

- Welfare Consequences of Selling Public Enterprises: An Empirical Analysis*, New York: Oxford University Press.
- Green, Richard J. and David M. Newbery (1992), "Competition in the British Electricity Spot Market", *Journal of Political Economy*, 100, pp. 929-953.
- Hartley, Peter R. (1984), "Cheap Resources into Expensive Energy", *Institute of Public Affairs Review*, 37, No. 4, pp.160-164.
- Hartley, Peter R. and Albert Kyle (1989), "Equilibrium in an Industry with Lumpy Investment", *The Economic Journal*, pp. 392-407.
- Hartley, Peter R. and Chris D. Trengove (1984), "The Marginal Cost of Electricity Supply in Victoria", *The Economic Record*, 60, pp. 340-355.
- (1986), "Who Benefits from Public Utilities?", *The Economic Record*, 62, pp. 163-179.
- Hilmer Committee (1993), *Independent Committee of Inquiry, National Competition Policy*, Canberra: AGPS, August.
- Industry Commission (1991), *Energy Generation and Distribution*, Canberra: AGPS, January.
- Kikeri, Sunita, John Nellis and Mary Shirley (1992), *Privatisation: The Lessons of Experience*, Washington, D.C., World Bank.
- Klein, Michael and Neil Roger (1996), *Back to the Future*, <http://www.worldbank.org/html/fpd/notes/30/Klein30.html>.
- Meggison, William, Robert Nash and Matthias van Randenborgh (1994), "The Financial and Operating Performance of Newly-Privatised Firms: An International Empirical Analysis", *Journal of Finance*, pp. 403-452.
- Office of the Regulator General, Government of Victoria (1997), *Electricity Performance Report*, July (available at <http://www.reggen.vic.gov.au/docs/electric> August, 1998).
- Shirley, Mary and John Nellis (1991), *Public Enterprise Reform: The Lessons of Experience*, Washington, D. C., Economic Development Institute of the World Bank.
- Treasury and Finance Department, Government of Victoria (1997), *Victoria's Electricity Supply Industry: Toward 2000*, June (available at <http://www.energy.dtf.vic.gov.au> August, 1998).
- Treasury Department, Government of NSW, Electricity Reform Taskforce (1996), *Introducing Competition in Retailing in NSW*, Report by David Harbord and Associates with London Economics and Ray, Richwhite, August.
- Treasury Department, Government of NSW (1994), "Economies of Scale in the Electricity Generation and Distribution Sector", Report by London Economics, August.
- World Bank (1995), *Bureaucrats in Business: The Economics and Politics of Government Ownership*, Policy Research Report, New York: Oxford University Press.

Market Foreclosure and Strategic Aspects of Vertical Agreements

Leonardo Medrano*

Abstract: This paper reviews the arguments about market foreclosure — as an incentive for vertical agreements between upstream and downstream firms — and its effects on welfare. We consider that downstream firms compete in quantities in the final good market and upstream firms compete in quantities in the intermediate good market. In this context we show that a vertical agreement must not contemplate market foreclosure, that is, upstream firms continue participating in intermediate market. Regarding antitrust policy, we show that even vertical agreements aimed at increasing input price faced by other firms may be positive from the welfare viewpoint.

Resumen: Este artículo revisa los argumentos respecto a la cerradura de mercado, como un incentivo a la formación de acuerdos verticales entre empresas fabricantes de un producto intermedio y empresas fabricantes de un producto final, y sus efectos en el bienestar. Suponemos que tanto los fabricantes del producto final como los del producto intermedio compiten en cantidades en sus respectivos mercados. En este contexto, mostramos que un acuerdo vertical no debe considerar la cerradura de mercado, esto es, las empresas continúan participando en el mercado intermedio. Respecto a políticas antimonopolio, mostramos que incluso los acuerdos verticales enfocados a incrementar el precio de mercado del producto intermedio pueden ser positivos desde el punto de vista del bienestar.

* División de Economía, Centro de Investigación y Docencia Económicas. This paper draws on a chapter of my Ph.D. thesis submitted at the Universitat Autònoma de Barcelona. I am very grateful to Roberto Burguet, Philippe Bacchetta, Mary Paz Espinosa, Massimo Motta, Miguel González, Ramon Fauli, and Manuel Antelo and especially to Ramón Caminal for their helpful comments and suggestions. All errors are my own. Financial support from the Conacyt and the Ministerio de Educación y Ciencia de España (Proyecto Cicyt PB-0120) is gratefully acknowledged.

1. Introduction

In a study prepared for the debate on the Economic Competition Bill in Mexico, Castañeda *et al.* (1992) argue that one-sided or collusive vertical practices can have both pro-competitive and anti-competitive effects. For example, a vertical agreement (VA) between a manufacturer and a retailer is pro-competitive if it reduces the inefficiency of input markets when these are imperfect. But it can also be anti-competitive if it reduces buyers' access to a supplier and/or limits suppliers' access to a buyer. In this case, the input market loses one supplier and/or buyer, which could increase the input prices and trigger an increase in the price of the final good. This phenomenon is called market foreclosure. Therefore the new antitrust law deals with the possibility that the VAs might be used strategically as a monopolistic practice and have, therefore, anti-competitive effects.

The theory of industrial organization has made progress towards formalizing the effects of market foreclosure on the competitive structure of both downstream and upstream industries and on welfare (see Tirole, 1988). Specifically, in an industry in which there are both vertically integrated and vertically unintegrated firms, Salinger (1988) studies the effect of an increase in the number of integrated firms on prices. However, he treats integration and foreclosure as exogenous. Hart and Tirole (1990) and Ordober, Saloner and Salop (1990) focus on foreclosure rather than on efficiency, with models in which double marginalization does not arise as a motive for VI.¹ However, Carlton² argues that if the relevance of their results for policy making is to be considered, double marginalization must be taken into account because two-part tariff may not be in use and the price may exceed marginal cost. Furthermore, as we will see, it is not necessarily suitable that the price in a two-part tariff contract be equal to unit cost, as Hart and Tirole assume. Furthermore, these authors assume implicitly that the trade of integrated firms with unintegrated firms is reduced to selling the input, that is, they do not review the suitability of purchasing input from other manufacturers.

Gaudet and Long (1993) review Salinger's model considering vertical integration (VI) incentives and characterize trade among inte-

¹ For that purpose, Hart and Tirole assume the possibility of two-part tariff in the input's market and Ordober, Saloner and Salop assume input price competition and homogeneous input.

² See Hart and Tirole (1990, pp. 279).

grated and unintegrated firms. These authors show that it may be optimal for integrated firms to purchase inputs from other manufacturers as a strategy to increase the cost of rival retailers. However, they do not analyze welfare effects, and study the more conventional approach focusing on full collusion. With the exception of Gaudet and Long (1993), most authors do not give any explanation of why an integrated firm does not trade with unintegrated firms. Our objective is to reconsider the arguments regarding market foreclosure, as an incentive to VA, and its welfare effects. In order to fulfill this objective, we model trade among integrated and unintegrated firms with two-part tariff contracts instead of the full collusion approach as Gaudet and Long do. This change allows pricing the intermediate good above or below the unit production cost.³ We also consider intermediate market inefficiency, specifically with input market price greater than marginal cost,⁴ as an incentive to VA. We assume Cournot competition in the final market.

We then consider the conditions under which a manufacturer of an intermediate good (the "upstream firm") offers a two-part tariff contract to a retailer (the "downstream firm"), as a strategy to avoid the intermediate market inefficiency and to increase the retailer's profits. The manufacturer is able to obtain a share of the increase in the retailer's profits through the franchise fee. Acceptance of this contract is known as VA.

The optimality of offering this contract depends on the number of manufacturers and retailers. In other words, it depends on the magnitude of oligopolistic rents (or mark-ups) in the intermediate and final markets. When the rents in the input market are lower than those in the product market, that is, when there are more manufacturers than retailers, we argue that there are always incentives to achieve VAs. There are three reasons behind this result. First, it is optimal for the manufacturer to price the contract below the marginal cost.⁵ In Cournot oligopoly, each downstream firm would like to be a Stackelberg leader but the implicit assumption in the model is that it cannot commit to such a level of output. The two-part tariff provides the

³ See Caillaud and Rey (1994) for a survey on delegation contracts.

⁴ That is, an upstream firm sets its own mark-up without taking into account the externalities of its decision on profits of downstream firms who also sets its own mark-up unilaterally. This phenomenon is known as double marginalization. See Tirole (1988, ch. 4).

⁵ Vickers (1985) shows the same result, in a firm's internal organization context imposing *a priori* market foreclosure.

necessary commitment by creating a low marginal cost and thereby making it rational for the downstream firm to produce more than the Cournot output. Second, as a strategy to increase the rival retailers' cost, the manufacturer "purchases" inputs from other manufacturers. The increase in the profits of the contracted retailer compensates both, pricing the contract below the unit production cost of the input and purchasing in the market above such a cost. Third, there are gains due to the elimination of double marginalization. On the contrary, when the oligopolistic rents in the input market are greater than those in the product market, that is, when there are more retailers than manufacturers, the rent extraction from other retailers through the strategies named above, are not necessarily enough to compensate the rent losses due to giving up selling to other retailers.

Regarding policy, we argue that VAS are positive for welfare. The welfare gains from an increase in the number of VAS, due to the reduction in double marginalization inefficiency, offset the welfare losses due to the reduction in the production and the number of independent retailers.

The paper is organized as follows. We begin by laying out the basic model in Section 2. The incentives for VAS and their welfare effects are studied in Section 3. Section 4 concludes.

2. The Model

Consider a situation where there are $M \geq 2$ upstream firms (or manufacturers) who produce an intermediate homogeneous good at a constant unit cost, c , and $N \geq 2$ downstream firms (or retailers) who need only one unit of input (the intermediate good) to produce one unit of the final homogeneous good. The retailers are price-takers in the input market, where they pay a unit price, h , and compete "a la Cournot" in the final good market. The manufacturers compete "a la Cournot" in the intermediate good market. Under this industrial structure the manufacturers have incentives to negotiate vertical agreements (VAS), in order to avoid double marginalization inefficiency.⁶

Assume that each manufacturer offers to one, and only one, retailer a two-part tariff contract (w, F) where w is the unit price of

⁶ It is irrelevant to contemplate the case in which the retailers offer the contract since they are price-takers in the input market. See Flath (1989, 1991).

the intermediate good and F is the franchise fee.⁷ The contract does not specify a priori market foreclosure, that is, the manufacturer and the retailer are able to continue purchasing and selling the input in the market. The contract must satisfy $w \leq h$. Otherwise, the retailer would accept to pay an input price greater than the market price if the manufacturer covers the difference. It is not an equilibrium strategy for the manufacturer to offer this contract because the retailer has incentives to purchase the input in the market. The retailer accepts the contract if he gets at least the same profits as those obtained by purchasing the input in the market. In this case, we will say that there is a VA.

Assume that there are r VAS (that is, r couples of firms have achieved a VA), n independent retailers and m independent manufacturers (that is, firms that except through the market do not have any vertical relationship). We will group them, respectively, in the sets I , J and K . Then $M = m + r$ and $N = n + r$. We will save indexes i , j and k for variables related to firms in sets I , J and K , respectively.

We consider a three-stage game. In the first stage VAS are decided. In the second stage, independent manufacturers and manufacturers in a VA decide production to sell in the input market, and the second one decides, simultaneously, production to sell to the retailer with whom they have a VA. In the third stage the independent retailers and the retailers in a VA compete in the final good market. As usually, we solve the model by backward induction.

2.1. Final Market

The final good (inverse) demand is given by:

$$p = 1 - X \quad (1)$$

where $p(X)$ is the final good price and X is the quantity. Facing this demand, the retailer $i \in I$ chooses x_i to maximize its profits: $\Pi D_i = (p - w_i) x_i - F_i$. The FOC and profits are given respectively by:

⁷ A manufacturer may have incentives to offer a contract to more than one retailer and increase the price of the intermediate good in order to reduce competition in the final market. This is obviously a horizontal integration strategic and it is negative for final consumers. It is not the objective of this paper to analyze horizontal integration strategies.

$$x_i = p - w_i = 1 - X - w_i \quad (2)$$

$$\Pi D_i = x_i^2 - F_i \quad (3)$$

The retailer $j \in J$ chooses x_j to maximize its profits: $\Pi D_j = (p - h) x_j$. The FOC and profits are given respectively by:

$$x_j = p - h = 1 - X - h \quad (4)$$

$$\pi D_j = x_j^2 \quad (5)$$

2.2. Input Market

From (4) and given that all the independent retailers face the same cost, the total output produced by them must satisfy:

$$X_j = \sum_{j \in J} x_j = n x_j = n (p - h), \quad (6)$$

this quantity defines the demand of the input market. This demand is satisfied by independent manufacturers whose total production is

$Z = \sum_{k \in K} z_k$, and by manufactures in VAS whose total production

is $\Theta = \sum_{i \in I} \theta_i$. So,

$$X_j = Z + \Theta \quad (7)$$

From (1), (6), (7) and $X = X_I + X_j$, where $X_I = \sum_{i \in I} x_i$ is the total output produced by retailers into I , we obtain the (inverse) input demand:

$$h = 1 - (1 + 1/n) (Z + \Theta) - X_I \quad (8)$$

The demand from retailer $i \in I$ obtained from (1), (2), and (7) and is given by:

$$w_i = 1 - Z - \Theta - X_I - x_i \quad (9)$$

Solving (8) and (9) for h and x_i , $i \in I$, we get the input market demand system:

$$x_i = \frac{1}{1+r} - \frac{1}{1+r} (Z + \Theta) - \frac{r}{1+r} w_i + \frac{1}{1+r} \sum_{t \neq i, t \in I} w_t \quad (10)$$

$$h = \frac{1}{1+r} - \frac{n+r+1}{n(1+r)} (Z + \Theta) + \frac{1}{1+r} \sum_{i \in I} w_i \quad (11)$$

The independent manufacturer $k \in K$ faces the demand (11) and chooses z_k to maximize its profits: $\Pi U_k = (h - c) z_k$. The FOC and profits are given respectively by:

$$h - c = \frac{n+r+1}{n(r+1)} z_k \quad (12)$$

$$\Pi U_k = \frac{n+r+1}{n(r+1)} z_k^2 \quad (13)$$

Facing demands (10) and (11) the manufacturer $i \in I$ chooses θ_i to sell in the intermediate market, w_i and F_i for its contracted retailer to maximize:

$$\Pi_i = (h - c) \theta_i + (w_i - c) x_i + F_i \quad (14)$$

subject to⁸ $w_i \leq h$ and the retailer participation condition:⁹

$$\Pi D_i = x_i^2 - F_i \geq \Pi D_j = x_j^2 \quad (15)$$

Substituting (15) into (14) and taking into account that x_j depends

⁸ The condition $w_i \leq h$ guarantees that the retailer does not participate in intermediate market. As we will see later, this condition is not binding in equilibrium.

⁹ The optimality of this contract is studied in the first stage of the game.

on h , and h in turn depends on the choices of the manufacturers:¹⁰ Θ and Z , the problem to solve by manufacturer $i \in I$ is:

$$\text{Max}_{\theta_i, w_i} \Pi_i = (h - c) \theta_i + (w_i - c) x_i + x_i^2 - \frac{(Z + \Theta)^2}{n^2}. \quad (16)$$

The FOC are given by:

$$\frac{n + r + 1}{n} \theta_i = (1 + r) (h - c) - (w_i - c) - 2x_i - \frac{2(1 + r)}{n} x_j \quad (17)$$

$$w_i - c = \frac{1 - r}{r} x_i + \frac{1}{r} \theta_i, \quad (18)$$

and the profits are given by:

$$\Pi_i = \frac{1}{r} (x_i + \theta_i)^2 + (n + 1)x_j^2. \quad (19)$$

Given m , n and r , the second stage (subgame perfect) equilibrium is characterized by equations (2), (4), (12), (17) and (18). From the solution of this system we obtain:

$$w_i - c = -\frac{n + 2}{r} x_j - \frac{r - 1}{r} x_i < 0. \quad (20)$$

$$\theta_i = -(n + 2) x_j < 0 \quad (21)$$

So, we can enunciate the next result:

Proposition 1. *If retailers compete "a la Cournot", an optimal contract specifies an input price lower than the production cost ($w_i < c$). Under this contract, the manufacturer "purchases" the input in the intermediate market ($\theta_i < 0$).*

The intuition behind the result is that the contract acts as a

¹⁰ The author acknowledges to an anonymous referee this observation.

commitment device. In Cournot oligopoly, each retailer would like to be a Stackelberg leader but the implicit assumption in the model is that it cannot commit to such a level of output. The two-part tariff provides the necessary commitment by creating a low marginal cost and thereby making it rational for the retailer to sell more than the Cournot output.¹¹

Alternatively, the optimality of pricing in the contract below the unit production cost can be explained in terms of the slopes of the reaction function. A reduction in the contract price induces an increase in retailer production. Because the slopes of the reaction function are negative (strategic substitutes) the other retailers reduce their production, so the retailer under a contract increases its market share and profits and this profit increment covers the cost of setting the contract price below production cost.

Regarding market foreclosure, proposition 1 indicates that the optimal relation of firms in a VA with independent firms is to "purchase" the input. This result may be understood as a strategy to increase the rivals' cost (other retailers) and indicates that the increase in profits induced by this strategy offsets the cost of purchasing the input at a greater price than the internal production cost.

It is not difficult to find real-world examples of this. Some industrial corporations, with a credit institution among their firms, customarily give preferential credits to other firms within the corporation so that the latter can be more competitive in their industrial sector. In international trade, some industrial corporations have gone into the United States market purchasing retail chains and selling below production cost, a strategy that has provoked dumping lawsuits.

With vertical integration (which implies that $w = c$) instead of a two-part tariff contract, Gaudet and Long (1993) also show the optimality of purchasing the input in the case of a double duopoly bilateral ($N = M = 2$). In the general case, however, these authors obtain that the sign of θ_i is ambiguous and is positive if the number of independent firms is small with respect to the number of integrated firms. In this case, when there are relatively few independent rivals, taking away their profits by increasing their costs does not compensate paying a higher price for the input than its production cost. In our case,

¹¹ This is a classical result in literature on pre-commitment effects that assume that delegation contracts, if any, are publicly observed. See Caillaud and Rey (1994).

however, the possibility of fixing a contract price below its production cost, raises the positive effect on profits of firms in a VA induced by the strategy of increasing rivals' cost. Then, this positive effect always offsets the cost of purchasing the input at a higher price than its production cost.

3. Vertical Agreements and Welfare

Now, we analyze whether it is optimal to offer a contract such as the one defined by (14), (15) and proposition 1 and its welfare effects. The condition needed to archive an agreement is that net profits of a firm in a VA exceed profit of an independent manufacturer. We assume that each independent manufacturer considers that n , m , r are given, then decides to offer a contract to a retailer taking into account that a new VA reduces the number of independent firms. So the condition for a new VA is:

$$\Pi_i(r) \geq \Pi U_k(r-1) \quad (22)$$

It is difficult to derive general propositions regarding the optimality of a VA, since the solution of the model (giving in the appendix) depends on complex expressions. For this reason, in order to obtain some conclusions, we have made some numerical exercises giving values to N , M and r from which we conclude:

When there are more manufacturers than retailers there are always incentives to achieve a vertical agreement. If there are no costs related to signing a vertical agreement, the intermediate market disappears and the Cournot equilibrium is achieved with $\text{Min}\{N, M\}$ firms. When there are more retailers than manufacturers, vertical agreements are not necessarily achieved.

In other words, a VA decision depends on the magnitude of oligopolistic rents (or mark-ups) in the intermediate and final markets. The magnitude of oligopolistic rents depends on the number of firms competing in each market. When there are more (less) manufacturers than retailers, oligopolistic rents in final market are greater (lower) than those in intermediate market. So, when the rents are greater in final market, we argue that there are always incentives to

achieve VAS, as a strategy of manufactures for rent extraction of final market. On the contrary, when the oligopolistic rents in the final market are lower than those in the product market are, the rent extraction from other retailers through the strategies named in proposition 1, not necessarily are enough to compensate the rent losses due to giving up selling to other retailers.

When the number of manufacturers wanting to integrate is greater than the number of retailers willing to do so, the manufacturer that does not find a retailer will be expelled from the industry. This implies that before the agreement, there will be some competition for independent retailers. This competition implies that retailers will have a greater share of the surplus of a VA. In any case, expression (16) maximizes the value of the relation without taking into account the share of the surplus of the vertical relation.

Finally, we review the effects of the VAS on welfare, which is defined by:

$$W = X^2/2 + r\Pi_i + (N-r)\Pi D_j + (M-r)\Pi U_k. \quad (23)$$

That is, the consumer surplus plus industry profits. An increase in the number of VAS is positive from welfare viewpoint if

$$W(r) > W(r-1). \quad (24)$$

From numerical exercises, we find that a vertical agreement always increases welfare. The welfare gains from an increase in the number of VAS, due to the reduction in double marginalization inefficiency, offsets the welfare losses due to the reduction in the production and number of independent retailers.

4. Conclusions

In this work we reconsidered the arguments regarding foreclosure and according to our results, at least under the industrial structure assumed by other similar models, there are no reasons for firms in a VA to deny participation in the intermediate market. In fact, trade among firms in a VA with independent firms is an incentive to achieve a VA, since it can be used strategically to gain greater profits. Regarding antitrust policy, we show that even monopolization attempts can be

positive from a welfare viewpoint, since a manufacturer who desires a greater market share sets prices in a contract below market price.

Our conclusions recover some arguments (see Tirole, 1988, pp. 170; Mathewson and Winter, 1987) that hold that the observed vertical controls have as a unique goal to increase the efficiency of the vertical relations — not monopolization. In this work we establish some conditions that support these arguments allowing final market competition.

Appendix

In this appendix we solve the equilibrium specified by equations (2), (4), (12), (17), (18). Given that the manufacturers cost are equal, then $Z = mz_k$, $X_l = rx_i$, and $\Theta = r\theta_i$. So, from (7):

$$Z + \Theta = mz_k + r\theta_i = n(p - h) \quad \text{A1}$$

From (12) and (20) into A1 we get:

$$p - h = (1 - \alpha_1)(p - c) \quad \text{A2}$$

where:

$$\alpha_1 = \frac{1}{1 + \alpha_0},$$

$$\alpha_0 = \frac{mn(1+r)}{(n(1+r) + 2r)(n+r+1)}.$$

So, from (4) and A2:

$$x_j = p - h = (1 - \alpha_1)(p - c). \quad \text{A3}$$

Now, from (2), (19) and A3, we get:

$$x_i = (r + (n + 2)(1 - \alpha_1))(p - c). \quad \text{A4}$$

From A1 and A4 into $X = Z + \Theta + X_l$, we get:

$$X = (r^2 + (n + r(n + 2))(1 - \alpha_1))(p - c), \quad \text{A5}$$

and from $p - c = 1 - c - X$ into A5:

$$p - c = \alpha_2(1 - c), \quad \text{A6}$$

where:

$$\alpha_2 = \frac{1}{1 + r^2 + (n + r(n + 2))(1 - \alpha_1)}$$

Then the equilibrium is given by:

$$x_i = (r + (n + 2)(1 + \alpha_1))\alpha_2(1 - c) > 0$$

$$x_j = (1 - \alpha_1)\alpha_2(1 - c) > 0$$

$$\theta_i = -(n + 2)(1 - \alpha_1)\alpha_2(1 - c) < 0$$

$$w_i - c = -(r - 1 + (n + 2)(1 - \alpha_1)\alpha_2)(1 - c) < 0$$

$$z_k = \frac{n(r + 1)}{n + r + 1}\alpha_1\alpha_2(1 - c) > 0$$

$$X = (1 - \alpha_2)(1 - c)$$

and the equilibrium profits by:

$$\Pi_i = (r + (n + 1)(1 - \alpha_1)^2)\alpha_2^2(1 - c)^2$$

$$\Pi U_k = \frac{n(r + 1)}{n + r + 1}\alpha_1^2\alpha_2^2(1 - c)^2$$

$$\Pi D_j = (1 - \alpha_1)^2\alpha_2^2(1 - c)^2$$

Using these expressions, it is easy to evaluate the model for N , M , and r .

References

- Bonano, G. and J. Vickers (1988), "Vertical Separation", *The Journal of Industrial Economics*, XXXVI, pp. 257-265.
- Caillaud, B. and P. Rey (1994), "Strategic Aspects of Delegation", CERAS-ENPC and CEPREMAC, Paris WP.
- Castañeda, G., S. Levy, G. Martínez and G. Merino (1992), "Antecedentes económicos para una Ley Federal de Competencia Económica", *El Trimestre Económico*, pp. 230-268.
- Comanor, W. and H. E. Frech III (1985), "The Competitive Effects of Vertical Agreements?", *American Economic Review*.
- (1987), "The Competitive Effects of Vertical Agreements: Reply", *American Economic Review*, December, pp. 1069-1072.
- (1989), "Vertical Integration by Means of Shareholding Interlocks", *International Review of Industrial Organization*, 7, pp. 369-380.
- Flath, D. (1991), "When is it Rational for Firms to Acquire Silent Interests in Rivals?", *International Review of Industrial Organization*, 9, pp. 573-583.
- Gaudet, G. and N.V. Long (1993), "Vertical Integration, Foreclosure and Profits in the Presence of Double Marginalization", *Departement de Sciences Economiques de l'Université du Québec a Montréal WP*.
- Hart, O. and J. Tirole (1990), "Vertical Integration and Market Foreclosure", *Brookings Papers: Microeconomics*, pp. 205-286.
- Lin, Y. Joseph (1988), "Oligopoly and Vertical Integration: Note", *The American Economic Review*, March, pp. 251-254.
- Mathewson, F. B. and R. A. Winter (1987), "The Competitive Effects of Vertical Agreements: Comment", *American Economic Review*, December, pp. 1057-1062.
- Ordovery, J. A., G. Saloner and S. C. Salop (1990), "Equilibrium Vertical Foreclosure", *The American Economic Review*, vol. 80, No. 1, March, pp. 127-142.
- Salinger, M. A. (1988) "Vertical Mergers and Market Foreclosure", *The Quarterly Journal of Economics*, May, pp. 345-356.
- Schwartz, M. (1987), "The Competitive Effects of Vertical Agreements: Comment", *American Economic Review*, December, pp. 1063-1068.
- Tirole, J. (1988), *The Theory of Industrial Organization*, MIT Press.
- Vickers, J. (1985), "Delegation and the Theory of the Firm", *The Economic Journal Conference Supplement*, pp. 138-147.

Los nuevos factores de localización industrial en México. La experiencia de los complejos automotrices de exportación en el norte

José Carlos Ramírez*

Resumen: El objetivo de este documento es ofrecer evidencia sobre los nuevos factores de localización asociados con el reciente emplazamiento de empresas automotrices exportadoras en el norte de México. Los resultados aquí reportados apoyan la hipótesis de que la naturaleza de esos factores se explica por el interés de las empresas de aplicar intensivamente sistemas flexibles de producción y no solamente —como es la visión tradicional— por su deseo de explotar los llamados factores weberianos. Las conclusiones del estudio son relevantes tanto para la teoría de la organización industrial como para el diseño de políticas industriales, pues además de que sugieren la ampliación de miras de los modelos espaciales heredados de la economía regional, muestran los riesgos de continuar apoyando políticas industriales tradicionales basadas en los subsidios o gastos en infraestructura.

Abstract: This paper aims to explain the new location factors which are associated with the recent establishment of export-oriented motor plants in the North of Mexico. The findings support the hypothesis that some types of plants, such as the automotive export companies studied here, are more interested in applying flexible production systems than in taking advantage of the Weberian industrial location determinants. The study concludes that industrial organization theory is relevant in the design of industrial policy, while at the same time recognizing the need to broaden and to reformulate location models inherited from Regional Economics. Of particular importance is the need to recognize the high risks for failure in continuing to follow traditional industrial policies based on production subsidies and/or for the provision by government agencies of dedicated infrastructure.

* División de Economía, CIDE. El autor agradece los comentarios de Raphael Kaplinsky (Sussex University), Stephen Meardon (U. of Duke), Andrés Zamudio (CIDE) y de dos dictaminadores anónimos. Los errores que aún persistan son de mi exclusiva responsabilidad.