# Superstar Charities and the Market for Tax Receipted Donations


Ross Hickey*
Melbourne Institute of Applied Economic and Social Research
University of Melbourne &
Department of Economics, Philosophy and Political Science
University of British Columbia Okanagan
&
Abigail Payne
Melbourne Institute of Applied Economic and Social Research
University of Melbourne


May, 2019


**Abstract** What is the extent of the market for charitable donations? Do large charities grow faster than small charities? We study charities that can issue tax receipts for collected donations and test for evidence of a power law distribution of charity size. We find that the when the size of charities is measured by their tax receipted gifts received charity size is log-normally distributed and the distribution is well approximated by a Zipf distribution. This empirical regularity is important as it highlights the boundaries of the market for charitable organizations: charities operate in a competitive market for donations in which their growth rate is independent of their size. We discuss the implications for research on charity operations and public policy.



*Keywords: Charity Organization, Donations, Private Provision of Public Goods*
*JEL Codes: L31, H24, H41*



*Corresponding author. All views and errors are the authors'. email: ross.hickey@unimelb.edu.au

*"A market for a good is the area within which the price of a good tends to uniformity, allowance being made for transportation costs."*

- Stigler and Rosen, "The Extent of the Market" (1985)

# 1 Introduction

Many studies that address competition in the charitable sector examine the case of rival charities that operate in distinct sub-sectors of the market for charitable donations (Bilodeau and Slivinski (1997)). A market's participants are then defined to be the charities providing the good or service and the donors who support the cause by contributing to any of the charities in that sub-sector. But what is the extent of the market for charitable donations? We find that market for donations is best described by a power law distribution. That donations exhibit this characteristic then affects other functions of donations that appear on a charity's balance sheet such as of total revenues, expenditures, and assets which in turn display power law distributions. This is an important discovery suggesting that studies of sub-sectors of the market for charitable donations such as a particular mission in a particular geographic area can hide the true nature of charity operations from the researcher. We believe that this feature of the data has remained elusive to researchers because of the focus on charity operations that are particularly local in nature, and missions that tend to also compete for government grants.

Our evidence that there is a single market for charitable donations is the result of analyzing the donations and bequests received by Australian charities from 2014 to 2016. Drawing on insights from the economics of power laws (Gabaix (1999), (2009), and (2016)), we empirically test for the presence of a power law distribution of charity donations and bequests. Using an OLS regression and the technique of Gabaix and Ibragimov (2011) we find that when we limit the sample to those charities recieving over $1,000,000 in annual donations and bequests the distribution of this revenue stream is a Zipf distribution. This suggests that donations, like cities are governed by a process known in economics as Gibrat's law. We then test this effect by examining the distribution of growth rates of charities, and show that it is not independent of size.

Larger charities tend to possess smaller growth rates than smaller charities. However, when we focus exclusively on the tail of the distribution we find no evidence of a relationship between size and the rate of growth. This presents a puzzle, and opens a new avenue for theoretical research that is consistent with the evidence.

A first consideration of whether charities are in the same market for donations is whether they share a common mission (Brown and Slivinski (2006). For example describing the extent of the market on the basis of the provision of a good or service in a particular geographic area. This focus on service provision is common practice in empirical work. The earliest instance of such a practice is Feigenbaum (1987) who studies Medical Research Funding charities as defined by the IRS according to their main activity. Feigenbaum describes the market for a particular charity as the local (geographic) area consisting of other organizations conducting the same activity. Thornton (2006) shows that the competitiveness of a charitable sub-market influences fundraising expenditure decisions. Castaneda (2007) shows that the competitiveness of a charitable sub-market conditional defined in a metropolitan statistical area increases fundraising expenditures, but that the more tangible assets (buildings, land and equipment) a charity has, the weaker is this relationship. Lapointe et al (2018) study the relationship between market size (municipal population) and establishment size (expenditures and number of employees) for Canadian charities. They find that there is a positive correlation between charity size, market size, and establishment size and that this is indicative of charities being concerned with their own output over that of other similar organizations. Our approach complements their findings as we study a single aspect of charity revenues: donations, showing that while competition in provision may be local, competition over donations may be best thought of as global.

Several studies have considered sub-sectors when examining the market for donations. Andreoni and Payne (2003, 2011) when considering crowd-out restrict their sample to charities involved in local social service provision. Duquette (2016) examines the tax price elasticity of charity tax receipted revenues conditioning on charity sub-sectors. Duquette (2017) examines the savings decisions of charities, again conditioned on charity subsectors. Rennhoff and Owens (2012) considers competition amongst service providing religious congregations. Meer, J. (2017) studies substitution across charitable causes through an online giving experiment wherein the participants were randomly exposed to matches for some but not all of the eligible causes. While the matches did increase giving, there was no evidence that this was at the expense of other causes. Scharf et al (2017) finds that major international aid campaigns lift donations and shift donations across other charities over time. This result provides an explanation for the absence of substitution in Meer (2017), and complements our work that finds further evidence of a common market for charitable contributions at the national level.

The market structure of charities and not for profit organizations is also of interest in it's own right. Backus and Clifford (2013) consider whether some charities have become "too large". Concerns that charities acquiring excessive market shares in the charity and not for profit sector draws on the same concerns that economists naturally consider when examining imperfect competition in the markets for traded goods and services, namely that the farther from perfect competition the smaller is the surplus accruing to the consumer side of the market. Our research suggests that while there is evidence of superstar charities that persistently out perform others in raising donations, charity donation growth is proportionally independent of the size of the charity. While this result may surprise some, who are familiar with such international charity brands as "The Red Cross" who appear at or near the top the list of donation revenue in many countries, one need only recall the "Ice Bucket Challenge" of 2014 which provided the ALS Association of the United States with unprecedented growth in receipted donations.

The remainder of the paper proceeds as follows. Section 2 describes the theoretical basis for considering power law distributions of charity size. Section 3 describes the institutional setting in Australia and the data. Section 4 presents our empirical strategy. Section 5 presents our results. Section 6 gives a brief discussion of how our results can influence future research and policy, and Section 7 concludes.

## 2 Power Laws, Gibrat's Law and the Zipf Distribution

Power laws are a common feature of some of the most important economic data, appearing as a characteristic of data that records voluntary trade. In general, power laws are often stated in the form of an exponential scaling factor, i.e. for a random variable X, the rank of X, Y, is of the form $Y = kX^\gamma$, where $k$ is an arbitrary constant, and $\gamma$ is the exponential scaling factor. An early example is Pareto's characterization of the distribution of annual income, the return to compensated economic activities. Similarly, Champernowne (1953) and later Gibrat found that firm size, as measured by the number of employees, is distributed as a log normal random variable. No one is forced to pay an income to a employee and no employee is forced to work for a particular employee making this another example of a measure of voluntary trade exhibiting a power law distribution. And, in more recent years, the canonical example of a power law is that the distribution of city size, as measured by the population, has a Zipf distribution. For an overview of power laws in economics see Gabaix (2009) and (2016).

Formally, a power law distribution is a distribution that exhibits at least one fat tail, satisfying:

$$P(Size > x) \simeq kx^\gamma \tag{1}$$

A Zipf distribution is the special case where $\gamma = 1$. The particular scaling factor that is observed is indicative of the underlying stochastic mechanism that generates the data. Gabaix (2009) shows that power law distributions are easily inherited with the exponent being preserved under multiplication by a normal random variable, and the addition of another non-Pareto distribution. This renders the most parsimonious explanations for the presence of a power law distribution for some outcome: the outcome of interest is a bi-product of another underlying power law process. We will return to this explanation later. Other common explanations for power law processes include: random proportional growth, matching with superstar effects, and optimization of a power law objective function. The most common of these in the literature is the random proportional growth theory. This is Gibrat's law: that charity size is the outcome of random proportional growth. In this context, an exponent of $\gamma = 1$ is consistent with the growth rate of a charity being independent of the charity's size. A process of random proportional growth will lead to a limiting Zipf distribution. A coefficient $\gamma < 1$ is commonly interpreted as evidence of excessive frictions constraining growth: excess establishment mortality, or regulatory burdens prohibiting growth. Similarly, $\gamma > 1$

suggests excessive entry and that there may be "superstar shocks" enabling larger firms to grow at a faster rate than smaller firms. Simon (1977) describes a process that can lead to Gibrat's law. In the context of charitable giving, this would be one in which with probability $p$ a donor gives to an existing charity and with probability $1-p$ they start a new charity.

With this background it is clear that the characterization of the distribution of donations across charities is one important way to characterize the frictions, and fairness of the charitable sector. In the next section we proceed to describe the data used in our analysis and the institutional features pertainent to Australian giving.

# 3 Data and Institutional Environment

## 3.1 Charitable Giving in Australia

Australia is an interesting country to study the market for charitable donations. Australia has a population of 24 million, with 30% claiming tax receipted giving, and 80% claiming any gift on survey data. The total giving in Australia in 2016 was $12.5 billion, just under 1% of GDP. Australia has three forms of charity regulation that can affect the behaviour of both donors and charitable organizations. First and foremost is that the ability to issue tax receipts is governed by the ATO and the ACNC. Registration is required and compliance with legislation is essential for charities to maintain "Designated Gift Recipient" (DGR) status. The eligibility for DGR status requires that the organization serve the public interest. The boundaries of this service in Australia allow religious organizations to access DGR status if they provide services other than religious prayer meetings, thereby excluding many donations from being counted as charitable (the tithe for example). Other forms of charity regulation occur at the State level. Most states issue fundraising licenses to organizations depending on the amount of funds they wish to raise. Charities and other not for profit organizations may be eligible for state charitable status that enables them to forego paying employee taxes and property taxes. In addition, charities are allowed to earn income from business activities. One prominent example is Sanitarum.

## 3.2 ACNC Data

We use data collected by the Australian Charities and Not-for-Profits Commission (ACNC) from 2014 to 2016. These are the most recent years of data available that include information on annual tax receipted collections from every entity in the country that has DGR status. As this data is administrative in nature, there are some fields that required cleaning by the researchers. Table 1 displays summary statistics for charity information returns.

Table 1: Summary statistics 2014

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Government Grants | 1107321.77 | 17670918.74 | 47635 |
| Percent Grants | 39.45 | 136.82 | 13740 |
| Donations and Bequests | 149446.59 | 2075798.97 | 47635 |
| Percent Donations | 17.58 | 43.51 | 13740 |
| Other Revenue | 1086940.47 | 14690142.08 | 47635 |
| Percent Other Revenue | 56.18 | 777.7 | 13740 |
| Total Revenue | 2279806.43 | 27324739.69 | 47635 |
| Total Assets | 4575930.32 | 60705479.63 | 47635 |
| Total Expenses | 2267707.42 | 27461206.33 | 47635 |

Table 2: Summary statistics 2015

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Government Grants | 1100759.42 | 17533820.83 | 48203 |
| Percent Grants | 36.81 | 41.28 | 14357 |
| Donations and Bequests | 187000.45 | 4972365.72 | 48203 |
| Percent Donations | 17.81 | 32.79 | 14357 |
| Other Revenue | 1097904.66 | 14853480.73 | 48203 |
| Percent Other Revenue | 49.69 | 631.25 | 14357 |
| Total Revenue | 2381946.19 | 29193552.07 | 48203 |
| Total Assets | 5144228.52 | 83346906.85 | 48203 |
| Total Expenses | 2299793.65 | 28093591.01 | 48203 |

From the above tables it is clear that while donations are the most salient feature of charities that have DGR status this revenue stream constitutes minority share of total revenue on average. At the same time, donations exhibit less variability in the

Table 3: Summary statistics 2016

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Government Grants | 1144050.69 | 18645007.85 | 48250 |
| Percent Grants | 19.11 | 31.92 | 37339 |
| Donations and Bequests | 163023.57 | 2226886.84 | 48250 |
| Percent Donations | 28.62 | 39 | 37339 |
| Other Revenue | 1224398.74 | 18434067.17 | 48250 |
| Percent Other Revenue | 52.27 | 40.17 | 37339 |
| Total Revenue | 2531384.96 | 32357717.42 | 48250 |
| Total Assets | 5189165.79 | 70341302.81 | 48250 |
| Total Expenses | 2430703.17 | 31638750.01 | 48250 |

operations of charities across charities as compared to the other sources of revenue: grants and other income. It is perhaps the heterogeneity in the importance of donations, and their inherent unpredictability that makes charities so focused on this stream of revenue.

There is some movement of charities into and out of seeking donations, and also from the sector entirely. In 2015, 93% of DGR charities had also held that status in 2014 and 7% were new entrants. Four percent of the charities in 2014 exited in 2015. These same rates of exit and entry continued to hold in 2016.

# 4 Empirical Method

To test for evidence of Gibrat's law we employ two simple statistical approaches. The first is to test whether the cross-sectional distribution of donations is governed by a power law with a coefficient for $\beta$ equal to 1 in the following specification:

$$ln(rank - \frac{1}{2})_i = \alpha + \beta ln(size)_i + e_i \tag{2}$$

In this context a coefficient point estimate of $\hat{beta} = 1$ implies a Zipf distribution, while a point estimate greater or larger implies a power law distribution with fatter or thinner tails, respectively. While, previous studies of city size have limited the their analysis to large cities, we present results for a series of regressions to display where the distribution appears to mimic a Zipf distribution. Conventional approaches to estimating where the cut-off should occur in the distribution of charity size, we adopt three ad hoc approaches: the ACNC definition of "large charities" - charities with more than \$250,000 in tax receipted giving in a year; charities with more than \$1,000,000 in tax reciepted giving in a year; and the top 5% of charities as determined by their revenue. The results presented below contain only the \$1,000,000 cut-off, with the results using the other definitions available from the authors upon request.

The second feature of our analysis is to describe the distribution of growth rates. Gibrat's law applied to charities implies that proportional growth rates ($GrowthRate_{i,\{t,t-1\}}$) are independent of the charity's size. To test this we consider the following regression equation:

$$GrowthRate_{i,\{t,t-1\}} = \delta + \psi ln(size)_{i,t-1} + u_{i,t} \quad (3)$$

The next section presents the results of these analyses.

# 5 Results

Figures 1-2 show the distribution of the size of Australian charities in the log scale for each year from 2014-2016. There appears to be a relatively smooth and unimodal distribution for each year, though there is a missing mass at just over the \$20,000 threshold in each figure. This may reflect regulatory hurdles imposed at the state level, like reporting requirements for different size charities, fundraising reporting requirements, or cutoffs for the eligibility of for state level tax exemptions. While we focus our analysis on the right tail of these distributions it is worth noting that the left tail is much fatter as well. This suggests that there may be excessive entry into revenue collection or a lack of exit that creates persistence in the collection of donations as charities wind down fundraising campaigns slowly.

As our interest is in the right tail of the distribution of donations and superstar charities, figures 3-4 present the top 10 charities in Australia in each year of our sample period. There is quite a lot of heterogeneity in the main activities indicated by the charities in the top 10 both within and across years. With 7 charities appearing in the top 10 in each of the three years, there is evidence of superstars. World Vision Australia, Australia Red Cross, Doctors Without Borders, Compassion Australia, LDS Charitable Trust each appear in the top 5 in most of the three years and are never absent from the top 10. The new arrivals in the top 10 are supporting a variety of missions ranging from international, religious, social services, grant making, health, housing, and higher education. Thus, while there are clear superstars, it is a vibrant and competitive field at the top of the distribution.

Figures 6-7 graphically depict the relationship between the $ln(Rank)$ and $ln(Size)$ of charities in Australia. There are three salient features that appear in common across each of these figures. First there is clearly no relationship between size and rank for the smallest of charities. Then a strong negative pattern emerges that is nearly linear until the very top of the distribution of charity size. When we examine the very top talk of the size distribution in this way we see more variation and a departure from the line of best fit imposed on those charities whose donations revenue exceeds $1,000,000. This departure from the linear relationship at the extreme tail of the distribution for the largest charities in terms of donations revenue is indicative of superstar effects: that donations accrue more to the largest charities than would be predicted by a process of pure random proportional growth.

Figure 4 presents our main results of a linear regression of $ln(Rank - 1/2)$ on $ln(Size)$. The coefficient point estimates associated with $ln(Size)$ represents our estimate of the exponent in equation 1 above. Here we find that our estimate is very close to -1, however slightly larger than $|1|$. Formally we reject the hypothesis that the distribution is Zipf. However this result is sensitive to the definition of large charities, and where in the distribution we place the cut-off for the purpose of studying the tail of the distribution. $\hat{\beta} > |1|$ suggests that a slightly fatter tail than a log-normal distribution and this in turn implies that superstar effects may be present (Gabaix et al (2016)). This is consistent with the persistence that is displayed in the top 10 charities in terms of donations received. Such persistence could be the result of large donors rationing the number of charities that they contribute to because lumpy donations are preferred by large donors (they can generate more recognition) or because of limited attention of the extreme donors. While we cannot test these predictions in this environment, we take this as evidence that top charities may be exposed to larger giving shocks, perhaps induced by superstar donors being matched to highly visible and large charities.

To further investigate the nature of giving shocks, we explore the dynamic features of our data. Figures **??** and 5 display the truncations of the distributions of proportional growth rates for 2014-2015 and 2015-2016 respectively. It is clear that there is a larger mss for each biannual period near both 0 and -100%. These features partly reflect exit, at least from active collection of donations at the bottom of the distribution and at 0-4% positive growth this may simply be an artifact of the scale of our diagram. With small percentage growth rates much more common than large, and each bin representing a range of 4 percentage points. For both periods there appears to be more shrinkage than growth, but the positive growth actually extends far beyond the 100 % cutoff on the horizontal axis with extreme values of growth becoming much less likely. On net there is more positive growth than negative, but it should be noted that those exiting charities are omitted from this calculation.

In figure **??** we examine the relationship between charity size and a charity's proportionate growth rate. For 2015 we see a negative effect of lagged charity size on it's growth rate. This suggests that a 1% increase in the lagged donations of a charity will decrease it's growth rate by 5 percentage points. In 2016 we find an even larger effect. Incorporating both two year periods and including fixed effect we see that a 1% increase in lagged donations induces a reduction in the growth rate by 40 percentage points. These results should be taken with a grain of salt.

Finally in figure **??** we study the relationship between charity size and growth at the tail of the distribution, for those charities with donations revenue in excess of $1,000,000. Here we see that there is no relationship present in our cross sectional analysis. This independence of the growth rates and charity size is suggestive evidence that Gibrat's law applies in this context. However once we combine both years and analyze the two year panel with fixed effects for each charity we see that there is a slightly negative relationship. This could be interpreted as some evidence of reversion to the mean at the top of the distribution, with a 1% increase in a charity's annual donation revenue decreasing their growth rate by 2%.

# 6 Discussion

The evidence presented suggests that there is a single market for charitable donations. The charities that exist in this space range from small to very large, and the distribution of charity receipts exhibits features of a power law. Providing this analysis to researchers helps to understand the wider context within which charities operate. There appears to be a single market for donations, governed by a well behaved and well defined distribution. Where a particular charity finds itself in this distribution gives no indication of it's potential for growth. But understanding this gives researchers a context within which theories of charity competition can be evaluated. That such a distribution exists highlights a new hypothesis about competition in the charitable sector: charities compete nationally for donors. While two local charities with similar missions may be direct competitors for local government grants, each compete in the national market for donations. Such an insight will hopefully influence future research on charity interactions.

Our results highlight that if a government truly wished to improve outcomes for a particular charity or set of charities in the long run it is not clear by what metric we would evaluate this improvement. The evidence presented suggests that charitable contributions are not independent of size, rather proportionally independent of size. One reason for this could be that donors are sticky in their causes that they support. If there is crowd-out in this environment, then a grant that crowds out fundraising may then expose a charity to more down-side risk. This could occur if the pool of donors does not grow in the absence of fundraising, or actively shrinks, thereby putting them at a fundraising disadvantage in the future. Grant makers may wish to encourage future fundraising and not discount those expenditures.

# 7 Conclusion

A single price structure for tax receipted gifts induces a single market for tax receipted gifts. This market, wherein charities issue tax receipts for donations is the relevant area of economic interest in the following sense: to partition justly or arbitrarily the set of tax receipt issuing entities will make understanding the sector as a whole more difficult. While it may be true that ceteris paribus, many donors to a local food bank consider a local soup kitchen as the next best alternative foregone for their charitable contributions, in general assuming a particular structure for the complementarities and substitutability of donations across charitable missions is ad hoc. As such, sub-sector studies, while popular are likely to miss general equilibrium effects that take place in the market as a whole. We hope that our research serves as a cautionary note to those who draw inference about the sector from studies considering arbitrary geographic or mission partitioning of the charitable sector.

# 8 References


Andreoni, J., & Payne, A. A. (2003). "Do government grants to private charities crowd out giving or fund-raising?" *American Economic Review*, 93(3), 792-812.

Andreoni, J., & Payne, A. A. (2011). "Is crowding out due entirely to fundraising? Evidence from a panel of charities." *Journal of Public Economics*, 95(5-6), 334-343.

Andreoni, J., & Payne, A. A. (2013). "Charitable giving." In Handbook of public economics (Vol. 5, pp. 1-50). Elsevier.

Backus, P. G. (2012). "Gibrat's law and legacy for non-profit organisations: a non-parametric analysis." Documents de treball IEB, (8), 1-23.

Backus, P., & Clifford, D. (2013). Are big charities becoming more dominant?: cross?sectional and longitudinal perspectives. Journal of the Royal Statistical Society: Series A (Statistics in Society), 176(3), 761-776.

Bilodeau, M., & Slivinski, A. (1997). "Rival charities." *Journal of Public Economics*, 66(3), 449-467.

Brown, E., & Slivinski, A. (2006). "Nonprofit organizations and the market." The nonprofit sector: A research handbook, 140-158.

Castaneda, M. A., Garen, J., & Thornton, J. (2007). "Competition, contractibility, and the market for donors to nonprofits." *The Journal of Law, Economics, & Organization*, 24(1), 215-246.

Duquette, N. J. (2017). "Spend or Save? Nonprofits? Use of Donations and Other Revenues." *Nonprofit and Voluntary Sector Quarterly*, 46(6), 1142-1165.

Duquette, N. J. (2016). "Do tax incentives affect charitable contributions? Evidence from public charities' reported revenues." *Journal of Public Economics*, 137, 51-69.

Duquette, N. J., Grady-Reed, A., & M. Phillips (2019). ?The Extent and Efficacy of State Charitable Contribution Income Tax Credits,? mimeo

Eeckhout, J. (2004). "Gibrat's law for (all) cities." *American Economic Review*, 94(5), 1429-1451.

Feigenbaum, S. (1987). "Competition and performance in the nonprofit sector: The case of US medical research charities." *The Journal of Industrial Economics*, 241-253.

Gabaix, X. (1999). Zipf's law for cities: an explanation. *The Quarterly Journal of Economics*, 114(3), 739-767.

Gabaix, X. (2009). "Power laws in economics and finance." *Annual Reviews Economics*, 1(1), 255-294.

Gabaix, X., & Ibragimov, R. (2011). "Rank ? 1/2: a simple way to improve the OLS estimation of tail exponents." *Journal of Business & Economic Statistics*, 29(1), 24-39.

Gabaix, X. (2016). "Power laws in economics: An introduction." *Journal of Economic Perspectives*, 30(1), 185-206.

Harrison, T., & Laincz, C. (2008). "Does Gibrat?s law apply to nonprofits." Mimeo.

Lapointe, S., Perroni, C., Scharf, K., & Tukiainen, J. (2018). "Does market size matter for charities?" *Journal of Public Economics*, 168, 127-145.

Meer, J. (2017). "Does fundraising create new giving?" *Journal of Public Economics*, 145, 82-93.

Rennhoff, A. D., & Owens, M. F. (2012). "Competition and the strategic choices of churches." *American Economic Journal: Microeconomics*, 4(3), 152-70.

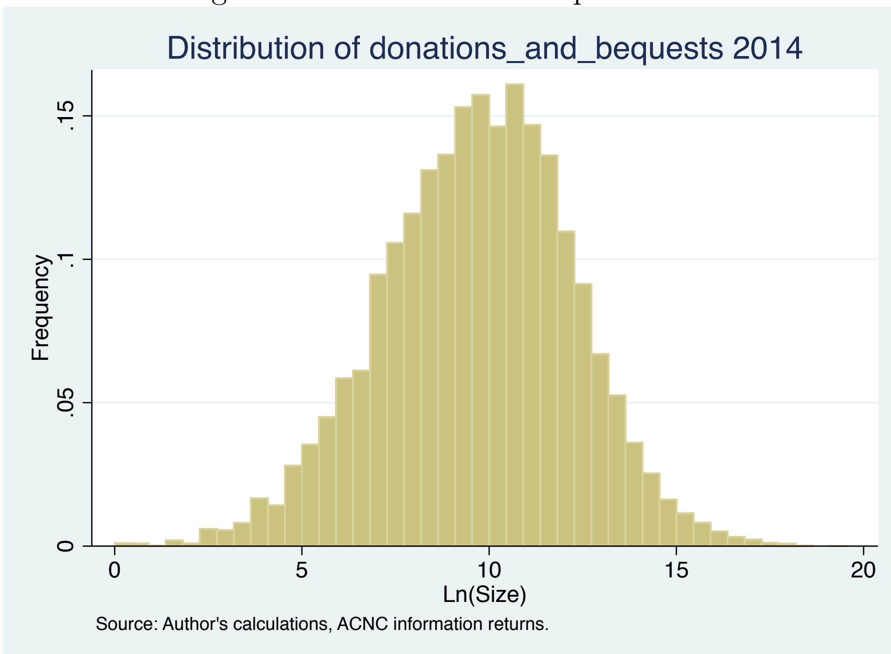
Rose-Ackerman, S. (1982). "Charitable giving and "excessive" fundraising." *The Quarterly Journal of Economics*, 97(2), 193-212.

Rosen, S. (1981). "The economics of superstars." *The American Economic Review*, 71(5), 845-858.

Scharf, K. A., Smith, S., & Wilhelm, M. (2017). "Lift and shift: the effect of fundraising interventions in charity space and time." Mimeo.

Thornton, J. (2006). "Nonprofit fund-raising in competitive donor markets." *Nonprofit and Voluntary Sector Quarterly*, 35(2), 204-224.

Figure 1: Donations and Bequests 2015




# 9 Tables & Figures

Omitted due to SIZE limit of 3MB!

Figure 2: Donations and Bequests 2015

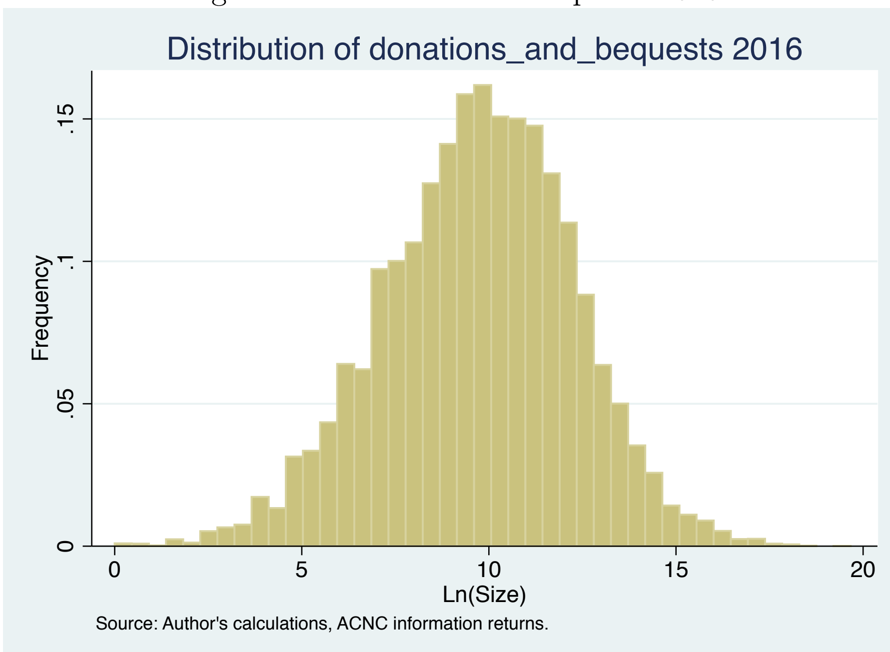



Table 4: Table 4: Zipf Regression Estimates

Estimates of Tail Exponent

| | (1) | (2) | (3) |
|---|---|---|---|
| | 2014 | 2015 | 2016 |
| VARIABLES | Ln(Rank-1/2) | Ln(Rank-1/2) | Ln(Rank-1/2) |
| Ln(Size) | -1.06*** | -1.03*** | -1.06*** |
| | (0.02) | (0.01) | (0.02) |
| Constant | 21.62*** | 21.30*** | 21.71*** |
| | (0.23) | (0.15) | (0.22) |
| Observations | 994 | 1,071 | 1,115 |
| $R^2$ | 0.98 | 0.99 | 0.98 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations, ACNC. Robust Standard Errors in all regressions.

Figure 3: Top 10 2014

| Rank | Charity Name | Main Activity |
|---|---|---|
| 10 | University Of Sydney | Higher education |
| 9 | The Cancer Council NSW | Other health service delivery |
| 8 | BlueCHP Limited | Housing activities |
| 7 | Serpentine Foundation Pty Limited as trustee for the Serpentine Foundation | Higher education |
| 6 | L.D.S. Charitable Trust Fund | Grant-making activities |
| 5 | Compassion Australia | International activities |
| 4 | Medecins Sans Frontieres Australia Limited | Emergency Relief |
| 3 | The Movember Group Pty Limited As Trustee For The Movember Foundation | Grant-making activities |
| 2 | Australian Red Cross Society | Other |
| 1 | World Vision Australia | International activities |

Figure 4: Top 10 2016

| Rank | Charity Name | Main Activity |
|---|---|---|
| 10 | The Fred Hollows Foundation | International activities |
| 9 | Hillsong Church Ltd | Religious activities |
| 8 | The Cancer Council NSW | Other health service delivery |
| 7 | The Smith Family | Social services |
| 6 | University Of Sydney | Higher education |
| 5 | Compassion Australia | International activities |
| 4 | L.D.S. Charitable Trust Fund | Grant-making activities |
| 3 | Medecins Sans Frontieres Australia Limited | Emergency Relief |
| 2 | Australian Red Cross Society | Social services |
| 1 | World Vision Australia | International activities |

Figure 5: Growth of Donations

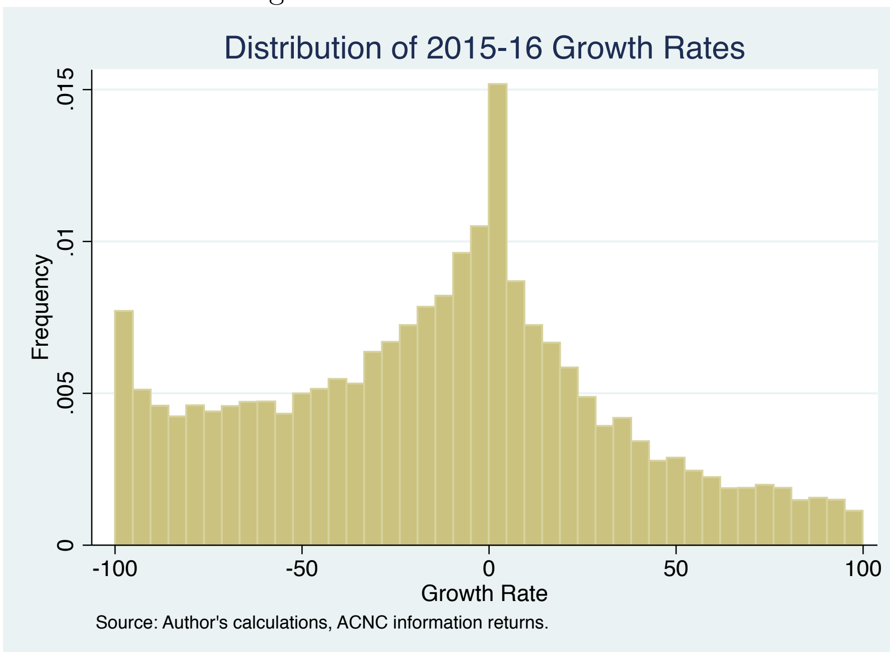



Table 5: Table 7: Growth Tail Regression Estimates

Test of Linear Relationship Between Growth and Size

| | (1) | (2) | (3) |
|---|---|---|---|
| | 2015 | 2016 | 2015-16 |
| VARIABLES | Growth Rate | Growth Rate | Growth Rate |
| Ln(Size) = L, | -553.72*** | -14,543.97 | -4,039.01*** |
| | (107.36) | (12,733.06) | (801.81) |
| Constant | 6,039.61*** | 152,070.31 | 44,999.73*** |
| | (1,136.79) | (132,954.39) | (7,807.42) |
| Observations | 22,370 | 23,903 | 46,273 |
| $R^2$ | 0.01 | 0.00 | 1.00 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations, ACNC. Robust Standard Errors in all regressions.

Table 6: Table 7: Growth Tail Regression Estimates

Test of Linear Relationship Between Growth and Size

| VARIABLES | (1)<br>2015<br>Growth Rate | (2)<br>2016<br>Growth Rate | (3)<br>2015-2016<br>Growth Rate |
|---|---|---|---|
| Ln(Size) = L, | -2.93 | -0.65 | -181.88*** |
| | (2.33) | (1.90) | (43.42) |
| Constant | 41.45 | 1.57 | 2,698.18*** |
| | (36.06) | (29.53) | (645.29) |
| Observations | 976 | 1,049 | 2,025 |
| $R^2$ | 0.00 | 0.00 | 0.71 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations, ACNC. Robust Standard Errors in all regressions.