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Warranting the use of causal claims: a non-trivial case for interdisciplinarity [*]

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ABSTRACT: To what use can causal claims established in good policy studies be put? We isolate two reasons inferences from study to target fail. First, policy variables do not produce results on their own; they need helping factors. The distribution of helping factors is likely to be unique or local for each study, so one cannot expect external validity to be all that common. Second, researchers often give too concrete a description of the cause in the study for it to carry over to the target. Abstraction is necessary to get causes that travel. There is no sure-fire way to guard against these problems. But the unavailability of one perfect tool does not imply there are no second best contrivances. Two general pointers for Good Practice in policy advice follow from our diagnosis: focus on the concrete details in the target and use cross discipline heuristics that diversify background knowledge.

Keywords: causal inference; ceteris paribus; policy evaluation; abstraction; prediction; external validity.

RESUMEN: ¿Qué uso podemos hacer de las tesis causales que encontramos en los buenos estudios sobre política aplicada? Distinguimos dos razones por las que pueden fallar las inferencias desde la población en el estudio a la población general. En primer lugar, las variables que usamos en política no generan resultados por sí solas. Necesitan factores coadyuvantes. La distribución de estos factores es probablemente única o local en cada estudio, así que no hay motivos para esperar su validez externa. En segundo lugar, los investigadores a menudo dan descripciones demasiado concretas de la causalidad en el estudio como para poder generalizarlas. La abstracción es necesaria para obtener causas que viajen. No hay ningún modo absolutamente seguro de evitar semejantes fallos. Pero esto no implica que no haya arreglos subóptimos. De nuestro diagnóstico se siguen dos orientaciones generales sobre las buenas prácticas en la asesoría política: concentrémonos en los detalles concretos de la población en la que pretendemos intervenir y usemos heurísticas transdisciplinares que diversifiquen nuestro conocimiento de fondo.

Palabras clave: inferencia causal; ceteris paribus; evaluación de políticas; abstracción; predicción; validez externa.

1. Introduction

Policy makers need reliable predictions in order to make things happen as planned. Using results of good scientific studies should help make these predictions more reliable. This paper identifies two ways in which predictions based on good studies often go wrong in concrete cases and proposes some general strategies for improvement. Our focus is not on prediction per se –where issues of confirmation, falsification, and underdetermination of theories by the evidence are involved– but verifying that a predicted outcome will emerge in a target situation due to the causes researchers believe to have isolated for that very same outcome in a study situation.

The trouble with using studies like randomised controlled trials (RCTs), or other methods to find out what works and what not, is that what the studies report a policy

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to have produced in one concrete situation is often not what it should be expected produce in others . We shall describe two reasons for this.

1. The first is *helping factors*. No matter how detailed and how complete the policy description, the policy by itself is almost never enough to produce the desired outcome on its own: it needs helping factors. A policy introducing a program modelled on Mexico's Progresa may be a good way to improve rural welfare, but not if it requires participants to attend clinics that don't exist. We often do not know what the required helping factors are and *a fortiori*, whether they will be present in the new site. Even in the case that the helping factors that will make the policy work are the same in the study and the target, some other distribution of these factors is always possible in the target than in the study – indeed, it is often probable. So the overall results will be completely different.
2. The second reason is that often *we lack the 'right' description of the policy*, 'right' in the sense of a description that focuses on a feature that generally brings with it the power to produce the desired outcome when coupled with the requisite helping factors. How generally? At least general enough to cover both the study and the target.

We shall confine or attention to cases where the outcomes in both the study and the target settings are indeed due to the operation of causal principles that hold more generally. This may not always be the case. Some policies that are shown to work in studies may do so entirely locally. There is a kind of wholism at work: there's *no* description that picks out a feature of the policy that carries a general causal power. When that is the case, the study result will definitely be irrelevant to the target. This is not the kind of case we have in mind. We are concerned that even when there is something to generalise about the policy, the right generalisation may not be captured by the description given to the policy in the study. Study situations are necessarily defined with the help of some particular set of conceptual tools that could have been chosen differently. A central part of the scientific enterprise is to discover or devise just the right concepts that will figure in principles that hold widely. When we try to generalise using the wrong concepts, we are likely to make the wrong predictions.

We offer a diagnosis and a broad approach to a cure for our two problems. We use two distinctions for the diagnosis. One distinction is between abstraction on the one hand and the ubiquitous use of ceteris paribus clauses on the other. The other is between the conceptual apparatuses available from various different disciplinary perspectives. This latter leads naturally to the suggestion that: 'multidisciplinary framing' can help make the impact of our two problems less severe.

2. Why do policies go wrong?

Consider an example that Cartwright discusses in her PSA address (forthcoming): the World Bank effort to reduce infant malnutrition in Bangladesh by a program started in 1995 that targets both the availability of food and the education of mothers, the Bangladesh Integrated Nutrition Program (BINP). Baby growth was systematically moni-

tored and the data formed the basis of an evaluation. The Bank used a blueprint approach, "proposing a design based on the Tamil Nadu project (TINP) with little effort to adapt the project to local circumstances" (World Bank 2005a, 4).

The underlying idea of both projects was based on the observation that data showed no simple relation, at least not locally, between poverty and food insecurity. So behaviours related to feeding of young children were taken to be more important than the mere availability of food. Following on the Tamil Nadu models, Bangladesh instituted a program whose major components comprised nutritional education for pregnant women and mothers of young children, provision of supplemental food where deemed necessary, and monitoring of the young children. The picture that emerges from several studies is that in Bangladesh "nutritional outcomes have been disappointing" (World Bank 2005b, 39). The Bank concludes that consideration 'of the context and attention to detail in implementation are, rather needless to say, vital ingredients of program success' (World Bank 2005a, 25).

The authors may find it needless to say. We do not. We believe that context is all too often disregarded in using studies to predict outcomes of policy interventions elsewhere. Anyone who tries to learn from a study situation and implement the acquired knowledge in a new situation faces the possibility that the policy does not travel (wholism) or if it does, it does so under a different description than that given in the study, and that the helping factors are different, or, if the same, that their distribution is different. The chances that everything is more or less the same, or the same enough, seem low. In Bangladesh, caring practices, culture-specific consumption practices by women, intrahousehold food distribution, and personal hygiene constituted the most significant set of nutritional determinants (World Bank 2005a). This should sound a warning bell that the Bangladesh case may be different from Tamil Nadu, although it can be difficult to assess beforehand precisely what difference these differences make.

Suppose for instance that we expect education levels to influence the ease with which people adopt the better nutrition and hygiene practices they learn from field counsellors in the project. So before evaluating the success of the intervention we correct for differences between TINP and BINP in the average family's education. But while education of mothers directly affects child health, education of fathers does so only indirectly. This is because mother's education is a reliable proxy for basic knowledge about caring practices and of techniques such as the use of rehydration salts. Also educated mothers may have a greater say in the family's decisions on nutrition and health. Fathers' education may only matter for its determination of socioeconomic status and earnings capacity. The evaluation carried out by the World Bank took notice of these causal factors only after the project was judged unsuccessful.

The trouble is not that of mere external validity. One standard sense of 'external validity' takes it that a study is externally valid if the same effect size could be expected in target situations as in the study. *Effect size* is the difference in the mean of the outcome in a group that is subject to the policy (the *treatment group*) versus a group that is just the same except that the policy (and its downstream effects) is absent (*the control*

group). This difference depends on what the helping factors for the policy are in the two settings and on how they are distributed.[1]

In this sense, it seems that few studies in the social policy realm should be expected to be externally valid because there are always too many possible distributions of the combinations of helping factors. Another common sense of 'external validity' has it that a study is externally valid when the *direction* of the effect – positively causally relevant, negatively causally relevant, or neutral – is the same in the study and a target situation. But this too depends on the distributions of the helping facts in both the study and the target populations. In the not uncommon cases where a cause can have both positive and negative effects depending on which helping factors it combines with, whether the direction of the effect is the same or not depends entirely on the weights of the positive- and negative-making helping factors in the two populations. Since it was clear from the outset that parent behaviour affects child health it was especially hazardous to generalise from the given study situation to the new policy situation. The behaviour related to feeding of young children varied locally more than fixed social patterns like income distribution. This variation gives rise to a host of combinations of helping factors necessary for any cause to produce the intended outcome.

The point, above all, is that the right distribution of the right helping factors for the right description of the policy variable should obtain in the new setting. How do we come by the knowledge that it takes to make this likely? Think about 'the right description'. Both the study description and the description of the policy under consideration in a target setting employ abstract conceptualisations to describe the world. The conceptualisation chosen both limits and enables our view of this world, so the trick is to pick the conceptual tools so that we learn the things we need to know to predict if our polices will produce the intended outcomes. Just as it is abstraction that helps us link both burning and rusting with oxidation, we should abstract from the Tamil Nadu case so as to inform ourselves about the causal factors that matter in the Bangladesh case. The alleged implications for Bangladesh turned out wrong. The policy did not produce the same rate of success – in part because abstraction from the study situation had run amok.

The positive expectations were the result of abstracting the wrong properties from the swamp of concrete detail. Mothers were provided with nutritional counselling in Bangladesh but it turns put that in the target Bangladesh populations, not mothers but mothers-in-law are usually in charge of food distribution in the family, and mothers have little to say about it. If there was a causal power in the offing that could improve infant nutrition in both Bangladesh and in Tamil Nadu it did not lie in *counselling the mother about nutrition*. A more abstractly described feature may well have a general enough causal power to work in both places though: *counselling the person who distributes food about nutrition*.

In the following two sections we offer an analysis of what the kind of abstraction we are talking about entails and how it differs in relevant ways from the use of clauses that fence off disturbing factors. Here we merely note that the conceptualisation to be

[1] For a formal derivation of this see Cartwright (forthcoming).

chosen depends on the policy needs the study is done for in the new and unfamiliar target situation. To put it more bluntly, it depends on what you want to know.

Here is another example showing good reason to take the target situation as the source of the building blocks of our conceptualisation. In neurology male rat brains are used as a model for the human brain due to many physiological similarities. Most experiments on brains are seen as ethically intolerable to humans. But how can a rat generate a model for men? This is easy to answer for researchers because they use the results only as a heuristic to guide further research on humans. Thus they find, among other things, that rats who lose social status grow fewer dendrites between their neurons. They become less resourceful and less energetic. But is this true for humans as well? This can be a question for further research on humans. But now, the real trouble is that all those rats that are subjected to experiments are male. This is because female rats have a three-day menstruation cycle and due to this few physiological variables remain constant. This makes them impracticable as objects of research. A new question emerges: can you draw conclusions about the relation between social status and dendrite density of female human brains if you start studying male rats?

The point here is to pick those properties of the subjects in the study that allow you to infer claims about the target that matter. It is not just a matter of checking what you are really measuring but a matter of relevance. The study of rats does not in itself give a clue as to whether you can infer from claims about male rat brains to claims about rat brains and next to claims about humans, or to claims about male humans. We do know that testosterone levels correlate with aggressiveness, but we have to also take into consideration that male and female human behaviour differ in particular contexts.

In brief, policy relevant science deals with the gap between the set of factors that matter for policy questions in one concrete case and those that matter in another concrete case. This makes learning from past experiences a bumpy ride. To the extent that we are approximately informed about possible structures the world may take, we more or less understand some bits of the world. Hence the importance of focussing on contexts: without them we lack the signals that guide us toward the right kind of conceptual apparatus to drive our abstractive reasoning.

3. Abstraction and concretisation

In science and daily life, we must abstract sufficiently, because if we don't we will be swamped in irrelevant detail. We will not learn enough. But it is possible to abstract too much, causing a researcher to lose track of the connections needed to concretise back to the target. Moreover, and this is what interests us most, we have to abstract in the right way. For example: consider a study that looks at the causal relations between study variables T: *planet is subject to the pull of the sun* and O: *planet moves in ellipse* and concludes 'T causes O'. But the causal relation in this 'study' is a concretisation of the more abstract Newton's laws, of which T': *cup is released from hand*, and O: *cup drops*, are also instances. Generalising with the concepts in Newton's laws shows just how the results of the study of planetary motion are relevant to predicting the outcome of dropping the cup. Theorising comes with a disciplinary predetermined selection of the

properties of a phenomenon that we theorise about. Sociologists do not look for molecules. The trick is to abstract well.

It is very easy to overlook this issue or to suppose it is already well understood because it is easy to conflate very different notions together. There are in particular two different processes that sometimes go by the same name that should be distinguished because very different work is required to handle the one than the other. So we will devote some effort to laying out both so that the difference is clear. Sometimes *abstraction* is used –in a different sense from ours– when we consider what a cause together with its requisite helping factors produces on its own, 'abstracted' from other causal complexes that affect the same outcome. But here is a fundamental difference between isolating variables, like a cause and its helping factors, from disturbances – which we wish to call 'idealisation' and will explain further below– and redescribing a set of factors in more abstract terms –which is the sense we mean here. Abstracting in our sense involves selecting the information from an already familiar situation in a way that makes visible patterns that otherwise remain hidden in a more concrete description. Consider an example that has a bearing on both social and natural science.

Animal and human group behaviour may be guided by the same algorithms although on the surface we see ourselves as different. Humans who live in an environment of plenty grow fat when they eat as much as they can. This is unhealthy, but it is evolutionary advantageous to go for a maximum intake in the wild if animals are rarely in the position to eat much. In this sense, our own fat accumulation was healthy once, but, given the prolific human food production in the rich part of the world, it isn't anymore. In studying eating behaviours we can move 'up' from the descriptions that involve concepts we tend to see as peculiar to humans ('overeating') to algorithms that are correct descriptions of both realms, human and animal ('optimal carbohydrate intake'). Only then do we derive a more sophisticated approach that allows talk, for example, of fat pets that overeat. Without the leap towards the more abstract concept of 'optimal carbohydrate intake' we could think of fat pets only as a sort of humanlike animals without an explanation of the observed difference between fat pets and wild animals. So we use abstract theory in order to arrive at a view of the relation between physiological and behavioural aspects of life that has more scope: it applies both to culture and nature. Other examples abound, for example on crowd behaviour (birds in the air and humans at a city square) or on mating behaviour.

But what goes up must come down. The abstract theory has to be applied in concrete cases. Both burning and rusting instance the more widely recurring, more abstract property, oxidation, and even more abstractly, molecular disintegration. Oxidation looks very different in the concrete in the case of paper than in the case of iron. Knowing, abstractly, that oxidation has occurred in a particular case does not tell us whether to expect ashes or rust. Knowing that counselling the person who distributes the food will help infant nutrition does not tell us just who it is we should counsel in Tamil Nadu, in Bangladesh or in Mayfair, where it is likely to be the nanny.

In concretisation –i.e., in moving down from an abstract description to a more concrete one we may know more immediately how to apply– the job is descending; see the figure below. Scientists may try to isolate the effects that can be attributed to

specific, well defined factors. This is what we just called 'idealisation'.[2] Figure 1 shows that a ceteris paribus clause 1 applied in the study situation fences such factors off. So does another clause 2 in the target situation. This means the factors are studied in so-called 'ideal' situations, 'ideal' both in the sense that they are generally not real –for most cases no real situations have only that one factor under study at work– and in the sense that these situations are good for coming to understand the separate contribution made just by this factor alone, subtracting out the influence of other factors on the same outcome. The move called 'generalisation' in the figure is discussed below.

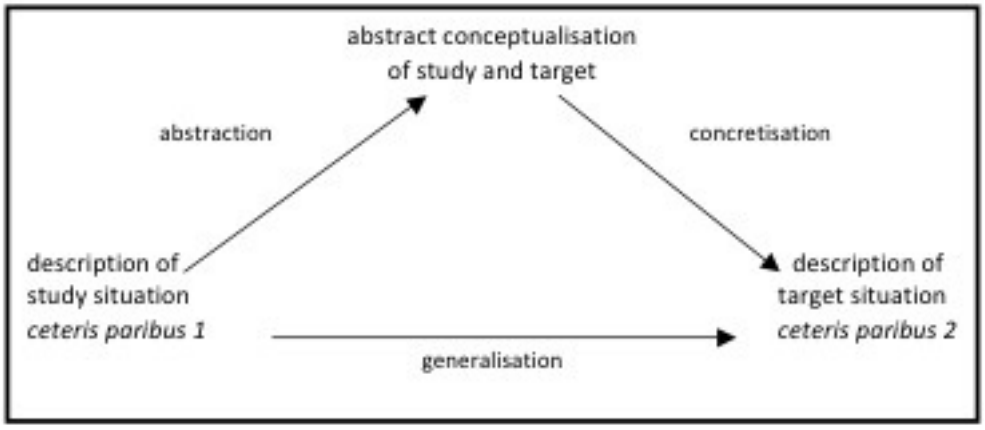

Figure 1

If we are right about helping factors, this idea doesn't make sense most of the time. It is rare that a single factor will be able to produce a contribution to a given outcome all on its own; it needs helping factors. Sometimes this problem is finessed by making up new words. We do not ask what the mass of the earth (M) contributes to the force on another object but rather about the 'pull of gravity' (GMm/r2), which includes all the helping factors working together in the prescribed way. Or sometimes we suppose without mention that the requisite helping factors, whatever they are, are present. In the language of Kevin Hoover and others, we consign these helping factors to the background 'causal field'[3].

Besides the helping factors necessary for a particular cause to operate, in any real situation there will also be other separate clusters of factors that contribute to the effect, as well, perhaps, as other clusters that inhibit the cluster in focus from making its full contribution. Both usually get lumped together under the label 'disturbing factors'. What we are calling 'Idealisation' then would usually consist in supposing the helping factors are there and the disturbing factors –all the other clusters– are absent or con-

[2] The literature is inconsistent in the use of concepts like abstraction, idealisation, and concretisation. We use the terms strictly in relation to vertical and horizontal reasoning modes. For a discussion see Cartwright (2001), Hamminga and De Marchi (1994) and Rol (2009).

[3] Hoover (2001, 45). It was Anderson who first coined the term (in 1938), to be revived later by Mackie (in 1965).

trolled for. In these cases we say we are looking to understand what the factor under study does 'ceteris paribus'.

The ceteris paribus clause is the tool that makes idealisation happen. To formulate a lawlike expression 'ceteris paribus' is (in the uses we make of this term) to depict a hypothetical world where the disturbing factors are absent. The scientist who uses ceteris paribus clauses admits that the actual world and the hypothetical world differ. A particular instructive way to view a ceteris paribus clause is that it always is a counterfactual. The clause makes this explicit, by drawing our attention to the disturbances and noting that they are absent, or do not matter. In a sense, abstraction too is a mode of isolation since the focus is on preselected causes which we redescribe using more abstract concepts. This too shifts disturbances out of sight, but in a completely implicit manner. Note again that idealisation is a 'horizontal' mode of inference; that is, no change takes place in the level of abstraction.

It makes sense to distinguish three types of what we call idealisation. First, the disturbing variables may be theoretically assumed absent or constant. Ceteris paribus clauses are often used this way theoretically in economics. Second, the ceteris paribus clause is also a powerful tool to mirror situations in which disturbing variables do in fact disturb by using a laboratory-type situation where they are kept under control. The laboratory models the real world; it shows what happens in the real world 'ceteris paribus'. Third, keeping causally relevant circumstances constant enables researchers to compare two specific cases, both of which have isolated variables, but one constitutes the treatment and the other the control situation, as in a randomised controlled trial or some other Mill's-method-of-difference study.[4]

So abstraction and idealisation work differently when it comes to isolation. We can metaphorically think of the former as vertical –in abstraction we change levels of description, the latter horizontal– the factors are all described at the same level but some are screened off out of sight. Idealisation requires an explicit clause, its associated ceteris paribus clause, in which the existence of other causal factors is recognised, only to deny these factors their causal influence. In abstraction the variables left out are unaccounted for; they don't enter the conversation in the process of abstraction.

The use of Tamil Nadu experiences as a blueprint for BINP suggests that the researchers had in mind a conceptual framework supposedly fitting both Bangladesh and Tamil Nadu. In order to guarantee success in Bangladesh they would have needed a framework that includes the variables relevant for the new situation rather than the old. They needed the correct concretisation for *counsel the person who distributes the food*, as well as all the helping factors that would allow that factor to act –like *the advice is understood and believed*, *the advice does not violate some strongly held norm in the family*, *the food distributor holds the infant's welfare paramount* and *there is food to distribute*.

As stated, no such guarantee exists. This is because, in the act of transferring knowledge about a known state of the world toward applications in an unknown state of the world, other helping factors will most likely be relevant and other, different concrete features may instantiate the very same abstract feature that can produce de-

[4] The ambiguity of the term 'control' is ironic here. The treatment requires a lot of control too.

sired outcomes in both places. As one of the reports explained, 'There were two missing links in the BINP [causal] chain: the first was the relative neglect of some key decision makers regarding nutritional choices (men and mothers-in-law)' (World Bank 2005b, 39).[5] In Bangladesh men do the shopping, so the mothers do not satisfy the more abstract description 'the one who controls what food is bought'; and it's the mother-in-law who satisfies the more abstract description 'the one who decides on distribution of food to the children'. But it was satisfying these two descriptions that allowed mothers in Tamil Nadu to improve child nutrition when they received nutritional counselling.

The report also notes, 'Participation levels of the target audience were high, but many women escaped exposure to nutritional messages'. So perhaps the researchers used concepts from the pedagogical sciences but not from family economics. Maybe they also would have needed concepts rooted in cognitive psychology to account for the gap between parents' participation and their ability to take in new ideas about nutrition.

In addition, in designing complex programs, '[t]he longer the causal chain, the more likely it is that final outcomes will not be realised on account of missing or weak links in the chain, since there are more opportunities for external factors to undermine the logical flow from inputs to outcomes' (cont. 39). Perhaps these external factors were outside the conceptual apparatus of the researchers and of those who used the Tamil Nadu experience as a basis for implementing the program in Bangladesh, since, had they thought about these links of the chain, they might not have missed them nor the helping factors required to ensure they operate. These factors were overlooked rather than put into a ceteris paribus clause. This is not surprising. A frame of reference both limits and enables one to tackle the phenomena and no single set of researcher and policy deliberators can be infinitely interdisciplinary.

4. The ceteris paribus clause as caveat and scapegoat

In economics, ceteris paribus clauses are ubiquitous. Take a textbook example. A linear demand equation represents behaviour, for example of a particular collective of demanders for potatoes in a segmented market. By default, it is downward sloping: $q=-\alpha p+\beta$, $\alpha>0$ (q representing quantity demanded, p the price). This is due to the substitution effect, which induces demanders to buy an alternative if the product becomes too expensive for their taste. 'Giffen' goods are special, however, as demand for them behaves 'perversely': quantity demanded and price relate positively. This is due to the fact that rising incomes induce most demanders to buy more meat. Meanwhile, meat is a partial substitute for potatoes. Cheaper potatoes inherently increase the disposable budget and the income effect turns out to be that demand (both for potatoes and for meat) rises. Perverse demand for potatoes now appears if meat in the diet crowds out potatoes. In such a case potatoes are called Giffen goods. The case is said to have occurred in Ireland in the nineteenth century.

[5] The other was 'the focus on pregnancy weight gain rather than pregnancy nutritional status'.

But system effects of the working of the law feed back. The budget is raised by the very price drop itself, not by external influences. As the ceteris paribus clause aims to merely fence off external influences, that is, external to the particular causal connection described by the lawlike statement, the conclusion must be that we cannot refer to the expansion of the budget due to rising purchasing power in a ceteris paribus clause in a case of Giffen goods.[6] Counter the more traditional microeconomic approach we claim that ceteris paribus caveats do not apply to a change in variables induced by the lawlike behaviour under study, because such an admonition would be inconsistent. A theory explaining both the inverse relationship of quantity demanded and (own) price and the cases in which the relationship is not inverse (the Giffen goods case) does not *fence off* such an effect (the ceteris paribus clause) but pretends to *fence* it *in*.

The clue about abstraction and idealisation that we derive from the example is this. Ceteris paribus clauses localise a set of variables. They cite circumstances on a given level of abstraction in order to fence them off from other details *on the very same level* of abstraction. Different local cases with yet other clauses all operate on the same level. Before there was any understanding of Giffen goods, perverse demand was seen precisely as perverse because economists had not yet developed a theoretical understanding of such strong income effects. In other words, economic theory counted this phenomenon among its impossibilities. Yet again put differently, economists assumed that their theory was sufficiently global, but it wasn't.

In our view of what sets abstraction apart from the use of a ceteris paribus clause, it is incoherent to say that ceteris paribus the disposable budget after the price change, demand is downward sloping. This is because the rise in disposable budget is an essential effect of a price drop. So we think the income effect, in the case of Giffen goods, cannot be explained by ceteris paribus clauses because these are not disturbances we can analyse independently from the theory, as bona fide ceteris paribus clauses would require. If an expected negative relationship between quantity demanded and price runs amok due to a system feed back effect, the 'disturbance' can no longer be explained independently from the theory in question.[7] And, as with the abstract feature distributor of food in the family, what counts as concretisation of the concept of 'Giffen good' can vary dramatically from locale to locale.

So how can we use a coherent ceteris paribus clause? Some economists loosely say they *abstract* from changes in the size of the market, or in wages of demanders. This, however, is the use of a ceteris paribus clause, not of what *we* call abstraction. The textbooks say that ceteris paribus, demand negatively relates to price. This makes sense. Ceteris paribus clauses work as the 'disturbance' that explains a faulty outcome. The world is full of disturbances so they turn out to be the eternal caveat. But ceteris paribus clauses give no clue as to the causal structure of the connection between disturbances and the phenomenon to be explained or, worse, to be predicted. Rather it is

[6] Note that, as of here, our analysis diverges from the way textbooks treat this example.

[7] This is the condition Pietrosky and Rey put on ceteris paribus clauses for being non-vacuous. See Pietrosky and Rey (1995).

the reverse: the relevant causal structure determines what caveats need to be inserted. So the Giffen goods example shows that disposable budget changes, which in the system modelled *essentially* come with price changes, cannot be described as disturbances.

Lawlike propositions hedged with ceteris paribus clauses do have predictive power, but the more that is included *explicitly* in the clause, the easier it is, in principle, to avoid false predictions. As the ceteris paribus clause is designed to explain the misses, the variables summed up in the clause can be checked, in so far as we know them. Did some variable –assumed constant– change after all? Yes it did, that's why the prediction came out wrong. It should be understood that this sort of immunity is not gratuitous. There need to be some rules implicit about what can and cannot be counted a disturbance; otherwise ceteris paribus claims are empty. After the variables are checked, the theory itself can be evaluated in light of the evidence. The trouble begins when there are no rules available to judge proposals that one or another factor counts as a disturbance. In this case we end up with open ceteris paribus caveats, so researchers cannot police excuses for failed predictions. The caveat turns into a scapegoat. Immunity against falsification looms.[8] In economics, most ceteris paribus caveats are open because economists want to keep as many variables constant as possible, including those that were not foreseen. It is important to see that the aim in using such open clauses need not be to immunise a claim from falsification, but rather to concentrate on a particular constellation of facts that calls for attention.

Now that we have distinguished ceteris paribus clauses from abstraction in our sense, let us return to our main claim: To make a reliable prediction that a proposed policy will produce a given outcome in a particular situation, we need to ensure that the policy satisfies the right description to act as cause of the outcome in that situation, and that the situation will have a 'good' distribution of what count as positive helping factors for the policy to produce the outcome in that situation. With these identified as the problems, two strategies for making more reliable predictions are immediately suggested.

5. What better practice might look like

We have two broadly sketched suggestions for strategies that can help with the specific problems we have raised, both of which follow trivially from our diagnosis. Researchers aim to end up with claims about whether a policy works in the target situation. Our first proposal is *to concentrate on the target*. This increases the chances that you involve the 'essentials' of the target situation already in the act of abstraction from the study, that you concretise these properly for the target and that you notice the helping factors necessary in that specific context for the cause to work. So it should generally be the target situation that dictates the conceptual toolkit to use.

How could this be done? How can the concrete target situation help determine the sort of abstraction you entertain when interpreting the study situation? In BINP, it would have been better had insights about family economics and cognitive psychology

[8] This is of course what has induced many authors to ask how the ubiquitous use of ceteris paribus clauses in the social sciences can be non-trivial. See for instance Hausman (1992).

been taken into account already before implementation, not afterwards, when evaluation of the unsatisfactory outcome of the program took place. But this is a tall order. The target situation always tends to give new information after the implementation of the policy that you would not easily have taken on board beforehand. The answer to the question, therefore, is that a full warrant is not available. Still we should do better if we focus more on the target and its specific concrete structure.

Our second recommendation is, *focus with multiple spectacles*. It is commonplace to endorse interdisciplinary research; we stress a very specific version of the demand for interdisciplinarity. If you have a study carried out in order to learn from it about new situations, make sure that the team of researchers drawing the lessons come from different disciplines and have as much knowledge and understanding of the local situation as possible. This should encourage conceptualising in different directions, involving context and qualitative information. The point is to go across disciplines and insist on not sticking to the theoretical context of the discipline within which the study was done in the first place.

Consider, for example, *Street* (UK), which was founded after the example of Poland's *Fundusz Mikro* and other international microfinance schemes.[9] Fundusz Mikro had 15,000 clients using a group lending model and was financially self-sustaining after five years of operation. The modern day pioneer of microcredit was Grameen Bank of Bangladesh, which was set up in the 1970s and has lent money to thousands of poor village entrepreneurs on a group lending basis. It seemed sensible, therefore, to use the same initiative to deal with the same kinds of problem in the United Kingdom. The problem, in general terms, is poor access to start-up money from traditional banks for small entrepreneurs, particularly those operating in the grey economy--trading while receiving state benefits or not declaring all their income to the Inland Revenue. So there was an outcome to be desired and an intervention that had worked. Accordingly, a charitable foundation provided support for the start-up, with £1.329 million.

It did not work. The number and quantum of loans were well below what had been planned and what could count as a major impact; they expected to help thousands of people rather than hundreds. What went wrong? It seems that the major difficulties were in the differences between the circumstances and character of the target market in Poland and the UK –and no doubt in Bangladesh, although this was not explicitly used as a comparator in either the proposal or the evaluation.

What were those differences? Group lending works like this. You form a group of, say, ten possible borrowers. They meet and one of them puts up a proposal. The group evaluates it and if they agree a Community Development Finance Institution (CDFI) or similar entity provides the money.[10] The group, not the individual borrower, is responsible for meeting the interest and capital repayment obligations of the loan. So the group monitors the progress of the borrower's project, and it is the group

[9] This example is due to Jeremy Hardie and is taken from Cartwright and Hardie (forthcoming).

[10] CDFIs are not for profit entities with funds from the state or foundations set up to provide lending and investment outside the normal private sector system.

that has to deal with defaults, late payments, etc. This arrangement encourages honest assessment of projects and borrowers by her peers. This is what is reported to have worked in Bangladesh and in Poland. Maybe because it is trust- and group-based, it turns out that women are often better at this than men. But it was hard to form such groups in the UK.

1. In other societies, particularly in the South, people trade and haggle over prices every day. Hence there are more social linkages in the market place.
2. The target group in the UK is more diverse, and so it is hard to make up appropriately homogeneous groups.
3. Even poor people in the UK can get individual loans through credit cards. So maybe the need is just not there on a sufficient scale.
4. The tax and benefits system provides little incentive for people to graduate off welfare into self-employment because, typically, benefits terminate long before the business has generated sufficient income to manage without them.
5. Credit card and similar debt is available freely, without much or any scrutiny of credit worthiness of either the borrower or the project. A group or individual CDFI scheme requires the borrower to go through a rigorous assessment process. That is a deterrent even if it may be better for the client not to borrow, or not to borrow more than she can repay.
6. Regulatory and paperwork requirements generally are discouraging.

Finally, and very importantly, the board of Street (UK) was made up of people who knew about international microfinance but did not have any local experience. Any experience that might have varied enough to raise the possibility that local differences might be present and relevant would have been helpful. It may be that people with international, and therefore generic, experience, having, maybe, seen how an uncritical read across from there to here can go wrong, will be good at raising the question, 'What might be different here?' But more likely, they may just operate at the wrong level of what constitutes the same problem. They may think that to do the same in the UK means literally, at the low level of the detail of the implementation of the policy, do the same. They may do the equivalent of, in the Bangladesh nutrition program, giving the food to the mother. They do not reflect that you need to give it to the person who controls the food. This means the mother-in-law.

Alas, the advice to mix procedures and knowledge bases and to focus on the target, not just the study may not sound very deep. But both these recommendations are well grounded in our analysis of ways in which you can go wrong in using study results to predict what will happen when you implement policies in new situations. And though they certainly cannot guarantee success they will surely limit the chance of costly and painful failures like BINP and Street (UK).

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