Nonpro t tax exemptions and market structure: The case of tnesscenters

1 Introduction

of largely independent local rms linked by a common mission. We then present in section 3 an empirical equilibrium model of entry by ownership type, allowing for type-s87(an)88(cing)-2d3erencesfor igan

dominant rm type with Young Women's Christian Associations (YWCAs) and Jewish Community Centers (JCCs) following as fringe competitors. Using our selected markets as an example, there

communicates the message to national audiences; in 2010 the National Council spent $1.4 million on lobbying expenditures.[4] The National Association also works directly with local YMCAs by

The market share garnered by these YMCAs also does not appear to be concentrated to limited market areas. Table 1 presents general demographic characteristics for 7,744 Census places or

tax rates into $_m$. The after-tax payo function is therefore:

$$
\begin{aligned}
_{FP;m} &= {}_{FP;m}(1 \quad {}_m) \qquad (4)\\
&= \exp(X_m \ {}_{FP} + g(N_{FP;m};\ {}_{FP}) +
\end{aligned}
$$

equilibrium of the resulting discrete game is a for-pro t/nonpro t entry con guration, (N_{FP}, I_{NP}), such that given the entry decision of the nonpro t, all N_{FP} for-pro t rms make positive pro t, while an additional rm would earn negative pro t. Similarly, an entering nonpro t needs to earn positive value given the for-pro t competition it faces. Formally, the equilibrium conditions describing an optimal rm-con guration are:

$$\begin{aligned} {}_{FP;m}(N_{FP}; I_{NP}) &\quad 0 \\ {}_{FP;m}(N_{FP} + 1; I_{NP}) &< 0 \\ {}_{NP;m}(N_{FP}) &\quad 0 \end{aligned} \tag{9}$$

Substituting for the value and taking logs results in the following equilibrium condition governing nonpro t entry:

$$\ln({}_{NP;m}) = X_m {}_V + h$$

competition by ownership type resemble studies such as Mazzeo (2002) and Schaumans and Ver-

We integrate the joint probability distribution $f(\varepsilon_{FP;m}, \varepsilon_{NP;m})$ numerically over the region of the $(\varepsilon_{FP;m}, \varepsilon_{NP;m})$ space that corresponds to the observed outcome. As in Mazzeo (2002), we employ smoothed simulated maximum likelihood to select the payo function parameters that maximize

full-service tness facilities.[9] In addition, we removed any duplicates in which seemingly di erent facilities were located at the same address.

The resulting sample contains 2,117 tness facilities. In our analyses below, we treat the rms

since 1984 or earlier, compared to 2003 for the median for-pro t rm. Beyond the di erence in organizational form, non- and for-pro t rms thus di er signi cantly along other dimensions as well, justifying investigating the nonpro t entry decision separately from the for-pro t side.

terquartile range of 741 to 4,628 [11]

There are also a number of factors that we believe to increase the likelihood of entry for the YMCA, yet are unlikely to impact a for-pro t's entry decision (except indirectly through competitive interaction). The core mission of promoting Christian values suggests that the overall religious a liation of the population may play a role, which we capture with the county's share of Christian adherents. In addition, given that many YMCAs also provide child care and after-school services, we include the percentage of children 9 and under in the nonpro t value function. Finally, we use the full YMCA corporate tree to calculate, for a given market *m*

a of for-pro nonpro t rms.

The nonlinear FP competitive e ects ($_1$ $_6$ given in columns 2 and 3) are insigni cant. In fact,

functional form speci cations for competitive interaction. We allow for nonlinear cross-competitive

8, we construct a variable *AtRisk* equal to the di erence between the predicted base probability of entry (*P B*

tax revenues as seen in Table 11. The first assumes NPs would pay the same amount of taxes as the average FP in a particular market while the second uses our data on the assessed value

Our results provide evidence that revocation of nonpro t property tax exemptions would de-

References

Ballou, J. P. (2008). Do nonpro t and government nursing homes enter unpro table markets?, *Economic Inquiry* 46(2): 241{260.

Berry, S. T. (1992). Estimation of a model of entry in the airline industry, *Econometrica* 60(4): 889{917.

Bresnahan, T. F. and Reiss, P. C. (1990). Entry in monopoly markets, *The Review of Economic Studies* 57(4): 531{553.

Bresnahan, T. F. and Reiss, P. C. (1991). Entry and competition in concentrated markets, *The Journal of Political Economy* 99(5): 977{1009.

Harrison, T. D. (2008). Taxes and agglomeration economies: How are they related to nonpro t
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Figures and Tables

Figure 1: Sample Markets (n=629)

Table 1: Descriptive Statistics, US and Select Markets

	Markets with 1 YMCA

Table 3: Descriptive Statistics, Pro t Shifters

	All Markets	Markets w/ FPs	Markets w/ NP

Table 4: Single-Equation Ordered Probit Models of the Numbers of For-Profit and Nonprofit Firms

	Number of For-Profit Firms		Presence of Nonprofit Firm		
	(1)	(2)	(3)	(4)	(5)
Log of Pop	1.696***	1.849***	0.934***	1.329***	1.325***
	(0.092)	(0.101)	(0.103)	(0.150)	(0.158)

Table 5: Endogenous Ownership-Type Model Estimates: Most Pro table Type Moves First

Table 8: Crowd-Out and the Role of Tax Exemptions in A ecting Market Structure

	Base	No nonpro t	Tax increase	e (ax)-3ease(3(Exempture)]TJ ET

Table 9: Probit Models of Nonpro t's Decision to O er Youth Services

	Probit (1)	Biv Probit, Youth Program & Fitness Ctr (2)	Probit (3)	(4)
Day care				
Log of Pop	0.800***	0.888***	0.310**	0.596**
	(0.189)	(0.173)	(0.125)	(0.245)
Log of Income	4.533***	3.961***	1.810*	2.103*
	(0.898)	(0.831)	(0.927)	(1.140)
Median Age	0.052*	0.047	0.044	0.033
	(0.029)	(0.030)	(0.032)	(0.042)
Perc BA+	4.957***	3.973**	3.721**	

Table 10: E ect of Fitness Center Exits on Nonpro t's Decision to O er Youth Services

	Probit Model of Youth Service O ering		
	(1)	(2)	(3)
Day care			
Exit of Fitness Center Y/N	0.004		
	(0.300)		
Decrease, Fitness Ctr Entry Probability		2.200	
		(1.409)	
Above-Median Decrease in Entry Probability Y/N			0.296*
			(0.167)
Loss of Programs	0	19	31
Share of Programs Lost	0.003	0.126	0.208
After school programs			
Exit of Fitness Center Y/N	0.569		
	(0.480)		
Decrease, Fitness Ctr Entry Probability		5.573**	
		(2.544)	
Above-Median Decrease in Entry Probability Y/N			0.342*
			(0.205)

Appendix

A-1 Details on Variable Construction

In this appendix, we summarize the variables used to construct the weather, health, and xed cost indices. In each case, we implement principal components factor analysis (PCFA), rotate the factor

A-2 Robustness: Endogenous Ownership-Type Model