

## A conversation with Dr. Berk Özler, December 20, 2018

### Participants

- Dr. Berk Özler – Lead Economist in the Development Research Group, The World Bank
- Josh Rosenberg – Senior Research Analyst, GiveWell
- Dan Brown – Senior Fellow, GiveWell

**Note:** These notes were compiled by GiveWell. This particular set of conversation notes differs from most conversation notes in that they are written from GiveWell's perspective.

### Summary

GiveWell spoke with Dr. Özler about the spillover effects of GiveDirectly's cash transfer program and more broadly about approaches to conducting meta-analyses. For additional context, Dr. Özler responded to GiveWell's original post on spillovers (<https://www.givewell.org/international/technical/programs/cash-transfers/spillovers/November-2018-version>) with a series of tweets (<https://twitter.com/BerkOzler12/status/1068996086470197248>), to which GiveWell responded with this blog post (<https://blog.givewell.org/2018/12/06/response-to-concerns-about-givewells-spillovers-analysis/>). In these notes, we summarize the additional steps that GiveWell could take to understand the spillover effects of GiveDirectly's program based on suggestions made by Dr. Özler. (However, these notes represent GiveWell's understanding of Dr. Özler's suggestions and are not a direct transcript; any errors or inconsistencies are GiveWell's.)

### Additional steps that GiveWell could take to understand the spillover effects of GiveDirectly's cash transfer program

- *Understanding how spillover effects decline with distance:* If GiveWell had raw data with GPS coordinates of treated and untreated households (or at least centroids of treated and untreated villages) from the academic studies in its literature review, it could run regressions with a variable that captures the intensity of treatment amongst one's neighbors at different distance bands from a given household on the right hand side to understand the size of the spillover effect at various distances.<sup>1</sup> In

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<sup>1</sup> E.g. GiveWell could use the number of treated households or a proxy for the total amount of cash injected (as a proportion of GDP) as the right hand side variable.

those regressions, GiveWell would need to control for treatment assignment of the household itself, the total number of households at each distance band, and other factors, but conditional on those factors the random assignment of treatment ensures that the extent to which one's neighbours are treated is random. Miguel & Kremer (2004) (see <http://emiguel.econ.berkeley.edu/research/worms-identifying-impacts-on-education-and-health-in-the-presence-of-treatment-externalities>) provides one example of this kind of approach (in a different literature).

Practically, GiveWell could follow up with the authors of the existing studies in the literature (e.g. Johannes Haushofer) and ask if this is something they would be willing to estimate. GiveWell could also check whether the general equilibrium (GE) study authors intend to do this already.

To estimate how spillover effects decline with distance in GiveDirectly's core cash transfer program across the range of contexts in which it operates, GiveWell must then extrapolate from the estimates in the academic studies. To do so, GiveWell would ideally like to understand how comparable the spatial distribution of households in villages in which GD does not provide transfers is to the spatial distribution of untreated villages in the academic studies. One complication here is that whilst GD collects GPS coordinates of households in villages where it provides transfers, in general it does not, to GiveWell's knowledge, collect GPS coordinates of households in surrounding villages where it does not provide transfers.

- *Estimating spillover effects on the treated:* The intent-to-treat (ITT) effect of cash transfers for the treated (recipient households) estimated in the academic literature is a reduced form effect which comprises of two separate effects. The first is the direct effect that a treated household would experience if they were the only household treated (i.e. such that there exist no spillover effects), which Dr. Özler refers to as the treatment effect on the uniquely treated (TUT). The second is the spillover effects on the treated (which arise as other households in the village are also treated). In some very rare cases, academic papers will directly estimate the TUT effect by having a treatment arm in which only one household in each village is treated. This enables the authors to back out the spillover effect on the treated by subtracting the TUT from the ITT.

More often, academic papers will use a randomised saturation design (i.e. a different randomly chosen proportion of households is treated in different treated villages). GiveWell might be able to use these papers to do something akin to backing out the spillover effect on the treated. Suppose a paper estimates a different sized ITT effect for treated households in villages where e.g. 25% of households are treated

compared to 50% of households. The TUT is the same in each village, and so any difference in the ITT must be driven by a difference in the size of the spillover effect on the treated. GiveWell could extrapolate the change in the ITT as the proportion of households treated decreases all the way down to the point that only one household is treated (i.e. ~0% of households are treated).<sup>2</sup> This is effectively an estimate of the TUT. GiveWell could then use that estimate to back out the size of the spillover effect on the treated for any given proportion of the village treated in the paper, by taking the ITT estimate for that level of saturation and subtracting this new estimate of the TUT.

Practically, GiveWell could therefore expand its literature review to try to find papers which study the direct effects of unconditional cash transfers using a randomised saturation design. It could use the steps described above to back out spillover effects on the treated from any such papers. (Note that GiveWell's review of the academic literature so far has focused on papers which estimate the spillover effects on untreated households.)

Dr. Özler mentioned that a Crepon et al. paper does this, but it might not be relevant for GiveDirectly's setting.<sup>3</sup> Papers with a randomised saturation design are still quite rare in the cash transfers literature, however.

- *Address the question of the objective function:* GiveWell should ask: what outcome (or social welfare function) is being maximised and in what timeframe? Blattman et al. 2018 (see [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3223028](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3223028)) and the papers cited in Dr. Özler's blog posts could be useful for this.
- *Further work on heterogeneity or expand outcome variables of interest:* Dr. Özler believes that GiveWell's conclusions could move if it considered a wider set of outcomes or looked into heterogeneity (e.g. by eligibility/ineligibility, transfer intensity, etc.) in more detail.
- *How do within-village spillover effects change with the proportion of the village treated:* This is still an open question. For more context on it, Dr. Özler suggested that GiveWell could read a Crepon et al. paper, the working paper version of his ReStat paper (see [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2900967](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2900967)), or the Filmer et al. paper that takes advantage of such variation to show negative spillovers on stunting (see

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<sup>2</sup> To do this, GiveWell would need to make some assumption about how the size of spillover effects on the treated declines as the proportion of the village treated declines. It might make sense to start with a linear assumption for simplicity, but GiveWell could consider other functions too.

<sup>3</sup> Dr. Özler also mentioned that his ReStat paper might provide additional context on this.

<http://documents.worldbank.org/curated/en/989031522077749796/pdf/WPS8377.pdf>).

- *Theoretical models of the impact of price increases for non-tradable goods on welfare:* Dr. Özler mentioned that academics in the agricultural economics field might have done some work on this, so GiveWell could review that literature.
- *Labor market mechanism for multiplier effects of cash transfers:* One possible multiplier effect GiveWell considers is an increase in local employment in response to the increase in demand for local goods. GiveWell could review the literature on this, for example: Dr. Özler's review of the effects of cash transfers on labor market outcomes co-authored with Baird and McKenzie (see <https://izajodm.springeropen.com/track/pdf/10.1186/s40176-018-0131-9>), McKenzie's recent blog posts on Nigeria (see <http://blogs.worldbank.org/team/david-mckenzie>), and papers by Blattman.
- *Other mechanisms for multiplier effects of cash transfers:* GiveWell could read work from The Transfer Project (based in sub-Saharan Africa) to see if there are other suggested channels for multiplier effects.
- *Understanding the value added by the peer review process:* GiveWell might want to do more work to understand how much to downweight studies that are in either private draft or initial working paper form. To better quantify this, GiveWell would like to know answers to questions such as: a) what proportion of working papers never make it to publication, b) what proportion of published papers have main results which differ in size/significance/sign to the initial working paper version, c) what proportion of published papers have material differences in the description of the main results in the abstract/introduction compared to the initial working paper version. Dr. Özler is not aware of studies that have investigated this, but suggested that GiveWell could potentially fund work to do some systematic analysis of these questions.
- *Further work on meta-analysis (both for GiveDirectly and other programs):* Dr. Özler finds ex-ante coordinated studies conducted across multiple settings preferable to ex-post meta-analysis. GiveWell could encourage or fund coordinated studies. If GiveWell wants more information on how to conduct high quality meta-analyses or on external validity, it should read Cyrus Samii's work (see <http://cyrussamii.com/>). Dr. Özler's 2014 meta-analysis on the effects of cash transfers on educational outcomes is another example GiveWell could look at (see <https://www.tandfonline.com/doi/abs/10.1080/19439342.2014.890362>).

All GiveWell conversations are available at <https://www.givewell.org/research/conversations>