

Repeat-Buyer Programs in Network Industries

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Abstract: This paper models repeat-buyer programs as loyalty-inducing marketing devices in the context of multi-product firms that compete in one or many markets with similar firms. It demonstrates the conditions under which such strategies are most likely to be successful in limiting entry and increasing profits. The ability to offer “bonuses” at a marginal cost well below retail price is shown to be critical in the success of these plans. Exploitation of a principal-agent separation between the person making the purchase and the person (or corporation) paying for it is also found to greatly enhance the incentive to pursue such strategies. Finally, the network structure of demand – in contrast to simply a multi-product firm – increases the payoff from these programs. The model is then used to shed light on the success and failure of frequent-buyer marketing plans that have been used in and across industries. The discussion begins with trading stamps, which met with only short run success probably due to a limited principal-agent problem. The paper then considers the airline frequent-flyer programs and related programs in the credit card industry. The paper concludes with analysis of the network-based marketing devices in the long-distance telephone industry.

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I. Introduction

While the cost advantages of network production are well recognized in many industries and network demand complementarities have been studied as well, there has been less notice of the marketing advantages that multi-product firms may gain in network industries. Repeat Buyer Programs (RBPs), of which airline frequent-flyer programs are best known, allow firms selling many related products to tie together consumption of those products in a way that may induce customer loyalty to the entire product line. Though frequent-flyer programs are foremost in most consumer's recognition of these programs, the idea dates back to trading stamps issued before World War I, and in its simplest form probably has roots that run to the beginning of commerce.

Trading stamps enjoyed success in the first two decades of this century and again in the 1950s and 60s, but have not become a permanent part of the retail scene.¹ Supermarkets, gas stations, and other retail stores have periodically launched RBPs that award one piece of a set of goods with each visit – cookware, dishes, glasses, and encyclopedias have all been given away piecemeal in order to induce return shopping visits. Music stores and, more recently, video rentals, have occasionally given away one free unit of the primary good they sell – records, compact disks, video rentals – after a certain number of previous purchases.

The modern use of RBPs in network or multi-product industries is dominated by airline frequent-flyer programs (FFPs), which are now more than 12 years old and appear to be growing in popularity among consumers and airlines.² Many hotels and rental car companies have become affiliated with the airline FFPs, but those that have attempted to launch their own RBPs seem to have met with very limited success. Some credit card companies offer “discounted” purchases of selected goods after the card has been used for a certain amount of credit card purchases, also with apparently very limited consumer appeal. Long-distance telephone companies now employ similar marketing devices, giving away free or discounted telephone calls as well as other goods and travel services in return

¹ For the history and institutional description of trading stamps, I rely primarily on Fox (1968).

² After some reluctance, many European airlines have finally begun FFPs of their own and are studying how to expand them to be competitive with the U.S. carrier FFPs. See French (1991).

for repeat customer purchases, by either an individual subscriber or a group of subscribers.

In section II, this paper models repeat-buyer programs as marketing devices in the context of multi-product firms that compete in one or many markets with similar firms. It demonstrates the conditions under which such strategies are most likely to be successful in protecting or expanding a firm's market share. In section III, I then analyze an array of RBPs that have been used in the U.S over the last thirty years with varying degrees of success. The paper concludes in section IV with a discussion of the likely future prospects for RBPs.

II. A Model of Repeat-Buyer Programs

In their simplest form repeat-buyer programs (RBPs) are essentially just repeat purchase discounts – *e.g.*, buy 10 get the 11th free. RBPs differ from standard quantity discount because they are based on *cumulative* purchases, not quantity purchased at one point in time, and because they are generally offered on goods that are not bought in bulk and stored.

An extremely simple model of RBPs points out one way in which such programs might deter entry by slowing the switch to a lower-priced entrant and, thus, by lowering the present value of the entrant's profits in the market.³ Assume that each consumer buys at most one unit per period in a certain monopolized market and that the incumbent firm sells at the monopoly price of P_m . An entrant with lower costs could enter and immediately induce all customers to switch by charging a price just below the incumbent's unit cost.⁴ Before the entrant appears, however, the incumbent could begin selling only in pairs (which are non-transferable or transferable only at significant transaction costs). A consumer would take delivery of one unit of the product in the period in which the pair is bought and one unit in the following period. The monopoly price of the pair would be $P_m + P_m/(1 + i)$, where i is the periodic interest rate. Consumption at that price and the

³ Klemperer (1987b) has modeled rigorously the entry-detering effects of consumer switching costs in general.

⁴ I assume Bertrand competition with constant marginal and average cost. The story is complicated only slightly by declining average costs.

present value of production costs would be unchanged from the case of unpaired sales. If entry occurs thereafter, about half of all customers will be in the middle of a pair of units and will not switch until at least one period after entry. The entrant's present value of profits after entry declines due to the incumbent's pairing of tickets, because the technique slows the rate at which customers switch to the entrant.⁵ While this simple RBP may be effective in deterring entry, it is unlikely to afford one firm a competitive advantage against an existing rival in this simple setting.

Though this simple model highlights the effect of customer "attachment" with RBPs, it omits institutional details of the programs that seem to be important in their effectiveness. Many real RBPs exhibit increasing marginal payout functions over a wide range of cumulative purchases; *e.g.*, the extra RBP benefits from purchasing one more unit from a company increase as the total number of units purchased increases. Airline FFPs generally offer a bonus associated with 40,000 miles flown that is more than twice as valuable as the bonus available after 20,000 miles.

The extensiveness of the firm's product line also seems to be important in creating an attractive RBP. Hotels with facilities in many cities have used RBPs more extensively than those with a more limited number of outlets. Route network size seems to be important in the success of airline FFPs. FFPs have been cited as one reason that dominant airlines at certain airports are able to charge supercompetitive prices without inducing new entry.⁶ The range of products offered, and their correlation in demand among customers, have two important effects. First, a larger range of products that appeal to a given customer means the customer is more likely to choose this firm over others if she intends to concentrate purchases with just one company. Second, a larger range increases the set of bonus products that the firm can offer without purchasing them from other companies.

The type of bonus also varies substantially across RBPs in different industries. In the airline industry, the vast majority of bonuses are air travel products, usually produced by

⁵ Unlike the model presented by Banerjee & Summers (1987), this program does not discourage the incumbent from price cutting, because the firm offers a pre-paid product for next period, rather than a discount off the market price of the good next period.

⁶ See Levine (1987), Borenstein (1989), DOT (1990), Borenstein (1991), and Borenstein (1992).

the same airline. Long distance telephone companies offer RBP participants long distance telephone services as rewards, but also offer travel and some consumer goods. Hotel and rental car RBPs are as likely to give related travel products as the ones produced by the sponsoring company. At the other extreme, the trading stamp RBPs made no connection between the product on which the stamps were earned and the bonus gift received. Similarly, credit card RBPs, such as Citibank's *CitiDollars* program give discounts on unrelated products as the payoffs. Some credit card companies take this separation to an extreme by simply giving cash back to the holder of the credit card.

Finally, a distinctive feature of airline and certain other RBPs is that they can create a significant incentive conflict between the agent deciding which goods to purchase and the principal paying for the goods, a principal/agent problem. Airline FFPs offer a gift to the agent that does the buying for the business. Though such an incentive might raise a travel-purchasing firm's costs, RBPs can also increase the compensation received by its employees. Furthermore, such compensation is generally not taxed. Thus, one can easily imagine an allocation of costs and benefits from such schemes in which the only net loser is the Internal Revenue Service.⁷ The potential for inefficient outcomes and anticompetitive effects from these RBPs remains, of course.

With these features of the programs in mind, I present a model of a simple RBP that may give a competitive advantage to a dominant firm and may deter entry. Though the model is quite stylized, it is likely that the insights from it are more general. I make the following assumptions:

- a) An incumbent monopolist serves two markets, A and B, each at constant average (equal marginal) cost, C_A and C_B , respectively.
- b) There are many consumers in market A, each of whom has a positive reservation price for 2 units per period on the market, R for the first unit and V for the second unit, where $R > V$ and $C_A < V < (R + C_A)/2$.⁸ One of the market A customers also

⁷ This may explain why firms that are large purchasers of air travel, such as Ford and General Motors, have not objected vehemently to frequent flyer programs. Few firms have implemented strict monitoring of frequent flyer miles acquired by their employees during business trips.

⁸ The restriction that $V < (R + C_A)/2$ implies that the incumbent would not find it more profitable

purchases in market B. She receives positive value from one unit per period in market B, for which she has reservation price $R (> C_B)$. The other market A customers make no other purchases and no one else buys in market B.

- c) At some point in time after the incumbent has established its operations in the industry, a potential entrant appears that could sell in market B at constant average cost, C_E , where $C_E < C_B$.
- d) There are sunk costs associated with each market entered, S , which must be paid in the period before entry.⁹

Without an RBP, the incumbent charges $P = R$ in each market until the potential entrant appears. If the potential entrant decides to enter, it charges $P_E = C_B - \epsilon$, where ϵ is an arbitrarily small positive number, and sells one unit in market B each period. The new firm enters market B if and only if

$$S < \frac{C_B - C_E}{i}. \quad [1]$$

The RBP helps to deter entry by delaying or preempting customers from switching to the lower-price entrant. This, in turn, lowers the present value of the entrant's expected profits and thus, for some levels of sunk cost, will deter entry. This RBP may not be the optimal one from the point of view of the incumbent, but it is one example of an RBP that has this effect.¹⁰ I assume that:

- e) The RBP offered by the incumbent firm awards one free unit after every four that are purchased from the incumbent in either market. The bonus is awarded and consumed during the same period as the last purchased unit necessary to earn it. I assume that a bonus unit never "crowds out" an R -valued unit.¹¹ This assumption is critical in

to set $P = V$ than $P = R$. The importance that some positive-surplus purchases are left unsold without an RBP becomes evident in what follows.

⁹ The timing of the sunk cost payment is completely arbitrary and has no effect on the conclusions.

¹⁰ See Caminal & Matutes (1990) for a model of equilibrium RBPs in a duopoly. Klemperer (1987a) studies the effects of switching costs in general on rivalry among firms.

¹¹ For people buying only in market A, this follows immediately from the restriction of same-period use of the bonus. It is an additional assumption for the customer who buys in both markets.

the usefulness of RBPs. Its validity depends on the circumstances of the RBP as discussed in section III. The assumption is consistent with the principal/agent aspect of some of the programs.

- f) Customers always choose to take their bonus units from market A. Though this seems restrictive, it is not that unrealistic if one thinks of market A as representing “all other” markets that the incumbent serves.¹²
- g) An immediate consequence of the RBP structure is that the customer who consumes in markets A and B earns the bonus every second period.¹³ A customer who has just received the bonus is referred to as “unattached” and one who has some units towards the next bonus as “attached.”
- h) Neither firm raises price during a bonus cycle in response to the number of units that a customer has built up towards her next bonus. This is intended to be the one-customer analog to the fact that there are always some RBP members who have investments towards the next bonus. Alternatively, buyers could simply believe this to be the case, so that their valuations of future RBP bonuses are made under the assumption that the firm will continue to charge its current prices.

Without entry, the incumbent charges a price higher than R in market A, reflecting the reservation price for the first unit each period, plus the market-A customers’ present value of the bonus unit, which is valued at V when consumed.¹⁴ Because the incumbent cannot discriminate the customer who also consumes in market B from all other market-A customers, it is straightforward to show that the incumbent would not change price in market A if entry occurs in market B. In the absence of entry in market B, the incumbent charges a price above R in market B as well, because the customer who earns the bonus

¹² Furthermore, a model with two paying customers in market B, one of whom prefers the bonus in market A and one in market B, yields similar results.

¹³ The customers who consume only in market A earn the bonus every 4th period.

¹⁴ To be precise,

$$P_A^* = R + \frac{V}{2 + i + (1 + i)^2 + (1 + i)^3}.$$

This is the price at which the present value of payments over a 4-period repeat buyer cycle equals the present value of the benefits of all units received during that cycle.

every second period will receive a higher present value from it than those who receive it only every 4th period.¹⁵

Now consider the result of entry. With probability one-half, the customer has just received a bonus and is unattached. I consider this case first. If the customer chooses to switch to the entrant for her market B units, she will forego the bonus that she would have received next period and every fourth period following that.¹⁶ The present value of the foregone bonus units is

$$\begin{aligned} \text{Present Value of Lost} \\ \text{Bonuses From Switching} &= \frac{V}{1+i} + \frac{V}{(1+i)^5} + \frac{V}{(1+i)^9} + \dots \\ &= \frac{V}{1+i} + \frac{V}{(1+i)^5 - (1+i)} \equiv V\Delta, \end{aligned} \tag{2}$$

where Δ is a discounting factor defined by the last equality. Switching to the entrant, however, also lowers the incumbent's costs of providing bonus units. The present value of these cost savings is $C_A\Delta$.

Because of the cost savings from less frequent bonus awards if the customer switches, the incumbent will not be willing to lower P_B all the way to C_B to prevent switching. Instead it will drop only to $P_B = C_B + \frac{i}{1+i}C_A\Delta$, where the term $\frac{i}{1+i}$ converts the present value of the bonus to a perpetual charge beginning this period. The incumbent would prefer to lose the customer than to lower price further in market B. Still, the entrant must offer the customer savings with a present value of at least $V\Delta$ in order to induce her to switch. That is, the entrant must undercut the incumbent's price by at least $\frac{i}{1+i}V\Delta$. Two results follow immediately:

Result 1: If the market-B customer is unattached and $C_E > C_B - (V - C_A)\frac{i}{1+i}\Delta$, the RBP prevents profitable entry regardless of sunk costs. If this condition holds, there is no price

¹⁵ To be precise

$$P_B^* = R + \frac{V}{2 + i + 1/(1+i) + 1/(1+i)^2}.$$

The second term is the additional value of the bonus unit received by the person who obtain the bonus every second period rather than every fourth period.

¹⁶ That is, designating the time of entry as period 1, switching to the entrant will cause her to receive bonuses in periods 4, 8, 12, ... instead of 2, 4, 6, 8, 10, 12, ...

above C_E at which the entrant could make positive sales. In the subgame perfect Nash equilibrium, no entry occurs. If entry were to occur, there is a unique Bertrand equilibrium in the subgame that follows in which the incumbent charges $P_B = C_E + V \frac{i}{1+i} \Delta - \epsilon$ and makes the only sale in the market.

Result 2: If the market-B customer is unattached and $C_E < C_B - \frac{i}{1+i}(V - C_A)\Delta$, profitable entry will depend on the size of sunk costs, S , but will be less likely than if there were no RBP. If entry occurs, there is a unique Bertrand equilibrium in the subgame that follows in which the entrant charges $P_E = C_B - (V - C_A) \frac{i}{1+i} \Delta - \epsilon$ and makes the only sale in the market. So long as $V > C_A$, the entrant will have to charge a price discretely below C_B and thus the present value of future profits will be less than without the RBP.¹⁷

Even if an RBP does not prevent an unattached customer from switching to a lower-price entrant, it could still dissuade switching by an attached customer until she becomes unattached. If, in a post-entry equilibrium an unattached customer would buy from the entrant, then her decision to switch while still attached instead of waiting one period would just delay all future bonuses. That is, instead of receiving bonuses in periods 1, 5, 9, ..., where period one is the time of entry, a customer who switches while attached would receive bonuses in periods 2, 6, 10, This delay lowers the present value of future bonuses:

$$\begin{aligned} \text{Present Discounted Cost of} \\ \text{Switching While Attached} &= \frac{iV}{1+i} + \frac{iV}{(1+i)^5 - (1+i)} = iV\Delta. \end{aligned} \quad [3]$$

Likewise, retaining an attached customer in market B for one period until she becomes unattached raises the incumbent's present discounted cost of providing bonus units by $iC_A\Delta$. These cost and value differences will be reflected entirely in the competition during the first period after entry, because all parties know that the customer will switch when unattached. Not surprisingly, it will be more costly for an entrant to induce an attached customer to switch than an unattached customer.

Result 3: If $C_B - i(V - C_A)\Delta < C_E < C_B - \frac{i}{1+i}(V - C_A)\Delta$, an unattached customer could be profitably induced to switch to the entrant, but an attached customer could not

¹⁷ The entrant will have to continue to charge P_E as long as the threat from the incumbent persists.

be profitably induced to switch until she became unattached. More generally, an attached customer will require a price $(1 - \frac{1}{1+i})i(V - C_A)\Delta$ lower than an unattached customer in order to induce switching.

Though quite simple in its structure, the model suggests a number of insights about RBPs.

- The RBP is effective because it allows the incumbent to tie, in a credibly precommitted way, sale of certain cumulation of items to a gift of another product that is valued more highly by the customer than it costs the incumbent to produce.¹⁸
- Not only must the cost of producing (or acquiring) the bonus product be less than V for the RBP to be a profitable strategy, the *opportunity* cost of tying it as a RBP bonus must also be less than V . This is more likely to be the case if the V -value unit cannot be sold separately because of either an inability to price discriminate or the elimination of the principal/agent problem if it is sold directly. If the unit would otherwise not be sold, or would be sold by some other firm, whether in market A or some other “payoff” market (whose price would then determine an upper bound on V), then the RBP may facilitate a Pareto improving trade.¹⁹
- The value of the bonus unit V is compared to expenditures on the paid-for units in making the switching decision. If the shadow value of marginal expenditures on the R -value units is less than 1, as is the case when the purchasing agent does not fully internalize price differences, then V is greater than the agent’s actual reservation price for the unit and is thus a relatively stronger inducement not to switch. The principal/agent aspect of an RBP reinforces its entry deterring effect.

¹⁸ Essentially, this is commodity bundling as explored by Adams & Yellen (1976). In contrast, if $V < C_A$, the RBP increases the cost to the incumbent of preventing switching more than it increases the customers cost of switching.

¹⁹ If the incumbent can price discriminate perfectly, the RBP does not even deter entry if there are “attached” customers. With enough information for first-degree price discrimination, the incumbent could charge an attached customer exactly the gross surplus she derives from the units the firm provides. In that case, providing the unit in market B adds less to the consumer’s gross surplus (the alternative being the entrant’s unit at $P_E < C_B$) than it increases the incumbent’s production costs. Instead, with entry, the incumbent’s best response would be to sell the R -value and V -value units in market A for prices of R and V , respectively, and to let the entrant provide the unit in market B for $C_B - \epsilon$. If the RBP member wished to take the bonus unit in market B , the incumbent would buy that unit from the entrant rather than provide the unit itself.

- Because entry in market B would result in a price near marginal cost, $C_E < P_E < C_B$, the entrant would be at a disadvantage in establishing its own RBP. The only bonus it could offer, a free unit in market B, has an upper bound on its value of P_E .²⁰ Goods that normally sell for a price near marginal cost are poor candidates for bonus items.
- Versatility in the possible uses of a bonus raises the value of the bonus to a consumer by raising the option value. The incumbent that offers many different products of potential value to the consumer will be able to create a greater expected consumer-value-minus-cost differential with its bonus offer than an entrant that sells only a single product. The expansion of product line is important because it increases the consumer's expected value of the bonus unit, so the large product line should include many different choices that are likely to appeal to the type of consumer who is able to earn the bonus. Yet, at the same time, the bonus should be restricted so that it cannot be used for a unit that the consumer would otherwise purchase. A broad product line for bonuses can be created by purchasing bonus items from other companies, but these purchases are generally made at above marginal cost, so the net gain to the firm running the RBP will in general be smaller.
- If the RBP does not deter entry, some of the customers in the entered market may choose to remain with the incumbent permanently, even though the incumbent always charges a higher price.

Welfare Effects of RBPs

The RBP modeled here has three direct effects. First, it enables the incumbent to bundle products to effect a Pareto improving trade by selling the unit that otherwise would not be sold.²¹ Second, it induces customer loyalty by raising the “attached” customers’ cost of switching. Third, it sets up a principal/agent problem by paying bonuses to the purchasing agent in exchange for expenditures of the principal’s money.

In the absence of competition or an entry threat, the welfare effect of the RBP will

²⁰ This is true whether the entrant establishes new zero-point membership in its own RBP or offers to match the points that the customer has built up on the incumbent’s RBP.

²¹ This is a Pareto improvement so long as the purchaser’s true reservation price for the bonus unit is above C_A .

depend on whether the surplus gain due to bundling outweighs the (possible) loss from the principal/agent problem.²² If entry is possible, the RBP may “efficiently” deter it even though $C_B > C_E$, because the sales on the B market also permit Pareto improving exchanges of the bonus unit.²³ The RBP may also allow “inefficient” entry deterrence if switching fails to occur only because marginal expenditures by the principal are not fully internalized by the purchasing agent.

The loyalty induced from “attached” customers can be examined separately from the other two effects. Consider an alternative RBP-like plan in which the incumbent gives a *transferable* coupon to every paying buyer of a unit, with four coupons being exchangeable for a bonus unit. Analysis of the bundling and principal/agent effects differs only slightly from the RBP model presented above.²⁴ With transferable coupons, however, the effect of “attachment” disappears. Switching to the entrant does not delay future bonuses, because no one holds an inventory of coupons.²⁵ In steady state, this RBP-like plan gives away the same number of units each period as the RBP modeled above. This plan, however, does not “attach” customers across periods and, thus, does not allow the credible commitment by the incumbent to maintain some proportion of the market after entry. Looking back at the very simple “pairing” model of RBPs presented at the beginning of this section, transferability of the second unit in the pair would destroy the advantage gained from such a RBP, as both units in a pair would be consumed in the period of purchase and no commitment by the incumbent for the following period would be credible. From these examples, it is clear that the “attachment” of consumers through an RBP is not critical to their use in effecting potential welfare improvements, but it is central to the role of an RBP as an entry deterrent.

²² The principal/agent problem would actually increase surplus if the agent’s true reservation value of the bonus unit is greater than C_A . Still, the principal would lose compared to receiving the kickback itself.

²³ This statement takes the structure and terms of the RBP as given.

²⁴ A coupon system makes monitoring and recapture of kickbacks easier for the principal and makes it more difficult for the airline to prevent use of the bonus for R -value units, each coupon would have a market value of $V/4$ and each would be used in the same period issued. The entrant would have to undercut the incumbent’s price by $V/4$ and would be able to do so only if $C_E < C_B - (V - C_A)/4$.

²⁵ If a person does not intend to use a coupon in the period of acquisition, it is more valuable to sell it in the competitive coupon market and buy coupons back at the time a bonus unit is desired.

In the full RBP model presented, the multiproduct incumbent has an advantage in part because V is likely to be higher for the bonus the incumbent offers. This raises the welfare improvement from tying and increases the entry-detering effect of “attachment” (note the necessary price differential in result 3). It is worth noting that both of these effects disappear with a RBP-like transferable coupon system. The resulting market in coupons would channel each firm’s coupons to the markets where users obtain the highest value from them. Firms with more extensive product lines overall would still have some advantage, but there would be less value from offering a product line that appeals to a certain type of consumer. To apply this to the airline industry, even with the transferable coupon, the airlines with the largest systems would still have some advantage in using RBPs, but an airline with most of the service in a customer’s city would have no particular advantage due to that local dominance.

III. Repeat-Buyer Programs in Practice

Repeat buyer programs have been used in many different industries and markets with various degrees of success. I begin the application of the model in section II by discussing the least sophisticated programs: buy $n - 1$ and get the n th unit free. I then examine programs of increasing complexity, including trading stamps, airline frequent-flyer programs, and RBPs currently in use in the long distance telephone industry.

The Nth Unit Is Free

The least complex or sophisticated RBPs offer a free unit after a certain number are purchased. These plans, which are common in music and video markets, seem unlikely to have persistent benefits to the firms that use them. Clearly, they do not benefit from principal/agent separation in most cases. In quite a few instances, it seems likely that the bonus unit crowds out purchase of an additional unit, thus raising the firm’s opportunity cost to the full retail price. Multi-product or network considerations are weak in these cases, since most people rent videos and purchase music in a single town or neighborhood. In fact, these simple RBPs seem to be more common among small single-outlet retailers

than multi-outlet chains.²⁶

Furthermore, these simple RBPs occur most frequently in markets with numerous competitors – most towns have many music and video stores – so that deterring entry is less valuable than gaining a competitive advantage over other incumbents.²⁷ As the model points out, an RBP can provide a competitive advantage to one firm over competitors without RBPs if it permits sale of some units that would otherwise go unsold by that firm due to inability to price discriminate or take advantage of principal/agent separation. The infrequency of principal/agent problems in these markets along with the ease with which bonus units can replace a regular purchase decreases the likelihood of these motives.²⁸

The model does not address a justification for RBPs that is commonly heard, but not generally credible. It is argued that economies of scale in production may justify RBPs on a cost basis. This is not the case for two reasons. First, and most important, a single buyer's purchases is unlikely to have more than a trivial effect on marginal cost. Second, the economies are generally thought to be production during a given period of time, while RBPs are usually time insensitive, except for the present value loss of delayed bonuses. For the scale economies argument to be applicable a single buyer would have to comprise a non-trivial share of sales, the firm would have to have declining marginal cost – a stronger condition than simple scale economies – and the purchases would have to occur during a time period over which increased purchases cause decreased marginal cost.

Of course, one cannot rule out the effectiveness of these RBPs due to consumer myopia or irrationality. Consumers might systematically overestimate the probability that they will complete the number of purchases necessary to receive the bonus or underestimate the time in which they will do so. The firm may have better information than consumers about these parameters, on average, so if the consumer estimates are biased in the appro-

²⁶ The multi-product aspect could still be important if stores specialize in different types of music or videos. This seems more plausible in music markets than video rentals.

²⁷ In at least one California and one Michigan city, capuccino stands offer a free cup after purchase of a certain number previously. In both cities, the retail capuccino market seems highly competitive, though the level of product differentiation is a point of frequent contention.

²⁸ These programs could allow effective price discrimination if repeat buyers are “locals” who are more price sensitive or have lower search costs, while others are transient buyers who are less likely to shop around.

priate direction, the plans could yield positive profits, at least until consumer information improves. More generally, consumers may place value on the “gift” that exceeds the actual expected retail value. According to Fox (1968), there is extensive sociological study of the place of gifts in commerce and trade dating back hundreds of years, though it is difficult to imagine that this effect would be very strong in these impersonal businesses and among the jaded customers in these markets.

One of a Set with Every Visit

Slightly more complex are RBPs that give away, or sell at steeply discounted prices, one of a set of a different product – such as glasses, dishes, cookware, steak knives, or encyclopedias – with each purchase over time. Presumably these goods are more valuable when owned in sets, so the consumer has an incentive to return until he has collected a large number of the items. Gas stations have given away one tumbler or steak knife with each fill-up, while some supermarkets offer a different volume of an encyclopedia each month that can be purchased at discounted price with a minimum purchase of groceries.

These programs have two important features that distinguish them from those in the previous subsection. First, the bonus item is usually not manufactured or sold by the firm. Second, no accumulation of purchases over time is required to receive the bonus. Instead, the bonus item itself takes on greater value if more of them are acquired by the customer. These are goods that are normally owned in sets.

The attraction of using a bonus that the firm does not offer for sale is that giving the bonus is less likely to crowd out sales of the bonus item. The problem with this approach, as highlighted in the model, is that consumers are also more likely to value the bonus less than its production cost or the firm’s acquisition cost. This seems more likely to be the case if the bonus item is low-quality steak knives or tumblers, which are available in highly competitive markets in which most scale economies are exhausted, than if it is encyclopedias, which are sold at great markups over marginal cost.

In fact, encyclopedias possess an ideal attribute of a bonus item. There are many potential consumers who value them at greater than marginal cost, but less than the market price. The number of people who would buy a given brand of encyclopedia at even

a discounted retail price is quite small, so the opportunity cost of most bonus uses is the printing cost of the encyclopedia, not the retail revenue foregone.

The drawback is that even the printing cost is substantial, so giving such a bonus to someone who places no value on it is a costly error. For this reason, supermarkets sell the encyclopedias at what is probably about marginal production cost – six dollars per volume in the case we observed – rather than offering them free of charge with a given size purchase. Dishes and cookware are also offered at about marginal cost by supermarkets on a similar time-limited basis for each piece of the set.

Trading Stamps

Trading stamps were one of the first examples of multi-outlet RBPs, in which points are earned through purchases in multiple locations and products of many different firms are available as bonuses. Trading stamps enjoyed periods of success in the early 1900s and again in the 1950-60s, but have since virtually disappeared. The trading stamp industry is not entirely deceased, but the reports of its death are not greatly exaggerated. The basic structure of the industry was that trading stamp companies sold stamps to retailers who then gave them away with retail sales. A given stamp company would generally sell to only one brand of each type of retail outlet in an area, *e.g.*, if the local Kroger grocery stores gave away S&H green stamps, then the A&P would not be allowed to buy the stamps from S&H. The stamps were collected by consumers and used to purchase goods at the trading stamp company's redemption center.

Fox (1968) indicates that the stamps were sold to retailers at below their redemption value, valuing the bonus goods at normal retail prices. He quotes the CEO of Sperry & Hutchinson Company, the largest trading stamp company in the 1950s and 60s, as claiming that the average consumer merchandise value was \$1.16 for every \$1 of stamp cost to the merchant.

This apparent expected gain for consumers was offset to some extent in two ways. First, some of the stamps were never redeemed, lowering the expected liability of the trading stamp company. According to Fox, however, redemption rates for all of the major

stamp companies were over 90%.²⁹ Second, the time between purchase of the stamps by retailers and redemption of them by consumers was significant, six to nine months on average, so the trading stamp company earned – and consumers lost – some return on the float. Still if the S&H number is accurate, the stamps had slightly positive net value after accounting for redemption rates and lag time. If one recognizes in addition that this alternative currency required significant time in collecting stamps and pasting them into books and were much less liquid than cash – being redeemable at no more than one or two stores in a city and for only a limited range of goods – then it appears that the stamps offered little net value to consumers.³⁰

Thus, it is likely that the merchant offering trading stamps was giving the consumer a gift that was valued less by the consumer than the cost of supplying the gift. The model in the previous section showed that the RBP is less likely to effectively deter entry or afford a competitive advantage against other firms when this is the case. At best, the consumer value was only a few percent greater than the merchant cost of the gift. This is a far cry from encyclopedia distributions or frequent-flyer programs.

Nonetheless, for a period of more than a decade in the 1950s and early 1960s, trading stamps were extremely popular. Over 80% of U.S. households reported that they collected trading stamps.³¹ Supermarkets that did not have the local franchise of the most popular stamp felt at a significant disadvantage. Managers of competing firms reported that price discounting was ineffective in their attempts to offset the attraction of the firms that distributed the most popular brand of stamps.³² Thus, for some period at least, trading stamps seemed to give substantial competitive advantage against other incumbents. Why

²⁹ It has been argued that trading stamps were a means of price discriminating between collectors and non-collectors. With an over-90% redemption rate, this is a poor discriminatory technique, unless merchants simply didn't distribute the stamps to the consumers that it knew or thought to be non-collectors. Furthermore, even if the redemption rate were only 50%, the merchant's discriminatory gains would be costly, because the rate it paid for the stamps was independent of how many of the stamps it distributed were actually redeemed. Stamps thrown away cost the merchant just as much as stamps redeemed.

³⁰ Finally, it is worth recognizing that the trading stamp companies had no incentive to bias downward the estimated redemption value of their stamps and a good reason to bias the figure upward.

³¹ Fox (1968), p. 19.

³² See Fox (1968), p. 37.

Table 1: Merchandise Distributed by Trading Stamp Companies in 1966

Soft Goods	16.7%	Bathroom Accessories	3.6%
Housewares	11.4%	Clocks	3.2%
Furniture	10.2%	Luggage	2.5%
Appliances	9.2%	Glasses and Dishes	2.3%
Toys	6.3%	Radios	2.3%
Jewelry and Personal	5.5%	Tools	2.2%
Gift Items	4.6%	Lawn Supplies	1.8%
Juvenile	4.4%	Silver and Flatware	1.5%
Sporting Goods	4.3%	Cameras	1.3%
Outdoor Accessories	3.9%	Books	0.8%
		Miscellaneous	2.0%

Source: Fox (1968), p. 98.

were trading stamps so effective for a period of time and then rapidly lost their importance in competition and marketing?

It has been argued by Fox and others that trading stamps lost their effectiveness as women reentered the workforce in greater numbers at the end of the baby boom. As the value of these former homemakers' time increased, the nuisance cost of collecting and redeeming stamps did the same. But, as shown above, even with zero nuisance cost, stamps did not offer much, if any, net value. The social or cultural trend of trading stamps may have caught up many people or it may have simply taken consumers some time to recognize the true redemption value of the stamps.

Trading stamps were also in some ways the precursors to the discount buying clubs that are now popular. Trading stamp catalogs offered one style of most items and purchased those items in large quantities from the manufacturers. The limited selection and the low-service redemption centers – few items were on display for closer examination before purchase – gave the impression of discount retailing. Perhaps consumers were misled by these appearances for some time.

Incentive conflicts within the traditional family might also have contributed to the success of trading stamps when the traditional family structure was at its apex. The homemaking wife wanted to spend a higher proportion of family income on household goods

– particularly labor-saving appliances – than did the working husband, who did less of the household chores and spent less time in the home. While direct purchases of these items could be monitored easily, it was more difficult for the husband to dispute that the shopping wife was getting the trading stamp as a bonus, while still buying groceries and other goods at the lowest prices available. In fact, the majority of bonus items offered by stamp companies were household goods. Table 1 shows the breakdown of merchandise delivered by the ten largest stamp companies during 1966. Soft goods (*e.g.*, sheets, tablecloths), housewares (*e.g.*, pots and pans), furniture, and appliances together account for nearly half of the merchandise value. Thus, the success of trading stamps may have stemmed in part from an intra-household principal/agent problem. As women returned to the labor force this conflict of preferences and incentives diminished.

Airline Frequent – Flyer Programs

Airline FFPs are probably the most successful of the modern RBPs, because they combine nearly all of the attributes for an effective RBP. When sufficiently restricted, the bonuses offered in FFPs have very low marginal cost to airlines. They are trips or upgrades to first class that occupy seats that would otherwise be empty. The most significant way in which these trips are costly to the airline is that they potentially replace a trip for which the consumer would otherwise pay. The sophistication of airline price discrimination through yield management means that fewer trips valued at above marginal cost are left unsold. Still, marginal cost can be quite low if availability is restricted and most airlines now place substantially tighter restrictions on the use of FFP bonus trips than on the most deeply discounted tickets. Thus, many FFP bonus trips would not have occurred otherwise.

In the airline industry, probably more than in any other, the companies have been able to exploit the principal/agent separation in use of the RBP.³³ As pointed out in the model, the principal/agent separation raises the agent’s shadow value of the bonus unit, V , and thus makes the RBP more effective. This additional private value of the V unit as a bonus

³³ Since the focus here is retail RBPs, I do not discuss in this paper the use of travel agent commission override programs (TACOs) used by airlines to encourage travel agents to book more traffic on their flights. These programs, which operate much like RBPs but pay cash bonuses usually, may be more important than the FFPs in influencing successful airline marketing. See Borenstein (1992) for a discussion of TACOs.

is lost if the bonus unit is sold directly to the agent, since few workers could or would engage in the fraud necessary to purchase a personal airline ticket with the employer's money.

The airline industry also offers natural groupings of customers according to their preferred products that facilitate the use of an RBP to one firm's competitive advantage. A customer who lives in Pittsburgh is much more interested in the range of flights from Pittsburgh on which she can earn FFP points in a given airline's plan than the selection of flights from Detroit. Similarly, the Pittsburgh resident's value of the FFP bonus will be directly related to the number of destinations easily reached from Pittsburgh that are in the set of bonuses offered. An airline with significantly more service at Pittsburgh than others will have an advantage in offering an attractive set of products on which to earn RBP points and an attractive range of goods on which the bonuses can be spent. Thus, the hubbing and network production economies in airlines significantly augments the use of the FFP, because it corresponds to a dominant share of the air travel services that a person living near the hub is likely to purchase.

To see the importance of this localized market dominance, consider the effectiveness of an RBP in an industry where consumers desire many different products that are manufactured in the industry, but there is no correlation of consumers' demand across products. Scale and scope economies in production are likely to be exhausted at a much smaller level of output relative to total market output in the entire industry than in any smaller localized market. Thus, company shares for the industry as a whole are likely to be more nearly equal than shares in sales of individual products. The option value of a bonus on a firm that produces 40% of the products in the industry product line is likely to be little larger than the option value of a bonus on a firm that produces 30% of the industry products if the preferences over products preferred for the bonus consumption were distributed randomly. More to the point, if all firms produced virtually all products in the industry, then RBPs are unlikely to produce a competitive advantage of one firm over others in any of the markets.

Air travel has so many attractive attributes as an RBP bonus that many companies in other industries have made arrangements to offer air travel as a bonus through an existing

airline FFP. Institutionally, the company pays the airline for FFP points that it then gives away to customers. The price at which this transaction occurs varies, but is generally below one cent per FFP point distributed. This is presumably at least the airline's marginal cost of this liability, but probably below the value that some consumers get from receiving the mileage.³⁴

The attraction of airline travel, as well as hotel services, as a RBP bonus is clear for companies that want to operate a RBP but only produce goods that sell for close to marginal cost. Theoretically, the arrangement between the airline and the other company could be structured so that the FFP miles are purchased at marginal cost and, possibly, a lump sum fee is paid in order to allocate the rents from this use of FFP miles. In fact, however, airlines are generally compensated on a more nearly linear basis, and the price seems to be above marginal cost. Recognizing this along with the fact that nontrivial coordination and transaction costs exist in these arrangements,³⁵ it is surprising that FFP miles remain such a popular bonus for other RBPs.

Credit Card RBPs

While trading stamps have virtually vanished, bonuses on credit card purchases that have some of the same attributes have recently appeared. Some credit card companies offer bonuses of a selection of household goods at zero or discounted price. Other credit cards give mileage on airline FFPs as the bonus. A few companies, including Discover credit card, offer *cash* rebates on credit card purchases. Most recently, major production companies, such as General Motors, have begun to offer Master Card or Visa credit cards that allow the buyer to earn discounts on the goods the company makes, autos in the case of General Motors.

Issuers of all cards that use RBPs do so to entice consumers to carry, and make purchases with, one card over others or over other forms of payments. The issuers of

³⁴ This information is based on discussions with one former and one current executive at major U.S. airlines. Even at one cent per FFP point, the 20,000 points necessary to earn a free domestic round trip on most airlines cost only \$200, below the cost of most supersaver discount trips.

³⁵ Levine (1987) discusses the coordination costs of even cooperative frequent flyer programs with many participating airlines.

proprietary cards – Discover, American Express, or Diners Club – do so also to expand acceptance of the cards by merchants who find an increasing number of customers asking to use the card.³⁶ The RBPs range from virtually valueless – with Citibank Citidollars you can earn the right to purchase certain goods at prices that are not noticeably below those of major discount stores – to clearly worth a significant dollar equivalent.

Nearly all of these programs offer increasing marginal payments, *e.g.*, the percentage of total charges paid back in cash by Discover increases with the total amount charged over the year. While the relationship between quantity of miles awarded and total charges is linear on the FFP-related credit cards, the bonuses available for FFP miles from airlines generally increase non-linearly with mileage accumulated, as discussed earlier. The non-linear bonus schedules combined with the annual fee, which can be \$75 or more, create the incentive for a person to carry and use only one general-use credit card.

A primary problem with most of these programs is the same as with trading stamps: except for the recent entrants, credit card companies have no particular advantage in producing, acquiring or distributing the goods or services that are the bonuses. The value of the bonus to the consumer is unlikely to be much greater than the cost to the credit card company of supplying the bonus. This is obvious with the credit card RBPs that simply give away cash according to a nonlinear schedule. There may be some gain in the distribution of airline FFP points as a bonus for using the credit card, but it is likely to be much smaller than when airlines use their own product as the RBP bonus. The auto and other good-producing companies that have recently entered the credit card market are offering discounts on the goods they produce as bonuses. This has the potential to be an effective and successful approach since autos generally sell at significant retail markups, but will depend on how many of the resulting car sales would have occurred even without the credit card program.

Credit card RBPs are inferior to trading stamps and airline FFPs because the network structures of the competing companies are virtually identical. Credit card acceptance is

³⁶ This is less likely to be an incentive for issuers of Master Card or Visa, because acceptance of these cards is independent of which affiliate of these consortiums is the issuer, but the RBP policy varies for each MC or Visa affiliated card.

homogeneous for all Visa and Master Card affiliated cards. Unlike the regional specialization of airlines or the cross-product specialization of trading stamps, one credit card offers pretty much the same array of services as another. This is less true for the proprietary cards, which have less general acceptance, but may have services that the Visa and Master Card affiliates do not offer. Still, the vast majority of the uses for even Discover and American Express overlap with the uses for Visa and Master Card.

How then have credit card RBPs been as successful as they have? One reason may be the non-economic behavior that people seem to exhibit with respect to credit card choice and use, as documented by Ausubel (1991). Competition on the terms of the cards – interest rate, grace period, free insurance coverage, etc. – seems to be fairly ineffective, so credit card companies have turned to alternative forms of competition, such as RBPs. This may explain the use of even cash bonuses if the tradeoff between the cost of the service (*i.e.*, interest rate and annual fee) and the cost of the bonus is not fully understood by the consumer.

Credit card RBPs also benefit from a more subtle principal/agent problem. Many merchants that take credit cards would still prefer cash payment in order to avoid the credit card fee they are charged, which can be as high as 5%. When a person decides to use a credit card due to its RBP, rather than pay cash, the merchant loses revenue. It is almost certainly the case that the merchant fee is above the marginal cost of the transaction, so the bonus from using the card more frequently is paid in part by card company profits from additional merchant fees.

Long Distance Telephone

With the breakup of AT&T, the entry of competing long distance carriers, and the partial deregulation of long distance telephone rates, long distance telephone service became a much more competitive market in the early 1980s. By the end of the decade, the two largest entrants into the long distance market, MCI and Sprint, had begun to use RBPs in their marketing. MCI has hooked up with two airlines to offer FFP points with every phonecall. Sprint began an RBP that offers bonuses that include free long distance calls, free air travel and hotel stays, and some free consumer goods. AT&T joined *Air*

Miles, an RBP that was operated jointly by food companies, hotels, a car company, and others, in which purchase of any good earns points towards free air travel. The program ceased U.S. operation in May of 1993, however.

The major long distance (LD) phone companies all offer virtually complete coverage of the long distance product market. Unlike firms in the airline industry, none of the major LD carriers has a regional advantage or otherwise offers a significantly wider array of products that would make one more attractive to a class of consumers than the other carriers. Furthermore, as a result of the virtually complete geographic coverage by each company and the “one plus” dialing technology, few consumers use multiple LD carriers. The most significant competition occurs at the point that an LD carrier is chosen.

Due to the necessity of broad geographic coverage by an LD carrier, these RBPs probably do not give one carrier a competitive advantage over others. The nonlinear aspect of the payoff schedules is unlikely to present a permanent competitive advantage as it did in the model when one firm served more markets than the other. Of course, the nonlinear payoff can still deter switching of “attached” customers in the short run, as it does with even the more primitive RBPs discussed above, and could present some barrier to entry.

The LD carriers have not developed particularly good bonuses for their RBPs either. The Sprint program *Callers' Plus* offers free travel, merchandise, or long distance calling. With the first two of these, the firm is purchasing these products. As with trading stamps, there is no clear reason why LD companies would be particularly efficient distributors of these products or able to buy them at lower prices than other bulk marketers. With free phone calls, the firm is almost certainly crowding out sale of units that would otherwise be paid for. If the two hours of free calls that are available for a relatively low number of collected points are simply deducted from the monthly bill then the bonus is simply the cash equivalent. More effective, it seems, would be free calling during a pre-specified period of a certain evening or a day. That would probably displace fewer calls that would otherwise be paid for.

Thus, LD telephone companies do not seem particularly well positioned to use the

RBPs discussed so far as a competitive weapon despite the network configuration of demand and production. As discussed above and shown in the model, a *comparatively* wider variety of products that are of interest to a customer makes the RBP more effective. Had they been allowed to, AT&T could probably have used an RBP quite successfully in the early 1980's when its competitors offered connections to only a limited set of domestic cities. Now that all LD carriers effectively have complete service, the long-run competitive advantage of an RBP has diminished.

MCI, however, has taken a different approach with its *Friends and Family* program. This program gives a discount on connections to frequently-called numbers and make that discount much larger if the number called is also a subscriber to the same LD company. Sprint's program *The Most* has mimicked many aspects of the MCI plan. Where airlines have been able to take advantage of locational dominance to target customers of similar demand patterns, MCI found a way to use the two-party nature of telephone consumption to accomplish a similar goal. Rather than giving a bonus to a single repeat buyer to get her to stay with one company over time, the program gives a bonus (actually calling discounts) to groups of buyers, creating an incentive for each buyer to make sure that all others in the group buy from the same company.

Once established, the program offers much the same long run advantage that an FFP offers an airline in the area where it dominates service. The dominance of service is not regional in this case, but "route specific," where the routes are the connections to another specific set of telephone numbers. The cost of switching can be enormous once a person has joined such a plan, since many others in his or her telephone community will have subscribed to the same system and one person switching has significant pecuniary externalities. Due to the high coordination cost of switching, the MCI program could lock-in customers quite effectively. The basis for the consumer loyalty is "attachment" not in the temporal sense of the RBPs discussed above, but in a community sense where economies of coordination across individuals have been created by the program.

The weakness in this analogy appears to be that the bonus given in these programs is not goods, but cash discounts on calls. Even here a parallel exists, however. The pricing analog to offering bonuses that are valued above marginal cost but don't crowd

out sales is offering discounts on units for which demand is particularly price elastic while maintaining price well above marginal cost for other units. The *Friends and Family* type of program targets discounts at particular types of calls – calls to one’s most frequently contacted friends and family – which, in all likelihood, are more price elastic than other long-distance calls.

Conclusion

This paper has demonstrated that even the most simple repeat buyer programs can have some effect in deterring entry by inducing short-run customer loyalty. The more effective RBPs can also afford one firm a long-run competitive advantage over new entrants and existing rivals. The long-run advantage, however, is critically dependent on the firm’s ability to offer a bonus that is valued more highly by the buyer than it costs the firm to provide, including the opportunity cost due to foregone sale of the bonus item. The ideal bonus product would be one that is generally sold for a price well above marginal cost and for which there is a large set of people who value the good more than marginal cost, but less than the price, and who cannot be effectively captured through price discrimination.

The principal/agent problem inherent in those RBPs that give personal bonuses to people making purchases for a company greatly enhances the effectiveness of the RBP. These buyers are more likely to value the bonus more than the shadow value of additional dollars spent to acquire the RBP bonus. Thus, in these cases, the RBP becomes a kickback to purchasing agents. This probably explains the greater success of airline FFPs than RBPs in industries that sell primarily products for personal use.

If the firm can use the RBP to distribute items that are valued above (opportunity) cost without a exploiting a principal/agent separation, then the RBP is essentially a form of price discrimination. Like price discrimination, the RBP can increase or decrease welfare. If success of the program relies on the principal/agent problem, then the RBP is much more likely to diminish social welfare.

If those elements necessary for establishing a long-run advantage with a RBP are present, then the degree of loyalty inducement from a given type of consumer will increase if the program allows points to be earned on a wide variety of products that these consumers

buy, particularly a wider variety of products than competing RBPs. The effective RBP encourages a consumer to concentrate purchases of a type of goods with just one company. The most attractive company will be the one that offers a wide variety of goods. Similarly, the program that allows a wide variety of bonus products that appeal to a consumer will be more successful, because the variety of bonus products directly affects the expected value of collecting points in the program.

Finally, it would be a mistake to discount the possible role of consumer myopia and misunderstanding in the success of RBPs. Firms are likely to have better information about the true probabilities of achieving the bonus, and are likely to present the program in a way that leads consumers to overestimate these probabilities. Perhaps consumers are not easily fooled, or perhaps they learn the truth relatively quickly, but it is likely that misperceptions are a nontrivial factor affecting RBP effectiveness.

The airline industry is probably best suited to make profitable use of RBPs because it offers the network economies and network differentiation that augment the program while also effectively exploiting principal/agent separation. While the trading stamp industry took advantage of similar network affiliation effects, it suffered from a general dearth of good bonus offerings, and was only able to exploit an intra-family principal/agent problem that was probably much weaker than the airlines have tapped. Credit card RBPs are still more difficult to explain given the commonality in network coverage, a similar shortage of good bonus items, and an even weaker principal/agent problem. Though credit card companies could potentially compete more efficiently on interest rates and other fees, it seems that consumers are nearly oblivious when it comes to credit card fees and interest rates. RBPs might emerge by default as the focus of competition.

Attempts by long distance telephone companies to adopt a traditional RBP seem to have been relatively unsuccessful, probably due again to the great overlap in product coverage among the major competitors and the inability to exploit a principal/agent problem. The MCI innovation of the RBP-like *Friends and Family* program has been more successful, because the program creates network coverage differentiation. Furthermore, the social costs of switching once an individual is attached can be large because of the pecuniary externality the program creates. The payoff to these programs are discounts on the pri-

mary product sold, which does not seem to be the ideal bonus. Calling discounts could be quite successful rewards if the calls associated with the program are much more price elastic than other residential long distance calls.

Telecommunications more generally seems to offer many possibilities for strategic use of RBPs. Prices of many products are well above marginal cost, price discrimination can be very difficult due to institutional and regulatory constraints, and most telecommunications firms offer a variety of products that differ in their appeal to different classes of customers. As the links between different forms of telecommunication increase, the possibilities for RBP use will multiply. Recent discussions between long-distance phone companies and cable television operators could lead to RBPs that reward local users of a company's long-distance service with free access to cable channels that are otherwise priced well above the operator's marginal cost. Such an offer could improve the economic efficiency of cable television distribution, but could have anticompetitive effects on the long distance market. Similarly, companies that operate both local cellular phone services and long distance companies could use the local dominance in one market to profitably differentiate their RBPs. The sophistication with which these programs are used has greatly increased in the last 10 years. Refinement will surely continue through the 1990s.

References

- Adams, W. James and Janet Yellen. "Commodity Bundling and the Burden of Monopoly," *Quarterly Journal of Economics*, August 1976.
- Ausubel, Lawrence M. "The Failure of Competition in the Credit Card Market," *American Economic Review*, **81** March 1991.
- Banerjee, Abhijit and Summers, Lawrence, "On Frequent-Flyer Programs and Other Loyalty-Inducing Economics Arrangements," Harvard Institute of Economic Research Discussion Paper #1337, September 1987.
- Borenstein, Severin, "Hubs and High Fares: Airport Dominance and Market Power in the U.S. Airline Industry," *RAND Journal of Economics*, **20**, Autumn 1989.
- Borenstein, Severin, "The Dominant-Firm Advantage in Multi-Product Industries: Evidence from the US Airlines," *Quarterly Journal of Economics*, **106**, November 1991.
- Borenstein, Severin. "The Evolution of U.S. Airline Competition," *Journal of Economic Perspectives*, **7**, Spring 1992.
- Caminal, Ramon and Carmen Matutes, "Endogenous Switching Costs in a Duopoly Model," *International Journal of Industrial Organization*, **8**, September 1990.
- Cairns, Robert D. and John W. Galbraith, "Artificial compatibility, barriers to entry, and frequent-flyer programs," *Canadian Journal of Economics*, November 1990.
- Carnevale, Mary Lu, "AT&T-McCaw Link Stuns Baby Bells," *Wall Street Journal*, November 6, 1992.
- Carnevale, Mary Lu, "Ameritech Wants to Enter Long Distance," *Wall Street Journal*, February 23, 1993.
- Fox, Harold W., *The Economics of Trading Stamps*, Washington, DC: Public Affairs Press, 1968.
- French, Trevor., "Better By Miles?," *Airline Business*, October 1991.
- Keller, John J. and Mark Robichaux, "MCI Talks to Entertainment Firm, Cable TV Concerns about Partnerships," *Wall Street Journal*, March 30, 1993.
- Klemperer, Paul, "The Competitiveness of Markets with Consumer Switching Costs," *RAND Journal of Economics*, **18**, Spring 1987(a).
- Klemperer, Paul, "Entry Deterrence in Markets with Consumer Switching Costs," *Economic Journal*, **8**, 1987(b).
- Levine, Michael E., "Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy," *Yale Journal on Regulation*, **4**, Spring 1987.
- Roberts, Johnnie L. and Mark Robichaux, "Time Warner, US West Said To Be in Talks," *Wall Street Journal*, March 15, 1993.
- Roberts, Johnnie L. and Mary Lu Carnevale, "Time Warner Plans Electronic 'Superhighway'," *Wall Street Journal*, January 27, 1993.
- U.S. Department of Transportation, *Secretary's Task Force on Competition in the U.S. Domestic Airline Industry*, Washington, D.C.: U.S. Government Printing Office, 1990.