« Moving to Opportunity »

Jeffrey KLING, The Brookings Institution

Thanks for inviting me. It's delightful to be here. I'm going to talk primarily about a particular project that I've worked on with a large team in the US. And just to give a little bit of context to this, there is a long tradition of having pretty large scale randomized experiments, particularly on US labor market policy and this study comes in that tradition, being a bit larger in scale and more closely affiliated with government policy than some of the things that Abhijit and Joshua Angrist talked about this morning.

Over the last forty years in the US there have been a long series of randomized social experiments, particularly in employment and training, and in welfare to work policy, and there is a nice catalog of all these in the Digest of Social Experiments. There are literally hundreds of trials that have been undertaken, and there's an evaluation industry in the US. There are three major firms and hundreds of millions of dollars of business that they do in evaluating programs for the states and the federal government that have been undertaken. In the last six years or so, Abhijit was emphasizing the major developments in social experiments in the area of development economics. In the US, that has also been true in the area of education, where the Institute for Education Sciences has sponsored many new randomized studies.

The one I am going to be talking about today is in the housing policy area, in particular about the use of public housing vouchers. The idea is that in the US there are a large number of apartment buildings owned by the government where people can live for very low rent and you have very high concentrations of very low income people all living in these government-owned apartment buildings. So people are very interested in the question of what happens if you deconcentrate poverty and if you offer people housing vouchers that they can use to move out of these government-owned units into private market apartments where there is a lower concentration of poverty around them.

You might think that this would be beneficial for people in families, especially some of the children who would be living in safer neighborhoods; they would tend to have role models who had more education or who were more attached to the labor force. On the other hand you might be worried that they would experience some adverse effects. For instance, if you used to be in the middle of your class then you move to a new neighborhood where you're now at the bottom of the rung of academic achievement then how will that affect kids?

These are some of the questions that we were trying to address by looking at some data. What are the impacts of having families move to different kinds of neighborhoods? The way this experiment worked was that in 1994 to 1998 in five different cities in the US, families in public housing were eligible to participate and there were forty-six hundred families in this demonstration. One thing that could happen to you if you were one of the forty-six hundred families who were interested in participating was that you participated in a lottery and eighteen hundred people received what were called low poverty vouchers. This is something where you could move to a geographical area that had an area-wide

average of poverty rate of less than ten percent, and then you could use this voucher to help pay your rent in that area and you also received some counseling to help you move into one of these areas. And so about half of the people that were offered these low poverty vouchers actually used them to move to a new place.

Then there is another group that received a traditional voucher which in the US is known as a Section Eight voucher, closer to two-thirds of the people who received one of these traditional vouchers that you could use to move wherever you wanted—it wasn't geographically restricted to people being in a low poverty area—and a larger fraction of them used this one. Then there was a control group of people who continued living in US public housing who didn't receive any new assistance through this housing voucher lottery. The families who are participating in this demonstration are primarily mothers with children who don't have male adults in the household. Less than a quarter of them were employed at the time when this started, although over time many more people became employed. The results that I'm going to talk about really came from a large amount of data that we collected about five years after people had been offered these vouchers, and so this graph shows you, in the control group, some of the conditions in the neighborhoods, where you could see what the average poverty rate was, how many people reported being victimized by crime, or other statistics. And then the red bar shows you, for the low poverty voucher group, that these were much lower, so the average poverty rates are lower, the percentage victimized by crime falls from twenty-one to thirteen and so on, so that the local conditions were substantially improved.

For the adults, one of the things they were interested in testing was whether if you moved to a lower poverty area, people would find it easier to obtain employment, perhaps because the labor market was better there, or because they would have more connections to people who were working who would help them find jobs. That turned out not to be true. There is not an appreciable impact on labor market outcomes of the adults. They are a bit more healthy. Particularly in terms of mental health, the adults are doing better. Similarly for youth, people were interested in whether being in potentially different schools or having different peer groups was going to have an impact on educational achievement. That also does not seem to have borne out in that the test scores are not particularly different in math and reading between the control group and the low poverty voucher group.

There were much more substantial differences in some things. The teen girls were much less distressed, much less likely to use marijuana, had fewer behavior problems, and were less likely to have been arrested for crime. The opposite seems to have been the case for the teen boys. The red bars are the control group, and the yellow bars are showing that they are more likely to use marijuana, more likely to have behavior problems and more likely to be arrested for crime. So there was this particularly unexpected gender difference. Joshua Angrist talked a bit how in the educational incentives it seemed that the girls were the most responsive, here not only are the girls more responsive but there actually seems to have been some adverse effects on the boys.

To summarize, there's improved housing, increased safety, and lowered adult depression.

There are even lower rates of adult obesity that were accompanied by slightly higher rates of exercise or they were more likely to eat a healthy diet. It seems to have been good on most dimensions for the teen girls, not so good for the teen boys and had little effect on employment or on kids' achievement.

In terms of thinking of the cost benefit analysis for something like this, from the government's point of view, they are paying about the same for having people in public housing units or paying for the vouchers that people used to move to different areas. If you think of the positive effects for teen girls, then the negative effects for teen boys are basically a wash. And since the higher mental health of the adults is a benefit, then you might say this is beneficial overall, although it's hard to make this characterization, because it's hard to say exactly how to weigh the fact that the boys seem to be somewhat worse off.

What we are doing now is to look at much longer term impacts. We are just starting a survey now, where we will be looking ten to twelve years after people have received their housing vouchers, and collecting some data. So we are interested in what the long term effects are, how they evolved over time, and especially, what the impacts on kids were, who were very young when they received a housing voucher. So if you were one or two years old and your family moved, then we will look at what's like for you to have spent your whole life in one of these areas relative to other kids in families who were not offered a voucher and didn't have this opportunity to live in a different kind of place.

Some of the mechanisms we are trying to look at more are the social ties and whether there was an important difference for boys versus girls, and at their connections to adult role models. We have some preliminary evidence that it was more disruptive to teen boys to have moved away from, say, their uncles or their mother's boyfriends, or other adult male role models; they didn't seem to have these role models after they moved to low poverty areas. We're trying to dig into that some more to understand what was happening to them. We'll be using a variety of different types of data so this gets to some of the innovations of measurement Abhijit talked about this morning. We will do some administrative data, looking at some public assistance receipts, employment and earnings, some survey data where we can craft specific questions so that we can get at things like the adult role model questions I mentioned a second ago. Some things that are more specifically about physical health, that is, height, weight, and waist measurements, blood pressure, trying to look at some of the early precursors in blood samples for cardiovascular disease, having kids do some math and reading achievement tests for us, and looking at what is happening in the neighborhood. So we will look again at the same categories for which I showed you graphs, in terms of education, employment health and risky behavior measures and try to learn what we can in the long term about what the impact of moving to new areas has been. Thanks.

Thierry MAGNAC, Ecole d'économie de Toulouse

Thanks for this interesting paper. I'm just going to go over again all the main motivations for the paper, then I will talk about measuring things related to changing neighborhoods

and these kind of questions. The main motivation for the paper is to measure the effect of housing policies in the US, so in particular, we have a policy of deconcentration of vouchers which aim to deconcentrate the poverty, get people out from high poverty neighborhoods to low poverty neighborhoods, these are in particular the kinds of questions that are asked in this research project, while the tools that were used are a controlled experiment in which there are two Treatment groups, but in fact the authors are mainly talking about the second treatment, which is an experimental treatment. This is typically the voucher that helps households to move from a high poverty neighborhood to a low poverty neighborhood. So what are the main messages of the paper? In particular, I am talking about the paper published in *Econometrica* four years ago. The first message is that the target rate of the voucher is reasonably high. This is only reasonable because only fifty percent of the second treatment group takes up this sort of vouchers and they don't move out.

That is the first thing. The second thing is that the outcome of these vouchers, of these public housing policies is mixed. There are plenty of outcomes which do not respond to this type of experiment and this is only physical, mental health for girls that seem to really respond to this. In fact the questions that are asked in this paper if we want to enlarge the context in which these questions are asked, the questions about how to learn about neighborhood effects. The value of effects involved in this kind of measurement, we summarize them usually as selection issues, reflection problem, and this kind of thing so to make my idea clear, I'm going to make a quick example; there will be only one question.

We have an outcome Y for a household living in a certain neighborhood and this outcome is related to the usual controls which are the *xi*, income for example or anything you can think of, socio-demographic composition of the household, and there are variables related to the neighborhood. So in particular you are interested in the effect of the poverty rate in the neighborhood on the outcome. So this is described by the variable Z, and the parameter of interest that you want to measure is β. You have other characteristics of the neighborhood that entered this equation which are the ε and you have unobserved heterogeneity across households which is described by U, so this is a very simple type of model and criticism can be applied. Notice that you have a more generous treatment effect because you are interested in the fact that you move one household from high poverty rate neighborhood to a low poverty rate neighborhood.

The question you ask when you try to think about the estimation of this kind of parameter, well the main question is a question of causality, and the question of causality there is the variation in the Z across households, the Z of the poverty rate in the neighborhood, are these exogenously set and is there exogenous variation of Z and the response is no in general, because households self select into different neighborhoods for reasons we don't know completely but the U could be correlated with the Z in this case, so there is no exogenous variation in that case. There could also be some correlation between the Z and the ε, so if you move Z, you are going to move ε at the same time, so the question is, in survey data in neighborhood studies, it is very difficult to get exogenous variation of Z.

So the response is, we do a social experiment so what would be the ideal experiment that you would like to do in order to get the effect you want to measure. The ideal would be to change the characteristic Z in a characteristic Z' without affecting any other characteristics so it is called an intervention. Obviously, it is quite unfeasible in this context because you need to increase the poverty rate characteristic for one household moving for any household, in the sample from one value to another so it could be done by injecting a lot of money into this neighborhood, by making neighbors rich for example. But it is kind of implausible to do this kind of experiment, so in the controlled experiment that is studied here we do something that mimic the intervention, but it's not exactly the intervention, because what you do is you force people to move from one neighborhood to another neighborhood, and in this other neighborhood the poverty rate is going to be different. This is what is done in this controlled experiment, you randomize and the treatment group is given a voucher to help them to move out of the high poverty neighborhood, to the low poverty neighborhood and this is creating exogenous variation. In conclusion, randomization is an instrumental variable, if you remember econometrics classes, because the causality diagram is very simple.

Randomization affects Z, so R affects the characteristics of the neighborhood Z, which affects the outcome Y. And the only way it affects Y is through the variable of interest Z. But there are limitations to this, because there are differences between the ideal experiment and the controlled experiment. The first thing is that—and this is a general comment on controlled experiment—is that randomization of this is usually answering a single policy question in the direction of the randomization. You just move from Z to Z', so you don't study anything else related to these housing policies, just this part of the question that is of interest to you, so controlled experiments have usually a quite focused question. The second point is that randomization has the same issue as instrumental variable estimation, when the treatment effect is heterogeneous. What you get is the treatment on the treated and this is not always the case, that you are interested in the treatment on the treated, you might be interested in other parameters, if you want to scale up the program, for example, and this kind of thing. So one issue in the controlled experiment is that the parameter of interest should be defined well in advance of the controlled experiment. The experiment should be tailored to this need and one question that I have is how was the actual process in this experiment in this MTO experiment in order to define these parameters in advance and to tailor the experiment to this need.

On the side of limitations, the first limitation that I see in this experiment is the imperfect control that you have because it could be the case that randomization does not affect only the variable of interest Z, it could affect other variables, and particularly it could affect the ε, so in terms of my model, it means that if I change neighborhoods I am not changing only the rate of poverty in the neighborhood, I'm changing the networks of the person, I'm changing the school where the kids are going, I'm changing everything. I do not control everything that I am changing. So what is the parameter? I agree that I am changing the parameter that is being measured, but what is this parameter?

The other limitation is the imperfect compliance. Only fifty percent of people complying with the voucher used the voucher. In the experiment, apparently there are no selection on observables, but there might be selection on unobservables, and so what you get is the treatment effect on the treated. But it is not clear whether this is exactly the parameter we are interested in in order to scale up or scale down this sort of problem. And there are other things related to controlled experiments, such as general equilibrium effects.

So, on the results, the question is whether on the results or the surprising absence of results that we get can be accommodated by the limitations I just talked about. There is the second question, can we go further, can we do a cost benefit analysis on this, on whether it is worth implementing the policy because that is really the question behind the usual evaluation type of study. The economic question could also be interesting, i.e., why are our households moving? Why do some households move to a low poverty rate, can we use the data produced by the experiment to understand why in this case households are moving. So it is going to explain something about compliance and non compliance and its going to be informative about the way you are going to be able to measure other parameters, than the treatment on the treated and the last question is what are the consequences that you draw for future experiments about the neighbourhood effects?

Béatrice SEDILLOT
I thank you very much. I suggest first you answer some of the questions from Thierry and then we go to questions from the audience.

Jeffrey KLING
I'll address a couple of things. One is about which parameter are we really interested in and how would you scale up this kind of program if you wanted to. There are two questions that the people in the US have been particularly interested in. One is what happens if you introduce a number of new vouchers spread across many cities, and so, if you, say, had five hundred more vouchers in Phoenix and five hundred more vouchers in Las Vegas and five hundred more vouchers in Seattle, what would that do? And then another question is what happens if we blow up the public housing projects and shut them down and make everyone move. This experiment is exactly well suited to the first question of what happens if you have incremental expansions of voucher programs on the order of, say, a billion dollars a year which is roughly what we have been doing in the US. This experiment is very well targeted to that question and less well targeted to the question if we just eradicate public housing. So I think people are interested in both questions and this is well targeted to one and less well targeted to the other.

The other thing I'll comment about is the idea of the bundle of the neighborhood characteristics; so if we think of this demonstration as being about neighborhoods then you could index them by the poverty rate. But I wouldn't want you to think that we were intending to hold everything else constant and just change the poverty rate. Let's say hold the fraction of high school graduates constant or the criminal victimization rate constant like that. The whole bundle of characteristics is changing in the way that you described and so we think that the poverty rate is a way of indexing that bundle to give you a sense of how dramatic the changes have been, but we are consciously intending all of those

things change, because, in fact, that happens when people move into very different neighborhoods.

Thierry MAGNAC
But if you propose a voucher instead of indexing the voucher on the poverty rate of the new neighborhood, you could index the voucher on other characteristics in the neighborhood, and you would get a different answer in terms of estimated parameters. Because you targeted the way you constructed the experiments on the low poverty rate so every time you index on some other variables you are going to change the measurement that you do on the impact of this policy. Aren't you?

Jeffrey KLING
I think there are two parts to that, one is the characteristics of the low poverty voucher itself. So the voucher has a specific requirement in it, that you have to move to something that is called US Census Tract, which is a geographic area where four thousand or so people live, and the poverty rate as measured by our 1990 census had to be ten percent or less in order for it to qualify. That is a technical requirement of the voucher itself and you could have had other requirements, you could have based it on the criminal victimization rates in the neighborhood or some other thing. I think the second part of that is how you think about what the bundle of characteristics is, in particular about whether you think it's a linear poverty rate effect. In some other analysis we've done we looked at different cities. I mentioned that there were five different cities and two different treatments, so you could look at what's the impact in the Boston site for the section eight group, which had relatively small changes in neighborhood characteristics, or the site for the experimental site in Los Angeles that had a very large change in neighborhood characteristics. If you graph that where you're looking at the change in the neighborhoods on the x-axis and the outcomes on the y-axis, those appear to be very linear in poverty rate space. To the extent that you change the measurement of that, that relationship wouldn't necessarily hold, if you use some different characteristics there, that is definitely true. Our main goal there is mainly to illustrate the results in a metric that has some intuitive appeal. Then you suddenly understand what it means to have a poverty rate that has been cut in half; it is a way of communicating the results.

Béatrice SEDILLOT
Thank you. Je cède maintenant la parole à la salle. Y a-t-il des questions ?

Un intervenant
I was a bit surprised to see neither of you relate this to the peer effects literature. It is mostly in education, but I guess my reading of that literature, I'm not expert, is that actually pure effects are pretty difficult to detect. They probably differ between boys and girls which is certainly indicated in literature and thoroughly here as well, but I guess my reaction is to say well, given that literature, it is not surprising that you're not getting terribly big impacts here. Either they don't exist or they are really very difficult to detect through standard statistical methods.

Jeffrey KLING

Monsieur, I think that whether you say they are big or small, or if there are no effects, really depends on what you're interested in. So if you are, say, a labor economist such as yourself, then you might say, oh, there is nothing here, and if you were interested in peer effects on kids' education, you might say there is nothing here, if you're a public health person who's interested in, say, what's the comparison between providing pharmacological interventions where you're giving people medicine, or where you're giving people high doses of counseling, or whether you're giving them a housing voucher to move to a new neighborhood, the magnitudes of those things are approximately the same, which is, in that sense, a big health intervention. I think the magnitude depends on which outcomes you are talking about and what you are interested in.

Béatrice SEDILLOT
Ce qui est très frappant, dans cette expérimentation, c'est le fait que vous vous inscrivez dans un temps long d'évaluation. Vous mesurez l'impact pendant des années, jusqu'à dix à douze ans après l'affectation aléatoire. Certes, cela est important pour arriver à voir des effets de long terme. Mais lorsque l'on se situe douze ans après l'affectation aléatoire, comparer les populations signifie que, pour tous les événements qui vont pouvoir les différencier au fil de ces douze ans, l'on fait implicitement l'hypothèse qu'ils ne sont liés qu'aux effets de voisinage. Est-ce que cette hypothèse n'est pas forte ? Même si les populations étaient initialement identiques douze ans auparavant, ne peut-on imaginer que les divers événements qui ont pu survenir depuis font que l'on doit les différencier d'une façon ou d'une autre, ce qui pourrait peser sur les résultats que l'on observe après d'aussi longs délais ?

Jeffrey KLING
The ten to twelve year study that I mentioned has not yet been done, but we are collecting that data now. The analysis plan is to address the issues that you are thinking about—looking at the difference between the low poverty voucher group and the control group over time. There we are relying very directly on the power of the random assignment. The average outcome would have been the same except for the fact that one whole group of families received their voucher in the lottery and others didn't—so the only thing that distinguishes them is that they got that different lottery draw. So we are relying directly on the random assignment and the differences between those groups are all going to be traced back to that.