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Related Diversification and Outsourcing in the Taxicab Industry

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This paper studies how firms reorganize after diversifying into related businesses. Specifically, we propose that outsourcing is one way to reduce the coordination costs that arise in multi-divisional firms. We, also, examine the mechanisms underlying coordination costs, and show how alternative theories lead to contrasting predictions about the link between diversification and outsourcing. We test these propositions using novel micro-data on taxicab and limousine firms from the Economic Census. The results show that taxicab fleets outsource, by shifting ownership of taxicabs to drivers, when they diversify into the limousine business. Moreover, the magnitude of the shift toward driver ownership is larger for firms in less urban markets, where the tasks of taxicab and limousine drivers are similar, but compensation systems differ. These findings suggest that firms use outsourcing to mitigate coordination costs associated with related diversification, particularly when employees in different divisions have heterogeneous incentives or ability but perform similar tasks.

Key words: Diversification, adaptation, outsourcing, asset ownership, corporate strategy.

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1. Introduction

How do firms adapt to the organizational challenges associated with diversification? A number of studies emphasize the costs of diversification (Wernerfelt and Montgomery 1988; Lang and Stulz 1994; Scharfstein and Stein 2000), but few consider how firms manage these costs. This paper contributes to a nascent literature that examines the impact of corporate diversification on

the internal organization of the firm by showing how firms adapt organizationally to mitigate coordination costs associated with related diversification (Capron 1998; Capron, Dussauge and Mitchell 1999; Capron Mitchell and Swaminathan 2001). Specifically, we propose that firms use outsourcing to reduce the coordination costs that arise in a multi-divisional firm, and test this hypothesis in the context of taxicab fleets that diversify into the limousine business. We, also, examine the mechanisms underlying coordination costs, and show how alternative theories lead to contrasting predictions about the extent of outsourcing in different organizational contexts.

Jones and Hill (1998) define coordination costs as the cost of managing interdependencies among tasks. Coordination costs are a natural consequence of related diversification, which is typically motivated by synergies or economies of scope from sharing key assets or capabilities across divisions (Panzar and Willig 1977; Teece, 1980; Levinthal and Wu 2006). We explore three types of coordination costs proposed by organizational scholars: managerial distraction (Penrose 1959; Schoar 2002); rent-seeking (Milgrom and Roberts 1988; Rajan, Serves and Zingales 2000); and envy (Fehr and Schmidt 1999; Nickerson and Zenger 2008).

We focus on outsourcing, or shifting previously integrated activities outside the boundary of the firm, as an organizational response to the costs of related diversification. By outsourcing, firms replace monitoring with market incentives, and reduce opportunities for political infighting and envy. We, also, hypothesize that heterogeneity in the tasks performed by agents in different divisions will mediate the link between diversification and outsourcing. In particular, monitoring costs increase when agents in different divisions are assigned very different tasks; while the costs of envy rise when these agents perform functionally similar tasks, but are compensated with different incentive contracts.

We test these hypotheses using data from the taxicab and limousine industry, an industry well-suited to the study of diversification and outsourcing for two major reasons.[1] First, a regulatory

[1] We use the term limousine to refer to vehicles that are sometimes referred to as "black cars" or "executive limousines." These vehicles are distinct from "prom" or stretch limousines.

shock in the early 1990s provides exogenous time-series variation in the costs of diversification, while variation in local market conditions creates exogenous cross-sectional variation in the costs and benefits of diversification.[2] Furthermore, by focusing on a relatively simple example of the multi-divisional firm, we limit unobserved heterogeneity in outputs, incentive systems and internal organization that could bias the empirical results.

Our baseline result shows that diversifying fleets outsource an additional 30 percent of their taxicabs to owner-operator drivers, compared to fleets that do not diversify into the limousine segment, suggesting that firms adapt their internal organization to mitigate coordination costs associated with diversification. Moreover, conditional on diversification, the shift toward owner-operators is less pronounced in urban markets, where there is more task differentiation between taxicabs and limousines. Specifically, when population density doubles, the percentage of taxicabs driven by owner-operators in diversified fleets falls by 11 percent relative to the difference between diversified fleets and non-diversifying fleets in markets with average population density. We conclude that outsourcing reduces coordination costs in diversified taxicab fleets by alleviating conflicts between agents – taxicab and limousine drivers – who perform similar tasks, but face different incentives and possess different skills.

This paper makes three contributions. First, we show that outsourcing is one organizational strategy for reducing coordination costs following diversification. In doing so, we connect the literature on the costs of diversification (Wernerfelt and Montgomery 1988; Lang and Stulz 1994; Scharfstein and Stein 2000; Rajan, Serves and Zingales 2000; Schoar 2002) with a literature that emphasizes efficient organizational adaptation following diversification (Capron 1998; Capron, Dussauge and Mitchell 1999; Capron Mitchell and Swaminathan 2001). Second, we propose a test for discriminating between alternative sources of coordination costs, and use it to show that in taxicab fleets envy-based conflicts are a significant source of friction following related

[2] Since each local market is distinct, this paper could be thought of as a study of hundreds of similar taxicab and limousine industries.

diversification into limousines (Fehr and Schmidt 1999; Nickerson and Zenger 2008). Third**,** by linking the horizontal and vertical boundaries of the firm, we take a small step towards integrating the literature on diversification as an organizational strategy (Teece, 1980; Levinthal and Wu, 2006) with organizational economics longstanding emphasis on buyer-supplier relations (Williamson 1975, 1985; Baker and Hubbard 2003; Novak and Stern 2007; Forbes and Lederman 2008).

2. Theoretical development

To develop our hypotheses about outsourcing within a multi-divisional firm we begin with Coase's (1937) fundamental insight that the firm boundaries depend on the relative costs of using firms and markets to coordinate the same activities. Transaction-cost economics (Williamson 1975; 1985) emphasizes asset specificity and other factors that shift market efficiency, while implicitly holding the cost of non-market organization fixed. We approach this question from the opposite direction: holding the efficiency of market transactions fixed, and asking how boundaries respond to related diversification, which alters the costs of coordinating activities within a firm.

As in Jones and Hill (1988), we characterize coordination costs as the costs of managing interdependent tasks across divisions. We, therefore, focus on theories that explain why task interdependencies are costly, either directly or indirectly, when firms coordinate activities across divisions**.**[3] Our hypotheses build on three leading explanations for the existence of coordination costs in diversified firms: managerial distraction (Penrose 1959; Schoar 2002); influence costs (Milgrom and Roberts 1988; Rajan, Servaes and Zingales 2000); and envy or social comparison costs (Fehr and Schmidt 1999; Nickerson and Zenger 2008). Each of these theories provides a different answer to Williamon's (1985) puzzle of selective intervention.

[3] Because our focus is on operational costs associated with diversification we do not discuss agency costs that arise between investors and corporate managers (Jensen and Meckling 1976).

The managerial distraction hypothesis dates back at least to Penrose (1959). The central argument is that a corporate manager's job is to monitor divisions, and this task grows more difficult with the number, size and variety of business units. Because increased scope and diversity distracts managers' attention, it increases the probability that they will make poor strategic decisions.[4] Schoar (2002) provides support for the managerial distraction hypothesis by showing that among diversifying firms, those entering unrelated markets experience larger declines in productivity.

A second theory of coordination costs suggests that agents, in a diversified firm, waste resources on the zero-sum game of seeking preferential access to shared resources. Milgrom and Roberts (1988) conceive of corporate politics as a rent-seeking process, where division-level agents take actions that are privately beneficial, but unproductive for the firm as a whole. While corporate managers seek policies that discourage these behaviors (e.g. through capital budgets or transfer pricing formulae), the boss' authority invites lobbying by divisional agents, who hope to influence the rules of the game. Rajan, Servaes and Zingales (2000) develop a similar theory, where agents take inefficient actions to influence the allocation of corporate funds to divisions, and use stock price data to show that firms with more diversity across divisions trade at a larger discount relative to their book value.

Finally, Nickerson and Zenger (2008) develop a theory of scope diseconomies that emphasizes employees' taste for fairness, as in Fehr and Schmidt (1999). They posit that variance in compensation tends to produce a group of agents who envy their better-paid peers, and consequently engage in a variety of inefficient behaviors, including "reduced effort, (engaging in) influence activities, departure, non-cooperativeness or even outright sabotage." Bandiera, Barankay and Rasul (2005) provide some empirical support for this theory: when teams of fruit-

[4] Agency theory suggests that incentives can substitute for monitoring (Holmstrom 1979); but mechanism design is difficult in team production settings, with complementarities among agents or divisions (Holmstrom, 1982). And while formal hierarchies may increase a manager's span of control, they are not a perfect solution (Radner 1992).

pickers are switched from piece-rates to compensation based on relative performance, they find a substantial decline in average productivity. Since related diversification brings together agents who perform similar tasks but may have different compensation, incentives or ability levels, related diversification naturally raises the specter of envy costs.

We propose that firms use outsourcing as an organizational strategy to address coordination costs associated with related diversification.[5] At a broad level, this argument builds on Coase's (1937) insight that the boundary of the firm ends where market exchange is more efficient than internal organization. Like Coase, we expect boundaries to adjust over time, and to reflect economic efficiency. But firms have many inter-related transactions, and externalities among them can lead to inter-dependant boundaries, as argued by Argyres and Liebeskind (1999). Others have applied this idea to bundles of supply relationships (Forbes and Lederman 2008; Novak and Stern 2007). We propose a different kind of inter-dependency: related diversification may lead to outsourcing when the source of scope economies – typically from sharing assets or capabilities – leads to increased coordination costs. Firms respond to increased coordination costs by considering which activities to shift back to the market. Thus, a diversifying firm can potentially mitigate coordination costs associated with diversification by substituting one (vertical) boundary of the firm for another (horizontal) one.

At the micro-level, outsourcing addresses each source of coordination costs described above. It mitigates managerial distraction by reducing monitoring costs, placing operating decisions in the hands of the (now independent) division and allowing the market to determine prices. Outsourcing also attenuates influence costs by reducing corporate monitoring as well as agents' incentives to lobby, since placing buyers and suppliers under separate management simplifies corporate oversight and eliminates the (former) divisions' ability to seek corporate interventions

[5] Capron, Mitchell and Swaminathan (2001) study the link between corporate diversification and divestitures. While similar to our question, a divestiture typically implies selling off an entire (vertically integrated) business unit, rather than restructuring a particular set of supplier relationships.

that alter the internal terms of trade.[6] Finally, if intra-firm comparisons are more salient to agents than comparisons to a supplier or contractor, then outsourcing activities performed by agents at the extremes of the incentive or skill distributions will reduce envy costs by reducing the variance in compensation. All of these arguments lead to our first hypothesis, which predicts that firms will use outsourcing to reduce coordination costs, whether from managerial distraction, rent seeking or envy, following related diversification.

HYPOTHESIS 1: *Firms use outsourcing to reduce coordination costs following related diversification.*

We offer two caveats about this hypothesis. First, we are holding all other aspects of the firm's internal organization constant. As described below, firms might adapt their organization in a variety of ways following diversification, and these adaptations could interact in complex ways. Thus, an important goal of our empirical strategy is to ensure that *ceteris* is in fact *paribus* when examining correlations between diversification and outsourcing.

A second caveat is that we provide no explicit rationale for diversification. Clearly, expected benefits must exceed expected costs; however, by emphasizing related diversification, we limit our claims to cases motivated by significant operational synergies. From a theoretical perspective, we are interested in cases where the benefits of diversification are systematically related to coordination costs; for example, when shared assets reside in divisions rather than with corporate parent, which is arguably the norm in related diversification. But the endogeneity of diversification does present an empirical challenge: finding exogenous variation in the incentive to diversify.

While Hypothesis 1 suggests a remedy to coordination costs, it does not distinguish among potential causes. Our second hypothesis addresses this question by asking when the link between diversification and outsourcing will be especially strong. Specifically, we argue that managerial

[6] Eccles and White (1988) suggest that divisions typically prefer external to internal sources of supply for reasons that are largely political.

distraction and rent-seeking explanations yield opposing predictions about the mediating effect of task differentiation, where task differentiation describes the relatedness of economic activity within the firm at the level of the agent.

When coordination costs are caused by managerial distraction, they should grow larger as the tasks performed in different divisions grow more diverse, holding the number of divisions constant. This proposition draws on the idea that managers are boundedly rational, and therefore make lower quality decisions when asked to monitor a more heterogeneous portfolio of divisions (Penrose 1959; Schoar 2002). Since task differentiation exacerbates the informational problems underlying monitoring costs in diversified firms (Holmstrom 1979), a theory of managerial distraction predicts the link between diversification and outsourcing will grow stronger as the tasks performed in different divisions become more heterogeneous.

When coordination costs arise from inter-agent envy, we expect the opposite result. Social comparisons are naturally more salient among employees who perform similar tasks within the same firm, making it costly for a firm to maintain operationally similar activities in different divisions when heterogeneity in incentives or individual ability could lead to a substantial divergence in compensation. For example, we might expect more enmity between investment and commercial bankers who both underwrite corporate debt offerings, than between a highly-incentivized sales force and the employees of a manufacturing division in the same firm. Therefore, when coordination costs arise due to the adverse impact of social comparison costs, we expect the link between diversification and outsourcing to grow stronger when the tasks performed in different divisions are more similar. Thus, our second hypothesis predicts that: (a) monitoring problems push firms to outsource more following diversification when task differentiation is higher between business units and (b) envy-based incentive problems induce firms to outsource more following diversification when task differentiation is lower between business units.

HYPOTHESIS 2: Following related diversification: (a) when task differentiation is high across business units, firms outsource to reduce monitoring and managerial distraction costs, but (b) when task differentiation is low outsourcing mitigates envy-based conflicts.

We test Hypothesis 2 by examining how heterogeneity in tasks mediates the relationship between diversification and outsourcing. If we find stronger effects when task differentiation is high, that suggests firms use outsourcing to address coordination costs that are primarily associated with managerial distraction. If diversification leads to more outsourcing when task differentiation is low, that would point toward the envy cost mechanism.

It is not clear whether influence activities – our third source of coordination costs – will rise or fall with task differentiation. One view is that diversity exacerbates monitoring costs by increasing the informational disadvantage of corporate managers, thus increasing the scope for rent-seeking activities. On the other hand, the incentive to play organizational politics may be stronger if divisions compete more fiercely with similar rivals for corporate resources; particularly when they are evaluated on relative performance. Depending on the relative strength of these forces, influence costs might increase, decrease or not vary at all with shifts in task differentiation. However, the institutional details of our empirical setting are more consistent with influence costs associated with monitoring problems, and, therefore, with outsourcing as a solution to high task differentiation as predicted by Hypothesis 2(a).

While our hypotheses focus on outsourcing as a strategic response to the costs of related diversification, managers in a multi-divisional firm might respond in other ways. For instance, Eccles (1985) describes how firms use transfer pricing policies to ration scarce resources, prevent free-riding and promote a sense of fairness. Shin and Stulz (1998) study capital budgeting and coordination. Other organizational levers for managing coordination costs include formal hierarchy (Garicano 2000); team-based incentives (Holmstrom 1982); job design (Holmstrom and Milgrom 1991); and technology adoption (Baker and Hubbard 2003).

We do not attempt to develop an omnibus theory of corporate organization that predicts when or how much each of these policies will respond to related diversification. Milgrom and Roberts (1990) highlight the difficulties of constructing such a theory when complementarities lead firms to adopt bundles of organizational practices, and Athey and Stern (1998) outline the challenge of identifying these complementarities in observational data. Our approach is to study a relatively simple example of the multi-divisional firm in an empirical setting, where it is possible to control for the likely endogeneity of diversification.

3. Industry and Institutional Background

Our data come from the private-for-hire vehicle industry – taxicab and limousine fleets. This setting presents a unique opportunity to study diversification and organizational adaptation for several reasons. First, in response to a wave of deregulation, many taxicab fleets diversified into the limousine market during the early 1990s, providing a plausible natural experiment in diversification. Second, variation in local market conditions creates exogenous between-market variation in the propensity for taxicab firms to diversify into limousines, while a ubiquitous regulatory requirement that limousine rides be prearranged generates exogenous within-market variation in compensation arrangements by vehicle type. Third, the low and relatively stable level of asset specificity between drivers and firms, makes it plausible to assume that the costs of transacting between drivers and fleets through the market is fixed, while diversification shifts the cost of organizing the same relationship through a firm. Fourth, the industry contains a large number of firms using a relatively homogeneous production technology; yet, there is considerable variation within and across firms in contractual agreements governing the ownership of vehicles. Finally, we have access to detailed panel data on firm-level organizational and contractual practices through the 1992 and 1997 Economic Census. This section describes the industry in greater detail, focusing on the legal factors that led to a wave of diversification between 1992 and

1997, and the economic factors that influence the decision to diversify into limousines and/or contract with owner-operators who drive their own vehicles.

Our measure of diversification is based on whether a fleet operates both taxicabs and limousines.[7] The primary difference between these two segments is that taxicabs can legally accept spot market hails from any passenger who solicits a ride, while all limousine rides must be pre-arranged through a centralized dispatcher. The number of taxicab licenses granted in a given market is fixed by a local taxicab commission, which provides medallions or permits that are associated with a specific vehicle and regularly inspected. Entry into the limousine segment is considerably more flexible. While some cities or states certify each limousine franchise, restrictions on the number of vehicles in use are rare.

The exclusion of limousines from the hail segment leads to some important differences in the organization of taxicab and limousine fleets. For example, taxicab drivers typically have higher powered incentives relative to limousine drivers. A study by the Transit Cooperative Research Program (1998) found that 50 percent of limousine drivers are paid a fixed hourly wage and 35 percent share a large portion of each trip's revenue with the firm, while 90 percent of cab drivers are full residual claimants – they pay the dispatcher a flat fee and keep 100% of their gross receipts. This arrangement gives diversified firms a strong incentive to allocate their most lucrative rides to limousines. When firms favor limousines over taxicabs, this contributes to a sense of alienation felt by taxicab drivers (Sheahan and Smith 2003), which we hypothesize is an important driver of envy-based conflicts in diversified firms.

There are two basic types of drivers in the taxicab segment: shift drivers and owner-operators. Shift drivers lease cars, permits and dispatching services from a fleet. In 1990, fifty-one percent of the vehicles in US fleets were staffed via these day or half-day leases (TLPA 1990). The same survey suggests that roughly one-third of the vehicles in US fleets are leased on a weekly or

[7] There are two standard approaches used to measure the relatedness of diversification: similarity in SIC codes and similarity in activities, resources, skills, customer groups and physical bases. Taxicab to limousine expansion clearly meets either definition of related diversification.

monthly basis. Owner-operators are drivers who have purchased a vehicle and medallion, and may or may not contract with a fleet for dispatching services. Our data show that owner-operators accounted for approximately 14 percent and 37 percent of vehicles in fleets in 1992 and 1997, respectively, (see Table 1), and a larger (but unknown) percentage of all taxicabs in the market.

Interestingly, vehicle ownership does little to change a taxicab driver's short-term incentive to locate rides—since both fleet-drivers and owner-operators are typically full residual claimants. However, owning a taxicab and medallion may solve moral hazard problems, or promote long-term investments to acquire industry-specific knowledge. Given the benefits of having drivers own their own taxicabs, the level of fleet-ownership in the taxicab segment is at first puzzling (Schneider 2005). However, many shift drivers are recent immigrants with very few marketable skills, who would find it difficult to finance a car and medallion, which can cost over $300,000 (Luo 2004).

Our discussions with a number of fleet managers suggests that attracting and overseeing the labor force is challenging in this industry, and presents difficult trade-offs. In particular, the leasing system allows fleets to tap a large low-skilled labor pool; however, managing shift drivers, who are only weakly committed to their job, is a major challenge. These drivers are often characterized as having limited knowledge of the city; poor language skills; little patience for special requests and strong tendencies to drive aggressively. Owner-operators, by contrast, are characterized as professionals with an intricate knowledge of their city, who are fluent English speakers, keep their vehicle clean and in good operating condition, and give the impression that they take pride in getting their passengers from point A to point B safely. Moreover, our interviews suggest that while shift drivers tend to rely on a combination of dispatch and serendipity to generate rides, owner-operators will invest in industry-specific knowledge, often developing their own relationships with repeat customers and a better sense of where the hails are likely to be at any point in time.

Before the early 1990s, the taxicab and limousine segments were kept separate through regulation. This situation changed in the early 1990s, following a series of legal challenges to local regulatory authority. One of the most famous examples was the 1993 "Freedom Cab" case (*Jones v. Temmer*) in Denver**,** where a small firm challenged Colorado's broad regulatory authority over entry into the taxicab market (Cox 1993). Within four years of the Freedom Cab case, deregulation of entry into the limousine segment was ubiquitous. The practical result of these changes was to remove any legal or political obstacles to cross-ownership, which led to a broad wave of diversification. In our data, 54% of the taxicab fleets that survived from 1992 to 1997 diversified into limousines during that period (see Table 1).

The logic behind diversification into the limousine segment is predicated on fixed cost sharing and cross-selling. While opportunities for cost sharing extend to a wide range of activities – from servicing vehicles to negotiating group rates for insurance – shared marketing and dispatch operations present the greatest opportunity. However, shared dispatching also creates significant challenges.

Whereas taxicab-only firms dispatch vehicles based solely on proximity to the call, integrated taxicab and limousine firms dispatch limousines to the highest value rides, in part because the firm captures a share of the receipts from limousine rides. As long as taxicab drivers pay a flat fee for leasing and dispatching, which gives them strong incentives to find spot market street hails, the fleet will have an incentive to utilize all available limousine capacity before providing any dispatch service to the cabs. Our discussions with fleet operators suggest that conflicts over shared dispatching present serious coordination challenges for the firm. In some cases, taxicab drivers scoop limousine dispatches by arriving in advance of the limousine and giving customers the mistaken impression that their limousine had been cancelled. Some firms reported that angry taxicab drivers had vandalized limousines and threatened limousine drivers during shift changes, while others noted that taxicab drivers bribed dispatchers who "accidentally" assigned them

limousine rides. At a minimum, integration creates confusion among shift drivers over contract terms (taxicab drivers in diversified firms pay lower lease prices because they receive fewer and less attractive dispatches, but this is often not well understood by the shift drivers), and engenders ill will between taxicab and limousine drivers.

Thus, integrated fleets face both monitoring problems and envy costs that can be reduced by shifting ownership of taxicabs outside the boundary of the firm. In particular, outsourcing taxicabs to drivers (e.g., owner-operators) simplifies the dispatching process, reduces confusion over contract terms, provides incentives for drivers to invest in industry-specific knowledge that facilitates more efficient substitution of dispatching effort for driver search, and makes social comparisons between taxicab and limousine drivers less salient.

Our discussion with taxicab and limousine operators suggests that our theory of outsourcing as a solution to coordination problems associated with diversification is broadly consistent with anecdotal evidence discussed in the industry. Taxicab firm managers often invoke the professionalism of owner-operators as the basis of their decision to outsource taxicab ownership following diversification, which is perhaps a way of saying shift drivers' unprofessional attitude and actions were particularly damaging in a diversified firm. Owner-operators more readily understand the *quid pro quo* inherent in their contract with a diversified taxicab firm, and are more likely to identify themselves as part of a cadre of owner-operators as opposed to an agent of the firm, both of which alleviate envy-based conflict between taxicab and limousine drivers. Furthermore, owner operators' investments in market-specific knowledge makes them less reliant on the dispatcher than are shift drivers, and, therefore, less likely to subvert the dispatching system through scooping and bribing. Taken together, the professionalism and knowledge of owner-operators serves to simplify the dispatching system, which alleviates some of the coordination costs managers face overseeing an integrated taxicab and limousine business.

4. Data and Measurement

We use data from the 1992 and 1997 Economic Census of Transportation and Warehousing, which includes every taxicab (SIC 412100) and limousine (SIC 411920) firm in the United States with at least one employee. These data contain establishment-level information on line of business revenue at the six-digit industry level, number of vehicles by type (taxicab vs. limousine) and geographic identifiers. We focus on taxicab firms ("fleets") with at least two taxicabs, $10,000 of taxicab revenue and at least one other taxicab fleet in their market (county).[8] The 1992 and 1997 Economic Censuses contain 1,020 and 1,106 fleets, respectively, that meet these criteria.[9] Our panel regressions are based on a set of 560 fleets that reported complete data in both years. Table 1 presents descriptive statistics for these fleets, which account for over 70 percent of industry revenue and approximately two-thirds of all vehicles.

As can be seen in Table 1, there were no diversified fleets in 1992. By 1997, 54 percent of the taxicab fleets in our sample had entered the limousine market. Table 1 also shows a dramatic increase in the total number of taxicabs in our sample. This increase reflects the many formerly independent owner-operators who decided to contract with taxicab fleets during this time period. These independent drivers are only captured by the Economic Census when they contract with a fleet.

We measure diversification using an indicator variable *DIVERSIFY* that equals one for fleets in SIC code 412100 with no limousines in 1992, and one or more limousines in their fleet by 1997. Alternative measures, such as a threshold for the percentage of total revenue or capital in the limousine segment, were highly correlated with the single limousine measure of diversification, yielding very similar results.

[8] Based on discussions with industry participants two taxicabs and $10,000 of revenue was assumed to be the minimum level of involvement in the taxicab industry for a firm to be considered a substantial organization. Our identification strategy requires at least one other taxicab firm in the market. Alternative samples, based on more or less stringent restrictions, led to qualitatively similar results.

[9] Approximately 2,000 observations in both 1992 and 1997 do not indicate the number of taxicabs in the fleet. We discard these observations, which are primarily administrative record (AR) firms – very small establishments that the Economic Census does not actually survey but rather imputes values for.

We use population density as a proxy for task differentiation in the taxicab and limousine industry. In dense urban markets where the volume of spot market street hails are substantial, taxicabs and limousines serve different customer segments and use different search technologies. By contrast in non-urban markets, where most taxicab and limousine rides are dispatched through the same central switchboard, task differentiation between taxicab and limousine drivers is low. We measure population density in two ways, continuously as the log of county population in 1992 divided by the number of square miles in the county (*DENSITY*) and using an indicator variable *URBAN* that equals one for fleets located in counties with population density above 4,000 people per square mile.[10]

Our dependent variable *FLEETOWN* is the share of all taxicabs owned by the fleet, which is equal to the number of taxicabs owned by the fleet divided by the total number of taxicabs operated by the fleet. Table 1 shows that the mean fleet ownership rate fell from 86 percent in 1992 to 63 percent in 1997. Figure 1 foreshadows our baseline result by showing that there is a strong correlation between *DIVERSIFY* and changes in *FLEETOWN*. Moreover, this correlation does not appear to be driven by heterogeneity in fleet size, which might be the case if both diversification and increased use of owner operators were correlated with unobserved productivity shocks. Figure 2 illustrates our second key result: the link between diversification and changes in *FLEETOWN* is much stronger in non-urban markets.

While competition drives owner-operators towards fleet affiliation – a trend that is readily observed in Table 1 – our theory predicts that these owner-operators will seek to join fleets that have diversified into the limousine segment because the match between an owner-operator and a diversified fleet creates more value than matching owner-operators to focused taxicab firms. This matching process between firms and agents by type suggests an implication of our hypotheses in terms of the evolution of firm-level capabilities. Fleets that are vertically-integrated and focused

[10] This measure of *URBAN* is based on the average population density of the 1,000 largest cities (by population) in the United States during the last quarter of the 20th century (Kim 2007).

compete by minimizing capital investment in vehicles and managing a pool of low-skill drivers, while diversified and vertically dis-integrated fleets compete by establishing a brand that attracts the high quality rides valued by independent limousine and taxicab drivers.

5. Methods

Our core specification uses a simple OLS regression in first differences. Let *i* index the fleets in our sample and Δ represent the first-difference operator (between 1992 and 1997). To test Hypothesis 1 we regress $\Delta FLEETOWN_i$ on $\Delta DIVERSIFY_i$ and a vector of control variables X_i that might influence firms' asset ownership decisions, including: firm size (measured by lagged dollar value of a firm's capital stock); changes in local market population; changes in the share of taxicabs owned by other firms in the same market; changes in the number of taxicabs in other firms in the market; changes in the number of limousines in other firms in the market; a dummy for fleets that register as a corporation;[11] and a dummy for urban markets. Thus, our initial specification is:

$$\Delta FLEETOWN_i = \alpha + \beta \Delta DIVERSIFY_i + X_i \delta + \varepsilon_i, \quad (1)$$

where the parameter α measures the sample average change in *FLEETOWN*, and ε is the unexplained portion of any changes in outsourcing. Since we only observe two time-periods, taking first-differences is similar to introducing firm fixed-effects, as either approach controls for unobserved time-invariant fleet-level factors that might influence *FLEETOWN*.[12]

While (1) controls for any correlation between diversification and time-invariant fleet-level unobservables that affect outsourcing, one still might be concerned about selection based on time-varying factors. In an experimental design, we would randomly assign diversification status and

[11] We also ran models with a full set of legal form of organization dummies (indicators for corporation, partnership, sole proprietorship, co-operative) and obtained similar results.

[12] To precisely replicate the first-differences results in differences-in-differences (DID) we used a common set of right hand side variables, with no time invariant terms (and no constant in the first-differences specification). Two advantages of the first-differences estimator (relative to the more common within estimator) are that there is no need to adjust the robust standard errors, and it provides some additional flexibility in how we specify X_i. For example, we control for lagged size rather than size changes, which might be endogenous.

measure *ex post* differences in fleet asset-ownership across the treatment and control groups. In practice, we observe changes in both diversification and asset ownership following a regulatory shift that creates new opportunities for expansion into related markets. In this setting, we might expect diversifiers to be those fleets who will benefit most from expanding, which could confound our estimates. For example, if fleets that experience a positive productivity shock expand through both diversification into limousines and increased contracting with owner operators, the coefficient estimate on $\Delta DIVERSIFY$ will be biased.

We address the potential endogeneity of diversification by using the lagged concentration of limousines in a given market (*LIMOHHI92*) as an instrument for *DIVERSIFY*. In particular, we assume that *LIMOHHI92* is uncorrelated with factors in the error term that influence taxicab fleets' outsourcing decisions, and negatively correlated with the probability of diversification following deregulation. Why does limousine concentration serve as a barrier to entry? Industry observers suggest that diversification from taxicabs into limousines is less attractive if there are strong limousine incumbents that have already developed deep relationships in the lucrative corporate segment of the limousine market (TLPA Fact Book, 2004). High limousine concentration also represents an entry barrier because of the increased threat of retaliation.[13] In practice we find that the first-stage results are very strong.

Our instrumental variables identification strategy would not be valid if *ex ante* limousine concentration were correlated with factors that influence of the relationship between taxicab fleets and drivers in local markets. However, the cross-sectional correlation between *FLEETOWN* and *LIMOHHI92* was not significant (raw correlation of 0.04) and our informal discussions suggest that the primary factor limiting entry in the limousine market was access to a base of corporate customers.[14] Another potential drawback of our instrumental variable is that it only generates

[13] Retaliation could be economic or physical. Celona, 2004a and 2004b reports explicit connections between organized crime and intimidation of limousine drivers.
[14] Another concern might be that the timing or nature of deregulation is correlated with both *ex ante* limousine concentration and factors that influence *FLEETOWN*. However, our discussions with local

market-level variation – we could not identify any fleet-level shifters of the costs or benefits of diversification that would satisfy the exclusion restriction for an instrument. In practice, we find that our IV generates substantial between-fleet variation, since the 560 fleets in our balanced panel operate in hundreds of different local markets.

To complement our instrumental variables analysis, we use propensity score methods (Rosenbaum and Rubin 1983; Imbens 2004; Villalonga 2004) to control for correlations between X and *DIVERSIFY*. This approach is similar to the two-step selection correction originally proposed by Heckman (1979), but makes fewer functional form assumptions in the first stage. We estimate propensity scores $\Pr(DIVERSIFY_i = 1 | X_i)$, using a probit model and exclude fleets that do not fall on the common support of the estimated propensity score distribution. Intuitively, this approach will outperform standard regression control methods when the response of *FLEETOWN* to *DIVERSIFY* varies with X (i.e. there is treatment heterogeneity), and X is correlated with *DIVERSIFY*.

Table 2 presents estimates from the probit model that we use to estimate the propensity score: column (1) reports coefficients and column (2) reports marginal effects at the average value of each regressor. Only firm size, population density and limousines per capita had a statistically significant effect on the diversification decision. The effect of firm size is large and negative, though imprecise, perhaps indicating that larger firms anticipate a more costly re-organization. Firms located in lower density areas are also less likely to diversify, perhaps reflecting an increased demand for limousine service in more urban markets. Limousines per capita had a significant negative effect on diversification, which is consistent with the rationale offered for our instrumental variables estimator. Columns (3) through (8) in Table 2 examine the sample means of X for diversifying and non-diversifying fleets in both the full and matched samples. While the percentage differences are typically small, they are statistically significant for several variables,

regulators suggest that deregulation was often carried out at the state level with little concern for variation in local market conditions.

and trimming the sample produces only a modest improvement. This suggests that using propensity score weights is appropriate, though we do not expect large changes in β given the modest explanatory power of our first stage results.

Our test of Hypothesis 2, which predicts that (a) monitoring costs drive firms toward outsourcing when within-firm task differentiation increases, while (b) social comparison costs drive firms toward outsourcing when within-firm task differentiation decreases, modifies model (1) to include the main effect of *DENSITY* an interaction between Δ*DIVERSIFY* and *DENSITY*, where population density is a proxy for task differentiation.

(2) $\Delta FLEETOWN_i = \alpha + \beta_1 \Delta DIVERSIFY_i + \beta_2 DENSITY_i + \beta_3(\Delta DIVERSIFY_i \text{ x } DENSITY_i) + X_i \delta + \varepsilon_i,$

The key coefficient in model (2) is based on a triple-difference: β_3 measures how changes in outsourcing for diversified fleets, relative to focused taxicab firms, vary across different types of markets. We might nevertheless wish to adjust for endogenous diversification, and if *DENSITY* is exogenous, its interaction with *LIMOHHI92* should provide a valid second instrument. Unfortunately, this approach performed poorly. Although our second stage point estimates were similar to the OLS estimates, they were very imprecise, perhaps due to the high degree of correlation between the instruments. We therefore, omit the 2SLS robustness tests and, as in our tests of the first hypothesis, use propensity score matching to control for observable differences between diversifiers and non-diversifiers *ex ante*.[15] To ensure that our results are not driven by outliers in the *DENSITY* distribution, we also run an alternative specification where *DENSITY* is replaced with the binary measure *URBAN*.[16]

6. Results

Table 3 presents our baseline results, which show the impact of lateral diversification into the limousine market on the asset-ownership mix of a taxicab fleet. We estimate five different

[15] We also replicated all of the results using a Tobit specification (results omitted).
[16] The same results were obtained with *DENSITY* winsorized at the 1st and 99th percentile (results omitted).

versions of equation (1): OLS, Tobit, firm fixed-effects, propensity score weighted regression and the instrumental variables analysis (2SLS). Column (1) contains the baseline OLS results. The average change in the fleet vehicle ownership rate for lateral diversifiers relative to incumbents who did not expand laterally is -31 percent, and this effect is significant at the 1 percent level. This estimate suggests that diversification accounts for roughly half of the large secular shift towards driver-owned cabs shown in Table 1. In column (2), we estimate a Tobit specification to account for the truncated distribution of *ΔFLEETOWN*, and find very similar results.[17]

Column (3) in Table 3 presents estimates from the traditional within estimator, in part to show that they are not substantially different from our preferred first-differences specification. While the point estimate on *DIVERSIFY* is 25 percent larger, the difference is not statistically significant. The substantial change between columns (1) and (3) in the coefficient on log(taxicab capital) reflects a change in the control variable: the fixed-effects model includes changes in the stock of vehicles, which might be endogenous, while the OLS model includes only the 1992 vehicle stock. In column (4), we report estimates from the propensity score model, which are indistinguishable from those produced by OLS.[18]

Since the decision to diversify laterally is endogenous, the results shown in columns (1) through (4) can only be interpreted as correlations. It is possible that other unobserved characteristics of the firm, or market, are correlated with both *DIVERSIFY* and *FLEETOWN*. In column (5), we present estimates from our instrumental variables model, which controls for the potential endogeneity of diversification by using *LIMOHHI92* as an instrument for lateral diversification. The first-stage relationship between limousine-market concentration and diversification is strongly negative: the t-statistic on *LIMOHHI92* in an OLS regression is -6.5 and the first-stage F-statistic of 11 indicates a powerful instrument. At the top of column (5), we

[17] This is not surprising as we observe only 33 censored observations – establishments where *ΔFLEETOWN* equals either 0 or 1.
[18] The trimming procedure excludes 55 fleets, or roughly 10 percent of the total sample. These were among the very largest taxicab fleets in our data, which generally did not diversify (see Table 2).

report the 2SLS coefficient on *DIVERSIFY* of -0.50, which is statistically significant at the 1 percent level. We interpret this result as evidence of a causal relationship between diversification and changes in firm asset ownership rates in this industry. While the 2SLS point estimate is larger than the OLS estimate in column (1), they are not statistically different. However, a Hausman test for the exogeneity of *DIVERSIFY* rejects the null hypothesis that the OLS results are unbiased. These findings provide some evidence that outsourcing is an important method for managing the increase in coordination costs associated with related diversification.

Table 4 presents tests of the second hypothesis, which predicts that (a) monitoring costs push firms to outsource following diversification when task differentiation is high across business units, but (b) when incentive intensity varies and task differentiation is low, firms will outsource to mitigate social comparison costs. Column (1) shows the OLS results, where the categorical variable *URBAN* interacted with *DIVERSIFY* proxies for task differentiation in diversified taxicab and limousine firms. The main effect of diversification continues to be large, negative (-0.45) and strongly statistically significant, and the interaction term is large, positive and statistically significant (0.55), indicating that outsourcing is far more extensive following diversification in non-urban markets where task differentiation between taxicabs and limousines is low. Controlling for *ex ante* observable differences between diversifiers and firms that remain focused using propensity score matching has little effect on the model estimate (Column 2). Column (3) replaces the discrete measure *URBAN* with the continuous measure log(population density). The results show for diversifying taxicab firms a 1% increase in population density leads to a 0.11% shift toward firm ownership of taxicabs, relative to other diversifying taxicab firms. Propensity score matching, again, has little impact on the results (Column 4). The results support the prediction that, given variability in incentive intensity, social comparison costs are inversely related to task differentiation across agents within the same firm.

7. Conclusions

This paper examines how firms reorganize following related diversification. We propose that outsourcing reduces coordination costs in multi-divisional firms, and develop a test to discriminate between managerial distraction and envy as the main source of these costs. We test our hypotheses using data on taxicab and limousine firms in hundreds of different markets between 1992 and 1997; a period when widespread deregulation led to a diversification wave.

We find that diversifying taxicab fleets outsource extensively, deploying 30 percent more owner-operator drivers than fleets who continue to focus only on the taxicab segment. We also find that the link between diversification and outsourcing is stronger in less urban markets, where task differentiation between the taxicab and limousine drivers is less pronounced. The results are consistent with the idea that outsourcing mitigates coordination costs that arise following related diversification, and is particularly effective at reducing envy conflicts between agents with heterogeneous incentives in the same firm. The envy-cost interpretation is also consistent with anecdotal evidence from the field, where fleet managers invoke the difficulty of coordinating shift (taxicab) drivers with limousine drivers as a reason for shifting toward contracting with (taxicab) owner-operators.

This research has implications for scholars and managers alike. While a number of studies have shown that diversification creates coordination costs, this observation is rarely reconciled with the idea that firms make organizational changes to enhance efficiency. This paper connects these two perspectives, providing evidence that firms respond to the costs of diversification by adapting organizationally. Moreover, we show that there is causal relationship between diversification and outsourcing. Thus, the normative implications of this work connect two of the most important strategy choices corporate managers face, while a positive contribution of this paper is that it links a literature on related diversification with organizational economics' emphasis on vertical

supply relationships. Finally, we provide what we believe is the first large sample empirical evidence that outsourcing is an important tool for alleviating inter-agent envy costs.

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Table 1 – Descriptive statistics

	1992		1997	
	Mean	Std dev	Mean	Std dev
Test sample (n=560)				
Taxicab revenue ($000)	675	1890	849	2739
Taxicab capital ($000)	230	673	319	934
Total taxicabs	24	64	35	83
Fleets with 2 taxicabs	0.27	0.44	0.09	0.29
Fleets with 3-5 taxicabs	0.19	0.39	0.22	0.42
Fleets with 6-10 taxicabs	0.19	0.39	0.20	0.40
Fleets with 11-25 taxicabs	0.17	0.38	0.21	0.40
Fleets with 26-50 taxicabs	0.09	0.29	0.10	0.30
Fleets with >50 taxicabs	0.10	0.30	0.17	0.38
Fleet owned taxicabs (fraction)	0.86	0.33	0.63	0.36
Taxicab and limousine firm	0.00	0.00	0.54	0.50
Taxicabs in the county	231	480	474	673
Limousines in the county	103	228	221	414
Limousine market concentration (HHI)	0.05	0.13	0.32	0.36
County population (000)	885	1036	985	1147
County square miles	861	1642	878	1714
Urban	0.37	0.48	0.36	0.48
Sole proprietor	0.14	0.35	0.14	0.35
Partnership	0.02	0.13	0.02	0.15
Corporation	0.80	0.40	0.80	0.40
Cooperative	0.04	0.19	0.04	0.19
All firms	Total 1992		Total 1997	
Taxicab revenue ($M)	521		669	
Number of taxicabs	20,014		29,960	
Number of fleet owned taxicabs	16,426		18,303	
Number of fleets	1,020		1,106	

The test sample includes firms that meet all of the following criteria: SIC code 4121 (taxicabs) in 1992, {taxicab revenue ≥ $10K, at least 2 taxicabs, and at least 2 taxicab fleets in their market (county)} in both 1992 and 1997. "All firms" includes firms that meet the sampling criteria in at least one year.
Census Bureau restrictions prohibit publication of minimum and maximum variable values.

Table 2 – Probit model of diversification from taxicabs to limousines

Dependent variable (y) = Diversified from taxicabs to limousines between 1992 and 1997 {0,1}									
				Full Sample			Common Support		
	(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)
	Coef.	dy/dx at avg. val. of x		Focus.	Divers.	t-test on Δ	Focus.	Divers.	t-test on Δ
1992 total factor productivity	-0.05	-0.02		0.11	-0.00	1.98	0.02	-0.02	0.54
	(0.09)	(0.03)		(0.05)	(0.04)		(0.05)	(0.04)	
1992 Fleet taxicab ownership rate	0.17	0.07		0.89	0.83	1.95	0.88	0.83	1.65
	(0.22)	(0.09)		(0.02)	(0.02)		(0.02)	(0.02)	
1992 log (taxicab capital)	-0.86	-0.34	*	4.75	3.93	7.42	4.34	3.82	5.25
	(0.52)	(0.21)		(0.09)	(0.07)		(0.07)	(0.06)	
1992 log (taxicab capital^2)	0.02	0.01		9.50	7.86	6.35	8.68	7.64	4.26
	(0.02)	(0.01)		(0.21)	(0.15)		(0.20)	(0.14)	
Partnership indicator	-0.37	-0.15		0.03	0.01	0.56	0.02	0.01	0.36
	(0.46)	(0.18)		(0.02)	(0.03)		(0.02)	(0.02)	
Corporation indicator	0.20	0.08		0.80	0.81	-0.24	0.79	0.81	-0.64
	(0.16)	(0.06)		(0.03)	(0.02)		(0.03)	(0.02)	
1992 log (county population)	0.11	0.04		12.88	12.86	0.19	12.71	12.84	-1.02
	(0.11)	(0.04)		(0.09)	(0.09)		(0.10)	(0.09)	
1992 log (county population^2)	0.00	0.00		6.15	5.73	3.67	6.06	5.71	3.02
	(0.00)	(0.00)		(0.08)	(0.08)		(0.09)	(0.08)	
Log (county square mile)	-0.11	-0.04	*	3.14	2.85	1.02	3.13	2.87	0.96
	(0.06)	(0.02)		(0.22)	(0.18)		(0.21)	(0.17)	
1992 log (taxicabs in the county$_{-i}$)	-0.03	-0.01		2.18	1.70	3.55	2.05	1.71	2.29
	(0.08)	(0.03)		(0.10)	(0.09)		(0.11)	(0.10)	
1992 log (limos in the county)	-0.16	-0.06	***	0.25	0.34	-2.27	0.23	0.35	-2.83
	(0.06)	(0.02)		(0.03)	(0.03)		(0.03)	(0.03)	
Urban (1992)	0.07	0.03		0.43	0.61	-1.41	0.44	0.60	-1.33
	(0.26)	(0.10)		(0.08)	(0.10)		(0.08)	(0.09)	
Constant	0.28	0.03							
	(1.05)	(0.10)							
Pseudo R^2		0.09							
N		560		254	306		213	292	

*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

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Table 3 – Diversification and asset ownership

Models 1,2,4,5: $FLEETOWN_{i1997} - FLEETOWN_{i1992} = a + B_1\sigma_i + \mathbf{X_{ic}B_c} + e_i$
Fixed Effects model: $FLEETOWN_{it} = a + B_1\sigma_{it} + \mathbf{X_{itc}B_c} + FIRM_i + YEAR_t + e_i$

Dep. variable = Change in the % of vehicles in the fleet owned by the firm (ΔFLEETOWN)

	(1) OLS		(2) Tobit		(3) F.E.		(4) Matched		(5) 2SLS	
DIVERSIFY	**-0.31**	***	**-0.29**	***	**-0.40**	***	**-0.27**	**	**-0.50**	***
	(0.07)		**(0.04)**		**(0.05)**		**(0.11)**		**(0.09)**	
1992 log (taxicab capital)	-0.03		-0.03	*	0.21	***	-0.09	*	-0.05	*
	(0.02)		(0.02)		(0.05)		(0.05)		(0.03)	
ΔCounty taxicab ownership rate$_{-i}$	0.09	*	0.09		0.08		0.04		0.09	*
	(0.05)		(0.05)		(0.06)		(0.04)		(0.05)	
Δlog(taxicabs in the county$_{-i}$)	0.03	**	0.04	*	-0.00		0.03		0.03	**
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Δlog (limousines in the county$_{-i}$)	-0.02		-0.02		0.02		-0.03		-0.02	
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
Δlog (county pop.)	-0.13		-0.14		-0.04		-0.12		-0.13	
	(0.15)		(0.19)		(0.10)		(0.19)		(0.15)	
Corporation	0.10	**	0.10	**			0.11	**	0.12	**
	(0.05)		(0.05)				0.05		(0.05)	
Urban (1992)	-0.05		-0.07				-0.09		-0.05	
	(0.07)		(0.07)				(0.11)		(0.06)	
Year dummy					-0.02	**				
					(0.01)					
Constant	0.11		0.10		34.51	**	0.28		0.29	
	(0.11)		(0.12)		(16.58)		(0.21)		(0.18)	
560 firm fxd effects	N		N		Y		N		N	
R^2 /Psuedo-R^2	0.12		0.07		0.23		0.09		n/a	
N	560		560		1120		505		560	
1st stage summary statistics										
F-statistic									11	
t-statistic on IV									-6.5	
Adjusted R^2									0.13	

Standard errors are robust and clustered at the market (county) level except in the fixed effect model where they are clustered at the firm level
There are 22 left censored and 11 right-censored observations in the Tobit specifications
The 2SLS IV = Herfindahl index of lagged (1992) market (county) concentration of limousines.
The Durbin-Wu-Hausman test rejects the null hypothesis that the instrument is not necessary at the 1% level (χ^2= 20 in column 5)
*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

Table 4 – Diversification, task differentiation and asset ownership

$FLEETOWN_{i1997} - FLEETOWN_{i1992} = a + B_1\sigma_i + B_2URBAN_i + B_3(\sigma_i \times URBAN_i) + \mathbf{X_{ic}B_c} + e_i$

Dep. variable = Change in the % of vehicles in the fleet owned by the firm (ΔFLEETOWN)

	(1) OLS		(2) Matched		(3) OLS		(4) Matched	
DIVERSIFY	**-0.45**	***	**-0.46**	***	**-1.03**	***	**-1.11**	***
	(0.04)		**(0.04)**		**(0.20)**		**(0.22)**	
DIVERSIFY URBAN (1992)	**0.55**	**	**0.57**	***				
	(0.17)		**(0.19)**					
URBAN (1992)	**-0.20**	**	**-0.20**	**				
	(0.09)		**(0.10)**					
DIVERSIFY x LOG (1992 POP. DENSITY)					**0.11**	***	**0.11**	***
					(0.03)		**(0.04)**	
LOG(1992 POPULATION DENSITY)					**-0.03**	*	**-0.04**	*
					(0.02)		**(0.02)**	
1992 log(taxicab capital)	-0.03		-0.08	*	-0.03		-0.08	*
	(0.02)		(0.04)		(0.02)		(0.04)	
ΔCounty taxicab ownership $rate_{-i}$	0.06		0.07		0.06		0.08	*
	(0.05)		(0.05)		(0.05)		(0.05)	
Δlog(taxicabs in the $county_{-i}$)	-0.00		-0.00		-0.00		-0.00	
	0.01		(0.02)		0.01		(0.02)	
Δlog (limousines in the $county_{-i}$)	0.01		0.02		0.01		0.01	
	(0.02)		(0.02)		(0.02)		(0.02)	
Δlog (county pop.)	-0.00		-0.00		-0.00		-0.00	
	(0.00)		(0.01)		(0.00)		(0.00)	
Corporation	0.10	**	0.11	**	0.10	**	0.11	**
	(0.05)		(0.05)		(0.05)		(0.05)	
Constant	-0.14	**	-0.14	**	0.04		0.06	
	(0.06)		(0.05)		(0.09)		(0.10)	
R^2	0.18		0.18		0.18		0.18	
N	560		505		560		505	

Standard errors are robust and clustered at the market (county) level
*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

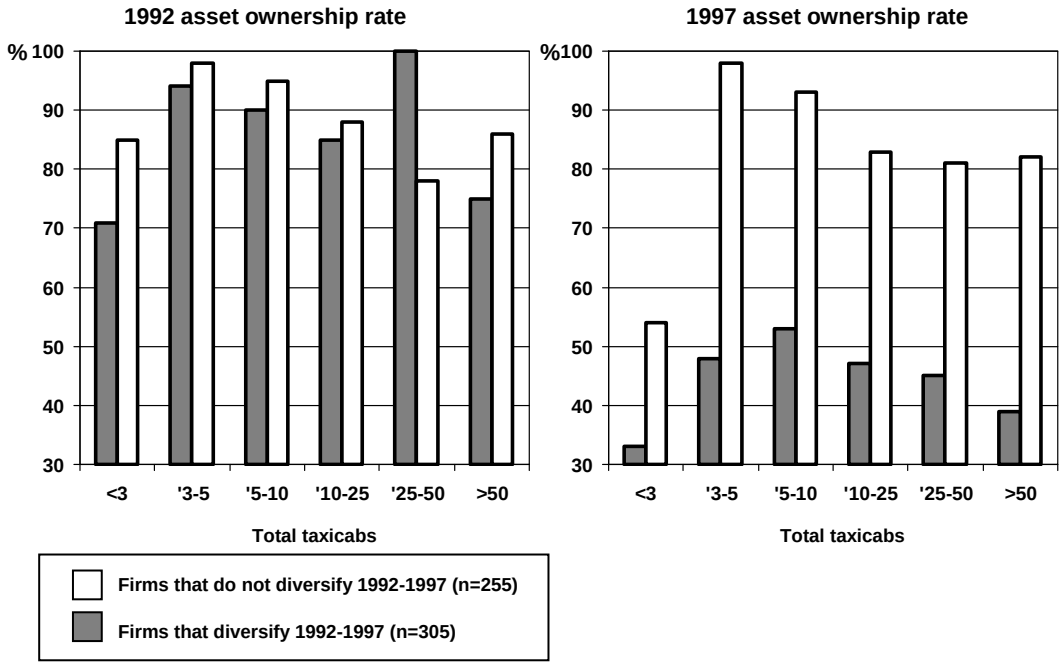

Figure 1: Diversification and asset ownership (*FLEETOWN*) by firm size

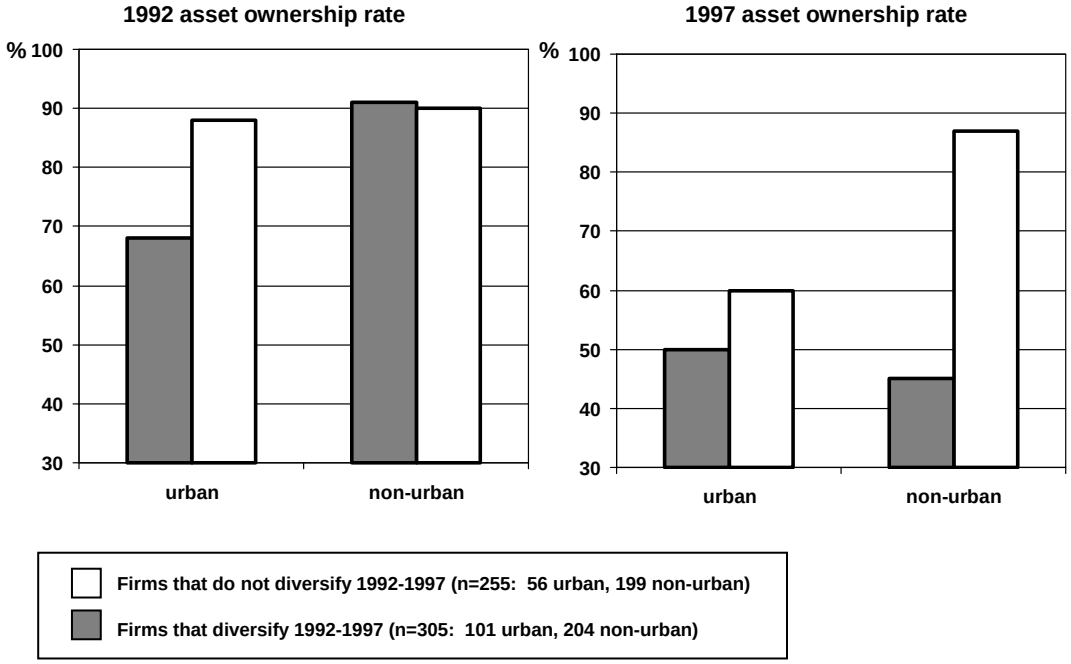

Figure 2: Diversification and asset ownership (*FLEETOWN*) by urban vs. non-urban