size increases, and when they do so, they work in field-specialized firms. Firms' boundaries thus tend to narrow as market size increases.

Table 7 provides a more detailed view. The specifications are analogous to those in Table 6, but use the share of lawyers in individual fields, and the share that work in field-specialized firms, as dependent variables. The contrast between ex ante business and other fields holds in this table as well. The estimates of β_1 indicate that the share of lawyers who specialize in most fields is greater in larger markets, though some of these are not statistically significant. But none of the estimates of β_2 for the ex ante business fields indicate relationships between market size and the fraction of lawyers working in field-specialized firms. In contrast, several of the β_2 estimates for the other fields are positive and significant, and all the point estimates are larger than any of those in the first row.

4.1 Full Sample Estimates and Firm Size Controls

Table 8 reports three sets of results. The top panel is the same as that of Table 6. The middle panel uses the full sample rather than the small market subsample. Although the magnitudes of the estimates are lower, especially in the last column, the general pattern of the results is similar when including large cities and suburban counties in the analysis. The ratio β_2/β_1 in the first column is about one-half, and as before, this ratio is higher for the individual than business fields, and for the ex post than the ex ante fields. We have also run these specifications using *only* large markets (those with more than 200,000 employment; the results are reported in Garicano and Hubbard 2003b), and the estimates are very similar to those in the middle panel here. Although the conceptual exercise is far cleaner when using the small market sample rather than the full sample, the results are quite similar across these samples.

Returning to the small market subsample, the bottom panel reports estimates of β_1 and β_2 when we include a set of dummy variables that depict the number of lawyers in the office along with our other controls.[28] Once again, the estimates of β_2 are positive and significant in the first, third, and fourth columns. To the extent that the point estimates of β_2 change when including the number of lawyers dummies, they increase. There is thus no evidence that the estimates in the top panel, which indicate that firms' field boundaries tend to narrow as market size increases, reflect just "firm size effects."[29]

28. We include 11 dummies that capture whether the law office has 1–12 lawyers, plus a dummy for whether it has more than 12 lawyers. Less than 5% of the offices in the small market subsample have more than 12 lawyers.

29. We have also run all our specifications, dropping single-lawyer offices. Our estimates are nearly identical to those we report in this article.

Table 7. Market Size, Lawyer, and Firm Specialization: Detailed Specifications: Small Market Subsample

Ex ante business fields							
Dependent variable	Share banking	Share corporate	Share environmental	Share governmental	Share patent	Share real estate	Share tax
β1	0.001 (0.003)	**0.011 (0.003)**	**0.002 (0.001)**	0.003 (0.002)	0.000 (0.001)	0.008 (0.004)	**0.004 (0.001)**
β2	−0.001 (0.002)	0.001 (0.001)	0.000 (0.000)	0.002 (0.001)	0.000 (0.001)	0.001 (0.002)	0.001 (0.001)

Ex post business fields		
Dependent variable	Share insurance	Share negligence defendant
β1	**0.022 (0.004)**	0.005 (0.004)
β2	**0.008 (0.002)**	0.004 (0.003)

Individual fields				
Dependent variable	Share criminal	Share domestic relations	Share negligence-plaintiff	Share probate
β1	**0.009 (0.003)**	0.004 (0.004)	**0.026 (0.005)**	0.007 (0.004)
β2	**0.009 (0.003)**	0.003 (0.003)	**0.014 (0.004)**	0.005 (0.003)

$N = 6032$. Controls includes share of employment in seven major sector, average establishment size within each of these sectors, and a state capital dummy. Small market subsample includes law offices in non-MSAs and in single-county MSAs with less than 225,000 employment. Standard errors are clustered at the county level, and are reported in parentheses. Bold indicates statistically significantly different from zero, using a two-sided *t*-test of size 0.05.

Table 8. Market Size, Lawyer, and Law Firm Specialization: Alternative Specifications

Dependent variable	Share any specialty	Share ex ante business specialty	Share ex post business specialty	Share individual speciality
Small market subsample				
β1	**0.136 (0.012)**	**0.029 (0.007)**	**0.027 (0.007)**	**0.047 (0.009)**
β2	**0.066 (0.011)**	0.004 (0.003)	**0.011 (0.003)**	**0.031 (0.008)**
β2/β1	0.49	0.14	0.41	0.66
Full sample				
β1	**0.083 (0.011)**	**0.020 (0.006)**	**0.021 (0.004)**	**0.017 (0.006)**
β2	**0.039 (0.009)**	0.000 (0.005)	**0.012 (0.003)**	**0.019 (0.004)**
β2/β1	0.47	0.00	0.57	1.12
Small market subsample, includes "number of lawyers in the office" dummies				
β1	**0.117 (0.012)**	**0.015 (0.006)**	**0.014 (0.006)**	**0.054 (0.009)**
β2	**0.080 (0.011)**	0.006 (0.003)	**0.013 (0.004)**	**0.039 (0.008)**
β2/β1	0.68	0.40	0.93	0.72

Beta1 is the coefficient on ln(county employment) in regressions where the dependent variable is the share of individuals who are specialized. Beta2 is the coefficient on ln(county employment) in regressions where the dependent variable is the share of individuals who work in field-specialized firms. Controls includes share of employment in seven major sectors, average establishment size within each of these sectors, and a state capital dummy. In the bottom panel, we also include 11 dummy variables that capture whether a law office has 2–12 lawyers, plus a dummy for whether it has more than 12 lawyers. Small market subsample includes law offices in non-MSAs and in single-county MSAs with less than 225,000 employment. Standard errors are clustered at the county level and are reported in parentheses. Bold indicates statistically significantly different from zero, using a two-sided *t*-test of size 0.05.

4.2 Summing Up

We find that, holding constant the distribution of demands, as market size increases lawyers become more field specialized. Furthermore, an increasing share of lawyers works in field-specialized firms. These results provide evidence against purely demand-centric views of law firms' field boundaries. They are consistent with the Coasian view that transaction costs between lawyers play a role in shaping law firms' boundaries. Furthermore, the fact that the share of lawyers in firms specializing in ex post fields, but not ex ante fields, increases is consistent with the hypothesis that the benefits of transacting within firms are higher when crossfield referrals are more important. Below we provide further evidence on the details of the organizational trade-offs that affect law firms' field boundaries.

5. Evidence on Law Firms' Field Composition

We develop a statistic that indicates the degree to which lawyers in one field work in the same firm with lawyers in other fields, relative to a benchmark in which the field-shares of lawyers in each firm is the same as the field-shares of lawyers in the economy.[30] Let N_i be the number of lawyers in firm i and n_i^j be

30. Previous versions of this article (Garicano and Hubbard 2003b) reported versions of the Ellison-Glaeser statistic (Ellison and Glaeser 1997), which uses random allocation rather than a uniform distribution as a benchmark. The results are very similar. We report the uniform-benchmarked statistics described here because the magnitudes are more readily interpretable.

the number of those lawyers who specialize in field j. We start by computing the share of field a lawyers in the average field b lawyer's firm. Define this share as s^{ab}:

$$s^{ab} = \sum \frac{n_i^b n_i^a}{\sum n_i^b N_i}, \tag{3}$$

where all the sums are taken over i; s^{ab} is a weighted average of the share of lawyers in field a, where the average is taken across all firms in the economy and the weight for each firm i is the share of b lawyers in the economy who work in firm i. We then normalize s^{ab} by the share of lawyers in field a in the economy. Thus, for any pair of fields a and b, this statistic is as follows:

$$\Gamma^{ab} = \frac{s^{ab}}{s^a} = \frac{1}{s^a} \sum \frac{n_i^b n_i^a}{\sum n_i^b N_i}, \tag{4}$$

Γ^{ab} is the share of field a lawyers in the average field b lawyer's firm, normalized by s^a, the share of lawyers in field a in the economy. It is straightforward to show that this statistic is symmetric: that is $\Gamma^{ab} = \Gamma^{ba}$.

This statistic is easy to interpret. $\Gamma^{ab} = 1$ if the share of field a lawyers in each firm where field b lawyers work is equal to the share of field a lawyers in the economy. If $\Gamma^{ab} > 1$, this indicates that field b lawyers work disproportionately in firms with high shares of field a lawyers, relative to the share of field a lawyers in the economy. $\Gamma^{ab} = 1.30$ indicates the share of field a lawyers in the firm where the average field b lawyer works is 30% higher than in the population as a whole. $\Gamma^{ab} = 0.70$ indicates that it is 30% lower.

Table 9 presents our results. We first note four important patterns. First, the general pattern with the off-diagonal terms is that ex ante business specialists tend to work at the same firm as one another, but most other pairs of specialists tend not to do so. Most of the statistics in the upper left of the figure are greater than one; most in the rest of the figure are less than one. The second and third patterns are the exceptions to this rule. The second is that specialists in patent law, classified as an ex ante business field, tend not to work at the same firm with specialists in other ex ante business fields (or any other field, for that matter). Unlike other ex ante business specialists, patent lawyers tend to work in firms that are field specialized. The third is that specialists in probate law, the ex ante individual field, tend to work in the same firm with ex ante business specialists. In fact, they are more likely to work at the same firm as banking, corporate, environmental, and other ex ante business specialists than other types of individual specialists. This is the exception to the general rule that specialists in business- and individual-oriented fields tend not to work at the same firm with each other. Last, the diagonal terms are systematically greater than the off-diagonal terms. Some of this is artificial, since part of the high value of the diagonal reflects that specialists always work at firms where the share of their own field is positive—their firm reflects themselves. At the bottom of the table, we report statistics for the diagonal terms that do not include this effect; these statistics remain greater than any of the associated

Table 9. Normalized Composition of Law Firms by Specialty of the Lawyer

	Banking	Corporate	Governmental	Environmental	Tax	Real estate	Patent	Insurance	Negligence defendant	Criminal	Domestic	Negligence-plaintiff	Probate	Other	General practice
Banking	**7.52**														
Corporate	**1.27**	**4.42**													
Governmental	**1.06**	**1.26**	**24.28**												
Environmental	**1.34**	**1.50**	**2.36**	**13.61**											
Tax	**1.18**	**1.84**	**1.13**	**1.39**	**10.90**										
Real estate	**1.44**	**1.18**	0.85	0.96	**1.07**	**6.79**									
Patent	0.35	0.63	0.42	0.62	0.53	0.25	**39.05**								
Insurance	0.61	0.50	0.56	0.99	0.37	0.35	0.01	**11.75**							
Negligence defendant	0.73	0.65	0.71	**1.04**	0.60	0.54	0.17	0.58	**9.83**						
Criminal	0.33	0.48	0.47	0.44	0.41	0.49	0.07	0.19	0.19	**26.97**					
Domestic	0.61	0.49	0.80	0.47	0.40	0.74	0.07	0.30	0.33	**1.61**	**20.80**				
Negligence-plaintiff	0.64	0.31	0.37	0.26	0.22	0.60	0.05	0.14	0.37	0.84	0.78	**10.03**			
Probate	0.97	**1.12**	0.81	0.86	**1.62**	**1.27**	0.22	0.52	0.64	0.59	**1.10**	0.43	**11.31**		
Other	0.65	**1.05**	0.73	**1.02**	0.89	0.68	0.31	0.23	0.26	0.28	0.38	0.18	0.53	**4.20**	
General practice	0.30	0.25	0.29	0.31	0.27	0.25	0.09	0.12	0.15	0.16	0.29	0.13	0.29	0.18	**2.95**
Diagonal (colleagues only)	**4.47**	**3.48**	**13.93**	**10.38**	**3.73**	**2.63**	**32.62**	**9.95**	**8.23**	**6.43**	**5.95**	**4.50**	**3.02**	**2.83**	**1.38**

Bold indicates values greater than 1.00.

off-diagonal terms. Lawyers are more likely to work at the same firm with lawyers in their own field than with lawyers in any other field. This reflects groups of partners and associates in the same field working at the same firm.[31]

Broadly, these patterns provide little support for the hypothesis that law firms' field boundaries strongly reflect the risk-sharing benefits of revenue-sharing arrangements. Demand for the services provided by banking, corporate, and real estate specialists was strongly positively correlated during the period leading up to the time of this sample, but specialists in these fields disproportionately work with each other. Partnerships may provide risk-sharing benefits, but it is unlikely that variation in their risk-sharing benefits explain the first-order patterns we observe in our data.[32]

They provide considerable, but not complete, support for the proposition that law firms' boundaries reflect differences in the value of referrals. Consistent with this proposition, lawyers in ex ante fields tend to work in the same firm with each other, while lawyers in ex post fields tend to work in field-specialized firms. This proposition can also easily explain the two exceptions to the general empirical pattern we describe above. Patent law is fairly distinct from other areas of the law, and is probably an exception to the rule that clients have difficulty in judging the scope of services they need for ex ante problems. Referrals between ex ante business specialists and probate lawyers may be valuable, as when the senior management of corporate clients needs help in arranging wills and estates.

An important pattern in the data that are not immediately consistent with this proposition is that lawyers disproportionately work in the same firm others in their own field (the diagonal pattern in Table 9). If lawyers in the same field have the same expertise and face no time constraints, referrals across lawyers in the same field would not be valuable and one would not expect, for example, corporate law specialists to work disproportionately in the same firm as other corporate law specialists. We make the following observations. First, it is highly likely that there are within-field differences in lawyers' expertise that are not picked up in our data: for example, corporate lawyers vary in their ability and sometimes subspecialize within corporate law (e.g., in securities law). Second, lawyers do face time constraints, and this may make referrals valuable even among lawyers with the same expertise. Either of these conditions could reconcile this fact with the proposition that firms' boundaries are shaped by differences in the value of referrals, although this fact could have other explanations as well.

The contrast between the diagonal and the off-diagonal terms provides some support for the proposition that firms' field boundaries reflect differences in

31. Garicano and Hubbard (2007) study partner-associate ratios and how they vary with returns to specialization. This article investigates more thoroughly the organization of specialists in the same field.

32. Risk-sharing benefits may explain patterns that we cannot observe with our data. If within corporate law, as Gilson and Mnookin theorize, securities specialists and bankruptcy specialists are disproportionately likely to work with one another in the same firm, this would provide evidence that partnerships' risk-sharing properties shape firms' field boundaries. An empirical test of this canonical example would shed further light on the degree to which risk sharing shapes law firms' field boundaries.

agency costs related to fields' cognitive closeness: specialists are more likely to work with others in their own field than in other fields. However, patterns in the off-diagonal terms do not provide such support: in particular, practically all the combinations of ex ante fields tend disproportionately to work with one another, including combinations where cognitive connections do not appear to be close. For example, it is unlikely that the legal expertise of corporate law specialists provides them a comparative advantage in monitoring specialists in environmental or real estate law, but corporate law specialists work disproportionately in the same firm as environmental and real estate lawyers just as they do with banking and tax lawyers.

Table 9 thus provides some evidence on the specific organizational trade-offs that affect law firms' field boundaries. We find little support for the hypothesis that law firms' field boundaries are shaped by risk-sharing benefits. We find some support for the proposition that they reflect differences in the value of crossfield referrals and, to a lesser extent, differences in lawyers' ability to assess each other's work. Although we believe this evidence to be interesting, additional evidence, particularly direct evidence on referral and monitoring patterns, is needed to distinguish definitively among these hypotheses.

6. Conclusion

This article provides new empirical evidence on how one human-capital-intensive industry, legal services, is organized. Our evidence indicates that transaction costs between lawyers affect law firms' field boundaries: the share of lawyers who work in field-specialized firms increases as market size increases and lawyers specialize. Firms' boundaries reflect not only the scope of clients' demands but also how relationships between lawyers are optimally governed. Moreover, this pattern varies across fields. The share of lawyers working at firms that specialize in fields where lawyers are involved in structuring transactions does not increase as market size increases and lawyers field specialize more. It only increases when looking at fields where lawyers deal with problems arising from existing contractual relationships; in larger markets, these services tend to be supplied by lawyers in field-specialized firms. More detailed evidence on law firms' field composition provides little support for the hypothesis that firms' field boundaries reflect variation in the benefits of risk sharing, but provides some support for theories that emphasize firms' role in facilitating the exchange of knowledge. In addition, there is some, albeit limited, evidence that firms' field boundaries reflect differences in lawyers' ability to monitor each other. Direct evidence on referral and monitoring patterns would complement our work, and shed further light on how knowledge-sharing and monitoring costs affect firms' boundaries in this human-capital-intensive industry.

Our analysis indicates how the introduction of concepts from organization theory can deepen analyses of the determinants of industry structure, an issue that has been traditionally approached from the perspective of neoclassical analyses. An example of the latter is the large literature (e.g., Holmes 1999) that has empirically tested Stigler's (1951) proposition that firms, like individuals, should specialize more as market size increases. This literature

adapts to the firm level Smith's (1937) famous proposition that the division of labor across individuals is limited by the size of the market.[33] However, neither Stigler's analysis nor the empirical literature that has followed emphasizes that the very phenomenon Smith analyzed—increases in the division of labor across individuals—might be connected to changes in firms' boundaries. Our evidence sheds light on where a firm-level version of Smith's proposition should hold and where it should not, and our theoretical inferences indicate the source of firm-level scope economies and diseconomies in legal services. Extending this analysis to other industries would provide evidence the source of such economies and diseconomies more broadly.

Appendix

A.1 Survey Form

LEGAL SERVICES

(Form CB-8100)

Item 10. PERSONNEL AND PAYROLL, BY OCCUPATION

Include personnel who perform a variety of functions (secretaries, etc.) on the one line which best describes the primary nature of their work.

Line a(1) – Lawyers who are members of a professional service corporation should be included here.

Line b – Only proprietors and partners **not** considered employees of the firm for Federal tax purposes should be included here.

Occupation (include proprietors and partners on line b only)	Personnel for pay period including March 12, 1992 (number)	Annual payroll Mil.	Thou.	Dol.
a. Type of employee	565	570		
(1) Associate lawyers (employees of firm)	566	571		
(2) Paraprofessionals (law clerks, legal assistants, investigators, etc.)	567	572		
(3) Managers and other nonlegal professional staff	568	573		
(4) All other (stenographers, bookkeepers, etc.)	569	574		
(5) **TOTAL** (Sum of lines a(1) through a(4) above should equal entries in items 6a and 7)	450			
b. Active proprietors or partners at this location (**unincorporated operations** only)				

For law firms operating at more than one location, report proprietors or partners at the location where they spend most of their working time. (If this establishment is a member of a group practice, include only proprietors or partners whose practice is covered by this EI Number.)

Item 11. NATURE OF LAWYERS' PRACTICE

Include **each** individual lawyer reported in items 10a(1) and 10b (associate lawyers plus proprietors and partners at this location) on the **one** line which best describes the lawyer's primary field of specialization. Lawyers who are not primarily engaged in a single specialized field should be included on line b.

Primary fields of practice	Number of lawyers
a. Specialized fields	575
(1) Banking and commercial law	576
(2) Corporate law	577
(3) Criminal law	578
(4) Domestic relations	579
(5) Environmental law	580
(6) Governmental law	581
(7) Insurance law	582
(8) Negligence – defendant	583
(9) Negligence – plaintiff	584
(10) Patent, trademark, and copyright law	585
(11) Real estate	586
(12) Tax law	587
(13) Wills, estate planning, and probate	588
(14) Other specialized field – *Specify*	589
b. General practice	590
c. **TOTAL** (Sum of above lines should equal the sum of items 10a(1) and 10b)	

Item 13. EXPENSES OF LEGAL AID SOCIETIES

	Mil.	Thou.	Dol.
040			

Report total operating expenses, including payroll, interest, rent, depreciation, taxes, and other overhead. Exclude capital expenditures, funds invested, and transferred contributions.

33. Although this proposition is generally assumed to be true, there are surprisingly few studies that have examined it empirically; see Baumgardner (1988a, 1988b) for evidence in the context of medicine. Our estimates of β_1 add to the small amount of systematic empirical evidence confirming Smith's proposition.

A.2 List of Single-County MSAs in Small Market Sample

Abilene, TX	Fort Collins-Loveland, CO	Naples, FL
Albuquerque, NM	Fort Myers-Cape Coral, FL	Ocala, FL
Alexandria, LA	Fort Walton Beach, FL	Odessa, TX
Altoona, PA	Fresno, CA	Olympia, WA
Anchorage, AK	Gadsden, AL	Owensboro, KY
Anderson, IN	Grand Forks, ND	Panama City, FL
Anderson, SC	Great Falls, MT	Pascagoula, MS
Anniston, AL	Greeley, CO	Pine Bluff, AR
Asheville, NC	Green Bay, WI	Poughkeepsie, NY
Bakersfield, CA	Hagerstown, MD	Provo-Orem, UT
Battle Creek, MI	Huntsville, AL	Pueblo, CO
Bellingham, WA	Iowa City, IA	Rapid City, SD
Benton Harbor, MI	Jackson, MI	Reading, PA
Billings, MT	Jackson, TN	Redding, CA
Bloomington, IN	Jacksonville, NC	Reno, NV
Bloomington-Normal, IL	Jamestown-Dunkurk, NY	Rochester, MN
Boise City, ID	Janesville-Beloit, WI	St Joseph, MO
Bradenton, FL	Kalamazoo, MI	Salinas-Seaside-Monterey, CA
Bremerton, WA	Kankakee, IL	San Angelo, TX
Brownsville-Harlingen, TX	La Crosse, WI	Sarasota, FL
Bryan-College Station, TX	Lafayette-West Lafayette, IN	Sharon, PA
Burlington, NC	Lake Charles, LA	Sheboygan, WI
Casper, WY	Lakeland-Winter Haven, FL	Spokane, WA
Cedar Rapids, IA	Lancaster, PA	State College, PA
Champaign-Urbana-Rantoul, IL	Laredo, TX	Sioux Falls, SD
Cheyenne, WY	Las Cruces, NM	South Bend-Mishawaka, IN
Chico, CA	Lawrence, KS	Stockton, CA
Colorado Springs, CO	Lawton, OK	Topeka, KS
Columbia, MO	Lincoln, NE	Tucson, AZ
Daytona Beach, FL	Lubbock, TX	Tuscaloosa, AL
Decatur, IL	Madison, WI	Tyler, TX
Dubuque, IA	Mansfield, OH	Victoria, TX
El Paso, TX	McAllen-Edinburg-Mission, TX	Visalia-Tulare-Porterville, CA
Elmira, NY	Medford, OR	Waco, TX
Enid, OK	Melbourne-Titusville, FL	Wausau, WI
Erie, PA	Merced, CA	West Palm Beach-Boca Raton, FL
Eugene-Springfield, OR	Midland, TX	Wichita Falls, TX
Fayetteville, NC	Modesto, CA	Williamsport, PA
Fayetteville-Springdale, AR	Monroe, LA	Wilmington, NC
Flint, MI	Muncie, IN	Yakima, WA
Florence, SC	Muskegon, MI	Yuma, AZ

Note: The small market sample also includes all law offices located in non-MSAs.

A.3 Lawyer Specialization Regressions: All Coefficients

Table A1. Market Size and Lawyer Specialization: Small Market Subsample

		Coefficient estimates			
		Dependent variable			
Mean (standard deviation)	Independent variable	Share any specialized field	Share ex ante business field	Share ex post business field	Share individual field
1.054	ln(county	**0.136**	**0.029**	**0.027**	**0.047**
(1.244)	employment)	**(0.012)**	**(0.007)**	**(0.007)**	**(0.009)**
0.211	sh(mfg)	−0.188	0.090	−0.005	−0.053
(0.126)		(0.182)	(0.079)	(0.065)	(0.144)
0.052	sh(trans/util)	0.063	−0.461	0.364	0.325
(0.025)		(0.478)	(0.263)	(0.193)	(0.376)
0.056	sh(wholesale)	0.482	−0.360	**0.641**	0.075
(0.024)		(0.445)	(0.247)	**(0.195)**	(0.391)
0.247	sh(retail)	0.217	0.033	−0.114	**0.520**
(0.049)		(0.294)	(0.172)	(0.137)	**(0.255)**
0.055	sh(FIRE)	1.153	**1.193**	0.318	−0.416
(0.026)		(0.825)	**(0.545)**	(0.419)	(0.698)
0.303	sh(services)	−0.059	0.019	**0.257**	−0.062
(0.075)		(0.269)	(0.142)	**(0.118)**	(0.207)
0.049	state capital	−0.021	−0.022	−0.034	−0.001
(0.215)		(0.029)	(0.030)	(0.030)	(0.025)
6.648	emp/estab—	−0.0004	−0.0004	0.0040	−0.0003
(2.700)	construction	(0.0034)	(0.0017)	(0.0023)	(0.0002)
47.810	emp/estab—	−0.0003	**−0.0007**	0.0002	0.0004
(28.812)	mfg	(0.0004)	**(0.0002)**	(0.0002)	(0.0003)
14.899	emp/estab—	−0.0007	0.0017	−0.0008	−0.0015
(7.884)	trans/util	(0.0017)	(0.0013)	(0.0006)	(0.0013)
10.147	emp/estab—	−0.0011	0.0031	−0.0023	0.0011
(3.318)	wholesale	(0.0045)	(0.0020)	(0.0015)	(0.0031)
11.599	emp/estab—	0.0066	0.0028	0.0064	−0.0046
(2.499)	retail	(0.0072)	(0.0041)	(0.0034)	(0.0051)
8.000	emp/estab—	−0.0064	−0.0033	−0.0013	0.0009
(3.783)	FIRE	(0.0053)	(0.0033)	(0.0026)	(0.0043)
11.456	emp/estab—	−0.0030	−0.0001	−0.0031	0.0002
(3.520)	services	(0.0052)	(0.0028)	(0.0021)	(0.0035)
	C	**0.291**	0.023	−0.095	0.090
		(0.160)	(0.69)	(0.061)	(0.135)

$N = 6032$. This table presents the full set of coefficients for the regressions reported in the top panel of Table 6. Small market subsample includes law officials in non-MSAs and in single-county MSAs with less than 225,000 employment. Standard errors are clustered at the county level and are reported in parentheses. Bold indicates statistically significantly different from zero, using a two-sided *t*-test of size 0.05.

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