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Nonprofit Organization Behavior in For-Profit Markets

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Introduction

How to model behavior of nonprofit organizations, which generate a growing share of GDP, is a continuing challenge. This paper addresses the behavior of nonprofit organizations in their money-generating activities. It presents a two-good model in which commercial activities are undertaken for the sole purpose of raising revenue for use in maximizing the organization's mission output. The paper then tests several implications of the prediction that the nonprofits act as profit-maximizers in the revenue-generating markets. Those activities are proxied by what the regulator, the IRS, deems to be "unrelated"—technically, not "substantially related"—to a nonprofit's tax-exempt mission. In the process of testing, we shed light on the finding that half or more of all nonprofit organizations reporting unrelated business (UB) activity report no profit or, more often, a loss, even though the pursuit of profit is the only apparent rationale for engaging in it.

Our theoretic and empiric analyses recognize the differential tax treatment of nonprofit organization revenue from each of two types of activities—mission activities, profit from which is not subject to profits taxation, and UB activity, which is taxed essentially just like ordinary corporate profits. Private firms as well as nonprofit

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organizations often operate in multiple markets with different tax regimes. When firms have production facilities in various countries, for example, they have the incentive to engage in transfer pricing, maximizing the portion of profit that is reported in the lower tax jurisdiction. Nonprofit organizations, even when operating solely within the U.S., also face multiple tax regimes whenever they engage in activities that are not “substantially related” to their tax-exempt mission. When they engage in such “unrelated” business activities any profit is subject to the “Unrelated Business Income Tax” (UBIT), while they confront a zero tax rate on any profit generated by their mission-related activities.¹ The UBIT is designed to “level the playing field” with respect to competition between private firms and nonprofit organizations, subjecting nonprofit organizations to the same profits taxation as applies to private firms when nonprofits engage in “non-mission” activities.

How do nonprofit organizations behave when confronted by these incentives? More generally, how should nonprofit organizations be modeled in terms of their behavior in mission-related and unrelated markets? Empirically, how can one explain the fact that when nonprofit organizations engage in activities outside their tax-exempt missions they generally do so at a “loss” — at least as reported? Between 1991 and 1998—the years for which IRS data are currently available—gross revenue of all nonprofit organizations from UB activities increased substantially every year, but 44-52 percent of the nonprofits reporting such activity reported losses or zero profit. Moreover, the aggregate profit reported by all nonprofits filing Unrelated Business Income Tax (UBIT) returns was negative every year (Riley 1999, 2000, 2001, 2002).

We present a model that predicts such behavior—that some nonprofits will find it profitable to undertake UB activity even if it is expected to be “unprofitable” (according to the standards of Generally Accepted Accounting Principles, GAAP). Briefly, in the model, (1) UB activities are undertaken to generate after-tax profit for use in cross-subsidizing the often-unprofitable mission activity and (2) a nonprofit acts as a profit maximizer in UB markets.

We test two implications of this model for each of six industries, including higher education and hospitals, among others: (1) Nonprofit organizations in different industries engage in systematically different UB activities, selecting those for which cost complementarities with mission activities are greatest, and which, therefore, are more likely to be truly profitable², and (2) the joint costs are allocated, subject to GAAP constraints, between the taxed, UB activities, and the untaxed, mission activities, so as to minimize tax liabilities and thereby maximize real after-tax profit. We find supportive evidence for both implications.

Theoretic Framework

The behavior of nonprofit organizations in unrelated, “ancillary” good, markets, remains a subject of research as part of a larger effort to model the nonprofit organization (James 1983; Schiff and Weisbrod 1991; Weisbrod 1998; Lakdawalla and Philipson 1998; Glaeser 2003³). In our model, a nonprofit organization produces some goods because they constitute the mission and others because they bring profit. The production of the former might be at a loss, in which case it would require subsidization. If the organization objective function involves maximization of the mission good, unrelated

business (UB) activities (outputs) will be selected with the expectation of being profitable and thus supporting the mission. While *real* profitability of UB outputs is expected, *reported* losses on UB activity are fully consistent with the model, which focuses on the need to maximize real *after-tax* UB profit in order to maximize mission output.

Consider a nonprofit as a producer of two goods—a Mission Good, M, and a Revenue Good, R. Good M, maximization of which is the nonprofit's objective, is socially desirable, but at least some of its provision is privately unprofitable. Good R makes no direct contribution to the nonprofit's objective function, but it generates profit for cross-subsidizing M (James 1983, Schiff and Weisbrod 1991, Weisbrod 1998). Our nonprofit seeks to

maximize an objective function, $G = G(M)$,

s.t. a budget constraint, $\text{cost}(M) - \text{revenue}(M) \leq (1-T) * \text{profit}(R)$,⁴ where

M = quantity of Mission-Good output,

R = quantity of Revenue-Good output, and

T = tax rate on profits from good R.

Nonprofits produce an R good only to finance M.⁵ However, whether any specific good is an M or an R good from the nonprofit organization's perspective may differ from its classification by the IRS, the regulatory agency. Clearly, for tax minimization purposes the nonprofit is interested in having all of its R activities qualify for tax-exempt status, and it is often the case that the IRS definition of mission is broad enough to encompass many revenue-generating activities, thereby exempting profit from taxation.

Contrariwise, it is also possible that the IRS may treat some outputs as taxable, even though the nonprofit regards them as central to their mission. This situation is

illustrated by the book publisher displays at the annual Allied Social Science Association meetings, which the American Economics Association regards as central to its mission, but the IRS regards as a taxable *unrelated* activity. We assume, however, that such cases are unusual. In the empirical section, below, we regard gross revenue from UB activity, which is taxed, as a useful proxy for a nonprofit's gross R-good activity.

If a nonprofit organization engages in any taxable, UB, activity, it would act as a maximizer of after-tax profit in those markets, in order to pursue its mission to maximize M.⁶ Maximization of after-tax profit from R is a necessary condition for maximizing output of M.⁷

To maximize after-tax profit from R a nonprofit selects the subset of goods, R', that is expected to generate profit.⁸ Assuming competitive markets in which profits are driven down to zero—at which point a nonprofit would not expect to reap profit from any R-good that is greater than could be obtained from passive investments in securities—a nonprofit could expect greater profit from producing an R-good only if it had lower costs than did its for-profit competitors. That would be the case for R-goods that are complements in production with M-goods.⁹ Examples of such complements include a hospital operating a commercial fitness center, using under-employed resources from its M-good cardiac rehabilitation program, and a university renting out its football stadium for rock concerts or professional football games, using a facility that would otherwise be idle.¹⁰

In such cases, the commercial activity is likely to be profitable, given its low marginal cost. Since the activity uses inputs that are joint with production of M goods, and since the production technologies differ among M-good industries such as hospitals,

universities, museums, and soup kitchens, our model generates two predictions: (1) Because industries in different M-good markets employ different inputs, the search for potentially-profitable R-goods (as proxied by UB) will lead to the choice of different sets of UB activities. In the empirical work, below, we find such systematic differences. Across industries there is, as expected, substantial variation in the sets of UB activities in which the nonprofits have chosen to engage.

(2) Nonprofits that engage in UB activity, having chosen the specific activities with cost complementarities in mind, will utilize accounting practices so as to charge as much as is lawful of joint costs to the taxable UB activities, and as little as is lawful to the untaxed Mission activity. An implication of the model is that the choice of UB activities will reflect opportunities to maximize after-tax real profit, which reflects the potential for allocating joint costs to the taxable goods. Since the level of profit or loss from Mission activity has no tax implications—the profits tax rate being zero—the minimization of profits-tax liabilities calls for maximization of the share of joint costs charged to the taxable UB activity, subject to the constraints if GAAP rules.

In the empirical section we examine implications of the model. One involves the effect on reported taxable profit from UB activity of additional spending on accounting services. Another involves the effect of depreciation mechanisms on reported taxable profit from UB activity.

Focusing on accounting fees, we expect an additional dollar spent on accounting to bring at least a one-dollar increase in real after-tax profits. Assuming, for simplicity, a tax rate of 33%, a one-dollar increase in real after-tax profits is achieved if net UBI decreases by three dollars. Such a decrease in net UBI could result from the accountant's

determination that (1) some costs that are appropriately chargeable against UBI were not being reported at all on organization's tax returns; (2) more of the joint costs could be charged against UBI than was previously being charged; and (3) some or all of the marginal accounting costs could be charged against UBI.

Turning to the handling of depreciation charges as a tax-reducing mechanism, we estimate the effect on reported total depreciation of additional gross UB revenue, controlling for the total amount of depreciable assets (defined in the empirical section below). Our hypothesis is that the greater the gross revenue from UB the greater is the nonprofit's incentive to report depreciation at all, and to use accelerated methods of depreciation. When there is little or no UB activity there is no corporate tax liability, regardless of the charge for depreciation, but as UB revenue increases, the incentive to increase tax-deductible expenses for depreciation increases.

So far we have assumed that the revenue good R did not enter the nonprofit organization's objective function. That is, production of R generates revenue for M, but R does not otherwise affect the organization objective function. In that case the maximization of M implies the maximization of profit from R. If, however, R entered negatively into the nonprofit's objective function— $G/ R < 0$ (Segal and Weisbrod 1998), then maximization of M would imply providing R at less than the profit-maximizing level.¹¹ This would be the case if the nonprofit were averse to engaging in some potentially profitable unrelated business activity, perhaps regarding it as inconsistent with mission despite its positive budgetary contribution (Cordes and Weisbrod 1998). Even if an organization were to forgo some profitable R-good activity,

they would not engage in unprofitable R-good (UB0 activity). Therefore, if a nonprofit engages in UB activity, that activity must be truly profitable.

How, then, can the widespread losses reported from UB activity be explained? We consider three potential explanations. One, noted earlier, is that the IRS and nonprofits differ in their definition of Mission-related, M, activities. Our model assumes that nonprofit organizations might provide M goods unprofitably, and so would continue providing such goods, although at a lower level, even if the IRS treated them as unrelated and, hence, taxable. We cannot test this explanation, but we regard it as unlikely. First, the definitions of nonprofit's missions are usually quite broad. Therefore, it is more likely that unrelated, R-good, activities are exempt from the UBIT than that M-good activity is taxed as unrelated. Second, given the magnitude and persistence of reported negative profits from UB activities, it seems unlikely that such difference in definition would spread over all industries in which nonprofit organizations operate.

A second explanation for the high frequency of reported losses from UB activity is that the unprofitable activity reflects not the continued provision of unprofitable R goods by the same nonprofits but the effects of aggregation. The mix of nonprofits reporting losses on UB activity might change over time. Nonprofits that expected profit but were unsuccessful might drop out of UB markets as other nonprofits entered, or organizations might operate at a loss in early years but become profitable later. Every year some nonprofits might enter UB markets, and over time either become profitable or discontinue the activity. If enough nonprofits initiated UB activities at a loss in any particular year the aggregate profit from UB activity by all nonprofits could be negative,

as is the case (See articles by Riley). We test this explanation that a dynamic process is at work, and we find that it is unlikely to explain the observed behavior.

The third, and our preferred, model is the one presented above—in which UB activities are, in fact, profitable R-goods that are *reported* as unprofitable. The unprofitability results, in the model, from the confluence of two forces—the nonprofit organization’s systematic selection of UB activities that utilize joint inputs with the Mission good, and the use of accounting practices to minimize profits-tax liabilities—subject to legal and GAAP constraints—thereby maximizing after-tax *true* profit. In our model nonprofits engage in UB activities that are truly profitable, but the *reported* taxable profit can be zero or less.¹²

Data

Our data, from the IRS, include observations for five years (1993-1997) on two samples of returns for nonprofit organizations: the SOI (Statistics of Income Division, IRS) sample of Form-990 returns for all organizations that are tax-exempt under section 501(c)(3) of the Internal Revenue Code—these are the nonprofits donations to which are tax-deductible on personal income tax returns—and the smaller sample of Form-990T returns for the subset of 501(c)(3) organizations that reported gross UBI, which is taxable.¹³ Only organizations with both 990 and 990T returns in the samples are included in our analysis.¹⁴

Appendix table A lists the 26 industries in the SOI samples and the total number of firms with both Form-990 and Form-990T returns. We analyze the six industries for which there are at least 200 observations over the five years—a total of 11,036

observations. These are: A (Arts, Culture, and Humanities), B (Education), E (Health – General and Rehabilitative), P (Human Services – Multipurpose and Other), T (Philanthropy, Voluntarism, and Grantmaking Foundations), and U (Science and Technology Research Institutes, Services). Table 1 shows the number of organizations in our sample, by industry and year. Table 2 shows average reported gross unrelated business income (UBI), average net UBI (profit or loss), average accounting fees and reported depreciation expenses per filer in each industry over the five years; only in industry T was mean net UBI reported to be positive.

Aggregation

Here we examine whether aggregation, as part of a dynamic process of entry and exit, can explain the widespread reported losses from UB activity. We test whether specific nonprofits at least break even, over time, while the inflow of nonprofits with truly, though temporarily, unprofitable UB activity at the start-up stage drives down aggregate industry profit.

We hypothesize that if a nonprofit experiences *real* losses on UB during a year, in the following year it will either institute changes to produce profitability or will diminish or even eliminate the UB activity. To test this hypothesis we consider those nonprofits that in 1993 (the first year of our sample) had non-positive reported profits, and examine their subsequent years' UB behavior. Table 3 reports the mean *net* UBI, that is, reported profit (line 34, Form-990T) for this balanced sample of filers for all years, and table 4 reports their mean *gross* UBI (lines 93 a-g plus lines 103 a-e from Form-990) for all five years—a total of 826 organizations.

It is clear from table 3 that the losses in 1993 were not eliminated in the subsequent four years. In each industry the nonprofits not only continue to report losses from UB activity, but the amounts of losses (in nominal dollars) do not exhibit a downward trend. Neither do these nonprofits generally diminish the gross levels of those activities in any of the industries as table 4 shows.¹⁵

Table 5 shows behavior over time of a panel of the nonprofit organizations that reported profit of zero or less on UB activity in 1993. There is some, but little, evidence that the losses were temporary. The vast majority of those nonprofits continue to report non-positive net UBI in each of the four subsequent years, 1994-1997. They neither abandoned their unrelated activities nor made them profitable for tax purposes. They continued to report loses, or at least no profit, on activities that, being unrelated to the mission, are presumably undertaken only because of their financial contribution.

To examine further the effect of current year's unprofitable UB activity (loss or zero profit) on next year's involvement in UB activity, we estimated the following model for each of the six industries:

$$\text{Gross UBI}_t = + \text{ Net UBI}_{t-1} \quad (\text{Model 1})$$

The estimated coefficients, reported in table 6, show that β_1 , the coefficient on the last year's reported losses from UB activity, is negative for all six industries and significant at the .10 level or better for all industries but one. Contrary to what one would expect if the UB activity were truly unprofitable, the greater the reported *loss* in the current year, the more the nonprofit organization *increased* its gross UB activities in the following year. It is not simply the changing mix of nonprofit filers of UBIT returns that explains the large and persistent numbers of reported unprofitable UB activities.

Though some nonprofits do abandon their unrelated activities or make them profitable after experiencing losses, the majority do not. They continue to engage in unrelated businesses that they report to be unprofitable; their reported losses do not decrease over time; and despite the reported unprofitability, UB activities are expanded.

The continued provision of outputs that are reportedly unprofitable would be consistent with our model of nonprofit organization maximization of profit in UB markets if there were systematic under-reporting of profit. This could occur if, for example, UB activities were selected to take advantage of joint costs of UB activities and Mission activities. This would permit allocation of joint costs to the taxed, UB, activities, resulting in their *reported* unprofitability, but *true* profitability.

Thus, we turn now to testing two implications of our model that could explain why reportedly unprofitable activities might actually be profitable: *Implication 1*: Nonprofits in various M-good industries, employing differing inputs, find it profitable to engage in different UB activities. *Implication 2*: Nonprofits that engage in UB activity utilize accounting mechanisms to minimize their profit tax (UBIT) liability. We test both implications in the next two sections.

Industry Differences in the Choice of Unrelated Business Activities

As explained earlier, nonprofits that seek to maximize profit in unrelated, R-good, markets can be expected to engage not in a random sample of such activities, but in those that use the same inputs as are used in pursuit of the Mission output, M (Riley 2002). Thus, we expect to find that in the six M-good industries we study, which use differing inputs, the particular unrelated activities in which they engage differ systematically.

Appendix table B shows the 160 “business codes” for UB activities listed by the IRS. These are used by nonprofit organizations filing UBIT tax returns, form 990T, to report the types of unrelated business activities in which they have engaged. To test the hypothesis of systematically different UB activities across M-good industries, as implied by our model of nonprofits’ profit-maximizing behavior in R-good markets, we examine the differences in reported business codes across the six industries.

Consistent with the model, which predicts purposeful choice of UB activities, we find that many activities are not engaged in by any of the thousands of different nonprofit organizations in our sample. For 35 of the 160 business codes there is not a single nonprofit organization in any of the six industries in any of the five years for which those forms of UB activity are reported. Moreover, we can reject, at a .01 level of confidence, the hypothesis that the distribution of reported UB activities is random across industries. This non-randomness is expected from a model of profit-maximizing behavior by nonprofit organizations in R-good markets given the differential technologies across the M-good industries.

We next test the hypothesis that organizations in the six industries are equally likely to engage in any particular unrelated activity. We expect rejection, owing to the differential technologies. The test was conducted as follows: We calculated the probability that a nonprofit organization in each industry engages in each of the 125 UB activities (we did not consider 35 activities in which none of the firms from our sample engaged). We then constructed a 90 percent confidence interval around these probabilities for each industry, and examined whether those confidence intervals intersect. If they do, the hypothesis cannot be rejected that the organizations in the

different industries are equally likely to engage in the same sets of UB activities—which implies that complementarities between Mission and Revenue goods are not significant.

Results are in appendix table C, where, for each business code, “0” means that the six industries show significantly different probabilities of involvement, and “1” means that we cannot reject the hypothesis that the probability (at a .10 significance) of a nonprofit engaging in that activity is the same across all six industries. Appendix table C shows that of the 125 UB code activities studied, there are 75 for which the differential probabilities are significant, inconsistent with the hypothesis, but consistent with our prediction. For the other 50 the probabilities are not significantly different,¹⁶ but the number of organizations engaged in all these activities is very small. Thus, we focus on the activities engaged in by at least 5 percent of the organizations in at least one industry—a total of 25 activities (table 7). For every one of those activities we reject the hypothesis that the probabilities of such UB activity are the same across the six industries.

Relatedly, a number of UB activities clearly involve activities closely related—in the production technology sense—to mission. For example, nearly 40 percent of health care organization (generally hospitals) are involved in unrelated “medical laboratories” (code 8071) activities, but only 1 percent or fewer of the organizations in any of the other 5 industries report such activity. Similarly, 8 percent of Science and Technology Research Institutes report UB activity from unrelated R&D (code 8735), while the figure is 1 percent or smaller for each of the other industries; and while there are nearly 11 percent of Arts and Culture nonprofits that report unrelated business activity involving commercial Radio & TV (code 4830), there are none in the Health, Philanthropy, or

Science and Technology industries. Advertising (code 7310) is the most prominent unrelated business activity, reported by 32 percent of the Form-990T filers in industry T, 42 percent in the Arts Sector (A), and 60 percent in Science and Technology (U), but the inter-industry variance is evident even here. Only 15-16 percent of the UBIT filers in education (B) and Human Services (P) report advertising revenue, and only 1 percent in Health (E).

While the IRS returns do not provide details, it seems likely that the principal source of commercial advertising revenue for nonprofits is the magazines and journals sent to their “members.” Since Science & Technology Research organizations and Arts & Culture organizations are most likely to have utilized such communication mechanisms, adding commercial advertising would involve small marginal cost, which is consistent with the finding in table 7 that 42-60 percent of those organizations report unrelated advertising revenue. By contrast, Health nonprofits seldom publish magazines and journals, which is consistent with our finding that only 1 percent report commercial revenue from advertising.

The systematic differences in patterns of UB activities among the six industries are observable from table 7 in another way. Among Arts and Human Services organizations (A), there is no reported UB activity in 10 of the 25 activities meeting the criterion for inclusion in the table. Among Education organizations (B), by contrast, there is a far wider range of UB activity, with some reported UB activity for 24 of the 25 UB activities.

All these findings of significantly different selections of UB activities are consistent with the choice-theoretic framework of our model. They show that the

selections of specific UB activities are not random. As hypothesized, nonprofits appear to recognize that the business opportunities they confront depend on their Mission-related activities.

Accounting Practices

Since profit from unrelated, Revenue-good, activity, is taxable, an increase in gross revenue from UB activity should be associated with increased attention to accounting mechanisms for finding offsetting expenses so as to cut tax liabilities. As we noted earlier, a nonprofit can affect its tax bill on UB activity through a number of routes – all of which involve charging as much cost as is lawfully possible to the taxed, unrelated activities. We consider mechanisms, not necessarily mutually exclusive, through which a nonprofit might cut their tax liabilities: by making greater use of accounting, and by focusing on one particular cost, depreciation.

Expenditures on accountants.

First, we test the hypothesis that nonprofits, just like private firms, spend money on accountants so as to cut taxable profit from UB activity. In the two-good model, profit from the Revenue good, which we proxy by UB activity, is critical to the mission and, hence, nonprofits seek to maximize it. Thus, we expect that nonprofit organizations utilize accountants to minimize tax liabilities, subject to legal and GAAP constraints.

In our estimations we allow the effect of additional accounting expenditures on tax liabilities to be subject to diminishing returns—i.e. an increase in accounting expenditures from \$100 to \$1000 may bring a larger reduction in tax liabilities than an increase from \$9,100 to \$10,000. Thus, we include a term for the square of accounting

fees¹⁷ in the following equation for each of the six industries, and estimate the effect of accounting expenditures on taxable profit (Net_UBI) controlling for the level of gross revenue from taxable activity (Gross_UBI).¹⁸

$$\text{Net_UBI} = \beta_0 + \beta_1 * \text{Gross_UBI} + \beta_2 * \text{Acc_Fees} + \beta_3 * (\text{Acc_Fees})^2 + \epsilon \quad (\text{Model 2})$$

Table 8 shows that the coefficients on accounting fees (β_2) are, as expected, negative and statistically different from zero for every industry (also as expected, β_3 is positive for each industry, and significant for four of the six industries). The negative coefficients indicate that added spending on accounting services is associated with additional reduction in reported taxable profits—controlling for the level of gross revenue from UB activities.

The estimated effect of additional spending on accounting fees ($\beta_2 + 2 * \beta_3 * \text{Acc_Fees}$) is significantly greater than 3 (in absolute value)—the approximate profit-maximizing relationship for two of the six industries. In these two industries (A and T) we find evidence that additional spending on accounting fees brings increased after-tax profits for the organization.¹⁹

Depreciation accounting.

Our second test of the use of accounting techniques to minimize tax burdens on profit from UB activity involves the treatment of depreciation. The accounting for depreciation is of no consequence for nonprofits engaging only in tax-exempt Mission-good production, since even if such activity is profitable, it is not taxed. Thus, nonprofits having no taxable UB activity have no financial incentive to report depreciation charges. The greater the gross UBI, however, the greater is the organization's incentive to charge depreciation expense so as to reduce its tax liability.

Table 9 shows that they do. Organizations that do not file Form-990T returns are 3-7 times more likely to report zero depreciation (column 7) than are nonprofits that do file UBIT tax forms and, hence, have financial incentives to find tax-reducing expenses. Our findings suggest that many nonprofits do not bother to report depreciation at all in the absence of taxable UBI, but most of them do report depreciation if they engage in unrelated activities. Specifically, we test for the effect of filing a Form-990T return, reflecting UB activity, on the probability of reporting positive, not zero, depreciation on the nonprofit's Form-990 return, estimating the following logit regression:

$$D = \alpha + \beta_1 * Assets + \beta_2 * \underline{ } + \epsilon, \quad (Model\ 3)$$

where D is a dummy that is equal to 1 if depreciation expenses greater than zero were reported, $\underline{ }$ is a dummy that is equal to 1 if the nonprofit filed a Form-990T return, and Assets are the nonprofit's total depreciable assets (excluding, for example, financial assets).²⁰

The results are in table 10. The coefficients on $\underline{ }$ are positive, as expected, and significant for all industries except industry T. This means that the probability that a nonprofit organization will report positive depreciation increases if a nonprofit organization files a Form-990T return. The estimated increase in probability (column 4) ranges from an insignificant 0.1% (industry T) to a highly significant 50% (industry A).

Table 11 discloses the estimated dollar increase in reported depreciation charges associated with 990T filing status. The effect is significant and positive for three of six industries. Having UBI and, hence, filing of Form-990T return increases the amount of depreciation charged in those industries by amount estimated to be in the range of \$732,000-\$864,000. These amount to widely varying percentage from 11% (industry E)

to 75% (industry A). For the other three industries—P, T, and U—the estimated effects of 990T filing status are insignificant.

Next, we consider the effect of the level of gross UBI on the amount of depreciation, controlling for depreciable assets. We do this in two stages. First, we examine how the total amount of depreciation reported by a nonprofit on its Form-990 return is affected by increased gross UBI. The following model is estimated:

$$\text{Depreciation} = \alpha_0 + \alpha_1 * \text{Assets} + \alpha_2 * \text{Gross_UBI} + \epsilon \quad (\text{Model 4})$$

Second, we examine the effect of added gross UBI on nonprofits' allocation of depreciation charges between its taxable and non-taxable income. To decrease tax liabilities on any given amount of gross UBI, a nonprofit seeks to maximize cost deductions on its taxable income reported on Form-990T, for any given level of actual costs. Depreciation illustrates cases in which some discretion exists as to the amount of total expense that is charge against unrelated (taxable) income, as contrasted with Mission-related (untaxed) income. Thus, we also examine the amount of depreciation that is carried from the Form-990 to the Form-990T return, as a function of the level of gross UBI, controlling for the total depreciation reported by the organization. That is, we estimate the effect of increased gross UBI on depreciation reported on the Form-990T return²¹, controlling for the total amount of depreciation reported by the nonprofit on its Form-990 return.:

$$\text{DepreciationT} = \beta_0 + \beta_1 * \text{Depreciation} + \beta_2 * \text{Gross_UBI} + \epsilon \quad (\text{Model 5})$$

The results of tobit regressions—reflecting the presence of organizations reporting zero depreciation—are in tables 12 and 13. Coefficients on gross UBI for model 4 (table 12) display no pattern across industries²²—positive and significant for 2

industries, negative and significant for 2 others, and insignificant for the other 2. On the other hand, the coefficients on gross UBI from model 5 (table 13) are positive for all six industries and significant for five: greater gross UBI is associated with increased depreciation on Form-990T, where it cuts tax liabilities, conditional on the total amount of depreciation reported on the Form-990 return for the organization's total activities—related and unrelated²³. We conclude that the presence of gross UBI increases the probability of reporting depreciation and also the amount of depreciation on Form-990 return, although we do not have sufficient evidence to conclude that increased gross UBI increases the amount of depreciation charged on Form-990. However, the amount of depreciation charged on 990T return is positively correlated with the amount of gross UBI (table 13).

Prior research has used another approach to estimating the effect of accounting practices on the profits or losses reported from unrelated business activity. Cordes and Weisbrod (1998) compared two estimates: (a) the relationship between the level of a nonprofit's gross UBI and the amount of the nonprofit's total labor costs, and (b) the relationship between the organization's gross UBI and the amount of labor costs reported on its Form-990T UBIT return. With respect to (a) they found that an increase in UBI has a negligible and statistically insignificant effect on the organization's total labor expenses. This is consistent with a model in which nonprofits use existing inputs when they engage in unrelated activities, and so the marginal costs of producing the unrelated good is very small. Despite the virtually zero marginal labor cost of generating added UBI, Cordes and Weisbrod found, with respect to (b), that nonprofits reported, on their form-990T UBIT returns, substantially and significantly greater labor costs associated

with increased UBI income. Yetman (2000) used a similar approach and estimated that nonprofits report on their UBIT returns from \$500 million to \$2.3 billion per year more total expenses than they actually incurred—charging joint costs against the taxable income.²⁴

Conclusion

This paper examined the behavior of nonprofit organizations when they engage in commercial activities that are unrelated to their mission. In our model of nonprofit organization behavior there is only one reason for producing unrelated outputs—to generate profit for cross-subsidizing the Mission output, for the organization's goal is to maximize Mission output. We test in a number of ways whether nonprofits act like profit-maximizing firms in their revenue-generating “unrelated” business activities. One set of tests examined whether the choice of particular unrelated activities depends on the prospective profitability, which depends on the existence of complementarities between the Mission output and specific unrelated outputs. The six industries studied differ markedly in the unrelated business activities in which they engage, which is consistent with the two-good model, in which industries differ in their Mission-related technologies.

The model also implies that when nonprofits engage in unrelated activity they will seek to minimize profit taxation. We examine this implication in two tests, one involving spending on accounting services in order to reduce tax liabilities, and the other involving making greater use of depreciation charges so as to increase reported expenses and reduce taxable profit. We find supporting evidence for some industries, but not for others.

The two-good model of nonprofit organization behavior explains (1) why nonprofit organizations produce goods that are not their mission, (2) why nonprofits in various industries such as health care and higher education engage in distinctly different unrelated activities, (3) how nonprofits make use of accounting inputs to shift joint costs to the taxable activity and so to minimize tax liabilities on unrelated activity, and (4) how increased taxable income from unrelated activity can be diminished through use of depreciation accounting. The last two points are the likely explanations for the observed persistence of nonprofit organizations' *reported* losses on their revenue-generating UB activities. We conclude that further testing of this promising model of nonprofit organization behavior in pursuit of profit seems warranted.

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Table 1

Number of firms in the sample with 990 and 990T returns, by industry and year, 1993-97

	# of firms with 990 returns						# of firms with 990T returns					
	1993	1994	1995	1996	1997	Total	1993	1994	1995	1996	1997	Total
A	626	600	662	769	806	3463	155	161	185	210	191	902
B	2217	2156	2324	2580	2541	11818	541	552	585	617	578	2873
E	3741	3712	3908	4173	3834	19368	1179	1192	1250	1313	1250	6184
P	1344	1228	1396	1593	1770	7331	98	88	111	116	112	525
T	544	525	601	685	703	3058	60	52	59	76	67	314
U	115	113	125	130	120	603	43	45	54	50	46	238

Source: Our computations from IRS Form-990 and 990T returns.

Table 2

Mean gross and net UBI, accounting fees and depreciation over 1993-1997 (in current dollars)

Industry	Gross UBI	Net UBI	Acc. Fee	Depreciation
A	684,644	-295,471	55,048	998,718
B	578,919	-136,416	76,006	3,862,806
E	941,460	-410,857	105,047	6,928,622
P	114,125	-103,297	60,849	1,513,574
T	475,974	46,876	44,775	729,719
U	4,670,702	-283,090	69,786	1,648,267

Source: Our computations from IRS Form-990 returns.

Table 3

Mean net UBI for the firms that had non-positive net UBI in 1993 (in current dollars)

	1993	1994	1995	1996	1997
A	-309,355	-361,253	-458,189	-383,543	-349,316
B	-336,819	-377,295	-352,316	-337,644	-296,184
E	-534,872	-617,714	-712,949	-758,274	-811,499
P	-190,014	-243,102	-268,484	-314,670	-288,895
T	-90,382	-24,780	-98,062	-97,560	-91,937
U	-741,870	-958,563	-807,964	-1,035,216	-1,013,520

Source: Our computations from IRS Form-990 and 990T returns.

Table 4

Mean gross UBI for the firms that had non-positive net UBI in 1993 (in current dollars)

	1993	1994	1995	1996	1997
A	1,419,812	1,396,738	1,370,445	1,438,739	1,537,781
B	515,484	646,928	663,396	717,975	682,490
E	877,744	1,026,000	1,286,387	1,243,358	1,426,406
P	112,801	137,389	146,940	143,361	136,160
T	305,483	548,602	390,591	439,560	455,372
U	8,820,918	9,668,474	9,763,531	8,556,238	9,327,452

Source: Our computations from IRS Form-990 and 990T returns.

Table 5

Number of nonprofit organizations reporting non-positive net UBI in subsequent years, given that they reported non-positive net UBI in 1993

	1993	1994	1995	1996	1997
A	46	43	43	43	40
B	246	234	229	217	211
E	473	452	432	425	427
P	29	29	29	27	26
T	16	12	11	10	11
U	17	15	14	15	13

Source: Our computations from IRS Form-990 and 990T returns.

Table 6

Model 1: Gross UBI_t= + Net UBI_{t-1}

A	489987(139294)	-.512(.141)
B	512621(70884)	-0.222(0.053)
E	778100(51892)	-0.58(0.04)
P	79146(13609)	-0.06(0.036)
T	228979(47837)	-0.13(0.1)
U	4493393(1166462)	-2.7(.96)

Source: Our computations from IRS Form-990 and 990T returns.

Standard errors in parentheses.

Table 7

Percentage of nonprofit organizations engaging in specified unrelated business activities, by industry, 1990-1997, for all activities engaged in by at least 5 percent of the SOI sample

	1330	2720	4830	4898	5811	5812	5947	7010	7210	7310	7388	7991	7998
A	1.07	1.97	10.7	7.69	2.33	1.97	3.76	0	0	41.5	6.26	0	1.79
B	1.87	0.04	1.19	0.9	5.64	2.95	0.37	5.04	0.26	15.1	6.91	5.23	11.3
E	0.06	0	0	1.2	3.88	0.82	0.12	0.22	6.92	1.14	6.52	1.16	0.1
P	0	0	4.4	0	3.14	0	9.43	0.63	0	15.7	4.4	0.63	1.89
T	8.42	0	0	0	0	5.26	2.11	0	0	31.6	16.8	0	2.11
U	1.46	5.34	0	0	2.43	0	0	0	0	59.7	14.6	0	0
	8060	8071	8098	8220	8351	8399	8735	8745	8980	9000	9400	9999	
A	0	0	0	0	0.18	0	0	0	3.22	0.54	2.86	9.3	
B	0	0.9	0.19	5.71	0.75	0.04	0.45	0.6	8.62	0.86	3.99	14	
E	8.44	39.7	15.3	0.01	1.71	0.37	0.16	5.59	7.1	0.3	0.24	7.64	
P	0	0	4.4	0	6.29	6.92	0	3.77	1.26	0	2.52	23.3	
T	0	1.05	3.16	0	0	0	1.05	0	6.32	15.8	0	6.32	
U	0	0	0	0	0	0	8.25	0.97	9.71	0	7.28	11.7	

Source: Our computations from IRS Form-990 returns.

Table 8

Model 2: Net_UBI = $\beta_0 + \beta_1 * \text{Gross_UBI} + \beta_2 * \text{Acc_Fees} + \beta_3 * (\text{Acc_Fees})^2 + \epsilon$

		¹	²	³
	(1)	(2)	(3)	(4)
A	-62893(79996)	-0.04(0.03)	-5.25(1.02)	0.0000027(0.0000006)
B	-127052(27356)	0.23(0.01)	-2.13(0.21)	0.00000043(0.000000058)
E	-293998(18089)	-0.11(0.01)	-0.11(0.06)	0.000000007(0.000000005)
P	-1486(20308)	-0.55(0.06)	-1.68(0.22)	0.00000043(0.000000055)
T	-44231(45891)	0.51(0.02)	-5.98(0.94)	0.000008(0.0000015)
U	32654(120764)	-0.03(0.01)	-3.38(1.91)	0.0000036(0.000003)

Source: Our computations from IRS Form-990 and 990T returns.

Standard errors in parentheses.

Table 9

Percentage of Organizations Reporting Zero Depreciation on Their Form-990 Returns, by Form 990T Filing Status and Industry

	Filing 990T			Non-filing 990T			
	# with 0 depr	Total #	Percent	# with 0 depr	Total #	Percent	Ratio (6)/(3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	39	902	4.32	520	2561	20.30	4.7
B	262	2873	9.12	3414	8945	38.17	4.2
E	111	6184	1.79	1615	13184	12.25	6.8
P	18	525	3.43	670	6806	9.84	2.9
T	36	314	11.46	1118	2744	40.74	3.6
U	7	238	2.94	73	365	20.00	6.8

Source: Our computations from IRS Form-990 returns.

Table 10

Effect of UBIT (Form 990T) Filing Status on the Probability of Reporting Positive Depreciation on Form 990 Return, by Industry

	Constant	Assets		Increase in Probability of Reporting Depreciation (%)
	(1)	(2)	(3)	(4)
A	0.38(0.41)	-6.56E-9(3.19E-9)	2.74(0.46)	49.6
B	1.25(0.21)	6.45E-10(4.94E-10)	0.89(0.22)	13.3
E	3.06(0.36)	1E-8(3.93E-9)	1.21(0.37)	1.8
P	1.72(0.5)	6.44E-8(7.19E-8)	1.96(0.85)	5.6
T	0.37(0.9)	6.67E-7(4.43E-7)	1.5(1.07)	0.1
U	-0.45(0.65)	7.52E-8(5.03E-8)	2.8(0.74)	27.0

Source: Our computations from IRS Form-990 returns.

Standard errors in parentheses.

Table 11

Effect of UBIT (Form 990T) Filing Status on the total amount of Depreciation Reported on Form 990 Return, by Industry (Tobit regression)

	Constant	Assets	—	Percentage Increase in Reported Depreciation
	(1)	(2)	(3)	(4)
A	-413503(271290)	0.031(0.001)	784474(276342)	74.9
B	-1098640(474825)	0.051(0.0006)	863840(486891)	25.2
E	539144(153637)	0.085(0.0003)	731849(154775)	11.5
P	-269480(138677)	0.103(0.0015)	-216151(161555)	-19.3
T	-156428(167041)	0.046(0.0041)	255167(174334)	51.2
U	105576(518100)	0.094(0.0048)	-206672(539149)	-8.8

Source: Our computations from IRS Form-990 and 990T returns.

Standard errors in parentheses.

Table 12

Effect of Gross UBI on the total amount of Depreciation Reported on 990 Return, by Industry (Tobit regression)

	Constant	Assets	GrUBI
	(1)	(2)	(3)
A	292345(55059)	0.03(0.001)	0.12(0.016)
B	-291900(118554)	0.05(0.0007)	0.019(0.02)
E	1091749(41731)	0.084(0.0003)	0.22(0.015)
P	-323020(80993)	0.103(0.001)	-0.46(0.16)
T	85917(62880)	0.05(0.004)	-0.12(0.2)
U	-148934(171370)	0.105(0.008)	-0.032(0.02)

Source: Our computations from IRS Form-990 returns.

Standard errors in parentheses.

Table 13

Effect of Gross UBI on the total amount of Depreciation Reported on Form 990T return, by industry (Tobit regression)

	Constant	Depr	GrUBI
	(1)	(2)	(3)
A	-417604(30105)	0.1(0.01)	0.004(0.008)
B	-92887(4629)	0.002(0.0003)	0.03(0.001)
E	-117478(3966)	0.002(0.0002)	0.02(0.001)
P	-892017(86221)	0.005(0.009)	0.38(0.1)
T	-115410(17201)	0.016(0.004)	0.008(0.003)
U	-1213360(188577)	0.12(0.03)	0.02(0.007)

Source: Our computations from IRS Form-990 and 990T returns.

Standard errors in parentheses.

Appendix

Table A

Code	Industry	# of firms with 990 returns	# of firms with 990T returns
A	Arts, Culture, and Humanities	3463	902
B	Education	11818	2873
C	Environmental Quality, Protection, and Beautification	603	106
D	Animal-Related	511	164
E	Health – General and Rehabilitative	19368	6184
F	Mental Health, Crisis Intervention	1070	95
G	Diseases, Disorders, Medical Disciplines	566	130
H	Medical Research	614	65
I	Crime, Legal Related	266	16
J	Employment, Job Related	476	34
K	Food, Agriculture, and Nutrition	134	14
L	Housing, Shelter	2670	62
M	Public Safety, Disaster Preparedness, and Relief	157	21
N	Recreation, Sports, Leisure, Athletics	585	124
O	Youth Development	701	53
P	Human Services - Multipurpose and Other	7331	525
Q	International, Foreign Affairs, and National Security	496	65
R	Civil Rights, Social Action, Advocacy	79	26
S	Community Improvement, Capacity Building	808	59
T	Philanthropy, Voluntarism, and Grantmaking Foundations	3058	314
U	Science and Technology Research Institutes, Services	603	238
V	Social Science Research Institutes, Services	116	32
W	Public, Society Benefit - Multipurpose and Other	325	55
X	Religion Related, Spiritual Development	596	63
Y	Mutual/Membership Benefit Organizations, Other	529	18
Z	Unknown	49	3

Source: Our computations from IRS Form-990 returns.

Table B

Unrelated Business codes

Agriculture, Forestry, and Fishing	Nondepository credit institutions
400 Agricultural Production	6140 Personal credit institutions, including mutual benefit associations
600 Agricultural services (except veterinarians), forestry, fishing, hunting, and trapping	6199 Other nondepository credit institutions
740 Veterinary services	6200 Security, commodity brokers, dealers, exchanges and services
Mining	Insurance
1330 Crude petroleum, natural gas, and natural gas liquids	6310 Life insurance
1399 All other mining	6321 Accident and health insurance
Construction	6324 Hospital and medical service plans
1510 General building contractors	6330 Fire, marine, and casualty insurance
1798 All other construction	6370 Pension, health, and welfare funds
Manufacturing	6398 All other insurance carriers
2000 Food and kindred products	6410 Insurance agents, brokers, and services
2100 Tobacco manufacturers	Real estate
2200 Textile mill products	6512 Operators of nonresidential buildings
2300 Apparel and other textile products	6513 Operators of apartment buildings
2400 Lumber and wood products, except furniture	6515 Operators of residential mobile home sites
2500 Furniture and fixtures	6518 Real estate agents and managers
2600 Paper and allied products	6550 Land subdividers and developers
Printing, publishing, and allied industries	6599 Other real estate
2710 Newspapers	Holding and other investment companies, except bank holding companies
2720 Periodicals	6730 Trusts
2730 Books	6797 Investment clubs
2750 Commercial printing (except advertising)	6798 Miscellaneous holding and investment offices
2770 Greeting cards	Hotels, rooming houses, camps, and other lodging places
2799 All other printing and printing trade services	7010 Hotels and motels
2800 Chemicals and allied products	7020 Rooming and boarding houses
2900 Petroleum refining and related industries (including those integrated with extraction)	7030 Camps and recreational vehicle parks
3000 Rubber and miscellaneous plastics products	7040 Organization hotels and lodging houses, on membership basis
3100 Leather and leather products	Personal services
3200 Stone, clay, glass, and concrete products	7210 Laundry, cleaning, and garment services
3300 Primary metal industries	7298 Miscellaneous personal services
3400 Fabricated metal products, except machinery and transportation equipment	Business services
3500 Industrial and commercial machinery and computer equipment	7310 Advertising (including printing)
3600 Electronic and other electrical equipment and components, except computer equipment	7331 Direct mail advertising services
3700 Transportation equipment	7334 Photocopying and duplicating services
Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks	7345 Building cleaning and maintenance services
3841 Surgical and medical instruments and apparatus	7352 Medical equipment rental and leasing
3842 Orthopedic, prosthetic, and surgical appliances and supplies	7360 Personnel supply services
3899 Other instruments; photographic and optical goods; watches and clocks	7371 Computer programming services
	7374 Computer processing and data preparation, and processing services
	7377 Computer rental and leasing
	7378 Computer maintenance and repair
	7388 Other business services

3900 Miscellaneous manufacturing industries	7500 Automotive repair, services, and parking
Transportation	7600 Miscellaneous repair services
4117 Sightseeing buses	7800 Motion pictures
4118 Ambulance service(local)	
4140 Bus charter service	
4199 Other local and suburban transit and interurban highway passenger transportation	Amusement and recreation services
4724 Travel agencies	7910 Dance studios, schools, and halls
4725 Tour operators	7920 Theatrical producers (except motion pictures), bands, orchestras, and entertainers
4799 All other transportation	7933 Bowling centers
Communication	7940 Commercial sports
4830 Radio and television broadcasting	7991 Physical fitness facilities
4898 Other communication services	7992 Public golf courses
4900 Electric, gas, and sanitary services	7996 Amusement parks
Wholesale trade	7997 Membership sports and recreation clubs
5000 Durable goods	7998 Amusement and recreation services, not elsewhere classified
5100 Nondurable goods	
Retail trade	Health services
5200 Building materials, hardware, garden supply and mobile home dealers	8010 Offices and clinics of doctors
5300 General merchandise stores	8020 Offices and clinics of dentists
Food stores	8045 Offices and clinics of other health practitioners
5410 Grocery stores	8050 Nursing and personal care facilities
5460 Bakeries	8060 Hospitals
5495 Health food stores	8071 Medical laboratories
5498 Other food stores	8072 Dental laboratories
5500 Automotive dealers and gasoline service stations	8080 Home health care services
5600 Apparel and accessory stores	8094 Specialty outpatient facilities
Home furniture, furnishing, and equipment stores	8095 Blood banks
5734 Computer and computer software stores	8096 Invitro fertilization
5799 Home furniture, furnishings, and other equipment stores	8097 Family planning clinics
Eating and drinking places	8098 Health and allied services, not elsewhere classified
5811 Caterers	8100 Legal services
5812 Other eating places	
5813 Drinking places (alcoholic beverages)	
Miscellaneous retail	Educational services
5910 Drugstores and proprietary stores	8210 Elementary and secondary schools
5930 Used merchandise stores	8220 Colleges, universities, and professional schools
5941 Sporting goods stores and bicycle shops	8240 Vocational schools
5942 Book stores	8298 Schools and educational services, not elsewhere classified
5947 Gift, novelty, and souvenir shops	
5961 Catalog and mail order houses	
5992 Florists	Social services
5994 News dealers and newsstands	8320 Individual and family social services
5995 Optical goods	8330 Job training and vocational rehabilitation services
5996 Hearing aids	8351 Child day care services
5997 Orthopedic and artificial limbs stores	8361 Residential care
5998 Miscellaneous retail stores	8399 Social services, not elsewhere classified
Depository institutions	8400 Museums, art galleries, and botanical and zoological gardens
	Engineering, accounting, research, management, and related services
	8712 Architectural services
	8715 Engineering and surveying services
	8720 Accounting, auditing, and bookkeeping services
	8734 Testing laboratories
	8735 Research and development
	8745 Management and management consulting services
	8980 Miscellaneous services

6020	Commercial banks, including bank holding companies	Other
6030	Savings institutions	9000 Unrelated debt-financed activities other than rental of real estate
6060	Credit unions	9100 Investment activities by section 501(c)(7),(9), or (17) organizations
6098	Other depository institutions	9200 Rental of personal property
		9300 Passive income activities with controlled organizations
		9400 Exploited exempt activities
		9999 Other

Source: IRS codes for unrelated business activities used until 1997.

Table C

Similarities in unrelated business involvement (measured by the percentage of organizations involved in each activity, conditional on being involved in any unrelated business), for six industries. 1 indicates no significant difference (at the .10 level) in the percentages of organizations in each of the six industries engaged in that activity; 0 indicates a significant difference

Code Sim.									
400	0	5100	0	6513	0	7910	0	8400	0
740	1	5200	1	6515	1	7920	0	8715	0
1330	0	5300	1	6518	0	7940	0	8720	0
1798	0	5410	0	6530	1	7991	0	8734	0
2000	1	5460	1	6550	1	7992	0	8735	0
2710	1	5495	0	6599	0	7997	0	8745	0
2720	0	5498	1	6797	1	7998	0	8980	0
2730	0	5600	1	6798	1	8010	0	9000	0
2750	1	5734	0	7010	0	8020	1	9100	0
2770	1	5811	0	7020	0	8045	0	9200	0
2799	1	5812	0	7030	0	8050	0	9300	1
3000	1	5813	0	7040	1	8060	0	9400	0
3500	0	5910	0	7210	0	8071	0	9999	0
3600	1	5941	1	7298	0	8072	1		
3700	1	5942	0	7310	0	8080	0		
3841	1	5947	0	7331	0	8094	0		
3899	1	5961	1	7334	0	8095	0		
3900	1	5992	1	7345	0	8098	0		
4118	1	5995	1	7352	1	8100	1		
4140	0	5996	1	7360	1	8210	0		
4199	1	5997	1	7371	0	8220	0		
4724	0	5998	0	7374	0	8240	1		
4725	0	6060	1	7377	1	8298	0		
4799	0	6199	1	7378	1	8320	1		
4830	0	6310	1	7388	0	8330	1		
4898	0	6321	0	7500	0	8351	0		
4900	1	6410	1	7600	1	8361	1		
5000	1	6512	0	7800	0	8399	0		

Source: Our computations from IRS Form-990 returns.

Notes

¹ Contrary to popular view, nonprofits are not legally precluded from earning profit, and profit is not taxed if the activity generating it is substantially related to the tax-exempt mission. Nonprofits are, however, constrained as to how profit is used; a “nondistribution constraint” (Hansmann 1980) prohibits distribution of profit to owners, trustees, or managers. Costs of enforcing this constraint, however, can be substantial.

² We note that greater cost complementarities do not necessarily lead to greater profits. If the demand for the good with smaller cost complementarities is larger than the demand for the good with larger cost complementarities, the organization could obtain greater profits from the good with smaller cost complementarities. However, all other things being equal, a nonprofit would prefer unrelated activities with greater cost complementarities.

³ Forthcoming, containing revisions of papers presented at the January 2002 NBER Conference on The Nonprofit Organization.

⁴ This is a variant of the model in James (1983). The main differences are that in our specification the objective function does not directly depend on the Revenue good, and the budget constraint accounts for taxation of unrelated activities.

⁵ Charitable donations, from private or governmental sources, are forms of R-goods in the sense that they are endogenous, influenced by fundraising efforts. See, for example, Weisbrod and Dominguez 1986 and Okten and Weisbrod 2000.

⁶ If the IRS regards a good as a taxable, UB, activity, even though the nonprofit regards it as an M-good, then a nonprofit organization would not seek to maximize profit in the taxable market.

⁷ It is not sufficient, however, for the organization also must maximize M, subject to the budget constraint. This causes complex incentive problems for motivating top management insofar as maximization of the budget constraint is easier to observe and, hence, to reward, than is M (Erus and Weisbrod 2003).

⁸ For some, perhaps, even most, nonprofits, R' might be empty. This would explain why only some 7-35 percent of the nonprofits in the six industries we study engage in any UB activity at all (see table 1). For a study of the characteristics of nonprofits that do and do not engage in UB activity see Hines (1999).

⁹ There might also be a profit potential for nonprofit producing goods that are complementary in *consumption* with Mission goods. For example, a museum or a hospital might find it profitable to operate a cafeteria for the convenience of their visitors.

¹⁰ Unrelated business activities that are engaged in only occasionally (“not regularly”), or “for the convenience of the organization’s members, students, patients, visitors, officers, or employees,” or that are produced by unpaid labor, are among the activities classified for tax purposes as “excluded” from taxation even though they are not substantially related to the tax-exempt mission.

¹¹ There is another reason why a nonprofit might not act as a profit-maximizer in some, though not in all, UB markets. If the nonprofit had a second source of R-good revenue, such as donations, and if that revenue was endogenous, so that, for example, an increase in profit on UB caused a decrease in donations, then a maximizer of M would maximize total revenue from all R goods, not revenue from each individual source (Cordes and Weisbrod 1998, Okten and Weisbrod 2000).

¹² In 1998, for example, 47.3% percent of the 46,208 filers of UBIT returns (Form-990T) reported profit of zero or less, and of those, 30.7% percent reported profit of exactly zero (Riley 2002). That suggests that joint costs were allocated to the taxable activity until the tax liability was reduced to zero. The potential

advantage of reporting a loss is that it may be carried forward and applied to future taxable profit. We find that industry T consistently reports larger percentages of profits of exactly zero than any other industry.

¹³ Organizations are required to file a Form-990T return if their gross UBI exceeds \$1,000.

¹⁴ The samples were drawn independently of each other. Afterwards, if a firm had a Form-990T return in the sample, but its Form-990 return is missing from the SOI sample, then the latter return was obtained and added to the sample of 990 returns.

¹⁵ Lack of profitability was also found using medians instead of means.

¹⁶ A similar set of computations was made based on an alternative criterion, the gross revenue received from each activity. For each code the percentage of total UB revenue that came from that source was calculated. A “bootstrap” computation with 1000 repetitions was performed to construct 90 percent confidence intervals around those percentages, and to examine whether the overlap of confidence intervals across industries. Results, not shown but available from the authors, are quite similar to those in appendix table C. Rather than 50 of the 125 codes displaying no significant differences across industries, this method finds 47 of the 125.

¹⁷ Accounting Fees are taken from the line 31(A) on Form-990.

¹⁸ We thank Elizabeth Keating for pointing out that reported accounting “fees” may understate total accounting expenditures, and, perhaps, more so for the large firms that might employ their own accountants and include the expenses in “salaries and wages”.

¹⁹ Using the estimated coefficients from table 8 we can calculate the optimal (profit-maximizing) level of accounting fees and compare it to the actual numbers. Assuming, for simplicity, that the organizations confront a marginal UBIT rate of about one-third, $\beta_2 + 2 * \beta_3 * \text{Acc_Fee}$ larger than three would imply that optimal accounting fee expenditures are greater than zero. The relationships between optimal and actual accounting fees are mixed. For industries A, T, and U we cannot reject the hypothesis that the nonprofits in these industries spend optimal amounts on accounting services. For two of those industries, T and U, the optimal accounting fees are actually very close to the mean level of accounting fees. For industries B, E, and P, by contrast, the β_2 coefficients imply that there is over-spending on accounting fees. The coefficients are so small that the optimal accounting fees are zero. Further research on this subject is needed, particularly since we lack data on accounting expenditures that may be included in “salaries and wages,” and on the use of volunteer accounting services.

²⁰ We measure depreciable assets by the sum of lines 53a and 55a on the IRS Form-990 return.

²¹ Line 21 on Form-990T.

²² Replication of table 12 was performed for disaggregated industries (B42—Undergraduate College, B43—University or Technological Institute, E22—Hospital, General, and E24—Hospital, Specialty), but produced essentially the same results.

²³ Many organizations report zero depreciation on line 21 of 990T returns (ranging from 60% to 86% depending on the industry), even though most of those report depreciation on their 990 returns. One possible explanation is that the nonprofits use line 21 only to report depreciation that was not reported elsewhere on the 990T return, and that the depreciation is included elsewhere, such as in “cost of goods sold” or subtracted as expenses from “rent income,” where it cannot be identified. In this case line 21 understates the true amount of depreciation charged on 990T return, and the coefficient β_1 from model 4 is biased downward. However, we find no significant differences between nonprofits with zero and nonzero depreciation reported on 990T, in gross UBI. Thus, we believe that the coefficient β_2 is unbiased by what appear to be random decisions to report depreciation on line 21 or elsewhere on the 990T return.

²⁴ The empirical approach used by both Cordes and Weisbrod (1998) and Yetman (2000) is conceptually flawed. It estimates an equation of the following type, to determine the true effect of UB activity on total costs:

$$\text{Total Expenses} = \alpha + \beta_1 * \text{Gross UBI} + f(\text{other revenues}) + \epsilon$$

The objective is to estimate the true incremental cost to the nonprofit of increasing UB output, for a given level of other, mission, output. The output of mission goods or of unrelated goods, however, is not observed. The proxies used are gross revenues from those activities, as reported to the IRS. Since mission output is often given away, however, the revenue it generates is a downward-biased estimate of mission output. To see the problem, consider two cases: (1) a nonprofit organization generates \$100 in gross revenue from UB activity, incurs no incremental costs in doing so, and then uses the \$100 profit to cross-subsidize its mission output. (2) The nonprofit generates \$100 in gross revenue from UB activity, incurs \$100 in added cost, and earns zero profit. In both cases, total organization revenue from UB activity and total additional organization expenditures would be \$100. The point is that with the available data one cannot identify the true profitability of the reported UB activity.