ANNALES D'ÉCONOMIE ET DE STATISTIQUE. – N° 15/16 — 1989

The Economic Effects of Automobile Dealer Regulation

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ABSTRACT. – Since the US Dealer Day in Court Legislation of 1956, many states have altered the nature of written contracts between automobile manufacturers and their dealers. In particular, restrictions have been placed on the manufacturers' rights to add new dealers to market areas of existing dealers and to terminate dealers. Are these laws efficient in the sense that they complete otherwise incomplete contracts (the public interest hypothesis)? Or are these laws inefficient in that they bestow benefits on existing dealers at the expense of consumers and manufacturers (the private interest hypothesis)? We develop a model of the incentive and effects of this intervention that encompasses both hypotheses and offers distinguishing empirical implications.

Les effets économiques de la réglementation de la distribution d'automobiles

RÉSUMÉ. – Depuis la journée consacrée à la jurisprudence sur les concessionnaires en 1956, de nombreux États américains ont modifié la nature des contrats entre les fabricants d'automobiles et leurs concessionnaires. Des restrictions ont été aportées aux droits contractuels des fabricants d'annuler des concessions ou d'en créer de nouvelles dans les régions où il en existait déjà. Ces lois sont-elle efficaces, dans le sens qu'elles complètent des contrats qui seraient sans elles incomplets (hypothèse de l'intérêt public) ? Ou bien, assurent-elles simplement un transfert aux concessionnaires existants au détriment des consommateurs et des fabricants (hypothèse de l'intérêt privé) ? On étudie ici un modèle compatible avec les deux hypothèses.

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1 Introduction

Business transactions between manufacturers and retailers are frequently conducted through franchise contracts that give rights to both parties to the contract [1] The power of a manufacturer to terminate franchise contracts, to establish new franchises, or to impose constraints on an established franchisee's decisions is explicit in these contracts and yet a contentious part of franchise law. Recently, the state has intervened in franchise contracts to alter their nature. We seek an economic explanation of the assignment of rights in franchise contracts and on the role of the state in altering this assignment.

In 1956, the US Congress passed the Dealer Day in Court Act. This Act allowed states to regulate automobile franchise contracts. Before this Act, US courts' had followed a general laissez-faire policy when ruling on all contracts between manufacturers and franchisees. While aware of the apparent one-sidedness of the contracts, courts adhered to the principle of freedom of contract. [2] For example, the courts upheld the power of manufacturers to terminate franchise contracts at will since this was written explicitly into contracts. The courts refused to consider that this power was implicitly limited in the contracts by good faith on the manufacturer's part and that manufacturers were violating the implicit contracts. [3]

The Dealer Day in Court Act marked the beginning of a more interventionist approach by the courts and legislators. States now place constraints on the following terms in automobile retailer contracts: the grounds for franchise cancellation or nonrenewal, the manufacturer's right to establish new outlets in communities with existing dealers, the manufacturer's right to force the sale of higher quantities of vehicles, the rights of first refusal on the part of the manufacturer in the sale or transfer of the franchise contract. These regulations shift power towards the dealer *ex post*, or once the contract is signed.

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1. By the 1980's, approximately forty percent of domestic sales in the United States involved franchised retailers (UNITED STATES DEPARTMENT OF COMMERCE [1986]).
2. The decision in *Ford Motor Co. v. Kirkmeyer Motor Co.* [65 F. 2 d 1001 (4th Cir. 1933)] is representative:

   "*While there is a natural impulse to be impatient with a form of contract which places the comparatively helpless dealer at the mercy of the manufacturer, we cannot make contracts for parties or protect them from provisions of contracts which they have made for themselves. Dealers doubtless accept these one-sided contracts because they think that the right to deal in the product of the manufacturer, even on his terms, is valuable to them, but, after they have made such contracts, relying upon the good faith of the manufacturer for the protection which the contracts do not give, they cannot, when they get into trouble, expect the courts to place in the contracts the protections which they themselves have failed to insert*" [Id at 1006]

   Cited in "State Motor Vehicle Franchise Legislation: A Survey and Due Process Challenge to Board Composition", *Vanderbilt Law Review*, 33, 1980, p. 385.
3. *Bushwick-Decatur Motors. Inc. v. Ford*, VLR, 1980, p. 390.

The instability of the law in this area is illustrated by its changing position over a short period of time with respect to the rights of a retailer to a geographical market. US Federal law has at times *restricted* the right of the manufacturer to guarantee a market to its downstream dealers (as in the *Schwinn* decision[4] of 1967); currently, state legislation *imposes* such protection *ex post* in the case of automobile dealers.

Why does the state intervene in this market? Two diametrically opposed hypotheses are presented. These hypotheses bear the conventional labels of "public interest" and "private interest".

According to the public interest hypothesis, the regulation provides a commitment that the manufacturer would prefer in its dealership contract, but cannot include because writing and enforcing the complete contract is impossible. Contract law and regulation in general can complete the contracts established privately by preventing the appropriation of quasi-rents by one of the parties to the contract.

According to the private interest hypothesis, dealership regulation which has net benefits for dealers simply reflects their superior political power. In a competitive industry, a disruption to the profits or quasi-rents of producers will translate into higher costs for consumers.

The public interest explanation of this regulation has been rejected *a priori* by the existing literature. In our view, selecting between these hypotheses requires discriminating empirical tests and cannot be done *a priori*.

Our paper proceeds as follows: Section 2 reviews past economic contributions on the question. In Section 3, we offer a simple model of the manufacturer-dealer relationship, considering in particular the addition of another dealer to an existing retailer network. Section 4 sets out the empirical tests of the hypotheses.[5]

2 Past Contributions

Three past studies have analyzed the impact of market area restrictions on automobile distribution. These are studies by R. SMITH [1982], W. ECKARD [1985] and R. P. ROGERS [1986]. Each estimates a reduced form equation(s) to assess the impact of market area regulations on the price of automobiles, and, in one case, the number of dealers in a state. Smith's data set like ours, is publicly available with the price of new cars in each state measured as the average revenue from new car sales in that state in each year. Eckard

4. United States v. Arnold Schwinn & Co. 388 US 365 (1967).
5. An appendix to this paper, available upon request from the authors, describes in detail the various state automobile dealer regulations.

and Rogers use transacted new car prices in 1977 recorded for a set of new car models produced by General Motors. While these data avoid problems of aggregation inherent in the use of average revenue data, these data are proprietary, not at our disposal, and available for 1 year only.

Neither Eckard nor Smith estimates an equation to explain the incidence of regulation. Rogers specified a structural regulatory equation but did not estimate it. Rogers' equation contains exogenous variables used subsequently in his reduced form price equation. Smith in his analysis attempts to test for the impact of two restrictions other than territorial protection to the dealer: restrictions on the manufacturer's ability to terminate dealers and to dictate the flow of new cars that dealers must accept. All three studies found that regulation offering territorial protection to the dealers through restrictions on the ability of manufacturers to place new dealers in the retail zones of existing dealers has a significantly positive impact on the price of new cars, however this price was measured.

3 The Basic Issue

3.1. Market Area Provisions

For the purposes of illustration, we restrict ourselves to a single decision by the manufacturer that effects the existing retail network: whether to establish an additional dealer in a local market that has been established by existing dealers. The statutes that constrain the right of manufacturers to establish new dealers in the retail area of an existing dealer are called market area laws. 36 states have market area laws of some sort. In these states, the market area is defined by a radius in either air or highway miles, which may depend upon population; for example, in Connecticut, the radius is fourteen air miles. When the manufacturer announces (to existing dealers) plans to establish a new dealer, the existing dealers have a limited time (e. g. 20 days) to file a protest. When the protest is filed, the entry of the new dealer may be delayed until approved; approval is by administrative hearing in 23 states and by courts (usually under the stronger standards of injunction) in the remaining thirteen. Among those states with administrative boards, the composition of the boards varies widely and may include dealers. The approval decision is based on a large number of stipulated factors such as the specificity of the investment of the existing dealers; the

growth in the potential demand in the area.[6] In general the decision balances the interests of the public, the dealers and the manufacturer. As discussed below, the objective of the board or court in its approval decision is concerned either with maximizing social efficiency, placing equal weights on manufacturer's profit and dealers' profits, or more with dealers' profits.

What are the central economic features of the two competing hypotheses that could explain these laws?

3.2. Market Area Provisions and the Public Interest Hypothesis

In a complete contract, the binary decision of whether to place a new dealer in a market area would be specified *ex ante* as a function of a number of market variables: the present and potential future growth in demand for the manufacturer's product in the local area; the projected future costs of maintaining dealerships; the dependence of demand upon the numbers of dealers; the contribution by existing dealers to the reputation of the manufacturer through their service levels; and numerous other features. The proper role of law in a complete contracting setting would be only to enforce existing contracts.

Many of these and similar factors enter actual contracts in the clauses relevant to the manufacturer's future decision to establish additional dealers.[7] In reality, however, it is impossible to establish complete contracts even for the simple binary decision of whether to allow an additional dealer. The number of factors that can affect this decision, and the difficulty in quantifying these factors makes the complete contract impossible. In the terminology of GROSSMAN and HART [1986], the decision to establish an additional dealer is a *residual right*, allocated to one of the contractual parties (the manufacturer) rather than specified deterministically in the *ex ante* contract.

The question of the efficiency of the private contract, in the absence of regulation, depends upon the manufacturer's *ex post* incentive to carry out the collectively optimal decision. The collectively optimal, or efficient, decision is to establish an additional dealer if the total additional quasi-rents (flowing to all agents) justify the investment in additional specific assets. This is the decision that would be specified in the *ex ante* complete contract.

The manufacturer's *ex post* incentive depends, in turn, on the sensitivity of his reputation to the drop in profits of existing dealers. The manufacturer will be penalized in the future sale of dealerships, for any drop in

6. A factor that is considered is the adequacy of service and sales effort of existing dealers. Thtat is, the establishment of new dealers, like termination, can be a threat to prevent shirking on the part of existing dealers. This aspect of the entry decision is ignored here.
7. These factors are considered as well by regulatory boards in their decisions on additional dealers in a local area.

profits of currently existing dealers, whether this drop is to below normal profits or to normal profits. This penalty operates through the drop in quasi-rents that future dealers will expect in any future establishment of dealers. That is, the penalty is a loss in reputational capital.

The economic learning on the role of reputation or market forces in disciplining the performance of economic agents in incomplete contracting situations is extensive, but not entirely satisfactory. In the Chicago-UCLA approach to this issue, the assumption is that a party to a transaction (say, a firm offering a product of unspecified quality) will either offer the first best quality or the lowest possible quality depending on whether a "self-enforcing" condition is satisfied (KLEIN-LEFFLER [1981]; TELSER [1980]). Firms are essentially restricted in strategies to "not shirking" or "shirking"; they get a reputation either as shirkers or non-shirkers. [8]

This approach is unsatisfactory in our context and perhaps in general. If a firm establishes a new dealer distribution with slightly greater dealer density than would be efficient – that is slightly more dealers than the manufacturer would have agreed to in an *ex ante* complete contract, it is reasonable to expect that the loss in reputational capital would be smaller than if the manufacturer shirked to a larger degree. Accordingly, we assume that the reputational capital (measured in dollars) is a continuous function of the profits earned by established dealers. This is a reduced form relationship, which would be supported by a model along the lines of SHAPIRO [1983].

The loss in reputational capital depends as well on the future growth in the market, *i.e.* in the number of new dealers that will be established. [9] Casual evidence suggests that franchise systems that have reached their market capacity, or anticipate negative future growth, are more vulnerable to hold-up problems on the part of the manufacturer. Where the growth rate is strongest, the loss in reputation will be most costly. Only in this case, where the loss in reputational capital is equal to a loss incurred by existing dealers, will the manufacturer. Where the growth rate is strongest, the loss in reputation will be most costly. Only in this case, where the loss in reputational capital is equal to a loss incurred by existing dealers, will the manufacturer's decision be efficient.

When neither explicit contracts nor reputational forces are sufficient to ensure efficient expansion of the dealership network, a potential role exists for market area laws. A admonistrative board which had the objective of maximizing the sum of profits to both the dealers and the manufacturer would replicate the decisions explicit in a complete, efficient contract. The issue of whether the board's decisions are efficient is then a question of whether the board's objective places equal or too much weight on dealers'

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8. These papers thus consider one possible equilibrium of a large number of rational expectations equilibria in dynamic models or super games by restricting the strategy spaces of agents.
9. Empirically, this will refer to the dealers added to urban areas. With the increased urbanization of the US population in the 1970's, the total number of dealers declined.

profits; and, whether the delays in the efficient entry of dealers lead to costs that outweigh any efficiency benefits of the regulation.

3.3. Market Area Provisions and the Private Interest

The private interest theory of regulation is developed in important contributions by BECKER [1983], PELTZMAN [1976] and STIGLER [1970] among others. This theory stress the returns and costs to various pressure groups who compete to curry favors through the public sector. Public sector restriction of entry into an industry, where this entry would be otherwise efficient, to the benefit of incumbents and the detriment of entrants, upstream suppliers and consumers is an example of such a benefit. Many would seek such benefits; not all would succeed. The greater and more focused are the benefits, the smaller the organizational and free rider costs, and the more diffused and smaller are the net costs to society, the greater the likelihood that the pressure group representing the beneficiaries will succeed. By restricting entry, the state would confer benefits on existing dealers far beyond those intended in the original contracts. This regulation would aid existing dealers at the expense of consumers new dealers and automobile manufacturers.

The relationship between the decisions under three scenarios – entry under efficient contracts, entry as manufacturer's residual right, and entry under regulation – can be illuminated through a simple model. We imagine a market in which the manufacturer sells the right to the use of its brand name to downstream dealers. To highlight the potential hold-up problem, we ignore the transfer of physical product between the upstream manufacturer and the dealers. [10]

3.4. The Model

Entry decisions can be illustrated in the following model. Time extends into the indefinite future but there are two critical dates. For simplicity, we consider a downstream market where only one dealer exists. A local market (community) has uncertain demand. At the first date, a dealer is established. (The level of expected demand is assumed to be high enough that it is worth setting up one dealer.) The dealer pays a fee F for the right to use the brand name for the entire future. To focus on the problems of hold-up in the future entry decisions, we assume that no contingent contracts are possible between the dealer and the manufacturer. Contractual terms depending on the realization of future

10. In the case where a physical product is transferred, the potential hold-up problem on the part of the manufacturer would be partially mitigated by a reduction in the fixed franchise fee (or share of specific investment) on the part of the franchise, in return for a higher transfer price.

demand parameters cannot be enforced by assumption.[11] The manager commits an investment into the site of K dollars. After the first period, the uncertainty in demand is resolved at some level D, which is a shift parameter to demand. In this period, the future growth in demand also becomes known. Given D, the manufacturer decides whether to establish a second dealer at the same cost K.[12]

The profits earned in the second period depend on the uncertain parameter D. If only one dealer is in the market, the present value of the flow of profits or quasi-rents is given by $V_1(D)$. If two dealers are in the market, the present value of the quasi-rents accruing to each site are $V_2(D)$. We assume that the marginal value of establishing a second dealer, which equals $2V_2(D)-V_1(D)$ is increasing in D.[13] The profits to the manufacturer in this simple model with no physical transfer of product, consist only of the franchise fees collected.

The decision to insert a second dealer depends, of course, on the level of demand. We distinguish among three decisions, or threshold levels of demand: the complete contract critical level D_C, the incomplete contract level D_I and the regulation level, D_R. In each case, the decision is to establish the second dealer if the demand parameter exceeds the threshold level.

The complete contract level is the demand level that maximizes the sum of *ex ante* expected dealer's profits, since (under risk-neutrality) this represents the total revenues from the sale of the right to use the brand name. Since the marginal value of establishing a second dealer is increasing in D, D_C solves:

$$2V_2(D_C) - K = V_1(D_C) \tag{1}$$

Equation (1) states that at the critical demand level, the total profits, net of additional capital cost, with two dealers just equals the profits with the one dealer. The entry decision governed by cut-off level of demand described by (1) maximizes the sum of *ex post* profits to all agents. Since the manufacturer is assumed to be able to sell the first dealership for its expected profit, this is also the contingent entry decision that maximizes the manufacturer's profits *ex ante*. The manufacturer would like to commit to entry if and only if D exceeds D_C, but may be unable to do so.

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11. It is possible under the informational assumptions of this model to have a contract specifying a payment to the delaer whenever there is future entry; in fact, this contract would resolve the hold-up problem that the model will focus on, when the payment is set equal to the loss in profits to the existing dealer from entry. But this is an artifact of the assumption of only one dimension of uncertainty in the model. If (say) costs were also uncertain, the single payment would not lead to a first best solution since a single contingent sum paid upon entry to the existing dealer could not induce efficient entry. Rather than extend the model to the complicated set of undertainties, we assume that the contingent transfer to the existing dealer is impossible to specify accurately and to enforce.
12. We allow the manufacturer (and later, the regulator) to consider the addition of a new dealer only at the beginning of the second period, for simplicity.
13. This holds, for example, in standard spatial models where the uncertainty is in the growth in population.

In formulating the incomplete contract decision, we assume that the value of the manufacturer's reputational capital, R, is an increasing function of the current dealer's profit. In addition, the value of reputation depends on the number of dealers that the manufacturer will establish in the future, *i.e.* on the growth, G, of the market.[14] If there were no dealers to be established in the future, then reputation would be valueless and the agents would be in an "end-game" or pure hold-up situation. On the other hand, a franchisor near the beginning of a market expansion has a strong incentive to build reputational capital. G should be interpreted as the growth in both the particular market as well as in the number of individual dealership games that a manufacturer will play in any one state.

The manufacturer's incentive to build or maintain high reputation is incorporated in the assumption that the cross partial on R with respect to current dealer's profit and growth, is positive. That is, the higher the future growth, the more costly the loss in reputational capital from a each dollar drop in current dealer profits. The incomplete contracting threshold level of demand, D_I satisfies

$$(2) \qquad V_2(D_I) - K - (R[V_1(D_I), G] - R[V_2(D_I), G]) = 0$$

In equation (2), the first two terms represent the net income from the sale of the new franchise; the term in (.) represents the reputational cost from the decrease in the profits of the current franchisee.

Finally, we consider the entry decision in the case where dealers have the right to appeal to a regulatory board if they consider the manufacturer's decision to be inappropriate. Suppose that dealers know the regulatory board's preferences, and therefore appeal only if they know the decision will be reversed. (That is, ignore for now the effects that protests have in merely delaying the establishment of a new dealer.) The regulators preferences are given by a weighted sum of dealers and manufacturers' profits, with weights r_d on dealers profits and r_m on manufacturers profits. That is, the regulatory board's objective is to maximize

$$(3) \quad r_d \cdot (\text{established dealers' profits}) + r_m \cdot (\text{value of manufacturer's assets})$$

Define $V_i(D, G)$ as the present value of the flow of profits to the dealer under the conditions of no entry ($i=1$) and entry ($i=2$) by another dealer when the growth in the market is G. The value of the regulatory board's objective when the second dealer *is not inserted* into the market is

$$(4) \qquad r_d \cdot V_1(D, G) + r_m \cdot [F + R(.)]$$

where R(.) reflects the reputational capital of the manufacturer in the market.

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14. Our data used to test our model are state data. The assumption implicit in the use of state data is that the market is the state and reputation is state specific.

The value of the objective when the second dealer *is inserted* into the market is

$$(5)^{15} \qquad r_d \cdot V_2(D, G) + r_m \cdot [F + V_2(D, G) - K + R(.)]$$

where the term in the square brackets is the value of the manufacturer's assets, including the manufacturer's reputation, since the second dealership can be sold for the profits that it will earn.

From (4) and (5), the regulatory threshold level of demand satisfies

$$(6) \qquad r_d \cdot [V_2(D_R, G) - V_1(D_R, G)] + r_m \cdot [V_2(D_R, G) - K] = 0$$

That is, D_R equates the loss in profits to the dealers with the gain in profits to the manufacturer from inserting an additional dealer.

We define the "pure" public interest hypothesis by $r_d = r_m$ and $D_I < D_C$. Correspondingly, we define the "pure" private interest hypothesis by $r_d > r_m$ and $D_I = D_C$. For example, under the "pure" public interest hypothesis, (6) becomes

$$(7) \qquad 2V_2(D_R, G) - K = V_1(D_R, G)$$

which is the analogue of (1) with growth in the market. We assume that (7) is increasing in D_R and G.

The following summarizes the relationships among the three threshold levels of demand. Let

$$s = \frac{R[\Pi_1(D_I), G] - R[\Pi_2(D_I), G]}{\Pi_1(D_I) - \Pi_2(D_I)}$$

The term s measures the extent to which the loss in profits on the part of the current dealer are reflected in a loss in reputational capital on the part of the manufacturer. If $s = 1$, then the loss is matched.

PROPOSITION : (*a*) If $s = 1$, then the incomplete contract entry decision is efficient, *i.e.*, identical to the complete contracting entry decision.

In this case, the reputation effect internalises the cost imposed on the current dealer of the entry decision and is therefore sufficient to ensure efficiency. There is no public interest motive or demand for regulation in this case.

(*b*) If $s < 1$, the entry takes place more often under incomplete contracting. That is, $D_I < D_C$.

(*c*) If the regulatory weights satisfy $r_d = r_m$, then the regulatory entry decision is efficient. That is, $D_R = D_C$.

(*d*) If $r_d > r_m$, then the regulatory entry decision involves a smaller than efficient entry threshold. That is, $D_R > D_C$.

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15. The reputational capital of the manufacturer R (.) is not affected when the regulatory board inserts the additional dealer in the retail market.

(*e*) Under the assumption that the cross-partial of R is positive, then $|D_C - D_I|$ is decreasing in G. Under the "pure" public interest hypothesis, $|D_R - D_I|$ is decreasing in G.

(*f*) Under the "pure" private interest hypothesis, however, when γ is sufficiently large, $|D_R - D_I|$ is increasing in G.

(*g*) If we assume that the demand for regulation, whether motivated by private or public regulatory objectives, is increasing in $|D_R - D_I|$, then a public motivation for regulation implies that the demand for regulation will increase with increases in market growth (G) while a private motivation implies that the demand will decrease with increases in market growth.

3.5. Interpretation

What are the relevant empirical implications of this model? Parts (*e*), (*f*) and (*g*) of the proposition provide a basis for the empirical tests. The first point is that a comparison of the non-regulated states and the regulated states is almost surely a comparison of two second-best scenarios. If the dealers are *to some extent* over-represented in the regulatory board hearings, then the regulated equilibria cannot be first best. If the disciplining power of reputation is less that perfect – which strikes us as most reasonable in a mature market – then the unregulated equilibrium is also imperfect. The likely ordering, in the notation of the model, is:

$$D_I < D_C < D_R.$$

The intermediate threshold level D_C maximizes efficiency. The question of the second-best efficiency of the regulation is whether the loss in efficiency in moving to D_R from D_C is less than in moving to D_I. The public interest hypothesis means that the regulation is second-best efficient; the private interest hypothesis is that dealers are so over-represented in regulatory hearings that regulation involves a loss in efficiency.[16] In this case, the demand for the regulation comes not from the desire to increase overall efficiency but from the power of a particular pressure group to extract rents using the legislative system.[17]

Two implications of the analysis can distinguish the two hypotheses. First, if regulation is efficient, then given the relatively competitive nature of the automobile market, a shift to regulation should – in

16. It is clear that dealers do not completely control regulatory boards. In Florida, during the first thirteen years that the additional dealer laws were in effect, 1972-1985, the Department of Highway Safety and Motor Vehicles ruled in favor of the protesting dealer in only 8 of 230 cases (some of which were dropped before a hearing). In California in 1977-1978, of 54 protests filed, 28 were withdrawn, 25 were denied and only in one case did the existing dealer have some success.

17. Frequently the pattern of support and opposition to legislation discriminates between the hypotheses. This holds no promise here. The regulation benefits the dealer and harms the manufacturer under either hypothesis.

the long run – result in lower prices.[18] In a competitive market, a gain in efficiency is reflected in lower prices. The private interest hypothesis implies that prices should increase with regulation in both the short and long run.

The second distinguishing implication is the effect of an increase in anticipated future growth in the market. Under the public interest hypothesis, this results in a decrease in the efficiency gain of (hence political pressure for) the regulation. Under the private interest hypothesis, however, one expects that those states with greatest future growth are those in which the private dealer benefits of organizing to achieve regulation through the political system are greatest. These two implications are tested in the next section of this paper.

4 Empirical Tests of the Model

It is helpful at the outset to understand the underlying forces at work in the retail automobile distribution network during the sample period. Changing demographics are the exogenous (and *ex ante* uncertain) events that plague contractual performance. Over the last 30 or so years in the United States, the total number of dealers has declined even as population has grown.[19] During the same time period, there was a shift in population from rural to urban centers. Manufacturers will alter their dealer networks to service their changing markets. Examining the correlation between dealers per capita and the percentage of a state's population in metropolitan centers provides evidence that fewer dealers per capita are needed with population shifts to urban areas. For respective census years, the corresponding correlation coefficients are $-.80$ (1972), $-.77$ (1977) and $-.71$ (1982). That is, for each of these years, as a state's relative population in metropolitan areas grew, the number of dealer's per capita in the state fell.[20]

18. The initial impact of a regulation may be higher prices even if it is efficient, as entry is blocked in the short run (while encouraged in the long run).
19. For example, the number of new car dealers with payrolls declined from a total of 41,407 in 1958 to 27,200 in 1982. For six observations at various intervals over this time period, the estimated rate of decline was approximately 2% per year.
20. This suggests a economy of scale as the population rises in urban areas. This result follows from simple spatial considerations in the retail network. The costs of the purchase and service of an automobile include the travel costs for the consumer to the dealer site. As approximately half of a dealer's revenue comes from the service component, travel costs to the dealer remain important for consumers even after purchase. Extended warranties currently offered in automobile purchase packages only enhance dealer loyalty and reinforce these service and locational considerations. As consumers continue to congregate in urban areas, holding constant the quality of the new car, fewer dealers per capita are required to service efficiently the retail market.

Equations

The analysis yields two equations of interest, one on prices and another on the pressures for the regulation restricting market areas to existing dealers. Both equations supply potential discrimination to test the competing hypotheses on state intervention. For estimation purposes, these equations are specified as:

$$P = a R_{-1} + b.X + \varepsilon \tag{8}$$

$$R^* = cP + d_h G_h + d_a G_a + e.Z + v \tag{9}$$

$$R = 1 \quad \text{if } R^* \geqslant 0, \qquad R = 0, \quad \text{otherwise} \tag{10}$$

where P measures the price of automobiles, R^* measures the pressure for regulation net of any cost of organizing this pressure (a censored variable), R is the measured value of R^* and $R = 1$ if the state has market area protection through regulation, $= 0$ otherwise ($R = 1$ if $R^* \geqslant 0$), R_{-1} indicates regulation in the past, G_h measures the historical growth of the urban population, G_a measures the anticipated future growth of the urban population, $X' = (X_1, \ldots, X_n)$ and $Z' = (Z_1, \ldots, Z_m)$ are vectors of exogenous variables in the price and regulation equations and ε and v are conventional error terms.

Equations (8), (9) and (10) constitute a recursive system. While the demand for current regulation depends on current prices, current prices, in turn, depend on the institution of regulation in the past. With these equations, the tests consistent with the two competing hypotheses may be summarized succinctly:

(1) a: In general, we assume that regulation affects price only in subsequent periods and not immediately; if regulation creates rents for dealers, then prices are higher in regulated states and $a > 0$. If regulation protects quasi-rents to dealers by completing contracts, regulation is efficient. With competition in automobile markets, efficient regulation ultimately will yield lower prices in regulated states and $a < 0$. (The impact of regulation on prices is essentially the sole test involved in the previous studies outlined in Section 2)

(2) b and e: The signs of the coefficients on the vector of exogenous variables in the price and regulation equation provide no discriminatory power, only interpretation specific to the variable.

(3) c: If prices of automobiles of particular manufacturers are high in a local retail market because of some temporary local monopoly power of existing dealers, then the entry by new dealers should re-establish competitive prices. If existing dealers could permanently forestall this entry through state intervention, then these short-run rents would be maintained. Successful rent protection through legislative intervention implies that $c > 0$ if the regulatory efforts are contemporaneous with any price increase. Under the public interest hypothesis, high prices signal inefficiencies in the existing distribution contracts and hence the need for regulation to complete these contracts. In this case, $c > 0$ also.

(4) d_h, d_a: The sign on d_h, the coefficient for historical growth in urban population, provides no discriminatory power. As any sunk capital on the part of the dealer or the manufacturer comes up for renewal, continuing negative growth in the market size should induce manufacturers to reduce the size of their dealer network. The sign on d_a, the coefficient for anticipated growth in urban population *does* provide a discriminating test. If anticipated growth is negative, then manufacturers will fail to be disciplined by their ability to recruit future dealers. Once urban populations are satiated, reputational capital established through business relationships with existing dealers has no value. It is profit-maximizing for manufacturers to exploit their potential to appropriate the quasi-rents of existing dealers. This is not so if the anticipated growth of urban populations is positive. In this case, the need for future recruitment will be impaired if existing reputational capital is depreciated through opportunistic appropriation of dealer quasi-rents by existing manufacturers. Therefore, $d_a < 0$ is consistent with contract completion through regulation and $d_a > 0$ is consistent with dealer rent extraction through regulation.

The data available to test the model specified in the previous section consist of observations on automobile sales revenue and new units sold,[21] collected in the United States by state over a 17-year period (1969-1984) and demographic data, available for some variables only at census dates (such as 1967, 1972, 1977 and 1982). The combination of time series and cross-section data permit a test of the two relationships critical to the theory.

We estimate these equations separately. In particular, the price equation (8) is estimated for three cross-section samples – 1972, 1977 and 1982 – using OLS estimation. Prices are measured for each state as real average revenues from the sale of cars in that state. That is, prices are measured as the ratio of total real new car sales revenues to new car registrations in the state for the relevant year. This measure has the virtue of availability but the vice of potential aggregation bias as the population of new car sales in each state may not be homogeneous across states. The set of exogenous variables includes: per capita income (in real terms) and the metropolitan area population expressed as a percentage of the state's population. Past regulation (R_{-1}) is measured as a dummy variable if the state enacted relevant market area protection more than 2 years prior to the observation period for the cross-section sample. Table 1 reports the year of enactment of market area provisions by each state. The estimates of the regression parameters for (8) together with their corresponding 't' statistics are reported in Table 2.

Next, the regulation equation, (10) substituted into (9), is estimated with the three cross-section samples (1972, 1977 and 1982) combined into one, using PROBIT estimation. The pressure for regulation (R*) can not be measured. Rather a censored dependent variable (R) is measured as 1 if the state passed market area provisions either currently or 1 year prior to

21. New car registration data for various years were obtained from the Motor Statistical Division, R. L. Polk and Company, "Service 'D', New Passenger Car Statistics by State".

TABLE 1

Years in which state enacted "Market Area" provision came into force

Year	State
1963	Colorado
1970	Iowa
1971	Nebraska, Ohio, South Dakota Vermont
1972	Nex Hampshire, New Mexico,
1973	North Carolina
1974	Arizona, California, Rhode Island
1975	Minnesota Floride, Louisiana, West Virginia
1976	Massachusetts, Montana, Nevada,
1977	Tennessee, Texas, Virginia
1978	Arkansas
1979	Illinois, Utah
1980	Oklahoma, Oregon
1981	Maine, Michigan
1982	New Jersey
1983	Connecticut, Delaware, Wisconsin
1984	Kentucky, Pennsylvania
1985	Idaho

TABLE 2

Parameter Estimates for Price and Regulation Equation

1. Price equation (OLS estimation): $P = a R_{-1} + b.X + \text{epsilon}$.

Dependent variable: real prices of new automobiles.

Variable	Constant	Past Reg	*Per capita* Inc.	Per cent metro.	R^2	Year	Sample size
Coefficient	12.93	1.10	$.36 \times 10^{-4}$	−0.04	.34	1972	48
'*t*' statistic	8.05	1.05	.10	−3.60			
Coefficient	14.99	−0.65	1.12×10^{-4}	−0.07	.31	1977	48
'*t*' statistic	6.07	−0.87	.28	−3.89			
Coefficient	19.93	0.90	-6.65×10^{-4}	−0.06	.35	1982	48
'*t*' statistic	6.95	1.21	−1.14	−2.80			

2. Regulation equation (PROBIT estimation):

$$R^* = c\,P + d_h\,G_h + d_a\,G_a + e.Z + nu$$
$$R = 1 \quad \text{if} \quad R^* \geqslant 0$$

Sample: 1972, 1977 and 1982; sample size: 107.

Dependent variable: current enactment of market area protection (dependent variable = 0 for 91 observations and = 1 for 16 observations).

Variable	Constant	Price	Historical growth urban population	Future growth urban population	Dealers *per capita*
Coefficient	−1.51	−.02	$-.64 \times 10^{-3}$	$.13 \times 10^{-4}$	3.21
'*t*' statistic	−1.82	−.24	−1.07	2.21	1.19

the period of observation into the franchise law in force in the state and the variable assumes a value of 0 otherwise. States that had passed relevant market area provisions prior to the observation period (prior to 1971 for the 1972 observation period, prior to 1976 for the 1977 observation period and prior to 1981 for the 1982 observation period) were removed from the respective samples. These states had neither currently passed market area protection nor were they unregulated states. Prices (in real terms) are relevant to each of the three sample periods. The growth in urban population is measured as the change for each state over a 5 year period, historically for G_h and as the future actual change for G_a. Dealers per capita measure the importance of new automobile dealers as a pressure group relative to the population. We expect the coefficient on this variable to be positive. The estimates of these regression parameters together with their corresponding 't' statistics are reported in Table 2.

Results

The price equation reported in Table 2 demonstrates that past regulation for the 1972 and 1982 samples had a positive but statistically insignificant impact on current prices; the corresponding coefficient was negative and statistically insignificant in 1977. For 1972 and 1982, the corresponding elasticities indicate that real prices were 10 and 7% higher (respectively) in those states that adopted market area regulation. Changes in real per capita income had no significant effect on real prices. The coefficient on per cent metropolitan is negative and significant. This is consistent with open entry into the retail automobile dealer business. As populations are more thinly spread over non-metropolitan areas, dealers will have to change higher prices to cover the fixed costs of doing business, yet earn normal rates of return.

The estimated regulation equation is reported in Table 2. Current price levels appear to have little impact on the likelihood of a state being regulated. Higher anticipated growth in urban population leads to an increase in the likelihood of regulation. Increased future growth in the relevant local market is consistent only with the private interest explanation. With growth in relevant local markets, manufacturers should be disciplined by reputational effects not to appropriate the quasi-rents of dealers. Doing so would be self-defeating as manufacturers would sacrifice future returns. Increased numbers of new automobile dealers per capita has a positive but marginally significant impact on the likelihood of regulation. These results are generally consistent with the private interest theory for market area provisions and inconsistent with the efficiency hypothesis.

5 Conclusion

This paper seeks economic explanations on the assignment of rights in franchise contracts and on the role of the state in altering this assignment though public intervention. In particular, our focus is on the state's *ex post* modification of the nature of automobile dealership contracts where many US states have passed laws restricting the ability of manufacturers to install new dealers in the market areas of existing dealers. This law certainly alters the balance of power between dealers and manufacturers but the critical question is whether doing so is efficiency enhancing? One candidate answer is yes if the law completes contracts in a manner that is *ex ante* efficient. Contracts were potentially incomplete because of the inability of the parties to specify contingencies completely. A second competing answer is no if the reputational capital of the manufacturer would otherwise protect the dealers from any short-run quasi-rent extraction by the manufacturer. In this case, the state legislators would appear to pass private benefits to dealers at the expense of consumers and automobile manufacturers. In this case, these laws are inefficient.

In this paper, we carefully delineate these two answers and suggest discriminating empricial tests. In the empirical section, we carry out those tests by estimating a set of equations to determine the impact of the regulations on price and the impact of growth factors on the likelihood of states passing the regulations. While the results are not uniformly strong, they do support the private interest theory suggesting that these regulations are inefficient. If so, these regulations were passed so that competition among pressure groups yields an allocation of resources favoring dealers over other interest groups.

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