

We're Peter Dodds, Bill Gottesman, and Andy Reagan. We published a paper in PLOS ONE that constructed a model that can help establish an institution's gift-giving profiles and help organizations set fundraising goals – Ask Us Anything!

PLOScienceWednesday ¹ and r/Science AMAs¹

¹Affiliation not available

April 17, 2023

[REDDIT](#)

PLOS Science Wednesday: We're Peter Dodds, Bill Gottesman, and Andy Reagan. We published a paper in PLOS ONE that constructed a model that can help establish an institution's gift-giving profiles and h

PLOSSCIENCEWEDNESDAY [R/SCIENCE](#)

ABSTRACT

[removed]

[READ REVIEWS](#)

[WRITE A REVIEW](#)

CORRESPONDENCE:

DATE RECEIVED:
December 17, 2015

DOI:
10.15200/winn.145027.70004

ARCHIVED:
December 16, 2015

CITATION:
PLOSscienceWednesday ,
r/Science , PLOS Science
Wednesday: We're Peter
Dodds, Bill Gottesman, and
Andy Reagan. We published a
paper in PLOS ONE that
constructed a model that can
help establish an institution's
gift-giving profiles and h, *The
Winnower* 2:e145027.70004 ,
2015 , DOI:
[10.15200/winn.145027.70004](https://doi.org/10.15200/winn.145027.70004)

© et al. This article is distributed under the terms of the [Creative Commons Attribution 4.0 International License](#), which permits unrestricted use, distribution, and redistribution in any medium, provided that the original author and source are credited.



Hi PLOS.

I had two questions.

1) Does an individual's knowledge of the gifts of others affect their own giving? I believe it was in Freakonomics that it was mentioned that with taxation, knowing that everyone else is paying their taxes has a large impact.

2) Do you have any feelings on the ethics of tax deductions associated with charitable donations, in so far as they all the wealthy to choose where their tax dollars go when the poor are not afforded the same privilege?

Thank you so much for doing this AMA!

[scirena](#)

Peter Dodds: 1) Great question and we'd be most interested to dig into this but we don't have the data just yet. It's possible that Facebook could get somewhere with an internal (and ethical) study. We'd need somehow to see people exhibiting to their connections and publicly that they've donated money, and then be able to see what their connections do. It's hard to get this kind of fine grained data about social networks and have it be high quality (subsampling networks is very problematic). Just talking among ourselves here, we would conjecture that some kinds of sharing of donation information might be counterproductive.

And all this is more generally about social contagion and the establishment and erosion of norms. My feeling is that we have plenty of ideas and theories—we need to really look hard at all this data we have (acknowledging that big data is not in any way complete data).

Institutionally this very unique project and direction to take. What led to this research taking place at the University of Vermont?

[Surf Science](#)

Peter Dodds: Among other things, I've been working on social systems and what I've come to call sociotechnical phenomena from 2000 on (I was at Columbia from 2000 to 2006 formally working in the social sciences). With Chris Danforth, I run the Computational Story Lab housed within the Vermont Complex Systems Center, and we're simply interested very broadly in systems-at-large, particularly ones with social aspects. We have work running the gamut from social contagion, influence, fame, measuring happiness and emotion, stories, language evolution, conflict (including school shootings), as well as geo/eco/bio/whatevero-stuff.

Both Bill and Andy took my class Principles of Complex Systems a few years ago, and this particular project on philanthropy grew out of a project initiated by Bill.

A couple questions -

- 1) What holidays (other than xmas) seem to spark the highest spikes in charitable gift giving?
- 2) How can smaller charities use this data to project fundraising goals against largest ones, especially in peak times like the holiday season?

[jeffmac123](#)

Peter Dodds: Re 1) Somewhat out of our area of expertise, but natural disasters are one example that elicits spontaneous gift giving (and keeping the public's interest in a particular event is a major concern for institutions in this area). Religions structure gift giving of all sizes over different time scales, and with respect to special events (e.g., for Christianity, giving small donations every Sunday at Church).

Bill just mentioned that at least for the University of Vermont, we can see that gifts are far fewer over the summer but are much larger in size compared with the rest of the year. We're not entirely sure why this may be and it's the only institution for which we received such granular data (all the others gave us gift sizes as a function of year rather than date).

Hi Peter, Bill, and Andy.

Charities has very different levels of efficiency in terms of \$ spent on programs vs administration. Is there any relationship between institution size, efficiency and donation size?

[devilwithstarbucks](#)

Andy Reagan: we don't have data on the "efficiency" of the organizations we studied. This would be very interesting to look at!

Hi Peter, Bill, and Andy.

Charities has very different levels of efficiency in terms of \$ spent on programs vs administration. Is there any relationship between institution size, efficiency and donation size?

[devilwithstarbucks](#)

Peter Dodds: This would be very interesting but we don't have this data on hand. For the next level of this research, we either need a sizable team of people connecting with institutions, or to be able to capitalize on some kind of standardized reporting of gifts to institutions by those institutions. This information is almost always held by the institution and comes in many different formats.

In your paper, why did you decide to use gift rank instead of the actual dollar value of the gift?

Thanks!

[WillyWonkaSarcasm](#)

Peter Dodds: The two main ways to represent these heavy-tailed kinds of distributions (frequencies of words in texts, earthquake magnitudes, ...) are by ranking the quantities or plotting size distributions. It turns out that these are (simply) connected but it took 50 years for this to be widely understood. The mode of presentation varies somewhat according to taste/scientific culture.

Details: The rank or Zipf distribution is the flip of the complementary cumulative frequency distribution. I have slides covering this link and many other aspects of power-law size distributions here:

<http://www.uvm.edu/~pdodds/teaching/courses/2015-08UVM-300/content/lectures.html#slides-power-law-size-distributions>

which I discuss in the video here:

Episode 04: The Statistics of Surprise. The everywhere-ness and terrible-ness of power law size distributions. Gaussians, Schmaussians. <http://www.uvm.edu/~pdodds/teaching/courses/2015-08UVM-300/content/lectures.html#episodes-E04>

Hello,

I was wondering whether you have attempted (or are planning) to validate your model in other countries, particularly in developing countries?

Also, would you expect to see a similar profile for donations made to an external institution (i.e. not within the same country where the gift originated)?

[dogeonette](#)

Peter Dodds: It's all a question of getting hold of quality data. For example, some developing countries may not have robust enough taxation systems which would help with some of the analyses.

What we'd really need for the next study would be data from many institutions, both public and private and varying in kind, ideally numbering in the 1000s or more. For the work we're discussing here, we had to obtain data through personal connections and meetings which is of course slow—somehow, we need to be able to get at a big data version.

Another question: You suggest that a modified version of Pareto's principle can render better results for charities. While the data seems to corroborate with your analysis, has this been tested/validated yet?

[rvidal](#)

Andy Reagan: Good question! This part of our model is hypothetical and is based on very reasonable assumptions, but we have not tested our model with an active fundraising campaign.

Hi, I have a question for Dr. Dodds.

Dr. Dodds, social contagion and sociotechnical phenomena must be rapidly evolving fields, in recent

years what do you think has been the most surprising or exciting development in these fields, and what if any change in these dynamics do you see happening as a result of new social media platforms used by youth (ex. snap chat, yik yak, etc).

Thank you for taking the time out of your day to do this!

[metalovesscience](#)

Peter Dodds: This is such a huge question! We've definitely seen some successes and failures. It now seems all very normal but the rise of social media has been extraordinary. Back in the early 2000s, we were thinking mainly of creating large-scale social experiments (and we had some great successes with the small-world experiment and music lab). Twitter has been a big thing for us but so has having the 20 years of the NYT, decades of music lyrics, and so on. Being able to see small, everyday writing from people and to then be able to say something about populations is pretty amazing (and has a dark flipside of course). We have done a lot of work on measuring happiness and you can see various pieces at <http://hedonometer.org> (Twitter time series but also the trajectories of books and movies in the manner of Kurt Vonnegut).

Perhaps the main thing that's unfolding is the connectivity of people, for good and bad. It's different. From a bootstrapping, education point of view, kids all around the world follow each other on instagram to learn how to improve their drawing. And of course Wikipedia is now part of many kids' brains.

Now we're in the data rich stage of social sciences, moving out of being data scarce, we have to of course remain cognizant that big social data is not complete social data. It's easy to think it is because there's just so much.

As I said, we've seen some failures on the research side. Several studies on social contagion (e.g., showing obesity spreads among friends) have proven to not hold up that well. Google Flu trends was initially spectacular but then had some issues. I do believe these things will be sorted out. We're still at such an early point the history of big social data, and showing the limits of predictability for a science is a crucial, natural step. We're getting there with weather for example, where we now understand the prediction horizon pretty well. What we'll be able to do with socio-economic systems, I don't know. We just have to work hard!

Extra: we've also just published a paper on the Google Books corpus saying it's unfortunately kind of a mess. It's library like (each book is represented once rather than by some measure of real popularity), and more concerningly, it's full of scientific literature. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0137041>

What do you think are some of the best applications of big data learning to date?

[Aprioribox](#)

Andy Reagan: Big data means a lot of different things to different people, and big data has been around for awhile before big *social* data and the buzzword came online. A great success of modeling and prediction has been weather forecasting, which has steadily improved since the 1970's. Modern applications of social data are allowing us to understand collective human dynamics in new ways, and this is both fascinating as well as immediately useful for feedback on our social systems (an example being the real-time sentiment of whole populations at hedonometer.org).

Which religion yields the most gifts per quarter? (Serious question)

[aaronalfred](#)

Andy Reagan: We don't know (and would more data to try to answer this question).

There is a good chance than someone has looked at this in the philanthropy-specific literature.