

Speaker 1: There's an ongoing discussion in the community of social impact funders, on how to assess the impact of their portfolios. This talk is designed to be a contribution to that discussion. Measuring in social return is really a challenge, it's not easy. But as a case study, what we'd like to do is to examine the impact of USAID's development innovation ventures. At development innovation ventures was started in 2010. So we now have an opportunity, at least with the early stage investments to look at how they actually turned out. And this talk will be a later complimentary talk by the global innovation fund, and how they're actually trying to look in advance from an [inaudible 00:00:55] point of view to try to predict how their investments are gonna turn out, and examine that going forward.

[00:00:30]

[00:01:00]

So we'll proceed in three steps. First I'm gonna present three examples, looking at individual projects, and try to get at the benefit cost ratio, or the social rate of return for those projects. Second, I'll try to illustrate a way to move from the individual project level social rate of return or benefit cost ratio to thinking about the portfolio level, benefit cost ratio. And then finally, think about how to draw lessons from this that are not just yes no, did you meet your goals, but actually drawing lessons about what types of investments succeed.

[00:01:30]

So let me start by, before delving into that lemme present a little bit of background on development innovation ventures. So the idea of development innovation ventures was to be a [inaudible 00:01:50] evidence-based model, that would be focused on portfolio level impact. So the idea was to start with a number of pilot level innovations. For those that seem to be succeeding at the pilot level to move onto rigorous testing, and for the ones that have rigorous evidence of cost-effectiveness and impact, then take the most successful of those and to try and scale them up. And we actually accept applications at any level of those. So the evidence doesn't have to come from early in our process.

[00:02:00]

[00:02:30]

[00:03:00]

So that's one element of this. A second element is that, where as many funders were focused on a particular set of challenges and they identify which challenges exactly what they want done. The idea was designed to be deliberately open. Open across sectors, open across geographies, open against types of organizations that apply, and open across scaling methods. So for example, we're open both to organizations that want to scale through the private sector commercially, and to ones that are seeking adoption by developing country governments. We put a lot of emphasis on having rigorous evidence, and particularly evidence of trust effectiveness, but we also were looking for scale potential. If something's cost effective but it doesn't have the potential to scale, wasn't something we were really looking at.

[00:03:30]

We had a lot of engagement with the development economics research community. So often, we'd have independent reviews by people in our community, and we'd also have, sometimes they would serve on our decision panels as well. And when we set up, our goal was the 15 percent social rate of return, that was what was agreed with the administrator. So now is a time where when we can try to look and see, did we achieve that, and to hold ourselves accountable. So a key purpose of this exercise that we've been engaged in is to assess that. Let me delve briefly into the technical details, and talk about the concepts that we're using.

[00:04:00] So key concepts that we're using is the benefit cost ratio. So conceptually, that's fairly straightforward. It's just you add up the value, the benefits in each year, discounting the value of later benefits, and you divide by the net-present value of the investment cost. And what are the value of benefits? Well the value of benefits is the annual benefits are just the number of people reached times the net benefits per person. So we're subtracting out any costs that people pay for an item if they're paying for solar device,

[00:04:30] or something like that. You need a discount rate when you're calculating the net-present value of benefits. We set that quite high threshold for ourselves of a 12 percent discount rate. So much higher than the USI government [inaudible 00:04:50]. Our rate, I think most companies would be very happy to have.

[00:05:00] So if you look at that top equation, if that ratio's bigger than one, that means the benefits are greater than the costs, and that's a basic threshold you would want to meet. Another concept is the social rate of return, and that's saying, "How high of rate of return did you get on an annual basis?" And as I mentioned, we set our goal for ourselves of a 15 percent social rate of return. There are a number of other technical assumptions that you need to think about here. One is, some of our projects are health projects. The World Health Organization values each year, they say a health project is cost effective if it costs less than three GDPs, GDPs per capital per year of life saved. It's highly cost effective if it's less than one, we're gonna hold ourselves to a high standard, we'll value [inaudible 00:05:48] at one GDP per capital.

[00:06:00] We're looking both at the innovations that were directly supported by DIV and the following innovations, because we believe that innovations are continuing process. And we're not really trying to get an attribution here. We look at our key question in supporting innovation is, when you're starting this it's gonna take some time for the innovation to scale. So, two things we do on that. First, we do one calculation that's extremely conservative, and we say, "We're just going to look at all the benefits have been realized today, and we're gonna make them very pessimistic assumption, that benefits cease today, they cease until the end of 2060." We'll also do another assumption, which is a benefits, stay at the current level through 2021, and then they cease completely.

[00:06:30]

[00:07:00] So both of these are actually quite conservative. But we'll focus on innovations from 2010 through 12, so it's been at least five years for them to scale. So let me go through three examples. In large parts, [inaudible 00:06:56] the methodology. And to start with the easier case of the benefit level, the project level of benefit cost ratio. So the first, it's actually an idea from two professors at Georgetown, James [inaudible 00:07:09] and Billy Jack, who had a somewhat crazy idea that, if you just put stickers in minibuses, telling the passengers to speak up if they thought the driver was driving unsafely, that that might actually cut traffic accidents. Traffic accidents are a huge problem in a lot of developing countries, a big cause of death. There's corruption often among the police, so it's hard to figure out how to deal with this problem, they thought, "Let's give this a try."

[00:07:30]

So initially, we provided 3.3 million total, initially a small grant to test the idea, because it was initially an idea where we thought more evidence was needed. And then, based

[00:08:00] on the evidence of further scaling grant. So they had an RCT that was published in the proceedings of the national academy of sciences, and that found that there was a 25 percent reduction in accidents, and this was based on the data from the insurance company. And if you think about the cost of a sticker, you can see that this is likely to be very cost effective. But that's only gonna do any good if this gets scaled up. Well this was scaled up.

[00:08:30] So first, Kenya's largest insurance company adopted the program. Second, the government of Kenya said that when vehicles come in for their annual inspection, they need to get the stickers. So as a result, 34,000 Kenyan minibuses have the stickers. There've been estimated 575 accidents averted, 4,500 disability adjusted life years averted. There's also RCTs underway in Uganda and Tanzania. So the hope here is this will be scaled up both to Uganda and Tanzania. But if we just look at the current benefits, just at the benefits in Kenya, they're valued at about 14 million dollars each year. If you remember, there was just a few million dollars in [inaudible 00:09:01] investment costs for this.

[00:09:30] If the benefits ceased in 2016, the benefits would already be 5.9 times the cost. If they continue at the current scale without expanding to other countries, the benefit cost ratio would be 17. So that's a project level benefit for that project. Let me discuss another project. This is chlorine dispensers for safe water. So this is an innovation that's a point of collection chlorine dispenser that facilitates water treatment against diarrhea, a major killer in developing world. So here there are 7.4 million dollars of DIV investment. The impact is that water treatment rates increase by 45 percentage points. The scale, there are 2.3 million people who are actually using chlorine from this, more people have access, but 2.3 million people are actually using this.

[00:10:00] If you look at the studies on the impact of chlorine on diarrhea, and if you assume proportional reductions in death rates, that would imply 1.3 million cases of diarrhea averted. Over 1,000 deaths, 1,060. The net annual benefit of this is 30 million dollars in 2060, and again that's against this 7.4 million dollar investment cost. If the benefits

[00:10:30] ceased in 2016, the discounted benefits would be 8.5 times the cost, and if they continue at the current scale, they'd be 17 times the cost. Let me present a third example, which I'll discuss quickly. This one's less important for our portfolio analysis, but USAID resolves to doing a analysis of solar program, so we looked at this one.

[00:11:00] This is a solar powered home system. This is based on difference in difference analysis, but the estimate there is 67 dollars in energy savings per person per year, that's not valuing any environmental or health benefits. 150,000 systems sold. That gets an annual benefit of the 6 million dollar range, so not quite at the level of the other ones yet. But the benefit cost ratio, if this continues through 2021 would be over 11. So, a key question for funders is, and for innovation funders in particular, is how do you go

[00:11:30] beyond individual success stories to think at a portfolio level. And the danger would be, could it be cherry picking here? Maybe you can find a few examples that look good but, what if you look at the whole portfolio? And I think it's very important to look at the portfolio because if you're finding innovation, the typical pattern for innovation funders is that, if you get a few big wins, that's gonna pay for your portfolio.

[00:12:00] So did that happen here? Well there were 43 DIV awards, made in this 2012 through 12 period that we're looking at. The value of those was 17.3 million dollars. So, calculating the benefit cost ratio, the social rate of return for each one of those. First, it's unrealistic. I haven't given you the full details, but it's a huge amount of work to calculate the benefit cost ratio social rate of return for each of these. Doing that for 43 projects is not really feasible. Second, it's even conceptually impossible. Some of these projects were designed to reduce voter fraud for example, how do you put a dollar value on that, even if you could show that voter fraud was reduced. But the good news is, that it's not only unrealistic, it's not only impossible, but it's also unnecessary.

[00:12:30]

[00:13:00] If what you're trying to do is to assess how you performed against in our case, this 15 percent social rate of return threshold. So why is that? Well, what we did in this exercise was we estimated a conservative lower bound, I was worried that was redundant, but it should be redundant because this is gonna be a particularly conservative lower bound. On our portfolio level benefit cost ratio and social rate of return. How do you do that? So we're gonna look at the net-present value of benefits just for a subset of projects. In fact, just for these three out of the 43 projects that I mentioned, and we're gonna set that against the cost, not for those three projects, but the cost for our entire portfolio 43 projects.

[00:13:30]

[00:14:00] Now we'll also continue to make these sort of very pessimistic assumptions on future reach. And the worst case, assuming that nothing happened after 2016. Despite the fact that these organizations all have additional funding going into the future from outside DIV. Okay, so we'll focus on the projects with high reach. By reach I just mean the number of people, number of beneficiaries. Why focus on those projects? Well, the benefits as I indicated earlier are equal to the number of people reached times the benefits per person. So if you don't have a substantial number of people reached, it's very hard to have a high contribution to the total value of total benefits that have been created. Reach isn't sufficient for benefits, you can have a project that doesn't do any good, but it isn't necessary condition for it.

[00:14:30]

[00:15:00] And it turns out that the distribution of reach is very highly skewed. So just to give you a sense of that, take a look at this page. This shows six innovations that reach more than a million beneficiaries. And as on the side, we're thrilled about that, because there are very few social entrepreneurs who've reached over a million people. And out of our first 43, six of them reached this. These six reached about 25 million people total. If you look at the next six, those were between 100,000 and a million people. Those reached a total of less than a tenth as the top six. If you go down to the next 31, they were all under 100,000, and they're probably gonna be a very small proportion of our total benefits. So we don't really need to look at those bottom 31.

[00:15:30] Just in terms of our overall impact, this reach is obviously a very crude indicator. But the cost per person reached is about 75 cents, so it's for our portfolio as a whole, so very favorable. So if you look at the innovations with the two highest reached, we can't really assess the value of either of those because they both were about elections and reducing election fraud and so on. So we're gonna ignore those benefits in the calculation. The next two, we've talked about already. The two after that probably had quite substantial benefits. Lend in 1.5 billion dollars to over a million people, probably large benefits. But

[00:16:00]

we're not gonna count any of that, we'll just look at these three.

[00:16:30] So, even with these very conservative assumptions, we see that setting the benefits of these three projects against the cost of the entire portfolio. If we assume that there are no more benefits after 2016 at all, we'd have a three to one benefit cost ratio. If you assume that there's no expansion of any of these programs, they just stay at their current level until 2021 then end, there's a 7.5 dollars of benefits for every dollar of cost. If you put that in terms of social rate of return, then our bench mark was 15 percent, that was an ambitious benchmark. But even with just these three projects, we've already beat that, and we have a 39 percent annual rate of return, a phenomenal rate of return for an investment fund.

[00:17:30] So I think overall, it looks like we're doing quite well. If we wanna use this as a management tool, have to think not just, did you beat your benchmark or did you not, but which types of projects were the ones that were most likely to scale. So let me show you some results on that. So one striking finding is that, if you think about the typical image of a social entrepreneur, this typical image is they'll get to scale through commercial scales to the ultimate beneficiaries, they'll sell to customers. But just as with private businesses, it's very important, they're a lot of firms that sell to other businesses or sell to governments. And what we found is in the social entrepreneurship space, there's a very big customer acquisition cost.

[00:18:00] So what we found was that the ones that scaled to over a million, typically what they did was they were selling either to other businesses or to governments, or the innovations that were adopted by them. Now interestingly, these innovations do not start out, typically, coming from the large organizations themselves from the governments or from the large businesses. So they were eventually adopted by them, and not paid for indefinitely by the US tax payer either, paid for by others. We're not started by these large organizations typically. They were started by a variety of different types of innovators. So how do you get a sense of which ones have that potential to scale? Because we didn't have the sign unnecessarily for any of these six from a large organization. Well the first indicator is a low cost per person. It's at extremely low costs. Second one is, rigorous evidence of impact. And often this went with development researcher involvement.

[00:19:30] So all six of these things that scaled had development researcher involvement. Out of our total portfolio of the 43 innovations, 25 had that, a quarter of them scaled to over a million. If you looked at the ones that didn't have that, actually none of them scaled over a million. So some of them reached to the 100,000 to million range. Final finding, was that we had very high reach per dollar spent from pilot and testing stage awards. The larger scale grants did very well as well, but not as well per dollar spent as the early stage piloting and testing, even though they had a lower rate of getting to over a million, they had a higher rate per dollar spent.

[00:20:00] So what are the conclusions of this? Well first, [inaudible 00:19:50] evidence-based open innovation funds can deliver measurable results. As just to remind of the bottom line result, at the minimum it was three dollars in benefits for every dollar in cost, and a 39 percent annual rate of return. Think the broader lesson is, it's very important to stay

focused on the portfolio level social return, to ensure that you're taking smart risks. It may seem conservative to only invest in things that you think are a safe bet, but actually, it's by taking these risks, these smart risks that you actually find things, and then rigorously testing to find what works, that you find the things that ultimately are scale and turn out to be incredibly cost-effective. Thanks.

[00:20:30]