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The marketisation of charities in England and Wales

Stephen McKay, Domenico Moro, Simon Teasdale and David Clifford

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Abstract

Much has been written about the reasons for and impact of marketisation on charities, their clients, and wider civil society. A central component of the marketisation thesis is that charities are substituting grants and donations with commercial revenue. However there is no consensus in the existing literature as to whether the two sources of revenue are substitutes or complementary. This paper shows that between 2003 and 2007 there was a significant increase in the proportion of overall revenue attracted from commercial sources by charities in England and Wales. Using our preferred Generalised Method of Moments (GMM) estimation model we show that the annual persistence of commercial revenue over time was 44%. In particular, a +10% change in grants and donations was associated with a -3.1% change in commercial revenue. Thus commercial revenue is an inelastic substitute for grants and donations. We therefore conclude that charities are succumbing to market forces.

Keywords

Charities, marketisation, nonprofit, crowding out, substitution effect.

JEL Classifications: C23 - Models with Panel Data; Longitudinal Data; Spatial Time Series; L31 - Nonprofit Institutions; NGOs ; P16 - Political Economy

Contents

1. Introduction

Charitable activity has traditionally caused much anguish for neoclassical economists as philanthropy, volunteering and co-operative behaviour fall outside of the scope of rational choice behaviour. Indeed, the very existence of charities poses fundamental questions to neoclassical economic theory (Halfpenny and Reid, 2002) which sees the world as bound by market exchange, rational choice and self-interested utility maximisation (Adaman and Madra, 2002). The economic explanation is to imply that charities exist because of imperfect or underdeveloped markets for public goods (Weisbrod, 1975). However they are productively inefficient when compared to the private firm due to their 'non-distribution constraint.' Effectively managers of charities have no incentive to minimise costs (Hansmann, 1987), and so are 'crowded-out' in fields where markets are well developed, but are over-represented in fields such as health and social services where many consumers are unable to pay a market rate for the goods they consume (Hansmann, 1987). If conventional economic theory treats charities as an inefficient anomaly then the 'solution' is to propose that they behave as private firms in efficient markets. Achieving this 'solution' necessitates improving the operation of markets for public goods, and introducing market discipline to charities (Tsakalotos, 2005).

It would *appear* that this neo-classical 'solution' is occurring in some countries. Since the 1980s Governments of both major parties in the United Kingdom have attempted to create more efficient markets for public goods through opening up the market for delivery of public services to providers from private and third sectors on a 'best value' basis (Newman, 2007). This process accelerated under the recent New Labour government as charities were given an enhanced role in economic policy (Haugh and Kitson, 2007). Another increasingly important aspect to this *marketisation* of the nonprofit sector involves the direct sale of goods and services by charities to consumers (Eikenberry and Kluver, 2004), and a more recent innovation, the creation of subsidiary social enterprises with the primary aim of providing employment to clients (Teasdale, 2010). Business and management scholars have turned their attention to nonprofits en masse to help them adapt to their new commercial environment (Dey and Steyaert, 2010). A range of 'how to' texts set out simple steps for nonprofits to follow in order to avoid *dependence* on grants and donations by increasing their share of commercial revenue, and to become more *efficient* through the imposition of market discipline (see for example Dees et al. 2001).

A counter discourse warns of the dangers of this 'economic fallacy'. In seeing things through a neoclassical lens that excludes the possibility of behaviour not bound by market exchange and rational choice (Adaman and Madra, 2002) we risk creating a world which loses sight of those values such as reciprocity, philanthropy and democracy (Tsakalotos, 2005). The study of nonprofits through this lens has valorised a particular income source – commercial revenue (Eikenberry, 2009), and a particular form – the social enterprise (Dey and Steyaert, 2010). As a consequence it is argued that nonprofits are behaving more like businesses in replacing traditional sources of revenue with commercial

revenue because they are expected, or even compelled to do so, rather than any rational assessment of the financial and social implications (Dart, 2004; Eikenberry and Kluver, 2004).

The purpose of this paper is not to further develop the literature explaining marketisation and its consequences. For while much has been written about the reasons for, and implications of, charities succumbing to market forces, rather less attention has been paid to developing the evidence base to support (or deny) the underlying assumptions upon which the marketisation thesis rests. In this paper we address this deficit by answering the critical question: *are* charities substituting commercial revenue for grants and donations, or are the two income sources in fact complementary? To do this we constructed a large panel data set derived from registered general charities' annual returns to the Charity Commission for England and Wales for the period 2002-2008.[1] These returns were each analysed to determine the proportion of revenue attracted through commercial sources (fees for goods and services; and surplus generated from subsidiary trading operations), and voluntary income (grant and private donations).[2] All charities were classified according to the International Classification of Nonprofit Organisations (ICNPO) system. Using our preferred Generalised Method of Moments (GMM) estimation model we found that commercial revenue was an inelastic substitute for grants and donations. Hence we conclude that charities in England and Wales are succumbing to market forces, albeit to a small extent.

2. The marketisation thesis

The term marketisation is used to refer to nonprofits becoming "more market driven, client driven, self-sufficient, commercial or business like" (Dart, 2004, p. 414) that is, adopting the languages, practices and funding mechanisms of the private sector. It is possible to distinguish between two broad but overlapping aspects of marketisation. The first involves nonprofits seeking to mimic the organisational structures, practices and languages of the private sector. To some extent this trend also involves the re-labelling of charitable activity as social entrepreneurship, and there is a wide literature developing that follows this tradition, particularly in business and management schools (see Dees, 2007). The second aspect of marketisation which particularly concerns us in this paper focuses more narrowly on the ways in which nonprofits are funded. That is a supposed transfer from grants and donations to commercial revenue.

Commercial revenue is itself a broad category (See Table 1) which is generally used to include program service fees; the sale of products not directly associated with the charitable activity; contracts to deliver services on behalf of a third party; profits from for-profit subsidiaries; and fees for endorsing products (Dart, 2004; Eikenberry and Kluver, 2004; Kerlin and Pollak, 2010).

[1] We dropped the year 2008 from the final model as there were changes in the way Guidestar UK classified commercial revenue leading to a discontinuity with previous data.

[2] Investment income is not explored further in this paper, as it makes up a relatively small proportion of charities aggregate income.

Table 1. Types of commercial revenue

Type of Commercial Revenue	Description
Fees for service	Payments from recipients receiving goods and services directly from the organisations.
Contracts to supply services	Payments from government or other third parties for goods and services supplied.
Sales of products not directly associated with charitable activity	Payments for products which are additional to the charity's core mission. For example the sale of Christmas cards.
For-profit subsidiaries	Profits derived from the activities of commercial organisations owned by the parent charity.
Fee for endorsing products (advertising revenues)	This relates to a trend in the US for nonprofits to develop commercial relationships with for-profit companies and receive funds for endorsing products.

While charities attracting commercial revenue is not a new phenomenon (Teasdale, 2010), it is widely accepted that their reliance on commercial sources has increased significantly since the 1970s, and now makes up the largest source of revenue in both the US (Kerlin and Pollak, 2010) and England and Wales (NCVO, 2010). This trend is widely attributed in the United States to a decline in government grants and private contributions in the 1970s and 1980s leading nonprofits to pursue new revenue sources (Dees, 1998; Eikenberry and Kluver, 2004; Froelich, 1999; Salamon, 1993; 1997). When counter posed with an aggregate increase in commercial revenue (Salamon, 1997), an assumption is made that commercial revenue was (and more importantly, remained) a substitute for grants and donations for the sector as a whole (Eikenberry, 2009).

However, a systematic analysis of trends in nonprofit commercial activity in the US between 1982 and 2002 shows that while commercial revenue rose by 219% over the period, private donations and government grants also rose (by 197% and 169% respectively) (Kerlin and Pollak, 2010). Other studies are inconclusive, and have drawn on small samples (LeRoux, 2005), focused on limited subfields within the sector (Guo, 2006; Kingma, 1995), or relied on changes between two time points rather than attempting to show trends (Foster and Bradach, 2005). Thus the only reliable evidence we have is that in the US there has been a gradual increase in the proportion of revenue attracted from commercial sources by nonprofits. This has been accompanied by a real increase in government grants and private giving to nonprofits over the same period (Kerlin and Pollak, 2010). But the marketisation thesis implies more than a gradual trend for charities to increase the proportion of their income attracted from commercial revenue. The term *marketisation* is used explicitly to refer to the *substitution* of traditional sources of nonprofit funding, that is grants and donations, by commercial revenues (Eikenberry and Kluver, 2004).

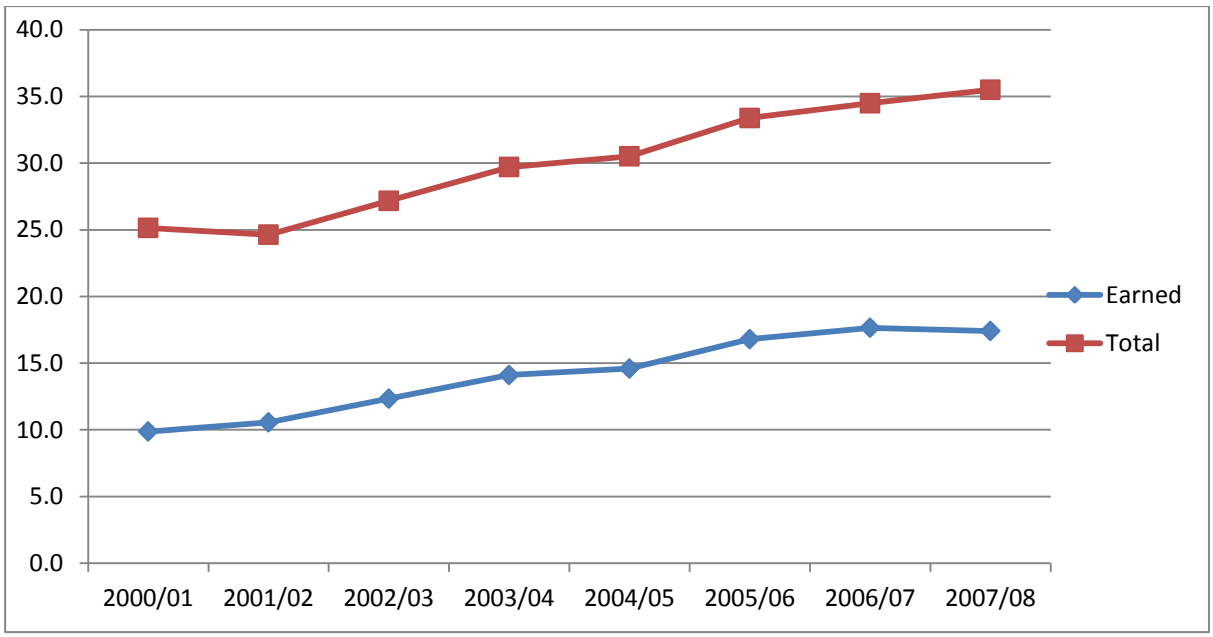
In England and Wales the changing political and economic environment during the period of Labour government between 1997 and 2009 are likely to have impacted upon charities' revenue streams. Nicholls (2010) shows that in the US foundations, such as the Ashoka and the Skoll

Foundation, funded by the private sector, and promoting the market logics of that sector, are the dominant drivers of the commercialisation of nonprofits. He notes that a major difference in England and Wales is the enhanced role played by government in coercing charities to become more business-like. For example, major grant programmes designed to facilitate charities becoming more sustainable through attracting commercial revenues, and the government's creation and funding of umbrella bodies to provide support to nonprofits attracting trading income (Carmel and Harlock, 2008; Haugh and Kitson, 2007).

A second institutional driver is the changing way in which government funds nonprofits in England and Wales. Under the recent New Labour government there was a pervasive belief that charities and other third sector organisations were best placed to deliver public services due to their responsiveness to the consumer (Haugh and Kitson, 2007). As the process of opening up public service delivery to a wider range of private and non-profit providers gathered pace in the new millennium, many charities saw increasing shares of their income derived through government contracts (Carmel and Horlock, 2008). Together these institutional drivers would suggest that under New Labour, charities in England and Wales have been 'encouraged' to replace grants and donations with commercial income, whether through the delivery of government contracts or the private sale of goods and services.

In England and Wales the annual Almanacs produced by NCVO (see NCVO, 2010) do demonstrate a gradual increase in reliance on commercial sources of revenue by charities since 2001 (see Figure 1). As in the US this increase in commercial revenue has been accompanied by a slightly smaller real terms increase in government and private giving to nonprofits. It would appear then that for the aggregate population of charities, commercial revenue and grants and donations are complementary as both sources have risen in tandem.

Figure 1. All general charities, commercial and total income since 2000/01 (£ billions) (derived from NCVO, 2010)



However it is not clear how the different income sources interact at the level of the individual charity. This is in part because, as in the United States (Kerlin and Pollak, 2010), the number of charities has also increased over the same time period (Backus, forthcoming), so demand for grants and donations (and indeed commercial revenue) may have risen faster than supply. Moreover, the period for which data is available has seen a dramatic increase in the aggregate funding available to charities, much of which came from statutory sources at a time when charities became a significant player in social and economic policy for the first time (Clifford et al, 2010; Haugh and Kitson, 2007).

Nonetheless, it might be that diversification of revenue streams offers net benefits to charities. Froelich (1999) argues that commercial income shows only moderate revenue volatility (see also Carroll and Stater, 2009), and is the most flexible and least restrictive source of income available to nonprofits. From this perspective, pursuing commercial revenue is a rational diversification to reduce resource dependence (Froelich, 1999; Caroll and Stater, 2009), as the two sources of income may be complementary (Yetman et al. 2009). This theoretical approach draws upon 'warm glow' theory developed by Andreoni (1990) to help explain altruism from a neoclassical perspective. Andreoni theorised that individuals derive utility (a warm glow) from the act of giving to nonprofits they perceive as successful. Warm glow theory is usually used to explain why government grants to nonprofits may not crowd out private donations. Those nonprofits which attract government funding have a higher profile and so might be perceived by donors as more successful, thus 'crowding in' additional resources (Andreoni and Payne, 2011; Rose-Ackerman, 1996). While few, if any, studies draw upon warm glow theory to understand how commercial income responds to a change in grants and donations, it is reasonable to surmise that governments might behave in the same way as private philanthropists, and hence offer contracts to those organisations they perceive as successful, as evidenced by their grants and donations from private sources. Similarly, private individuals or companies purchasing goods and services from charities might be expected to be attracted to those charities which have high levels of grants and donations. Thus as grants and donations increase so does commercial revenue.

To the best of our knowledge there are no studies in England and Wales which draw upon large scale data sets to determine whether commercial income is a substitute or complementary to grants and donations at the level of the individual charity. In the United States where data is available to conduct this analysis, most studies have treated grants and donations as the dependent variable (see for example Okten and Weisbrod, 2000; Yetman and Yetman, 2003). Even here the evidence is mixed. This is in part due to the methods employed, which are largely descriptive, or unable to incorporate a dynamic model which can control for time effects (Tinkelman and Neely, 2010). Where studies have investigated the impact of a change in grants and donations upon commercial revenue the evidence is inconclusive. Segal and Wisbrod (1998) draw upon a relatively small sample of 2,679 nonprofits observed between 1985 and 1993 and showed that after controlling for field and time effects there was a substitution effect in some industries but a complementary effect in others. The overall effect (-0.02) on the log of program service revenues (approximating to commercial revenue) of a one percent change in donations for the whole sample was not statistically significant. Segal and Wesibrod used a fixed effects model, probably the most appropriate technique at the time. However we show in our methodology section that econometric advances since their study mean that statisticians would not choose the same model today. Moreover technological advances in the processing power of computers now permit similar analyses to be carried out using larger samples, or

even the full population of charities. Therefore it remains unclear in the United States, and to the best of our knowledge has never been shown in England and Wales, whether charities are succumbing to market forces. Confirming (or denying) the marketisation thesis thus requires revisiting the research question (RQ1):

RQ1. *Is commercial revenue a substitute for grants and donations among charities?*

3. The data

In order to determine whether commercial revenue is a substitute for grants and donations, in charities, we constructed a large panel data set using data collated by Guidestar UK from registered charities' annual returns to the Charity Commission in England and Wales. This covered the period 2002-2007. We included only general charities in our analysis. Thus our findings exclude public schools, NHS administered charities, independent hospitals, churches, housing associations, and grant making trusts. Our initial panel consisted of 277,537 observations for all 80,589 general charities providing accounts to the Charity Commission between 2002 and 2007 (i.e. each charity provided an average of 3.4 observations).

To enable analysis by field of activity we matched all charities on our panel to the International Classification of Nonprofit Organisations (ICNPO) system originally developed by Salamon and Anheier (1998) to enable cross-national comparison between nonprofits operating in similar fields, using the ICNPO classification variable derived by NCVO[3] for all general charities in England and Wales.

Our main variables of interest are organisational size (*size*) (using overall income as an indicator); field of activity (ICNPO); overall income (*i*); voluntary income (*iv*); and commercial revenue (*is*). Commercial revenue provides our main dependent variable. Voluntary income (*iv*) was derived from the sub-categories of legacies; individual gift aid donations; individual non-tax effective donations; individual other donations; unspecified individual giving; and grants from other organisations (statutory and private). Commercial revenue (*is*) was derived from the sub-categories of: activities in furtherance of the charity's objects; activities for generating funds; income from trading subsidiaries (gross) and associated expenditure; and unspecified sales and fees from operating activities. In this analysis we did not use investment income and other income. Although our original panel had observations for overall income (*i*) for each organisation in the population, for many organisations Guidestar UK was unable to separate commercial revenue (*is*) from voluntary income (*iv*). These cases were treated as missing, and so many (predominately smaller) charities were excluded from our analysis.

Some commentators have warned of using English charity accounts to differentiate between income streams particularly for smaller charities (Clifford et al., 2010; Morgan, 2010). This is because only those charities with an income of £100,000[4] or more are required to publish accounts to the standards set out in the *Statement of Recommended Practice* (SORP) produced by the Accounting standards Board (Charity Commission, 2005). SORP standards provide detailed instructions for classifying different income sources. Therefore for those larger charities with an income of £100,000 or more, data pertaining to commercial revenue and voluntary income are expected to be relatively robust.

[3] Which is freely available at http://data.ncvo-vol.org.uk/?p=75 .
[4] This has since changed to £250,000

We considered further restricting our analysis only to charities with an income of £100,000 or more in each year of the study. However when we ran our model using only these charities we found that results were virtually identical to those obtained using all charities. Many smaller charities also prepare accounts to SORP standards, although they are not required to do so by law. It may be that the smaller charities in our panel are biased towards those that prepare accounts to SORP standards, as Guidestar UK would have found it easier to separate commercial revenue from grants and donations for these charities.

Our econometric analysis was conducted only using those organisations for which we have figures for total, commercial and voluntary income. The characteristics of this estimation sample are shown in Appendix A1. It is important to note the bias in our sample towards larger organisations which is to be expected given the reasons pertaining to SORP outlined above.

Figure 2 presents graphically the rise in commercial revenue for the different fields of activity for all charities in our panel where we have an observation for ***is*** and ***iv***, in both 2003 and 2007. First we note that reliance on commercial revenue has increased across (almost) all fields of activity.

Figure 2. Commercial revenue as percentage of total, by field of activity, in 2003 and 2007

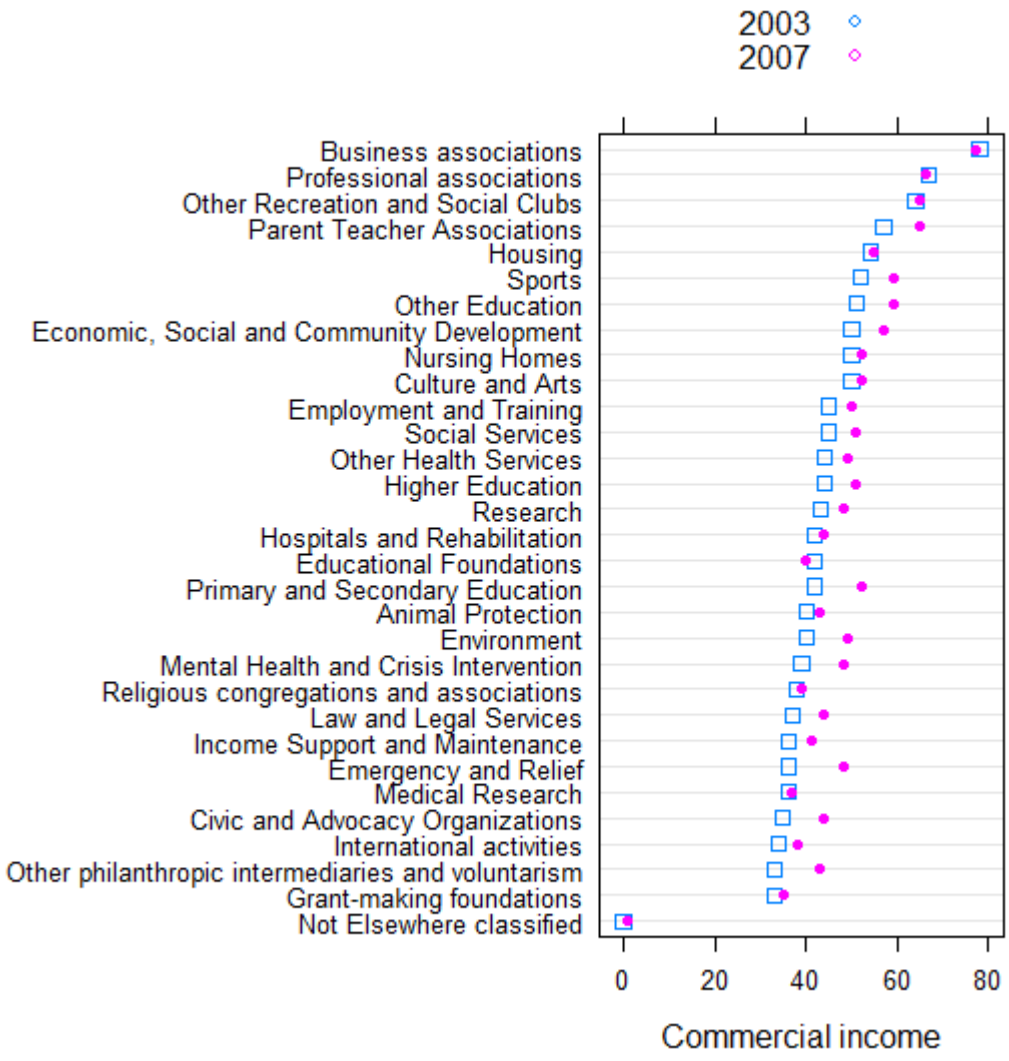


Table 2 begins to draw out the longitudinal element to our data. Here we see that the proportion of commercial revenue has risen in each year of our study, and that this appears to be partly, although not wholly associated with a decline in the proportion of voluntary income. This confirms existing findings from NCVO (2010) that charities' reliance on earned income has increased relative to other revenue sources since 2001 in England and Wales. The lower means for all income sources in 2006 shown in Table 2 are probably due to us having more observations from smaller organisations in this year.

Table 2. Changes in our variables of interest over time

Year	Mean Income	Mean Commercial revenue	% Commercial revenue	Mean Voluntary income	% Voluntary income	N. obs
2003	£967,272	£493,221	51%	£418,247	43%	15,412
2004	£1,085,852	£560,191	52%	£456,768	42%	14,317
2005	£1,195,861	£640,839	54%	£488,959	41%	14,042
2006	£991,565	£537,991	54%	£407,695	41%	18,385
2007	£1,186,960	£654,693	55%	£483,519	41%	15,468

Table 3 largely confirms findings from the US that larger nonprofits attract a higher proportion of income from commercial sources than smaller nonprofits (Fischer et al. 2007; Guo, 2006). A relatively small number of observations for organisations with an income above £100,000,000 means findings for this group (which over-represent medical research charities, and organisations not elsewhere classified) should be treated with some caution.

Table 3. Summary of proportion of total income that is commercial revenue in 2003-2007, derived using aggregate amounts for fields.

	% of overall income that is commercial revenue				
Income Band (£)	2003	2004	2005	2006	2007
0-9,999	44.9%	54.6%	54.6%	39.0%	44.7%
10k-99,999	46.9%	46.8%	47.0%	45.8%	49.0%
100k-999,999	49.8%	46.2%	47.6%	48.9%	50.8%
1,ML -10 ML	57.4%	53.5%	55.5%	58.1%	58.2%
10ML-100ML	55.8%	56.5%	55.4%	58.0%	61.5%
100 ML- Plus	35.2%	44.4%	52.1%	48.0%	44.0%
Average	51.0%	51.6%	53.6%	54.3%	55.2%
N. Charities	15,412	14,317	14042	18385	15468

4. Econometric strategy

In table 4 we show the correlations (all in log scale) between commercial revenue ($is_{i,t}$), total income ($i_{i,t}$) and voluntary income ($iv_{i,t}$). As can been seen, the bivariate relationships between all the variables are all positive, and are all statistically significant. This largely confirms the data presented by NCVO (2010) showing that for the population of charities before controlling for time and field effects, commercial revenue is complementary to grants and donations. It is worth noting the high association between commercial revenue in consecutive years within organisations, with a 0.86 correlation. This lends support to Froelich's (1999) argument that commercial revenue is relatively stable over time.

Table 4. Correlation matrix: income sources

	$\boldsymbol{is_{i,t}}$	$\boldsymbol{is_{i,t-1}}$	$\boldsymbol{i_{i,t}}$	$\boldsymbol{iv_{i,t}}$
$\boldsymbol{is_{i,t}}$	1			
$\boldsymbol{is_{i,t-1}}$	0.858	1		
$\boldsymbol{i_{i,t}}$	0.755	0.723	1	
$\boldsymbol{iv_{i,t}}$	0.277	0.299	0.672	1

In table 5 we describe how much income varies between organisations, and how much income occurs within them over time. The 'between' variation shows the variation between the average values in each organisation, the 'within' variation shows the degree of change for individual organisations over time compared to their own mean. For total income, around 77 per cent of the total variation is between organisations, and 23 per cent within organisations. These figures imply that the grouped nature of the organisational data needs to be captured in any statistical approach, as the observations are clearly not independent of each other.

Table 5. Total, between and within variation of incomes in the sample of charities analysed

		Standard Deviation				
	Mean	Total st. dev	Between	Within	n. charities	Observations
$i_{i,t}$	£1,080,025	8,216,884	6,364,110	1,151,771	33,581	77624
$iv_{i,t}$	£448,651	4,414,996	3,353,913	1,244,772	33,581	77624
$is_{i,t}$	£575,057	4,679,832	3,419,525	1,384,740	33,581	77624

Methodology

In order to determine whether commercial revenue is a substitute for grants and donations, and to estimate the strength of any substitution effect, we developed a multivariate analysis which captures the dynamic composition of charities' income over the period covered by our dataset.

All monetary variables are expressed at 2008 constant prices. We use the following specification (1) for charities (*i*) over time (*t*). Variables are expressed in natural logarithms and denote: commercial revenue ($\boldsymbol{is_{i,t}}$) and voluntary income ($\boldsymbol{iv_{i,t}}$). S is a set of sector dummy variables to control for possible effects of different areas of activity (ICNPO classification), T is a set of time dummies (yearly) to capture both the economic business cycle and the commercialisation effect over time. The last two terms are the components of the error term (with u_i capturing charity-specific so-called 'fixed effects').

Equation 1. Specification of our model

$$\ln(is_{i,t}) = \alpha_0 + \alpha_1 \ln(is_{i,t-1}) + \alpha_2 ln(iv_{i,t}) + \beta' S + \gamma' T + u_i + \varepsilon_{i,t} \quad (1)$$

$$i = 1, \dots, N; t = 1, \dots, T$$

In this equation *i* and *t* label charities and years respectively, $is_{i,t-1}$ is the one-period lag of the charity's (log) commercial revenue, and u_i is included to capture charity-specific unobservable characteristics. A negative α_2, would demonstrate that commercial revenue is a substitute for grants and donations, while a positive α_2, would demonstrate a crowding in or complementary effect.

The reasons for including the lagged dependent variable $is_{i,t-1}$ as an independent variable are both econometric and interpretative. From a methodological point of view, the persistence of commercial revenue is very high (ρ=0.86**)** (see Table 4). From an interpretative point of view any explanation of present commercial revenue necessarily involves considering the role of previous commercial revenue (Tinkelman and Neely, 2010).

There are several econometric issues that need to be considered in the estimation of equation (1).

- Voluntary income ($iv_{i,t}$), is assumed to be endogenous – part of the model rather than externally determined. Causality may run in both directions (commercial revenue affects grants and donations and vice versa), with the potential for voluntary income to be correlated with the error term.
- Time invariant charity characteristics ('fixed effects') may be correlated with the explanatory variables.
- The presence of the lagged dependent variable $is_{i,t-1}$ gives rise to a problem of autocorrelation in standard linear regression and fixed-effects models.
- The panel is unbalanced, with some charities having more observations than others. It has also a short time dimension with small T and large N.

The above dynamic specification cannot be correctly estimated by a standard pooled linear regression (pooled OLS). The error term is likely to be correlated over time for a given charity and this correlation violates an important assumption that is necessary for the consistency of OLS.

An intuitive way to address the fixed effect is to draw out the error term by entering dummy variables for each charity: the Least Squares Dummy Variables approach (LSDV). A similar way to

address the same problem is dividing the regression in two steps, first applying a mean-deviation transformation on each variable, than running an OLS on the transformed data. This is the within-group, or just 'within' estimator (WG), estimating the same coefficients as LSDV but with a slightly better standard error.

The LSDV and WG estimators are consistent only if there were no lags of the dependent variable (commercial revenue). However, in a dynamic model, the WG and LSDV estimators are biased (Nickell 1981; Roodman 2006). In order to eliminate such problems we use the General Method of Moments (GMM) adopting the approach of Arellano and Bond (1991) and Blundell and Bond (1998).[5]

Two different versions of GMM have been developed to estimate equation (1), based on different approaches to instrumental variables. We estimate both GMM-DIF (differenced – transforming the data) and GMM-SYS (system – instrumenting differenced values with levels). These are intended to deal with the endogeneity of some explanatory variables. We use the Sargan test (Sargan, 1958) and the Hansen test (Hansen, 1982) for over-identification of instruments and the first and second order serial correlations to choose our best specification of the model and the best set of instruments. The Sargan test (Sargan, 1958) and Hansen test (Hansen, 1982) require the non-rejection of the null hypothesis that the instruments are valid. The first and second order serial correlations test (Arellano and Bond, 1991) require the rejection of the null hypothesis of first order serial correlation and at the same time not rejecting the null hypothesis of second order correlation. We compute a robust Windmeijer (finite sample) corrected covariance matrix (see Windmeijer, 2005).

5. Results and interpretation

In estimating equation (1) we anticipate a positive α_1 capturing the persistence effect of previous commercial revenue. A negative α_2, would demonstrate that voluntary and commercial revenue are substitutes, while a positive α_2, would demonstrate that commercial and voluntary income are complementary. If α_2 were to vary considerably by field of activity this would show that any substitution effect between voluntary and commercial revenue varies significantly across fields of charitable activity in England and Wales between 2002 and 2007.

In table 6 we report the results of the estimation of equation (1) for the whole sample. In columns (1) and (2) we report OLS and fixed effects estimators, while in columns (3) and (4) the random effects and GMM-SYS are reported. Our most reliable benchmark is the last column (4). Since we know that the biases of OLS and fixed effects in estimating the coefficient on the lagged term coefficient are in opposite directions (Bond, 2002, pp. 4-5), the fact that GMM-SYS estimation of this coefficient lies between the two can be considered as confirmation of the adequacy of the chosen estimation methodology (Roodman, 2006). In terms of the standard GMM-SYS diagnostic test, the AR(1) and AR(2) tests are both reassuring, while the null hypothesis of correct instrumentation (Hansen test) is rejected at the 1% level. However, we are not overly worried by the failure of the test. Neither the Sargan nor Hansen tests should be relied upon too faithfully, as they are prone to weakness (Roodman, 2006, p. 12). In order to detect possible bias from multicollinearity we have calculated the

[5] Data processing was carried out using Stata 11, and GMM estimations were conducted using the routine xtabond2; see Roodman (2006) for details.

variance inflation factor (VIF) which ranged from 1 to 2.27, averaged 1.25, and never exceeded the threshold value of 5 (see O'Brien, 2007).

Table 6 shows that there is a lagged effect **(α_1)** on $ln\left(is_{i,t-1}\right)$ of 0.44 in our preferred model. Having controlled for the other variables in the model, this implies that 44% of commercial revenue is 'explained' by commercial revenue in the previous year, a strong but not overwhelming level of persistence of commercial revenue in the same organisations over time. This would suggest that previous assumptions in the literature that commercial revenue is stable over time, and thus marks a rational resource diversification for charities (Froelich, 1999) should be revisited using up to date models. The sign of the coefficient ***(α_2)*** demonstrates that other things remaining equal a 10% decline in voluntary income is associated with a 3.1% increase in commercial revenue. Thus we can say that, at least in a small way, commercial revenue is a substitute for grants and donations.

Table 6. Dynamic panel models of commercial revenue [*log(is)*[6]]

	(1) OLS	(2) Fixed effects	(3) Random effects	(4) GMM-SYS
$\ln\left(is_{i,t-1}\right)$	0.84	0.08	0.70	0.44
	[0.002]**	[0.043]**	[0.002]**	[0.021]**
$\ln\left(iv_{i,t}\right)$	0.0176	-0.177	-0.010	-0.312
	[0.002]**	[0.036]**	[0.024]	[0.161]*
Constant	1.75	11.62	3.30	9.34
	[0.285]**	[0.061]**	[0.03]**	[1.748]**
S	Yes	No	Yes	No
T	Yes	Yes	Yes	Yes
N Obs	77,624	77,624	77,624	77,624
R-sq	0.73	0.01	0.737	
Within		0.02	0.013	
between		0.07	0.737	
Hansen				6.22
p value				0.044
AR(1)				-19.76
p value				0.000
AR(2)				2.03
p value				0.042

[6] *significant at 5%;**significant at 1%

We repeated the estimation of equation (1) for each of ten broad groupings of ICNPO categories. This allowed us to estimate the persistence and substitution effects for the different nonprofit fields of activity. In table 7 we report the estimation of equation (1) for the five sub-groups, based on ICNPO, where the substitution effect varied significantly from general representative charities. We only report the GMM-SYS estimations, our preferred approach.

We found significant differences in the persistence of commercial revenue (α_1) across all fields of activity. This could be explained by the rapid changes in the policy environment effecting charities in some fields more than others. Certainly there would appear to be some (negative) connections between persistence effects and the extent of any substitution effect.

Of particular interest the substitution effect between voluntary and commercial revenue (α_2) varies significantly from general representative charities in four of the ten fields (see Table 7). The fields of social services (-0.70) and law, advocacy and politics (-0.56) showed a greater substitution effect than the average for all charities. It may be that these fields in particular saw an increase in government funding through contracts to deliver public services over the period. Certainly legal advice provision through Citizen's Advice Bureaux saw increased funding of this type over the period of New Labour government (Teasdale et al. forthcoming). Of particular interest is that for charities in the international field, commercial revenue is complementary to voluntary income. That is other things being equal, a 10% increase in grants and donations is associated with an 8.6% *increase* in commercial revenue.

Table 7. Statistically significant variations in substitution effect by field of activity, Dependent Variable log(is)[7], different ICNPO classification

ICNPO Field	n charities	Persistence effect	Substitution effect
Culture and arts	3,482	0.43*	-0.32
Social services	7,199	0.39*	-0.69*
Law and legal services	791	0.30*	-0.56*
International	941	0.59*	+0.86*
Overall model	33,581	0.44**	-0.31*

[7] *significant at 5%;**significant at 1%

6. Concluding remarks

We set out to explore whether charities in England and Wales were succumbing to market forces. Drawing upon a longitudinal dataset constructed from charities' annual returns between 2002 and 2007 we have confirmed existing findings that charities' reliance on earned income has increased relative to other revenue sources in England and Wales. The increase in commercial revenue occurred across almost all fields of activity.

Proving the marketisation thesis requires demonstrating that at the level of the individual charity, commercial revenue is a substitute for grants and donations. Using the GMM model to control for time and field effects, we have shown that commercial revenue was an inelastic substitute for grants and donations over the period. Hence we can say with some degree of certainty that charities in England and Wales are increasingly dependent on commercial revenue, and that this is an inelastic substitute for grants and donations. We thus conclude that charities are succumbing to market forces in England and Wales. We believe our study is the first to demonstrate and estimate this substitution effect in England and Wales.

Our research has implications beyond providing an underpinning to the theoretical literature on marketisation. One part of the existing literature posits that turning to commercial revenue is a rational diversification for nonprofits as this revenue source is more stable than, and complementary to, grants and donations (Froelich, 1999). In making use of the latest econometric techniques and controlling for time and field effects we have shown that commercial revenue is a substitute for grants and donations. The stability of commercial revenue may also be lower than has previously been assumed. This paper would suggest that more careful consideration of potential revenue sources may be required by charities in different fields. To better enable charities to make these choices, foundations, governments and academics across the world should once more turn their attention to the interaction between different revenue sources available to nonprofits, particularly now that the tools to permit more intricate analyses are available.

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Appendix

Table A1. Characteristics of our estimation sample by organisational field of activity (ICNPO). % Commercial revenue derived using aggregate amounts for fields.

ICNPO	n obs	n charities	average income 2003-2007	% commercial revenue in 2003	% commercial revenue in 2007
Culture and Arts	8,906	3482	£824,050	50%	52%
Sports	1,970	924	£860,974	52%	59%
Other Recreation and Social Clubs	552	322	£92,607	64%	65%
Primary and Secondary Education	6,327	3,177	£227,326	42%	52%
Parent Teacher Associations	1,194	748	£63,900	57%	65%
Educational Foundations	412	188	£297,724	42%	40%
Higher Education	176	72	£480,722	44%	51%
Other Education	1,027	394	£1,181,656	51%	59%
Research	2,002	809	£684,159	43%	48%
Medical Research	544	187	£8,535,987	36%	37%
Hospitals and Rehabilitation	1,976	805	£672,809	42%	44%
Nursing Homes	1,354	422	£2,675,890	50%	52%
Mental Health and Crisis Intervention	1,696	650	£1,150,115	39%	48%
Other Health Services	1,066	399	£2,030,645	44%	49%
Social Services	16,863	7,199	£1,399,546	45%	51%
Emergency and Relief	693	286	£1,897,619	36%	48%
Income Support and Maintenance	991	484	£686,581	36%	41%

Environment	2,179	863	£1,520,887	40%	49%
Animal Protection	1,944	714	£1,517,225	40%	43%
Economic, Social and Community Development	6,228	3,032	£287,323	50%	57%
Housing	2,603	1,061	£1,150,128	54%	55%
Employment and Training	1,228	485	£2,616,284	45%	50%
Civic and Advocacy Organisations	1,554	665	£668,857	35%	44%
Law and Legal Services	1,919	791	£657,369	37%	44%
Grant-making Foundations	2,016	992	£1,068,994	33%	35%
Other Philanthropic Intermediaries and Voluntarism	1,526	592	£1,023,099	33%	43%
International Activities	2080	941	£3,302,723	34%	38%
Religious Congregations and Associations	6232	2,759	£491,547	38%	39%
Business Associations	194	79	£855,452	78%	77%
Professional Associations	166	57	£934,368	67%	66%
Not elsewhere classified	6	2	£101,042,565	0%	1%
Total	77,624	33,581	£1,080,025	44%	49%

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Third Sector Research Centre
Park House
40 Edgbaston Park Road
University of Birmingham
Birmingham
B15 2RT

Tel: 0121 414 3086
Email: info@tsrc.ac.uk
www.tsrc.ac.uk

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Contact the author

Simon Teasdale
+44 (0)121 414 2578
s.teasdale@tsrc.ac.uk

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