
24 Pricing for nonprofit organizations

*Yong Liu and Charles B. Weinberg**

Abstract

Pricing decisions are particularly challenging for nonprofit organizations. They have a social rather than a for-profit objective function, they must obey a legal restriction not to distribute possible financial surpluses to those who control the organization's assets, and they have the opportunity to receive donations. While historically nonprofits have not developed their pricing capabilities as fully as they might have, pricing is becoming increasingly important, especially as many nonprofit organizations face declining support from government and are unable to increase private giving significantly. The goal of this chapter is to discuss pricing practice and pricing research in the nonprofit sector. We demonstrate how theoretical models of pricing strategies for nonprofits are different from those of for-profit businesses. Moreover, although only limited empirical data on nonprofit pricing are available, the data we do have suggest that nonprofits charge different (and usually lower) prices than similarly situated businesses. We survey the literature of nonprofit pricing to discuss important theoretical and empirical findings, and highlight the unique characteristics of nonprofits and the various modeling issues they generate for pricing research. We also discuss unresolved problems and potential research opportunities in nonprofit pricing.

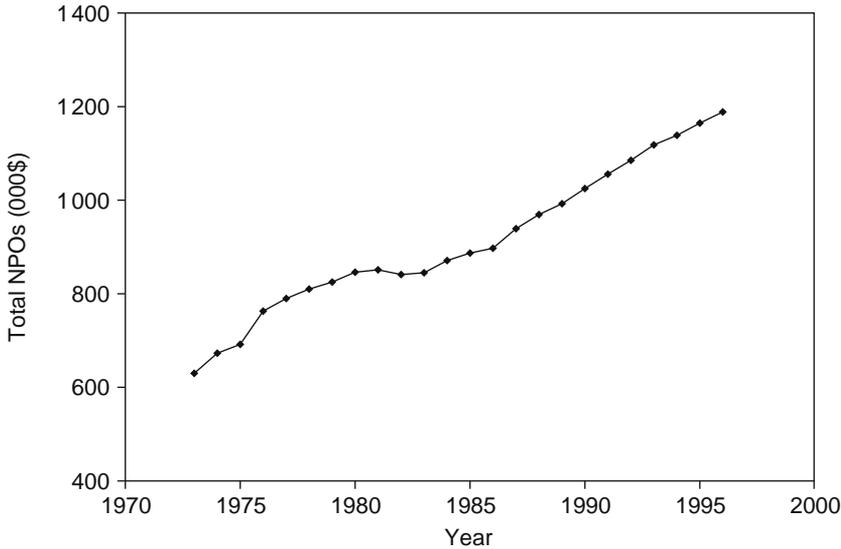
Overview of nonprofit organizations and pricing behavior

Nonprofit organizations are precluded from distributing possible financial surplus to those who control the use of organizational assets (Hansmann, 1980). Such restrictions are imposed by external regulation or their own governance structure (Steinberg, 2006). As a whole, nonprofits are referred to as the third sector of the economy, next to private for-profit firms and the governments. While the existence of nonprofits varies widely across industries, the markets where nonprofits are the most active include arts and culture, education, health, human services, public and societal benefit (Boris and Steuerle, 2006). In some industries, nonprofits are a major provider of services. For example, Salamon and Anheier (1998) report that nonprofits account for 51 percent of all US hospitals.

In the USA, there were more than 1.6 million registered nonprofits in 1998 (Boris and Steuerle, 2006). Their numbers have been growing at a steady rate of about 25 000 new nonprofits annually. Figure 24.1, which is based on data from Hall and Burke (2006), illustrates this trend.

Not only are nonprofits involved in some of the most important sectors of modern life; they also account for an increasingly large share of economic activities. Nonprofits produce one-fifth of research and development (Lakdawalla and Philipson, 2006) and, in 2001, employed 11.7 million individuals, which represents 8.5 percent of total US civilian employment (Leete, 2006).

* The financial support of the Social Sciences and Humanities Research Council of Canada is gratefully acknowledged.



Source: Hall and Burke (2006).

Figure 24.1 Growth of nonprofit organizations (1973–96)

Characteristics of nonprofits

Nonprofits differ from for-profit firms in several important ways. It is these distinctive features that have made the existence and behavior of nonprofits an important phenomenon for researchers, public policy makers and managers. In anticipation of the pricing focus in this chapter, we discuss four fundamental features of nonprofits that have important implications for their pricing strategies: the objective functions; the nondistribution constraint; being able to seek grants and donations; and increased reliance on marketing tools to survive and grow.

Different from for-profit firms, nonprofits tend to pursue socially beneficial causes that are not profit-oriented. This is a crucial justification for why certain nonprofits are tax-exempted and their donors can receive tax breaks for their contributions. While profit maximization is typically assumed for for-profit firms and plays a significant role in their pricing behavior, the nonprofit objective functions are more complex. The literature provides some theoretical guidance on this issue. As summarized by Steinberg (1986), possible nonprofit objective functions include the maximization of output (or service), budget, prestige, quality and employee income, or a combination of these.

Which of these objectives are observed most frequently is an empirical question. Focusing on service versus budget maximization, Steinberg (1986) tests this family of nonprofit objective functions for about 2200 nonprofit organizations:

$$\text{Max } U = \lambda S + (1 - \lambda)B \quad (24.1)$$

Among other things, a large budget brings greater power and higher prestige for the organization (and its managers). In the equation, S is service spending in the amount of

$x + D(r) - r$, where x is the exogenous resources endowed to the nonprofit organization, r is the fundraising expenditure, and $D(r)$ is the donation or fundraising response function. B is the total budget composed of endowment and funds raised: $B = x + D(r)$. As a result, $\lambda = 0$ indicates budget maximization and $\lambda = 1$ indicates service maximization.

The first-order condition of equation (24.1) is $dD/dr = \lambda$; thus the marginal rate of donation with regard to fundraising expense can be used as the instrument to test whether the nonprofits are service maximizers or budget maximizers. Steinberg shows that public welfare, education and arts nonprofits are service maximizers, and health firms are budget maximizers. In a later study, Brooks (2005) replicated the main finding that most nonprofits are service maximizers with more recent data from 190 000 nonprofits.

Note that in these studies, financial revenue comes from two sources: donation (which is costly for the nonprofits to solicit) and exogenous income. The decision variable for the nonprofits is the level of fundraising expenses. Price is not an issue since sales of goods are not considered. For many nonprofits, one may argue that fundraising decisions may not be the driving force of organizational behavior. Instead, the decision about pricing, as well as what kinds of products or service to provide (e.g. variety and quality) and distribution decisions, can be more fundamental than fundraising. To differentiate the types of models discussed in Steinberg and Brooks from the pricing models we discuss later in the chapter, we shall term them ‘fundraising models’.

In other studies, Jacobs and Wilder (1984) find that the pricing patterns of the Red Cross’s blood service units are consistent with output maximization (subject to a break-even constraint). Gapinski (1984) finds that the Royal Shakespeare Company, a nonprofit performing arts organization in the UK, produced more output and set lower prices than would a profit maximizer. Evidence for service or output maximization can also be found in studies such as Rose-Ackerman (1987), Liu and Weinberg (2004) and Weinberg (1980).

In typical models of profit maximization, optimality is obtained at an output level where marginal revenue equals marginal cost. It is useful to illustrate how the consideration of output in an organization’s utility function might change this principle. Similar to the model of Lakdawalla and Philipson (2006) for an arbitrary organization, we can assume that profit maximization and output maximization are the two relevant factors in its objective function:

$$\text{Max } U = f(q, \pi(q)) \quad (24.2)$$

where q is nonprofit output, π is profit in the amount of $\pi(q) = p(q)q - c(q)$, $p(q)$ is the inverse demand function, and $c(q)$ is cost. The first-order condition is $f_q + f_\pi \pi_q = 0$; f_q and f_π reflect the priorities of the organization ($f_q \geq 0$, $f_\pi \geq 0$); $f_q = 0$ indicates a typical for-profit and $f_\pi = 0$ indicates a nonprofit that is concerned with output.

Substituting the derivatives in the first-order condition, we have $p_q q + p = c_q - f_q/f_\pi$. That is, the organization’s preference for quantity (q) reduces the value on the right-hand side of the equality, making it possible to sell greater quantity at reduced marginal revenue. Lakdawalla and Philipson (2006) call this the ‘effective’ marginal cost. In the case of a profit maximizer ($f_q = 0$), the equality restores to the traditional outcome that marginal revenue equals marginal cost.

The nondistribution constraint is another fundamental characteristic of nonprofits

(Hansmann, 1980). Because of this constraint, nonprofits cannot use their revenue to compensate board members, trustees, or other owners beyond an economic salary. This implies that a nonprofit has to use all its resources for purposes compatible with its non-financial objectives. Financial surplus, if any, is ‘either retained (as endowment, reserves, or temporarily restricted funds), reinvested (in organizational expansion or the provision of charitable services), or given to other nonprofit organizations (as grants)’ (Steinberg, 2006, p. 118). In the literature, nondistribution of surplus is typically modeled as a zero-profit constraint on nonprofit behavior (e.g. James, 1983; Schiff and Weisbrod, 1993; Rose-Ackerman, 1987). The following specification is representative of the nondistribution constraint:

$$pq + D(q, r) - r - c(q) = 0 \quad (24.3)$$

where p is the price of goods or service per unit, q is the quantity of goods or services provided, and $c(q)$ is the cost function for quantity q . Note that the donation amount received is assumed to be dependent upon both the fundraising expense (r) and the quantity q (Schiff and Weisbrod, 1993; Rose-Ackerman, 1987), implying that potential donors care about the effectiveness of the nonprofit in providing mission-related products or service.

As suggested in the discussion of nonprofit objective functions and the nondistribution constraint, nonprofits differ from for-profits in that their socially beneficial nature enables them to seek support from donors and government agencies. A useful way of looking at how most nonprofits function is to view the customers of nonprofits as belonging to two different groups – donors and product or service users. (In addition, nonprofits also market to volunteers who provide time and talent to the organization.) Nonprofits try to appeal to both customer groups at the same time. The two groups are related to each other through the donors’ concern about how well the nonprofits serve the users. A general literature in economics has started to address such ‘two-sided’ markets (Rochet and Tirole, 2004; Evans and Schmalensee, 2005). Even for firms maximizing profits, the two-sided market structure may lead to unusual pricing behavior. For instance, Evans and Schmalensee (2005) suggest that firms with two customer groups may find it profit maximizing to charge prices for one customer group that are below marginal cost or even negative, an argument that has direct implications for the nonprofit sector.

The implication of donations for pricing behavior of nonprofits is mainly through the nondistribution constraint. Everything else being equal, a nonprofit should be able to lower the price of its products or services if it receives donations to offset overall expenses. Nevertheless, this is contingent upon the fundraising response function – nonprofits are only willing to solicit donations up to the point where fundraising expense no longer helps improve their objective function.¹

¹ Nonprofit organizations, in practice, often spend less than the optimal amount as indicated by a marginal analysis: some rating agencies only give approval ratings to nonprofit organizations for which fundraising (or total administration costs) is below a certain percentage of funds raised (or total spending). For example, the Better Business Bureau’s Wise Giving Alliance gives its approval only to organizations for which the ratio of fundraising expenses to funds raised is less than 35 percent. See www.give.org for further details.

Finally, an important characteristic in the nonprofit sector is that many nonprofits face declining support from government and are unable to increase private giving significantly (Schiff and Weisbrod, 1993, Simon et al., 2006). As a result, nonprofits are increasingly turning to commercial activities by selling products or service for revenue in order to maintain their non-deficit status (Dees, 1998; Dart and Zimmerman, 2000). In fact, revenue from sales is the dominant source of income for nonprofits in many large subsectors (Brown and Slivinski, 2006). The Urban Institute and the NCCS/GuideStar National Nonprofit Database report that in 2000, arts and culture organizations derived 29 percent of their revenue from fees for goods and services. This percentage is 49 percent for human services, 47 percent for education, 22 percent for environment groups, 21 percent for public and societal benefit organizations, 85 percent for health care, and 27 percent for religious groups (Boris and Steuerle, 2006). These revenues include both primary products and other activities that support the primary mission of the organization.

Both James (1983) and Schiff and Weisbrod (1993) examine how nonprofits make tradeoffs between products or services that are of different values to the organization. In their models, the nonprofits derive positive utility from one product or service but negative utility from another. These are termed 'exempt output' versus 'commercial good' by Schiff and Weisbrod (1993), and 'core mission activities' versus 'ancillary services' by Oster et al. (2003). The basic economic principle is that the nonprofit sells commercial goods in order to subsidize activities that produce exempt output. For example, zoos and museums use the revenue from gift shops to subsidize exhibitions and collections, which are also supported by admission revenue. As another example, many universities and colleges use the revenue from bookstores and cafeteria to support academic activities. This type of product line decisions can be difficult for nonprofits since it involves pursuing commercial activities that may be counter to their preference (see Krug and Weinberg, 2004 for a portfolio model approach to help nonprofits manage such product line issues). Furthermore, the existence of donors and their concern about non-mission-related activities make such decisions more crucial.

To provide a clear context for the pricing issues in this chapter, we follow Schiff and Weisbrod (1993) and Oster et al. (2003) to distinguish mission-related products or service from non-mission-related ones. To accommodate discussion and in anticipation of the later analyses of nonprofits competing with for-profits, we shall terms these 'nonprofit outputs' versus 'commercial outputs'. Although pricing can be relevant for both outputs, our focus will be on the pricing strategy for the nonprofit output. As a result, our discussion will be closer to the model of James (1983) than to that of Schiff and Weisbrod (1993). In practice, prices for these nonprofit outputs can be the (subscription or single-ticket) admission price charged by nonprofit arts organizations, the annual membership fee for museums, the tuition fees for colleges and universities, the hourly rate for nonprofit daycare centers, or the charges for many hospital services.

Nonprofit pricing practice

As an extremely diversified economic sector, nonprofits differ considerably in the ways they distribute products or services to target customers. As we discussed earlier, many nonprofits have found it necessary to charge at least some fee for their nonprofit output. It is important to note that to many people, pricing conveys a commercial interest or intent. Pricing behavior is often perceived to be counter to a nonprofit's objective. It is

thus not surprising that the nonprofit sector overall is not experienced with pricing practice. For example, McCready (1988) points out that there is only a sparse literature on the issue of pricing for nonprofits. Rentschler et al. (2007), in the context of museums, notes that the use of pricing as an element of the marketing mix seems to be particularly problematic.

Nevertheless, Oster et al. (2003) suggest several situations that are conducive to pricing by nonprofits. Charging prices is suitable when demand is relatively inelastic, when collecting fees is practical, and when such fees do not violate organizational norms. They also provide several rationales as to why pricing may have several positive effects on the nonprofit organization in addition to providing financial revenue. For instance, charging a fee helps reduce service bottlenecks and congestion, can motivate staff and client behavior, and can yield positive behavioral effects on the clients. When charging a price, nonprofits need to consider how to serve those who cannot afford to pay at all. One approach is to make the service available for free or at minimal cost to some (as universities do with financial aid) or to have free events, programs, or services. Consider, for example, the offering of free events by arts organizations; many museums offer one night a week in which admission is free. This is possible due to two effects. First, the price charged on regular days enhances the nonprofit's ability to offer free service on other days. Second, the value of a free day may be perceived to be higher by some customers when the service is not free on other days.

When a price is not charged, other methods must sometimes be used to achieve some of the positive effects of pricing. For example, Steinberg and Weisbrod (1998) suggest that nonprofits are more likely than businesses to use waiting lists (rather than pricing) to allocate demand when capacity is inadequate to meet demand.

Pricing strategies adopted by nonprofit organizations can be broadly classified into two categories. The first involves simple rules of thumb, which are mostly passive reactions to either cost or demand factors. Some nonprofits charge users a price that is based on costs. The price may equal the marginal cost of providing the product or service, leaving aside all fixed costs to be covered by foundation funding, government subsidies and development funds (Oster et al., 2003). Alternatively it may include part or all of the fixed costs. A good example of cost-based pricing is the Red Cross Blood Bank that charges all users a processing fee based on the 'irreducible cost of recruiting, processing, collecting, and distributing the blood to the hospital' (Weinberg, 1984, p. 264). Others nonprofits may use fair pricing; that is, they simply charge whatever price other organizations providing similar products or services are charging. For example, McCready (1988), through a survey of social service providers, finds that some children's centers serving particular consumers (e.g. special needs children) charge fees comparable to those offered by other nearby centers dealing with a non-special need clientele. Other nonprofit agencies act 'as a substitute for publicly-provided services (e.g., transportation) but service a particular clientele (the disabled)' at the same price as the public transit system. Finally, some nonprofits such as museums have adopted the practice of 'pay what you can, but pay something'. In such cases, museums have found that suggesting the typical voluntary entrance fee has a significant effect on the average amount that visitors voluntarily pay.

The second category of nonprofit pricing practice involves more complex pricing decisions and, in many cases, explicit price discrimination. For example, many nonprofit daycare centers use a sliding scale that ties the rate a family has to pay to its annual

income level. Another example is the use of a two-part tariff (Bilodeau and Steinberg, 1999), which requires a joint pricing decision on both the fixed fee and the per-usage charge. Public universities typically charge different amounts for in-state and out-of-state residents; both public and private universities use a complex system of scholarships, loans and work-study programs to attract a mix of students with differing abilities and willingness to pay for a university education.

While dealing with complex pricing issues is new to many nonprofits, others first started grappling with such issues many years ago. Consider San Francisco's American Conservatory Theater (ACT); founded in 1965, it is one of the most prominent repertory theater companies in the USA. Its 'current performance, education, and outreach programs annually reach more than 250,000 people in the San Francisco Bay Area', and 'the company continues to produce challenging theater in the rich context of symposia, audience discussions, and community interaction'.² During a critical stage of its development in the early 1970s, the management decided to conduct a major research study to help in its strategic planning. One of the pricing issues involved was that the management was unsure whether or not to drop the subscription discount of seven tickets for the price of six. On the one hand, it is critical to maintain a sizable subscriber base to keep a steady flow of revenue and a satisfying audience size. On the other hand, the audience seemed to be upscale and had been renewing subscriptions at a fairly high rate. As a result, careful considerations of both users and organizational objectives were critical in making a decision about the price discount. The research study surveyed approximately 9000 season subscribers, and found that the discount itself was not a major factor in subscription decisions. As a result, ACT dropped the discount from its pricing scheme, starting with the 1976–77 season. Neither the percentages of subscriptions renewed nor the total subscription revenue in subsequent years were negatively affected by this change. While many theater companies need to offer a discount in order to acquire and retain subscribers, a combination of market research and market testing can lead to better understanding of the demand function and more informed pricing decisions.

Literature and basic nonprofit pricing models

Although pricing is now used more often by nonprofits, and brings in valuable revenue to keep them operating, there has been very limited research on pricing issues in this sector. Much of the published research is either conceptual or industry specific (mostly focusing on the health care market). Other studies, despite including price as a factor in the model, abstract from the pricing issue by assuming exogenous price levels (e.g. Schiff and Weisbrod, 1993). The following studies, mostly situated in a monopoly setting, illustrate several basic properties of nonprofit pricing models.

In an early work modeling nonprofit behavior, James (1983) considers the service mix decision together with pricing, formally showing that the nonprofits' involvement in non-mission-related (revenue-generating) activities is not necessarily an indication of the pursuit of commercial interests.

² Information and quotes were obtained from the ACT website http://act-sf.org/index.cfm?s_id=&pid=abt_act, 5 June 2007. Other information about this study was obtained from Ryans and Weinberg (1978).

To bridge the gap between nonprofit optimization and neoclassical profit maximization, Lakdawalla and Philipson (2006) proposed a monopoly model for an arbitrary organization that includes profit maximization and quantity maximization in the objective function. As we discussed earlier, their basic theory is that the nonprofit's altruism would enable it to have a lower 'effective' marginal cost and thus provide greater output than a comparable for-profit.³ To derive this result, the nondistribution constraint is not necessary.

McCready (1988) investigates the applicability of Ramsey pricing to social service organizations. In contrast to profit-maximizing pricing practice, Ramsey pricing generates zero-profit prices that are Pareto optimal and leads to greater demand for the nonprofit output. However, McCready did not find evidence of such pricing practice in the Ontario, Canada sample of social service agencies that he studies.

Ansari et al. (1996) focus on the issue of service bundling, which includes both how many items to bundle and what prices to charge for different bundles. Besides finding that usage-maximizing nonprofits charge a lower price and hold more events to attract customers, they point to the critical role of fixed cost in nonprofits' pricing decisions. This is distinctive from for-profit optimizations, in which fixed cost matters only for entry/exit decisions but not pricing.

Steinberg and Weisbrod (2005) model nonprofit pricing based on the assumption that nonprofits care about the amount and distribution of consumer surplus. They show that price discrimination often arises in equilibrium. Weinberg (1984) provides a more comprehensive model of nonprofit pricing decisions. He includes three decision variables for a nonprofit monopolist: price, marketing expenditure to users, and marketing expenditure to donors. Marketing expenditure to users can be interpreted as, for instance, the promotional expenditure or the cost of product quality.

Below we use Weinberg (1984)'s main model and results to illustrate the basic properties of nonprofit pricing. Similar to that of for-profits, both price (p) and marketing expenditure (v) influence the demand for nonprofit output. A general nonprofit pricing model can be specified as follows:

$$\text{Max } q = f(p, v) \tag{24.4}$$

$$\text{subject to } pf(p, v) + D(q, r) - r - c(q) - v - F = 0$$

where $f(p, v)$ is the demand function at price p and marketing expenditure v . As in equations (24.2) and (24.3), q is the corresponding quantity, $c(q)$ is the cost function, $D(q, r)$ is the donation response to quantity q and fundraising expense r . F is the fixed cost of running the nonprofit organization. As compared to the typical for-profit pricing situation in which marginal cost is the most important factor and fixed cost F does not influence the optimal price levels, F is relevant to nonprofit pricing. This occurs due to the inclusion of F in the non-deficit constraint as shown in equation (24.4). Moreover, in contrast to the fundraising models discussed earlier, equation (24.4) highlights the need

³ Rose-Ackerman (1996) provides a more general discussion about how altruism influences nonprofit behavior.

by nonprofits to obtain sales revenue to support their mission. The donation function is dependent upon both the level of fundraising effort and the number of users of the service.

A for-profit, in contrast, has the typical objective function of profit maximization, $\text{Max } \pi = pq - c(q) - v$, where $q = f(p, v)$. Solving the constrained optimization problem for the nonprofits involves finding the values of p^* , v^* and r^* that jointly maximize $f(p, v)$. The for-profit's optimization involves solving the typical first-order conditions $\partial\pi/\partial v = 0$ and $\partial\pi/\partial p = 0$. Particular formats can be specified for the functions in equation (24.4) so that closed-form optimal solutions can be derived.

For the demand and fundraising response functions, Weinberg (1984) adopts the power function that is used frequently in empirical research. It becomes the popular double-log function through log transformations. The cost function is assumed linear with marginal cost c :

$$\begin{cases} q = f(p, v) = \alpha_0 p^{-\alpha_1} v^{\alpha_2} \\ D(q, r) = \beta_0 q^{\beta_1} r^{\beta_2} \\ c(q) = cq \end{cases} \quad (24.5)$$

where $\alpha_1, \alpha_2, \beta_1, \beta_2 > 0$. To illustrate the nature of these results and to make concrete the comparison between the nonprofit and the for-profit sectors, Weinberg further assumes that $\alpha_1 + \alpha_2 = 2$ and $2\beta_1 + \beta_2 = 1$. An important benefit of these assumptions is that analytical solutions can be obtained to illustrate how optimal pricing decisions (together with other decisions such as marketing expense) are determined by the relevant factors.⁴

The optimal price for the for-profit is straightforward: $p_f^* = c\alpha_1/(\alpha_1 - 1)$. Closed-form solutions for the nonprofit are in more extensive format. For example, the optimal nonprofit price is $p_n^* = (k - \sqrt{k^2 - 4cFk_2})/2F$, where $k = k_2 - k_1 + k_3$, $k_1 = (\alpha_0\alpha_2/\alpha_1)^{1/(1-\alpha_2)}$, $k_2 = (\alpha_1 k_1)/\alpha_2$, and $k_3 = [2\beta_1(\beta_0\beta_2)^{1/2\beta_1}\sqrt{k_2}]/\beta_2$. If there is no fixed cost ($F = 0$), then $p_n^* = ck_2/(k_2 - k_1)$. Weinberg (1984) uses various numerical examples to illustrate the patterns of these analytical solutions. Table 24.1 provides some of these examples to highlight the key features of the nonprofit price model.

First, nonprofit optimal price is lower than that of the for-profit, and the difference increases as the donation is more responsive to fundraising effort and the levels of nonprofit output. Consistent with the pricing models discussed earlier, the optimal nonprofit output is greater than that of the for-profit.

Second, fixed cost matters for the nonprofit pricing decision. Many discussions and debates concerning nonprofit management focus on the issues of efficiency and innovativeness. Fixed cost is one of the major factors that have direct implication for these issues. As shown here, and as we discuss further below, nonprofits are more directly influenced by fixed cost than are for-profits, and thus it is likely that they are more constrained in the ability to utilize newer technology than comparable for-profits.

⁴ In practice, the estimation of demand functions may lead to parameter values that do not lead to closed-form solutions. In such cases, numerical methods can be used.

Table 24.1 Optimal decisions by nonprofit versus for-profit monopolist

Organization type	Fixed cost (F)	Donation response (β_0)	Price (p^*)	Output (q^*)	Marketing expense to users (v^*)	Market expense to donors (r^*)	Profit from users
Nonprofit	0	10	1.25	25 327	7 915	378	-1 512
		50	0.90	48 838	10 984	3 922	-15 687
	5 000	10	1.72	13 402	5 763	275	-1 101
		50	1.02	38 062	9 705	3 466	-13 862
For-profit	0	-	2.67	5 574	3 720	-	5 581
	5 000	-	2.67	5 574	3 720	-	581

Source: Weinberg (1984), p. 268. Other parameter values: $\alpha_0 = 1000$, $\alpha_1 = 1.6$, $\alpha_2 = 0.4$, $\beta_1 = 0.4$, $\beta_2 = 0.2$, $c = 1.0$. Minor discrepancies are due to rounding errors.

Third, the nonprofit may spend more on marketing expenditures than a similarly situated for-profit would. This has direct implications for nonprofits' marketing management practice. It has been the tradition that nonprofits do not rely as much on commercial techniques such as advertising as for-profits do (or perhaps they just use donated advertising space by policy, as is the case with the Red Cross). However, this result indicates they may actually benefit from adopting these techniques, using them even more than comparable for-profits do. If marketing expense is interpreted as the cost of product quality, the model here provides analytical guidance for the empirical research that tests how the quality levels differ between for-profits and nonprofits in specific markets (Chou, 2002; Luksetich et al., 2000; Schlesinger, 1998; Krashinsky, 1998).

Weinberg's result lends support to the finding that, at least in some markets, the quality of the nonprofit's output can be higher than that of a comparable for-profit. More importantly, this result is derived from a perspective that is very different from the typical 'contract failure' rationale behind the quality differential between nonprofits and for-profits. Contract failure refers to the information asymmetry between the seller and buyer. As Hansmann (1987, p. 29) states, in situations where it is difficult for consumers to evaluate the true quality of a product or service,

a for-profit firm has both the incentive and the opportunity to take advantage of customers by providing less service to them than was promised or paid for. A nonprofit firm, in contrast, offers consumers the advantage that, owing to the nondistribution constraint, those who control the organization are constrained in their ability to benefit personally from providing low-quality services and thus have less incentive to take advantage of customers than do managers of a for-profit firm.

Lastly, while charging a price to help increase operating revenue, the nonprofit may have negative profit from users for some products due to donations and cross subsidization (e.g. James, 1983). Interestingly, a more responsive donation function can potentially benefit the nonprofit in all operational aspects – a lower price, more people served and greater marketing (e.g. quality) expenditures. Further empirical testing of these results would be highly instructive.

We now present an example of how pricing can be set in a nonprofit organization (Weinberg, 1990). The major elements in this case involve the estimation of the demand function and the choice of a nonprofit objective. The organization (name, location and other details are disguised) is the Korona Community Center (KCC), located in the Midwestern USA. The pricing issue for the KCC is to decide the admission price for its Levy Auditorium, where various performing arts events are held, jointly with the appropriate advertising budget levels. The KCC needs to pay \$4 per seat sold to the performing art group and an additional \$6 per seat to cover other operational expenses. It is also responsible for local advertising to promote the performing art groups and the events. To focus on the pricing issues, we do not consider the opportunity of fundraising for this specific event or the fixed cost of producing it. An extensive operational record kept by the KCC included tickets sold, price and advertising budget information for various events. Using these data, the demand function for the KCC is estimated to be

$$TICKETS = 5014PRICE^{-1.54}ADV^{0.35}$$

The optimal marketing mix of price and advertising depends on the objective function. Here we consider two objectives – the maximization of attendance (i.e. tickets sold, subject to the non-deficit constraint) and the maximization of profit (i.e. the for-profit case). The number of tickets sold is maximized approximately at a price of \$13 and an advertising budget of \$6130. These will generate a demand of 2040 tickets sold and KCC will be able to break even (approximately). On the other hand, if the organization behaves like a for-profit, the optimal price should be set at about \$28.50 and advertising spending should be \$3600. This strategy should sell about 500 tickets for a profit of approximately \$5800. While setting a lower price (than the for-profit) to increase attendance, KCC should also spend more on advertising to attract an audience for this event.

Besides illustrating the price-setting process for nonprofits, the KCC example suggests the importance of data in enhancing the efficiency of organizational decision-making. Similar to the situation of for-profit firms where data collection, storage and computing technologies have enabled the accumulation of large amounts of consumer data, the value of such data to the nonprofits should not be overlooked. While many nonprofits have retained extensive data on their fundraising activities, relatively few have substantial databases with which to analyze market demand.

Competition and nonprofit pricing

The monopoly models discussed in the previous section illustrate the distinctive features of nonprofit pricing, such as objective functions, nondistribution constraint, donations, and the joint decisions of pricing, fundraising and marketing expenses. In this section, we turn to competitive situations that involve at least one nonprofit. An important reason to account for competition in nonprofit pricing is the reality that most nonprofits operate in a competitive environment. In many markets, nonprofits not only compete with other nonprofits for revenue and donation; they also compete with for-profits that sell similar products or services. The trend of decreasing public funding and relatively stable private contributions makes such competition only more critical for the nonprofits (e.g. Rose-Ackerman, 1990).

The markets where nonprofits and for-profits coexist are many. They include, for

example, health care, education, child daycare, family counseling and performing arts. In these ‘mixed’ markets, what drives the pricing behavior of nonprofits has important managerial and public policy implications, since most nonprofits receive tax and other regulatory advantages that are not available to for-profits. These advantages can be the exemption from corporate income tax, reductions or elimination of state and local property taxes, and a lower postal rate.

Analytical work addressing competitive issues faced by nonprofits is growing, but the literature is still in its infancy. As mentioned before, most nonprofit models focus on the fundraising issues and, if price is involved, an exogenous price is typically assumed (e.g. Schiff and Weisbrod, 1993). Given the trend of nonprofits seeking more revenue from sales of products and services, pricing and price competition appear to be particularly promising issues for modeling.

We focus on a duopoly market to address two different types of price competition – a nonprofit competing with another nonprofit, and a nonprofit competing with a for-profit. We follow the modeling framework of Liu and Weinberg (2004), who examine the degree to which a for-profit’s competitive disadvantage, if any, can be attributed to the favorable policy and regulatory treatments received by the competing nonprofit. In contrast, in this chapter we will highlight the pricing principles of the nonprofit in competitive situations and market structure issues such as entry and exit.

We discuss the following issues of nonprofit pricing in a competitive environment: (1) nonprofit price reaction functions; (2) Stackelberg price leadership; (3) the roles of fixed cost and entry/exit in a mixed market where nonprofits and for-profits compete on price; and (4) price levels in various markets that have implications for empirical research. The first three issues are addressed in a mixed duopoly market served by a nonprofit and a competing for-profit. The fourth issue involves such mixed markets and also the markets where the duopoly competitors are both nonprofits. Since our focus is on pricing issues, the price competition models discussed here differ significantly from the literature on the public or government organizations (e.g. Beato and Mas-Colell, 1984; Cremer et al., 1989). Many models there are Cournot games based on quantity competition, and pricing plays a much more passive role.

We keep the previous assumption that the nonprofits’ objective function is the maximization of output, and to focus on pricing decisions, we abstract from the donation and the marketing expenditure problems.⁵ However, we model product differentiation following the well-known approach used, for example, by Shubik and Levitan (1980) and Raju et al. (1995). (See equation 24.6 below.) Modeling heterogeneous products is particularly useful for a mixed market where nonprofits and for-profits coexist. Rose-Ackerman (1996) suggests that due to their different priorities and managerial preferences, for-profits and nonprofits may choose to serve different market segments with differentiated products or services.

Product differentiation can be captured with an (exogenous) parameter in the demand model

⁵ Liu and Weinberg (2004) discuss the robustness of the duopoly model to these assumptions. They show that the structure of the competitive model and its main results do not change for a wide range of nonprofit objective functions and donation response functions.

$$q_i = \frac{1}{2}[1 - p_i + \theta(p_j - p_i)] \tag{24.6}$$

where q_i is the demand for firm i 's product at price p_i , and θ is the degree of product differentiation ($\theta > 0$). A higher θ implies more similar products and thus greater competition. Using the subscript f to indicate a for-profit firm, the subscript n to indicate a nonprofit, and retaining the cost factors from the nonprofit monopoly model, the optimization problems for the nonprofit and the for-profit can be specified as follows.

The nonprofit optimization problem is

$$\begin{aligned} \text{Max } q_n &= \frac{1}{2}[1 - p_n + \theta(p_f - p_n)] & (24.7) \\ \text{subject to } & p q_n - c q_n - F = 0 \end{aligned}$$

The for-profit optimization problem is

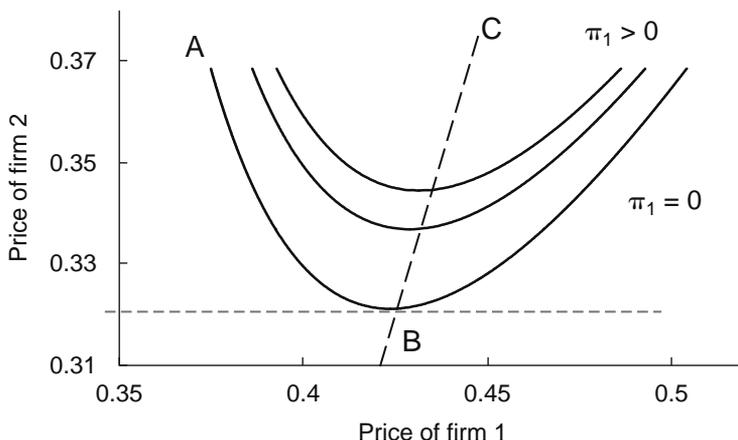
$$\text{Max } \pi_f = p_f q_f - c q_f - F \tag{24.8}$$

Price is the decision variable for both competitors.

Nonprofit price reaction in the duopoly model

Liu and Weinberg (2004) show that this demand system leads to well-behaved isoprofit curves. Solving equations (24.7) and (24.8) separately yields the price reaction functions of the nonprofit and the for-profit. Figure 24.2 illustrates the unique pattern of the nonprofit's price reaction and how it differs from that of the for-profit.

If Firm 1 is a for-profit, its price reaction curve will be line BC, an upward-sloping curve following the well-known 'strategic complement' pattern documented for price competition (Bulow et al., 1985; Tirole, 1988, pp. 207–8). However, if Firm 1 is a nonprofit, its



Source: Based on Liu and Weinberg (2004), Figure 1.

Figure 24.2 Isoprofit curves of the duopoly model and the price reaction functions of Firm 1

reaction curve will be AB, where B is the lowest point on the zero isoprofit curve $\pi_j = 0$. This is the case since only the isoprofit curve representing zero profit is relevant to the nonprofit due to the nondistribution constraint. The downward-sloping pattern of AB makes the nonprofit price reaction curve distinct from that of the for-profit. It is similar to the 'strategic substitute' pattern that has been mainly found for quantity response functions in theoretical models of profit maximization.

The distinct price reaction pattern is the result of the nonprofit maximizing output subject to the nondistribution constraint. Thus, in a duopoly market, if a competitor increases its price, the nonprofit will lower its price to gain more customers. If the competitor reduces its price in an attempt to increase demand, the nonprofit will have to raise its own price. This happens since the nonprofit is operating at the break-even level.

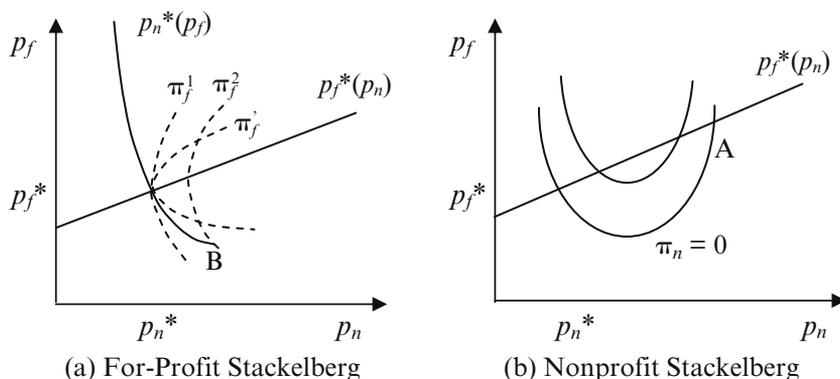
One implication of this finding is that nonprofits can be particularly vulnerable in competitive markets if their demand models are not accurate. Consistent with the arguments advanced by Gallagher and Weinberg (1991), nonprofits typically do not have as much protection from the 'risk cushion' that for-profits can accumulate from earned profits. As a result, nonprofit management may need to adopt more long-term orientations to build up their capability of dealing with uncertainties. From the point of view of regulation and public policy, nonprofits may survive and grow more easily in a competitive environment if they are encouraged to keep sufficient retained assets as a cushion against unforeseen events.

Stackelberg price leadership

Stackelberg price leadership assumes that one firm has knowledge or foresight of its competitor's reaction to its price policies. As a result, the firm may credibly announce a price in anticipation of the competitor's reaction. In contrast to a simultaneous game in which both firms act at the same time, the Stackelberg price leader benefits from this foresight and is normally better off than in the simultaneous game. In for-profit pricing models, this happens since the price leader can search the competitor's reaction function to find a price level that maximizes its profit (Tirole, 1988). Not surprisingly, this price is usually higher than its equilibrium price in the simultaneous game. Recall that in for-profit competitions, the pricing pattern is usually strategic complement; thus a higher price by the Stackelberg leader will lead to a higher price by its competitor (Stackelberg follower). The consumers will then be worse off due to these higher prices. As we shall see, different results hold when one of the competitors is a nonprofit.

Two questions are relevant here. First, if the for-profit is the Stackelberg price leader, how will its behavior be different now that its competitor is a nonprofit organization? Second, if the nonprofit is the price leader, how may it change its behavior from the equilibrium in the simultaneous game? Figure 24.3 summarizes Liu and Weinberg (2004)'s findings for both questions. It includes the isoprofit curves of the Stackelberg price leader (which can be either a for-profit or a nonprofit), and the price reaction curves of both competitors. Note that, as the intersection of the price reaction curves, p_f^* and p_n^* are the equilibrium prices in the simultaneous game, $p_f^*(p_n)$ is the price reaction function of the for-profit, and $p_n^*(p_f)$ is that of the nonprofit.

Figure 24.3(a) shows the case of for-profit being the Stackelberg leader. As the level of product differentiation (captured by parameter θ in the demand functions) varies, different isoprofit curves are in effect that, in turn, lead to different equilibrium results. Higher



Source: Based on Liu and Weinberg (2004), Figure A1.

Figure 24.3 The effects of Stackelberg price leadership

levels of θ are associated with curves such as π_f^1 and π_f^2 ($\pi_f^2 > \pi_f^1$) and lower levels of θ lead to curves similar to π_f' . The fundamental difference between these two situations is whether the for-profit's isoprofit curves, when moved along its price reaction curve, would be able to intersect with the nonprofit's price reaction curve and lead to greater profits for the for-profit. When the market is more competitive (i.e. high θ), this is possible. The for-profit earns a maximum level of profit π_f^2 obtained at B, the lowest end-point of $p_n^*(p_f)$. Interestingly, at point B, the for-profit's equilibrium price is lower than p_f^* , its equilibrium price in the simultaneous game (which obtains at the intersection between reaction curves $p_f^*(p_n)$ and $p_n^*(p_f)$). As discussed earlier, the nonprofit's equilibrium price will be increased accordingly. When the market is not sufficiently competitive (i.e. isoprofit curves similar to π_f' are in effect), the for-profit will not be able to take advantage of the Stackelberg price leadership to improve its profit level.

Figure 24.3(b) illustrates the situation of the nonprofit being the Stackelberg price leader. Since the zero-profit curve is the one that matters, and the left branch of it makes up the nonprofit's price reaction function, the nonprofit will not change its pricing behavior from the simultaneous case. As a result, when the nonprofit is the Stackelberg price leader, or when the for-profit is the leader but the degree of product differentiation is not great, consumers will face the same price levels at equilibrium as they do when the nonprofit and for-profit compete simultaneously.

These Stackelberg results are different from (and in many cases opposite to) those obtained in purely for-profit competition games. They add new situations of price reaction curves and price leadership results to the literature on competitive strategies and industrial organization. They also suggest that organizations' objective functions matter a great deal for the competitive outcome. In this sense, the nonprofit sector, due to its diversified organizational goals, provides a good opportunity for examining the robustness of traditional monopoly and competitive results obtained in the for-profit context.⁶

⁶ Even in the for-profit world where profit maximization is the default objective, one may want to be cautious when modeling firm behavior at different stages of the product life cycle. For

The effect of fixed cost

By solving through the price reaction functions, closed-form price equilibrium solutions can be obtained for the mixed market. They are in very complex algebraic format, but we can write them as functions of the parameters: $p_f^* = p_f(\theta, c, F)$ and $p_n^* = p_n(\theta, c, F)$. As we discussed earlier in the chapter, fixed cost matters for nonprofit pricing behavior due to the nondistribution constraint. Because of the strategic interactions in the duopoly competition, the for-profit's equilibrium price is affected by F as well.

The impact of F on the structure of the mixed market depends upon its magnitude. Ranking from low to high levels, there are three critical values, denoted as F_1 , F_2 and F_3 . For comparatively low levels of F ($F < F_1$), the price equilibrium exists so that the for-profit earns positive profit and the nonprofit is able to break even with a positive level of output. As F becomes greater, it becomes more difficult for both organizations to compete.

When $F_1 < F < F_2$, the price equilibrium technically exists but the for-profit's profit is negative. Therefore, if market entry is modeled as the first step in a dynamic game, the for-profit will not want to compete in this market and the duopoly equilibrium does not hold. On the other hand, the nonprofit is able to break even with positive demand, even when the for-profit decides to enter. Liu and Weinberg (2004) term this range as the 'reserved market' for the nonprofit.

When $F_2 < F < F_3$, neither the for-profit nor the nonprofit can survive in the duopoly market. Each of them can, however, survive if there is no competitor – the for-profit can earn positive profits and the nonprofit can break even as a monopolist. For this situation, the market structure will probably be determined by who is the first mover to enter the market. When one organization establishes itself in the market, its commitment to the market will be a credible signal to deter the other one from entering. As a result, this level of fixed cost leads to a 'first-mover monopoly' situation.

Taking this result to empirical testing, one would expect that certain market situations could be related to a comparatively high level of entry cost that is conducive to early-mover monopoly. For example, nonprofits are historically 'early movers' in markets such as health care, family counseling, arts and education. If the fixed cost of operating on some of these markets can be shown to be within this range, nonprofits should be expected to continue to dominate these markets.

When $F > F_3$, fixed cost is so high that neither the for-profit nor the nonprofit can survive even as a monopolist. Over the ranges of the fixed cost, it can be seen that as long as the market (or consumers) is appropriate for nonprofits, they are more likely to be in the market than a comparable for-profit. The existence of the 'reserved market' for nonprofits is an interesting question for empirical research. As Rose-Ackerman (1996) summarizes, in industries where nonprofits and for-profits coexist, the nonprofits are on average larger than the for-profits both in terms of the number of employees and in terms of revenue.

example, Mahajan and Venkatesh (2000) propose several intriguing research questions about marketing modeling for e-business. One of the 'model setup-related challenges' they discuss focuses on the objective of e-business firms – 'firms in e-business typically seem more concerned with maximizing customer share [at least] in the short term' (p. 220).

Liu and Weinberg (2004) further point out that when fixed cost is prohibitively high for socially desirable products or services, governments and private donors may respond by helping nonprofits overcome the entry barrier. One well-known example of this situation is the provision of accommodation for families of sick children who are receiving treatment for very serious illnesses at tertiary-level children's hospitals. For example, in Vancouver, Canada, two specially built facilities were opened to provide just such accommodation for families of children at the British Columbia Children's Hospital. The Easter Seals House provides 53 rooms at a rate of \$18 per night and the Ronald MacDonald House offers 14 rooms at a rate of \$12 per night; while the Ronald MacDonald house has a different mission ('for families of seriously ill children; priority given to children with cancer and bone marrow transplants') from that of the Easter Seal House, both are within walking distance of the hospital. These rooms provide kitchen facilities and other amenities. Clearly, no for-profit company can offer these facilities at such a low price; the nearest hotel charges \$99 for a room in the off-season.⁷

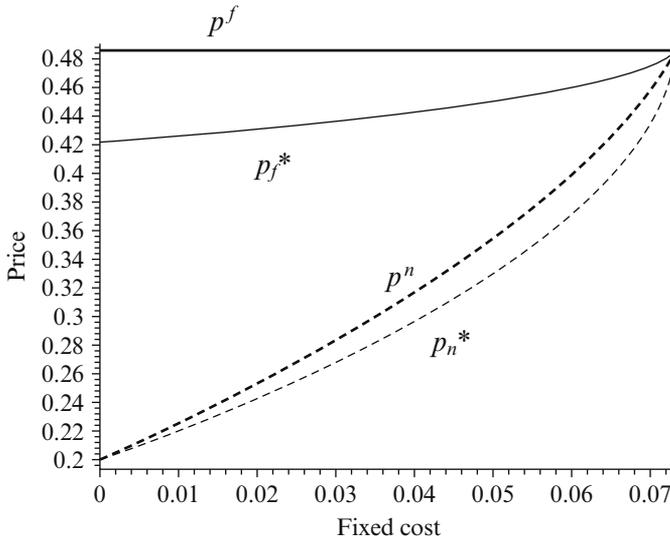
The issue of why nonprofit organizations are more frequently observed in some markets than in others has stimulated a great deal of research. Perhaps the most popular explanation is based on the nonprofit's value to the society when market failure occurs. Steinberg (2006) provides a comprehensive review of this issue, considering the roles of nonprofits together with those of for-profits and governments. He suggests that as market failure happens due to the inefficiency resulting from for-profit provision of goods and services, governments and nonprofits will respond to regulate or restore the market. As a result, nonprofits can be observed more often in markets where the problem of market (and government) failure is more severe. The issues of contract failure and information asymmetry discussed earlier could be good examples of market situations that are conducive to nonprofit operations. Related empirical evidence suggests that in some industries, such as day care and medical services, nonprofits are more trusted than the for-profits by customers (e.g. Krashinsky, 1998; Brown and Slivinski, 2006). The findings we discuss in this chapter regarding the effects of fixed cost provide a different perspective on market entry and exit that is distinct from these theories.

Nonprofits competing with nonprofits

In many markets, nonprofits compete with other nonprofits for revenue and donations. If we focus on the revenue side of the competition, it is useful to compare the price equilibrium with that obtained in the mixed market. One benefit of doing so is to provide guidance for empirical research. For example, in a market where there is a for-profit daycare and a nonprofit daycare, will the prices of the two organizations be higher or lower than those in a market where there are two nonprofit daycare centers? As another example, empirical research based on such analytical results can cast light on the important issue of whether some nonprofits are just 'for-profit in disguise' (Weisbrod, 1988).

Liu and Weinberg (2004) compare the magnitude of four equilibrium prices: p_j^* and p_n^* from the mixed duopoly market, p^n from the market with two nonprofits, and p^f from the market served by two for-profits. They find the following ranking for all parameter values of the demand function: $p^f > p_j^* > p^n > p_n^*$. The most interesting and in many ways

⁷ All rates are from website www.bcchildrens.ca, accessed on 5 June 2007.



Notes: p^f : for-profit equilibrium price when both duopolists are for-profits.
 p_f^* : for-profit equilibrium price when the competitor is a nonprofit.
 p^n : nonprofit equilibrium price when both duopolists are nonprofits.
 p_n^* : nonprofit equilibrium price when the competitor is a for-profit.

Figure 24.4 Comparison of equilibrium prices in three different duopoly markets ($\theta = 0.8$, $c = 0.2$)

surprising result is probably the comparison of p^n and p_n^* – a nonprofit charges a higher price when it competes with another nonprofit than when it competes with a for-profit. This happens since the nonprofit has more flexibility in setting its price when the competitor is a profit-oriented firm rather than an equally low-price-oriented nonprofit organization. The need to survive (i.e. break even) in a highly competitive market drives up p^n to be higher than p_n^* . Figure 24.4 shows how these four equilibrium prices compare with each other as fixed cost changes.

Concluding discussion and future research issues

Nonprofit pricing decisions differ significantly from those of for-profit businesses due to the unique features of nonprofit organizations. The objective function and nondistribution constraint play particularly important roles in formulating models of pricing and in exploring their intuition and implications. As noted by Weinberg (1983), nonprofits' deviation from profit maximizing complicates any optimum-seeking algorithm. Researchers working on studying business decisions have developed demand systems and price models that depend on several critical features of the demand function (e.g. a well-behaved profit curve and specific functional forms) to allow for tractable analyses. Even for the (presumably) simplest objective of maximizing nonprofit output, closed-form solutions can be complicated to achieve. Nevertheless, as demonstrated in this chapter, an appropriately specified demand system can be very useful in examining the

pricing behavior of nonprofits under a variety of circumstances in both the monopoly and duopoly cases.

In the for-profit sector, issues of dynamic pricing have become increasingly important. The areas covered include pricing at various stages of the product life cycle, prices in response to changing cost structures, and pricing to reflect and influence temporal patterns of demand. Such issues are important for nonprofit organizations as well, but we could identify no papers specifically addressing such issues in the nonprofit sector. An additional factor for nonprofits is how to modify the no-deficit constraint so that it has meaning in a dynamic setting. It would seem that considerations other than simply applying a cumulative non-deficit constraint (with a present value discount factor) are pertinent. For example, if a nonprofit accumulates a surplus in the early years, how does it value the result that some potential clients may not be served due to the imposition of this constraint?

Donations are not explicitly included in the competition model discussed earlier. Conceptually, donations have an impact on nonprofits' pricing decisions through two distinct mechanisms. One is the effect of increasing funds available, thus reducing pricing pressure and, if quality decisions are involved, helping to improve quality. The other is the usage of funds for fundraising campaigns, which works in the opposite direction to increase the pricing pressure and reduce potential quality levels. Of course, the amount spent raising donations should not exceed the amount raised. Therefore an appropriately specified donation response function is critical to derive useful results for the pricing problem. Empirical research with regard to donations is facilitated by the availability of public data sources. For example, a large data set of revenues and expenditures of nonprofits, which was collected from the IRS 990 forms filed annually by 501(c)(3) organizations, can be accessed through the National Center for Charitable Statistics (NCCS) at the Urban Institute (nccsdataweb.urban.org). Boris and Steuerle (2006) provide a list of major IRS nonprofit data sources.

A very common role of pricing in the for-profit world is to implement price discrimination. Many models assume consumers can be differentiated along two fundamental dimensions of preference, namely horizontal differentiation and vertical differentiation. The former refers to the preference space where buyers have heterogeneous ideal points (e.g. Hotelling, 1929), while the latter refers to that where 'the more, the better' holds true for everyone (e.g. Shaked and Sutton, 1982). Models have also been constructed for firms competing on both dimensions (e.g. Neven and Thisse, 1990). Related to these two dimensions are the typical issues of consumer taste and willingness to pay. While both are straightforward in for-profit pricing models, they are no longer so for nonprofits.

First, the taste for nonprofit products or service may not be as clearly defined as for commercial products. For instance, it is easy to assume that consumers may prefer different styles of cars (e.g. color, size, or a 'sporty' image), but it is not easy to conceptualize the taste for performing arts or family counseling services. This issue becomes particularly complex when the researcher wants to consider the different (and sometimes conflicting) preference of nonprofit managers and donors. For example, Rose-Ackerman (1987) explicitly models the donor's preference for a qualitative index of nonprofit output, which may differ from the preference of the nonprofit manager. Voss et al. (2000) distinguish five organizational value dimensions for arts organizations: pro-social, artistic, financial, market and achievement. They suggest that there exist underlying tensions between

competing values in cultural organizations, such as the pressure to be both artistic and market oriented.

Second, consumer willingness to pay is no longer a simple factor for segmentation and positioning models. It is commonly observed in the commercial world that firms pursue different segments of consumers by offering differentiated products, such as high-quality firms selling to the consumers with higher willingness to pay (for quality) and low-quality firms selling to the remaining consumers (Moorthy, 1988). Due to the socially beneficial nature of nonprofit outputs, it is unclear whether consumer willingness to pay is an appealing factor to all nonprofits. There are certainly situations where the nonprofits want to ensure that the poor or needy population will be able to receive their products or services regardless of their financial capability. This is in many ways reflected in the output-maximizing goal of nonprofits – social service agencies measure success in part by clients-served levels, and museums by attendance (Oster et al., 2003). As a matter of policy, many nonprofits prefer to serve the low-willingness-to-pay population. This is, again, different from business models in which the ultimate profit earned drives firm behavior.

Increasingly business managers are recognizing that consumers' reactions to prices involve such factors as mental accounting, price–perceived quality relationships, and perceived fairness. These findings are likely to be important for pricing decisions in the nonprofit sector as well. For example, in the research stream on price–perceived quality relationships, Scitovsky (1945) was the first to formally suggest that price is both an index of sacrifice and an index of quality to consumers. Subsequent studies show that the use of price as an indicator of quality is widespread across consumers and product categories (Lichtenstein and Burton, 1989; Peterson and Wilson, 1985). The behavioral literature establishes that when it is often difficult for consumers to judge quality before purchase, they tend to infer quality based on relevant cues (Lichtenstein and Burton, 1989; Monroe, 1973). It is then an interesting issue how consumers in the nonprofit market evaluate both price and the nonprofit status as signals of quality (Ryans and Weinberg, 1978). Furthermore, while some businesses may employ such behavioral findings to enhance their profitability, nonprofits, with their focus on social ends, may seek to pursue pricing policies that seek to remove such biases from the consideration of prices.

Another critical issue for nonprofit pricing research is consumer surplus. In the for-profit world, consumer surplus is based on the difference between the amount consumers are willing to pay (the demand curve) and what they actually pay. Graphically this is the area below the demand curve but above the prevailing market price. For the same price, richer consumers will, on average, derive a greater amount of consumer surplus than poor consumers. A simple maximization of consumer surplus has the problem of ignoring the distribution issue – it may counter some nonprofits' goal of serving the needy population.

Pricing is still a new phenomenon in nonprofit management. While some nonprofits adopt pricing practice voluntarily (see Oster et al., 2003 for the potential benefit of pricing), others do so due to financial pressure. Given that nonprofits have several other more traditional choices when it comes to the distribution or allocation of nonprofit output (such as waiting lists and rationing), it is useful to examine the efficiency of pricing relative to these other mechanisms in achieving nonprofit objectives. Steinberg and Weisbrod (1998) pioneered this area of research by looking at the waiting lists versus

prices as the rationing mechanism. It is possible that pricing is more efficient for certain nonprofit types or objectives than for others.

Finally, we want to highlight the issue of product and service quality as a joint decision factor together with pricing for nonprofits. Similar to the product line decision by for-profits, the product mix decision can be critical to the managers of many nonprofits (e.g. Newhouse, 1970; James, 1983; Rose-Ackerman, 1987; Ansari et al., 1996). Among these decisions, product or service quality has received a great deal of attention. A number of empirical studies test how the quality levels differ between for-profits and nonprofits in markets such as nursing homes (Chou, 2002; Luksetich et al., 2000), healthcare facilities and hospitals (Schlesinger, 1998), and daycare centers (Krashinsky, 1998). Analytical work in this area appears to be particularly promising. For example, if the nonprofit can offer differentiated products or services, how should it position and price them? As another example, given their different objectives and financial goals, how do for-profits and nonprofits differentiate themselves in price and quality in mixed markets?

References

- Ansari, A., S. Siddarth and C. Weinberg (1996), 'Pricing a bundle of products or services: the case of nonprofits', *Journal of Marketing Research*, (February), 86–93.
- Beato, P. and A. Mas-Colell (1984), 'The marginal cost pricing as a regulation mechanism in mixed markets', in M. Marchand, P. Pestieau and H. Tulkens (eds), *The Performance of Public Enterprises*, Amsterdam: North-Holland, pp. 81–100.
- Bilodeau, M. and R. Steinberg (1999), 'Ransom of the opera', Typescript, Indiana University and Purdue University at Indianapolis.
- Boris, E.T. and C.E. Steuerle (2006), 'Scope and dimensions of the nonprofit sector', in W. Powell and R. Steinberg (eds), *The Nonprofit Sector: A Research Handbook*, 2nd edn, New Haven, CT and London, Yale University Press, pp. 66–88.
- Brooks, A.C. (2005), 'What do nonprofit organizations seek? (and why should policymakers care?)', *Journal of Policy Analysis and Management*, **24** (3), 543–58.
- Brown, E. and A. Slivinski (2006), 'Nonprofit organizations and the market', in W. Powell and R. Steinberg (eds), *The Nonprofit Sector: A Research Handbook*, 2nd edn, New Haven, CT and London, Yale University Press, pp. 140–58.
- Bulow, J., J. Geanakoplos, and P. Klemperer (1985), 'Multimarket oligopoly: strategic substitutes and complements', *Journal of Political Economy*, **93** (3), 488–511.
- Chou, S. (2002), 'Asymmetric information, ownership and quality of care: an empirical analysis of nursing homes', *Journal of Health Economics*, **21** (2), 293–311.
- Cremer, H., M. Marchand, and J.F. Thisse (1989), 'The public firm as an instrument for regulating an oligopolistic market', *Oxford Economic Papers*, **41**, 283–301.
- Dart, R. and B. Zimmerman (2000), 'After government cuts: insights from two Ontario enterprising nonprofits', in K. Banting (ed.), *The Nonprofit Sector in Canada*, Kingston, Ont.: Queen's University School of Policy Studies, pp. 107–48.
- Dees, J. (1998), 'Enterprising nonprofits', *Harvard Business Review*, **76** (1), 55–67.
- Evans, D. and R. Schmalensee (2005), 'The industrial organization of markets with two-sided platforms', Working Paper, National Bureau of Economic Research.
- Gallagher, K. and C. Winberg (1991), 'Coping with success: new challenges for nonprofit marketing', *Sloan Management Review*, **33** (Fall), 27–42.
- Gapinski, J. (1984), 'The economics of performing Shakespeare', *American Economic Review*, **74** (3), 458–66.
- Hall, P.D. and C.B. Burke (2006), *Historical Statistics of the United States*, millennial edition, New York: Cambridge University Press.
- Hansmann, H. (1980), 'The role of nonprofit enterprises', *Yale Law Journal*, **89**, 835–901.
- Hansmann, H. (1987), 'Economic theories of nonprofit organization', in W. Powell (ed.), *The Nonprofit Sector: A Research Handbook*, New Haven, CT: Yale University Press, pp. 27–42.
- Hotelling, H. (1929), 'Stability in competition', *The Economic Journal*, **39**, 41–57.
- Jacobs, P. and R. Wilder (1984), 'Pricing behavior of nonprofit agencies', *Journal of Health Economics*, **3** (1), 49–61.
- James, E. (1983), 'How nonprofits grow: a model', *Journal of Policy Analysis and Management*, **2** (3), 350–66.

- Krashinsky, M. (1998), 'Does auspice matter? The case of day care for children in Canada', in W. Powell and E. Clemens (eds), *Private Action and the Public Good*, New Haven, CT: Yale University Press, pp. 114–23.
- Krug, K. and C. Weinberg (2004), 'Mission, money, and merit: strategic decision making by nonprofit managers', *Nonprofit Management and Leadership*, **14** (3), 325–42.
- Lakdawalla, D. and T. Philipson (2006), 'The nonprofit sector and industry performance', *Journal of Public Economics*, **90** (8–9), 1681–98.
- Leete, L. (2006), 'Work in the nonprofit sector', in W. Powell and R. Steinberg (eds), *The Nonprofit Sector, A Research Handbook*, 2nd edn, New Haven, CT and London: Yale University Press, pp. 159–79.
- Lichtenstein, D. and S. Burton (1989), 'The relationship between perceived and objective price-quality', *Journal of Marketing Research*, **26** (November), 429–43.
- Liu, Y. and C. Weinberg (2004), 'Are nonprofits unfair competitors for businesses? An analytical approach', *Journal of Public Policy and Marketing*, **23** (1), 65–79.
- Luksetich, W., M. Edwards and T. Carroll (2000), 'Organizational form and nursing home behavior', *Nonprofit and Voluntary Sector Quarterly*, **29**, 255–79.
- Mahajan, V. and R. Venkatesh (2000), 'Marketing modeling for e-business', *International Journal of Research in Marketing*, **17**, 215–25.
- McCready, D. (1988), 'Ramsey pricing: a method of setting fees in social service organizations', *American Journal of Economics and Sociology*, **47** (1), 97–110.
- Monroe, K. (1973), 'Buyers' subjective perceptions of price', in Harold H. Kassarian and Thomas S. Robertson (eds), *Perspectives in Consumer Behavior*, Glenview, IL: Scott, Foresman, pp. 23–42.
- Moorthy, K. (1988), 'Product and price competition in a duopoly', *Marketing Science*, **7** (2), 141–68.
- Neven, D. and J.F. Thisse (1990), 'On quality and variety competition', in J. Gabszewicz, J.-F. Richard and L. Wolsey (eds), *Economic Decision Making: Games, Econometrics and Optimization*, Amsterdam: North-Holland, pp. 175–99.
- Newhouse, J. (1970), 'Toward a theory of nonprofit institutions: an economic model of a hospital', *American Economic Review*, **60** (1), 64–74.
- Oster, S., C. Gray and C. Weinberg (2003), 'Pricing in the nonprofit sector', in D. Young (ed.), *Effective Economic Decision-Making for Nonprofit Organizations*, New York: Foundation Center, pp. 27–46.
- Peterson, R. and W. Wilson (1985), 'Perceived risk and price reliance schema as price-perceived quality mediators', in J. Jacoby and J. C. Olson (eds), *Perceived Quality: How Consumers View Stores and Merchandise*, Lexington, MA: D.C. Heath, pp. 247–68.
- Raju, J., R. Sethuraman, and S. Dhar (1995), 'The introduction and performance of store brands', *Management Science*, **41** (6), 957–78.
- Rentschler, R., A. Hede and T. White (2007), 'Museum pricing: challenges to theory development and practice', *International Journal of Nonprofit and Voluntary Sector Marketing*, **12**, 163–73.
- Rochet, J. and J. Tirole (2004), 'Two sided-markets: an overview', Working Paper, IDEI and GREMAQ, Toulouse.
- Rose-Ackerman, S. (1987), 'Ideals versus dollars, donors, charity managers, and government grants', *Journal of Political Economy*, **95** (4), 810–23.
- Rose-Ackerman, S. (1990), 'Competition between non-profits and for-profits: entry and growth', *Voluntas*, **1** (1), 13–25.
- Rose-Ackerman, S. (1996), 'Altruism, nonprofits, and economic theory', *Journal of Economic Literature*, **34** (June), 701–28.
- Ryans, A. and C. Weinberg (1978), 'Consumer dynamics in nonprofit organizations', *Journal of Consumer Research*, **5** (September), 89–95.
- Salamon, L. and H.K. Anheier (1998), 'The third route: government–nonprofit collaboration in Germany and the United States', in W. Powell and E. Clemens (eds), *Private Action and the Public Good*, New Haven, CT: Yale University Press, 151–62.
- Schiff, J. and B. Weisbrod (1993), 'Competition between for-profit and nonprofit organizations in commercial markets', in Avner Ben-Ner and Benedetto Gui (eds), *The Nonprofit Sector in the Mixed Economy*, Ann Arbor, MI: The University of Michigan Press, pp. 127–47.
- Schlesinger, M. (1998), 'Mismeasuring the consequences of ownership: external influences and the comparative performance of public, for-profit and private nonprofit organizations', in W. Powell and E. Clemens (eds), *Private Action and the Public Good*, New Haven, CT: Yale University Press, pp. 85–113.
- Scitovsky, T. (1945), 'Some consequences of the habit of judging quality by price', *Review of Economic Studies*, **12**, 100–105.
- Shaked, A. and J. Sutton (1982), 'Relaxing price competition through product differentiation', *Review of Economic Studies*, **49**, 3–13.
- Shubik, M. and R. Levitan (1980), *Market Structure and Behavior*, Cambridge, MA: Harvard University Press.
- Simon, J., H. Dale and L. Chisolm (2006), 'The federal tax treatment of charitable organizations', in W. Powell

- and R. Steinberg (eds), *The Nonprofit Sector: A Research Handbook*, 2nd edn, New Haven, CT and London: Yale University Press, pp. 267–306.
- Steinberg, R. (1986), 'The revealed objective functions of nonprofit firms', *RAND Journal of Economics*, **17** (Winter), 508–26.
- Steinberg, R. (2006), 'Economic theories of nonprofit organizations', in W. Powell and R. Steinberg (eds), *The Nonprofit Sector: A Research Handbook*, 2nd edn, New Haven, CT and London: Yale University Press, pp. 117–39.
- Steinberg, R. and B. Weisbrod (1998), 'Pricing and rationing by nonprofit organizations with distributional objectives', in B. Weisbrod (ed.), *To Profit or Not to Profit: The Commercial Transformation of the Nonprofit Sector*, Cambridge, New York and Melbourne: Cambridge University Press, pp. 65–82.
- Steinberg, R. and B. Weisbrod (2005), 'Nonprofits with distributional objectives, price discrimination and corner solutions', *Journal of Public Economics*, **89**, 2205–30.
- Tirole, J. (1988), *The Theory of Industrial Organization*, Cambridge, MA: The MIT Press.
- Voss, G., D. Cable and Z. Voss (2000), 'Linking organizational values to relationships with external constituents: a study of nonprofit professional theatres', *Organization Science*, **11** (3), 330–47.
- Weinberg, C. (1980), 'Marketing mix decision rules for nonprofit organizations', in J. Sheth (ed.), *Research in Marketing*, Vol. 3, Greenwich, CT: JAI Press, pp. 191–234.
- Weinberg, C. (1984), 'Marketing mix decisions for nonprofit organizations: an analytical approach', in C. Lovelock and C. Weinberg (eds), *Public and Nonprofit Marketing: Cases and Readings*, Palo Alto, CA: Scientific Press, pp. 261–9.
- Weinberg, C. (1990), 'Korona Community Center: auditorium rental', in C. Lovelock and C. Weinberg (eds), *Public & Nonprofit Marketing: Cases & Readings*, 2nd edn, Palo Alto, CA: Scientific Press, pp. 187–8.
- Weisbrod, B. (1988), *The Nonprofit Economy*, Cambridge, MA: Harvard University Press.
- Weisbrod, B. (1998), 'Institutional form and organizational behavior', in W. Power and E. Clements (eds), *Private Action and the Public Good*, New Haven, CT: Yale University Press, pp. 69–84.