Social Policy Without Invariance

Leonardo Ivarola, IIEP-BAIRES, CONICET
l.ivarola@conicet.gov.ar

Recibido: 10 de abril de 2017 **Aceptado:** 4 de diciembre de 2017

Abstract

Invariant knowledge is widely considered an effective tool for social policy implementation. This approach is associated with a mode of thought that presupposes (at least) two assumptions: (1) that there exist stable causal factors, and (2) that only one kind of intervention - *ex-ante* - is relevant for an effective implementation. This paper presents a critique to these assumptions. In particular, it is shown that social processes do not fit the logic of stable causal factors, but they are more suited to the logic of "open-ended-results". On the basis of this ontological variation it will be argued that more than knowledge of invariant factors, the support for an effective policy must be sought in the blueprint constraints and in the possibility of their being satisfied in the target system. Furthermore, it will be shown that *permanent* interventions are more appropriate than ex-ante interventions for the social realm.

Keywords: policy implementation; open-ended-results; invariance; nomological machines; intervention.

POLÍTICA SOCIAL SIN INVARIANZA

Resumen

El conocimiento invariante es ampliamente considerado como una herramienta efectiva para la implementación de políticas sociales. Esta concepción está asociada con un modo de pensamiento que presupone (al menos) dos supuestos: (1) que existen factores causales estables, y (2) que solo un tipo de intervención -ex ante- es relevante para una implementación efectiva. Este artículo presenta una crítica a estos supuestos. En particular, se muestra que los procesos sociales no se ajustan a la lógica de los factores causales estables, sino a la lógica de "resultados de final abierto". Sobre la base de esta variación ontológica se argumentará que más que el conocimiento de los factores invariantes, se debe buscar el apoyo para una política efectiva en las restricciones del anteproyecto y en la posibilidad de que se satisfagan en el sistema objetivo. Además, se mostrará que las intervenciones *permanentes* son más apropiadas en el ámbito social que las intervenciones ex-ante.

Palabras clave: implementación de políticas; resultados de final abierto; invarianza; máquinas nomológicas; intervención.

Introduction

The use of invariant knowledge is a prerequisite for many manipulability approaches (see for instance Woodward, 2003; Cartwright, 2009b). This is because when an intervention is carried out we are expected to know what the result of manipulating a factor or set of factors will be, and without invariance such predictions seem to be practically impossible. Regarding the social sciences, this way of thinking presupposes that people's actions are not only stable but also predictable. Such is not the case. The social realm is a world ruled by uncertainty, where the formation of expectations may be substantially different for every individual, where contextual factors like the culture or the institutions have a large influence on the people's decisions, etc. It is difficult to think that individual's activities are going to be stable, when such activities depend on a myriad factors, many of these volatile over time.

If this is true, then it would be reasonable to think that social policies are meaningless. This is in some way congruent with the so-called "Lucas critique". According to Lucas, individual's behavior depends on the "rules of the game" of a socio-economic system. Should changes in these rules occur, then agents would modify their expectations and consequently their actions in order to adapt to the new situation. Nevertheless, many social policies are often successful, and those that end up failing do not fail because they did not make use of an invariant knowledge, but because there was no previous research of the system to be intervened carried out in an appropriate way (see Cartwright and Hardie, 2013).

In this sense, the present paper aims to reflect both the kind of knowledge used for policy implementation purposes and the ways in which such interventions are carried out. It will be argued that theoretical knowledge provided by models may be considered as *blueprints,* where a set of conditions that limit the range of possibilities of a social system in order to achieve the desired result is specified. Following Bunge's distinction (1997) between "conceptual system" and "concrete system", it will be shown that such knowledge is not about stable causal contributions, but rather about logical relations that *could* turn into causal relations as long as the gap between the conceptual and concrete systems is bridged. In addition to this, the problem of *external validity* – a classical problem concerning the use of knowledge (see Cartwright, 2007) – will be examined. In particular, it will be argued that knowledge provided by blueprints only concerns specific scenarios, so it is not advisable to extrapolate such information to other contexts where the restrictions specified in the blueprints are not met. Finally, it will be intended to shed light on the notion of "intervention". In many philosophical approaches intervention is usually understood in two different ways: (1) as manipulations which aim to activate the triggering factors, and (2) as manipulations involved in the creation of a system which is expected to operate in a stable way. By contrast, in this paper it will be argued that a third kind of intervention must be taken into account: *permanent* or *systematic* interventions, that is to say, manipulations carried out *during* the course of the process. It is expected that such kind of intervention may end up leading to a better understanding of the system to be manipulated.

Invariant knowledge: a prerequisite for successful intervention

In modern Philosophy of Science there exists some consensus on defending the idea that some kind of stable causal knowledge is needed for accomplishing interventionist purposes in general and for policy and planning in particular. Different ways of conceptualizing this knowledge have been offered. One of these is Nancy Cartwright's "capacities" approach. Cartwright (1989) argues that the causal claims of science are not about regularities or constant conjunctions of events, but about adscription of capacities that underlie such phenomena. Broadly speaking, capacities are properties of entities or structures that contribute to the production of a result in a stable manner. Nevertheless, such a "contribution" should not be understood in law-like terms. When it is asserted that "aspirin has the capacity to relieve headaches", it is said that there exists an entity (aspirin) that has the property of producing a result (headache relief). This does not mean that aspirin always relieves headaches, or that it relieves headaches most of the time. Rather it is simply asserted that there exists a relatively enduring and stable capacity that an entity carries with itself from case to case (Cartwright, 1989).

The other way Cartwright considers regular associations between properties can be found is through "nomological machines" (Cartwright, 1995, 1997, 1999). Because the world is both "messy" and "dappled", constant conjunction of events are observable only in rare circumstances; those where a particular system of components is properly "shielded" from external influences. Cartwright calls it *nomological machine*, which is defined as "a fixed (enough) arrangement of components, or factors, with stable (enough) capacities that in the right sort of stable (enough) environment will, with repeated operation, give rise to the kind of regular behavior that we represent in our scientific laws" (Cartwright, 1999, p. 50).

A good example of what a nomological machine is are vending machines. They are machines whose repeated functioning gives rise to a law or a regular association between properties. This process begins after the customer inserts currency or a token into the machine and selects the wanted article. There are a series of mechanical processes inside the machine that end up with obtaining the selected product. The "law" emerges from the satisfactory and repeated functioning of the vending machine: *if X* (the coin inserted) *is to occur, Y* (the good obtained) *will take place.* However, for this to happen, the machine must be shielded or isolated from anything that might disturb the internal operation. This is precisely what happens with a vending machine: the mechanism is shielded from several (though not all) types of external influences.

Woodward (1996, 2002, 2003) has suggested a different way of conceptualizing this knowledge. According to the author, a successful intervention should be based on generalizations that describe patterns of counterfactual dependence of a particular class, which Woodward calls "active" (1996) or "interventionist" (2002) counterfactuals. For this to occur, the mentioned generalization must be invariant under interventions in the independent variables.

If a generalization is *invariant*, it means that it is stable under changes in certain conditions or circumstances. However, invariance is not *per se* sufficient for using a generalization for interventionist or political purposes. Instead, what is important is to obtain information that allows us to understand what would happen to the dependent variable once the independent variable was intervened physically (either by human agency or by a natural process).

For instance, let's suppose an equation where the rainfall is expressed in terms of the height of the mercury column in a barometer. Such equation will exhibit a regular behavior between the dependent and the independent variable. Nevertheless, it is not invariant under manipulations in the independent variable.[1] In this juncture, Woodward asserts that the right way to recognize which generalization will be useful for interventionist purposes is through the justification of "active" (1996) or "interventionist" (2002) counterfactuals. Such counterfactuals involve hypothetical interventions: "If an intervention on X were to occur (such that the value of X was modified), it would produce a change in Y". Thus, and contrary to the equation where the rainfall is expressed in terms of the height of the mercury column in a barometer, a regularity that may properly justify interventionist counterfactuals should exhibit a relationship between atmospheric pressure (independent variable) and the height of the mercury column of a barometer (dependent variable). This interventionist counterfactual would be expressed as follows: "If the atmospheric pressure was manipulated, the height of the mercury column in the barometer would change".

However, in some occasions invariant generalizations may not be the most reliable tool for policy purposes, because they provide "black box" explanations (Bunge, 1997, 2004; Glennan, 2002; Hedström and Swedberg 1998b). We know *what* happens, but we do not know *how* it happens. The use of mechanisms would help to fill this gap.

Broadly speaking, mechanisms make explicit two notions that are implicit in invariant regularities: *activity* and *automaticity*. In relation to the former, one of the most cited papers in the new mechanistic literature is Machamer, Darden and Craver (2000), where they define mechanisms as "entities and activities organized such that they are productive of regular changes from start or set-up to finish or termination conditions" (Machamer *et al*, p.3). According to Machamer *et al*, a mechanism is composed of both *entities* and *activities*. Activities are the producers of change. They are not a mere description of the kind of changes that occur, but they are in fact responsible, in a causal sense, of the changes that take place in a mechanism. Entities, on the other hand, are the things that engage in activities. Entities have specific properties that make possible the exercise of specific activities.

Regarding the notion of *automaticity*, mechanisms are usually conceived as automatic processes: once the triggering factor has been activated, a sequence of

[1] For Woodward (2002, 2003), such manipulations must be understood in terms of human agency only in a "heuristic" sense.

events will take place until arriving at a known result. Only one type of intervention is required: a manipulation in the start or set-up conditions. In this sense, the concept of automaticity means that there is no need to intervene permanently in order to achieve a desired result. The effect of aspirin in the body is a good example. Aspirin inhibits the production of prostaglandins (substances that "inform" the nervous system of the presence of pain or discomfort in bodies). It brings about analgesic, anti-inflammatory and antipyretic effects. In this case, the intervention is just the ingestion of the aspirin. After this, a sequence will continue to hold until the final stage is reached. No other intervention is required *during* the sequence. *Automaticity* and *activity* are two concepts that go hand in hand. To the extent that activities are stable, the internal process of the mechanism will be able to operate without interruption until its final stage. In other words, the stability of activities is a necessary condition of mechanisms' automaticity.

An ontological problem: the open-ended results

The use of stable or invariant causal factors entails a number of philosophical issues that should not be neglected when implementing a policy. On the one hand, there is an epistemological problem associated with the use of invariant knowledge for both predictive and interventionist purposes. Broadly speaking, this problem centers on the fact that the very discovery of invariant causal factors does not guarantee the success of a policy once these are "used" or implemented. Here there exists a clear problem of external validity which is associated with a lack of a "bridge" spanning the discovery of causal factors with their respective use. Without this bridge, there is no warranty that a causal factor will work in different circumstances or scenarios, regardless of its level of invariance (see Cartwright 2007; Cartwright and Efstathiou, 2011).[2]

Besides this epistemological problem, there is also an ontological problem: the difficulty of finding stable causal factors in the social sciences. Following the dualistic ontology proposed in Machamer, Darden and Craver (2000) and in Machamer (2004), causal relationships are mediated by *activities*. In the social realm, *activities* are plainly individuals' decisions and actions. These activities are influenced by several factors like the socio-cultural sphere, the information agents receive from the world, the expectations they form about the evolution of certain variables, etc. Depending on what types of activities people carry out, different results will be obtained. Within this framework, an interesting difference in relation to Machamer *et al* and Machamer (2004) is evident. In those approaches activity refers to a "singular" notion: once a factor F is triggered, an activity A will start to operate. Such an activity is involved in the production of a result R. However, in the social sciences activities are not singular but "plural": once a factor F is triggered, a set of potential activities (A_1, A_2,..., A_n) may start to work. Each of these activities is associated with the production of a different result (R_1, R_2, ..., R_n).

[2] Other approaches that examine such epistemological problem are the "Black Swan Theory" (Taleb, 2007) and de "Lucas Critique" (Lucas, 1976).

The prevailing result will depend on several factors, namely how people form their expectations, how they interpret the information from the economic and political world, the socio-cultural institutions, the changes in the social structure, etc. In other words, the basic structure of the social phenomenon responds to the logic of *possibility trees* or *open-ended results*: when a causal factor is activated, there are multiple possible decisions. Depending on which actions people carry out, different results will be achieved.

In economics, a good example that represents the logic of these open-ended results is the so called "Keynes effect". According to this, an increase in money supply leads to a decrease in the interest rate, stimulating investment and consequently employment and production. In some interpretations it is assumed that an increase in the quantity of money leads automatically and in a stable way to an increase in employment and production. However, this is not true. On the contrary, depending on the contextual framework and people's interpretations and expectations, different paths are plausible in a social process. Aware of these limitations, Keynes says:

> "For whilst an increase in the quantity of money may be expected, *cet. par.*, to reduce the rate of interest, this will not happen if the liquidity preferences of the public are increasing more than the quantity of money; and whilst a decline in the rate of interest may be expected, *cet. par.*, to increase the volume of investment, this will not happen if the schedule of the marginal efficiency of capital is falling more rapidly than the rate of interest; and whilst an increase in the volume of investment may be expected, *cet. par.,* to increase employment, this may not happen if the propensity to consume is falling off." (Keynes, 1936, p. 155)."

In the Keynes effect, economic variables are linked through people's activities. In other words, these actions are responsible for enabling the causal link between economic variables. Nonetheless, people's activities are not linear, but they may change for lots of reasons. When this happens, a modification in the causal links will be observed. Since these changes are plausible, the feasibility of speaking about stable causal factors in the social realm can be put into question.

Let's begin with the case of social capacities. When an entity or variable has a capacity, it means that there is a causal factor that, if properly exercised, contributes in a stable way to the production of an effect. However, this concept contrasts strongly with the idea that social phenomena depend on the interpretations agents make of the signals of the world, the background conditions, etc. If we understand the Keynes effect as a capacity, we could assert that "money supply has the capacity to increase the national income". But this is not the only possible result: an excess supply of money will not necessarily be associated with an increase in the demand for financial assets. It is plausible that such extra money may be used for increasing the demand of goods and services. In this case, a rise in the general level of prices is likely to occur. Finally, let's assume another scenario where high uncertainty is what prevails. In such a case, the liquidity preference of the public will increase more than the quantity of money. If so, no changes in the macroeconomic variables will be observed.

The above example reveals that the rationale of the social capacities approach is different from the rationale of social phenomena. When a triggering factor is activated –in this case the money supply–, different capacities may be exercised: in one of the cases people increase the demand for goods and services; in another they increase the demand for financial assets; and in the latter case people end up hoarding the extra money. Thus, the ontology of social capacities should be replaced for an ontology of *possibility trees* or *open-ended results*. From this new perspective, money supply would have no predetermined capacity, but a set of *potential* contributions, which crucially depend on the multiple activities agents are able to perform.

The analysis is similar for the case of mechanisms. There are two important features that were identified regarding the notion of mechanisms: *activity* and *automaticity*. Regarding the notion of activity, it was argued above that mechanisms exhibit a regular behavior precisely because their internal activities are stable. However, the internal activities of social processes are people's activities, which are not necessarily stable. For instance, any change in the interpretation of the received signals can result in a significant change in the expectations formation, any institutional change can redirect the individuals' course of actions, etc. And since those activities are not necessarily stable, then social processes will not be so either: if the individuals' interpretations of the signs of the world changed, this might cause modifications in the process of expectation formation; if an institutional change were to occur, people's courses of action might be redirected to new paths; and so on.

Since the idea of automaticity largely depends on the stability of the internal activities of a mechanism, it is doubtful that in the social realm the requirement of automaticity will be met. Quite the contrary: social processes may be both "interrupted" (e.g., they may be stopped at any of the intermediate stages of the estimated sequence), and "deviated" from the intended goal. The Keynes effect clearly illustrates this lack of automaticity in social processes. It is incorrect to assert that a positive change in the quantity of money will lead automatically to a decrease in the interest rate, to an increase in investment, and consequently to an increase in the level of employment and national income. Instead, according to the background conditions and to people's interpretations and expectations, such process is apt to take different directions.

With regard to invariant regularities, invariance is a factual possibility in a social system: to the extent that individuals are not systematically changing their decisions, that there is low volatility in the process of expectations formation, that the institutional arrangements are stable over time, etc., invariant regularities will be observed. An example of this is the economic phenomenon called "Phillips curve". Such phenomenon consists of a relationship between inflation and unemployment that has remained invariant under a wide variety of conditions for most of the nineteenth and twentieth century. However, in social phenomena any change in the expectations formation or in some macro-structural conditions can modify such regular behavior (which was in fact what happened in the 70's: the

agents changed their inflation expectations, and as a consequence the regularity between inflation and unemployment ended up disappearing).

Finally, neither is the nomological machines approach adequate for understanding the ontology of social phenomena. In building a nomological machine it is necessary that its constituent elements be correctly assembled and protected from any perturbing factors, so that whenever X is to occur, Y will be the obtained result. However, social phenomena take place in open systems (see Lawson, 1997). That means any unexpected exogenous factor can disrupt the workings of the machine. In such systems what prevails is uncertainty, so we do not manage to know for sure what will happen in the near future. We can predict with some confidence the occurrence of certain events, but they are not guaranteed at all. Even worse, we do not even think about the factual possibility of a myriad of phenomena. If we are not able to know what factors are to occur in the future, then it seems inappropriate to pretend to *shield* a machine from unknown factors.

Even if we assume the feasibility of shielding a social system, there is the chance that, because of "endogenous" problems, a nomological machine may yield unstable results. For instance, the Keynes effect may be understood as a nomological machine, provided that certain antecedent conditions are fulfilled. Let's suppose that the policy maker has been doing everything he can to make it work in the real world. If so, then a high positive correlation between money supply and national income will be observed. However, let's suppose now that, at some point during the year, a small group of businessmen believes that they could sell much less than expected, and because of this the level of investment decreases. Suppose further that this strategy spreads to other businessmen. The wider the scope, the greater the negative effect on employment and production. Clearly, such instability is not the result of failures in the shielding or in the assembling of parts. Rather, it has its origin in an "endogenous" problem.

Blueprints as theoretical foundations for policy implementation

It has been argued above that the logic of the open-ended results is not compatible with the logic of stable causal factors. In spite of this, social policies are in many situations successful, and such success is achieved without necessarily making use of an invariant knowledge. How is it possible? In the first place, a policy begins with designing a blueprint ***B***. Based on a set of propositions ***P***, an outcome ***R*** is inferred. Once the policy is implemented, ***R*** is expected to occur in the real world. According to the manipulability approaches mentioned above, the blueprint should involve the presence of stable causal factors. However, this is a somewhat risky position, because it is grounded on a mistaken ontological preconception: there are no stable contributions in the social realm, but open-ended results.

Contrary to these approaches, blueprints may be thought as "clippings" or "closures" of a possibility tree: given the myriad of possible scenarios, a blueprint may be used both for knowing those conditions that lead to a certain result, and

for restricting the feasibility of other possible results. Likewise, it is highly probable that more than one path or alternative to get the final result may exist. Thus, there will be more than one blueprint that leads to the desired goal, and the policy maker will have to choose among them. For this to occur, he must examine which one best fits the scenario where the policy is expected to be implemented. By way of example, let's suppose that government authorities want to increase the national income through an increase in the aggregate demand. One possible way is the Keynes effect: to the extent that the money supply is increased, a decrease in the interest rate will take place. This change will stimulate investment and consequently employment and production. Nonetheless, for this to happen certain conditions have to be met: that the increase in the liquidity preference is lower than the increase in the quantity of money, that entrepreneurs form good expectations about their future sells, that the marginal propensity to consume do not decrease, etc. If some of the conditions specified in the Keynes effect are not met in the real world, then the model will not be a good blueprint for this particular policy. Fortunately this is not the end of the story, but other ways can lead to an increase in national income. For example, if the marginal propensity to consume is high, then it is likely that government authorities design a blueprint/policy where aggregate demand will increase through an increase in consumption. Finally, if for different reasons this path is not feasible either, the policy maker can find a way through an increase in the public expenditure, as this is another component of the aggregate demand.

What kind of knowledge do the blueprints provide? In what follows it is argued that such knowledge does not express a *causal* but a *logical* contribution. To justify this assertion, the Bunge's distinction between the conceptual and concrete system will be taken into account. According to Bunge, a concrete system is "a bundle of real things held together by some bonds or forces, behaving as a unit in some respects and (except for the universe as a whole) embedded in some environment" (Bunge, 1997, p.415). Natural, social and technical systems are concrete. In contrast, models, theories, classifications and codes are "conceptual systems", and their bonds are not material or causal but logical. In concrete systems there are *causal* relationships between variables: we say that the increase in the quantity of money led to an increase in the national income, or that fexofenadine inhibited the production of histamine. All these are phenomena in which their parts are causally connected. However, in a conceptual system such relationships are not causal, but *logical*. For instance, let's suppose the equation Y = 2X. Any value we assign to X, Y will always have the double. Nevertheless, there is no causal relation between X and Y; such relationship is merely logical.

It is important to clarify the distinction between conceptual and concrete systems, since sometimes blueprints may be understood as thought experiments where one creates a model for discovering causal relationships in a theoretical way (see for instance Mäki, 1992, 2011; Cartwright, 2007). More precisely, if conceived as a causal contribution this could imply that, under very specific circumstances (e.g., in a laboratory experiment or in a nomological machine), ***C*** will *necessarily* produce ***R***. And in a more general sense, ***C*** will contribute to bring about ***R***, although there exists the possibility that ***R*** do not appear if a set of disturbing

factors occur. This is associated with the three-fold distinction of capacities (Cartwright, 1989, 2009a): (1) the *obtaining* of the capacity, (2) its *exercise* and (3) the *manifest results*. For example, the fact that money supply has the capacity to bring about changes in the national income is just an "ontological" issue: there exists the chance that no policy maker has ever taken the decision to increase the quantity of money in an economy. The capacity exists (or has been *obtained*, for that matter), but it has never been exercised. Likewise, a positive change in the quantity of money may be carried out. However, this does not guarantee an increase in the national income. In this case the capacity is *exercised*, but the *manifests results* do not take place at the level of events.

Contrary to this, in the present paper it is argued that the contribution founded in the model or blueprint is purely *potential*: if the set of conditions ***C*** are met in the real world, an outcome ***R*** could emerge. When it is said that the contribution of ***C*** to ***R*** is potential, all we are saying is that the relationship between ***C*** and ***R*** is logical. However, there exists the chance that such relationship may become causal. For this to occur, the passage from the conceptual to the concrete system must be effective. In relation to this, it must be noted that what is asserted in the blueprint must be (approximately) met in the real world.[3] For instance, if a policy designed on the Keynes effect is expected to be implemented by the policy makers, then certain conditions (e.g., there are constant returns to scale, the marginal propensity to consume remains constant throughout the changes in income, changes in primary employment in the investment industries bring about proportionally greater changes in total employment, etc.) must be met.

Therefore, we are not speaking about stable causal factors here, as may be the case that ***C*** does not contribute to ***R*** but to some other (perhaps undesired) result. The relationship becomes causal once the policy has been successful in its implementation. The relationship between money supply and national income postulated in the Keynes effect is only a logical connection; it will turn to a causal relationship when, once the policy has been implemented, a connection between money supply and national income is observed in the real world. Nevertheless, as it has been stressed in the present paper, the blueprint implementation does not guarantee achieving the desired result. The policymaker may fulfill the conditions specified in the Keynes effect. However, he cannot control each of the variables of the causal pathway between money supply and national income. Besides increasing the amount of money, the policy maker may create signals that lead to improve the entrepreneurs' expectations. Yet this is not a sure thing. The possibility tree of a social system is not only composed of decision nodes. There are also "random" nodes, in which the policy maker can do nothing but witnessing what the pathway of the social process will be.

[3] The term "approximately" is used because the blueprint restrictions are idealizations, and as such they cannot be fully reproduced in the real world.

The external validity of blueprints

Social policy faces external validity problems. There is external validity when regardless the domain a certain result remains the same. The problem arises because nothing guarantees that such result maintains in different contexts from the context of discovery. In the case of the traditional manipulability approaches discussed above, we can say that the mere discovery of invariant causal factors does not guarantee the success of a policy once these are "used" or implemented. There exists a lack of a "bridge" linking the discovery of causal factors to their respective use. Without this bridge, there is no certainty that a causal factor will work in different circumstances or scenarios, regardless of its level of invariance (see Cartwright 2007; Cartwright and Efstathiou, 2011).

The social policy blueprints mentioned in this paper also suffer from external validity problems. Blueprints specify a set of conditions that close the possibility tree. These conditions are imposed on the real world so that the desired result is achieved. Therefore, blueprints of social policy should not be considered as general hypothesis applicable to any scenario, but as models designed for specific situations: those where restrictions are met. The external validity of the blueprints is very narrow, but it is rightly so, since the blueprint is built for solving a specific social problem, not for providing a recipe that solve all social problems anywhere at any time. This idea is consistent with the approach proposed by Cartwright and Hardie (2013). According to them, when implementing a policy there are two types of causal claims: (1) those that provide information about a policy that works *somewhere*, and (2) those that provide information about a policy that will work for us. It is important to know how a policy has brought about an effect – that is to say, how it worked *somewhere*–. However, such information is about a causal factor that works under specific circumstances, so it does not follow that it will work in the target situation (that is to say, here or *for us*).

In this regard, Cartwright and Hardie (2013) consider that for a policy to be effective here and now (*for us*), much more information is needed; not only about causal factors - or causal principles, for that matter - but also about the support factors that complement the information of causal principles. Such information may be obtained through what Cartwright and Hardie (2013) call the *horizontal search*. The horizontal search helps to find those components that are specific of the target situation. Cartwright and Hardie take as an example the nutritional programs implemented in Tamil Nadu and in Bangladesh. The *Indian Tamil Nadu Integrated Proyect* (TINP) was a program that had provided good evidence that a nutritional counseling program for mothers in the Indian state Tamil Nadu improved the nutrition of their young children. This program was based on the principle that nutritional counseling to mothers would improve their young children's nutrition. Given the success in the TINP, a similar program was carried out in Bangladesh: the *Bangladesh Integrated Nutrition Project* (BINP). Yet this one did not attain the same results. Just like the TINP, the BINP provided nutritional counseling to mothers. However, contrary to Tamil Nadu mothers neither did the shopping – the men did it – nor controlled food distribution in the family – their mother-in-law did that.

The example of the nutritional programs illustrates why it is unadvisable to extrapolate a social policy to those scenarios that do not share similar attributes. The TINP was a program thought for solving malnutrition in Tamil Nadu, not for solving the universal problem of malnutrition. If we want to deal with malnutrition in other places like Bangladesh, Congo or Haiti we must carry out the horizontal search in each of them. As a matter of fact, it is likely that the program implemented in Haiti end up being quite different than the program implemented in Congo or Tamil Nadu.

Since social policy blueprints make reference to set of restrictions that have to be met in the real world in order to achieve a result, then they should not be extrapolated to those scenarios where conditions are not met. Blueprints do not refer to a general hypothesis that are meant to be understood through a story. Understood as a blueprint, the Keynes effect is not a hypothesis that may be extrapolated to any real-world scenario. There is a set of constraints that have to be met in order to reach a positive connection between money supply and national income. If these restrictions are not met (at least approximately), it would be illusory to think that increases in the amount of money lead to increases in national income.

Three kinds of interventions

According to the manipulability approaches discussed above there are two different ways in which the notion of intervention can be thought of: (1) as manipulations which aim to activate the triggering factors, and (2) as manipulations involved in the creation of a system which is expected to operate in a stable way. Regarding (1) the intervention is only meant to put into operation the capacity, mechanism, regularity or nomological machine that already exists in the real world. In relation to (2), the idea of intervention involves *building* a system that is not yet in the real world. It is the typical case of the nomological machines, where the intervention consists of assembling the machine and shielding it from disturbing factors. In either case, the idea of intervention turns out to be an *ex-ante* concept: once the mechanism, capacity, or nomological machine has been found (or constructed), its triggering factor is activated. After this, a sequence that leads automatically to an expected result will begin.

However, as noted above, people's activities may be both volatile and unpredictable. This means that any factor (both endogenous and exogenous) may prevent it from reaching the desired result. Therefore, and as far as social policy implementation is concerned, the *ex-ante* notion of intervention is incomplete. Interventions are crucial not only in the start conditions of a social process, but also in their intermediate stages. For instance, the Keynes effect takes place to the extent that the money supply is increased. Such intervention functions as a triggering factor. However, the system where the Keynes effect takes place is not "shielded" from external perturbing factors. This means that any factor is likely to bring about distortions, which could result in a deviation of the socioeconomic

process from the expected path. For example, it is possible that the marginal efficiency of capital decreases because some signals from the market bring about negative expectations of future sales. This difficulty may not have been foreseen by the policy makers, so they will probably have to intervene again through the generation of signals that lead to an improvement in the entrepreneurs' expectations formation.

Therefore, the notion of intervention should be understood in at least three different ways: (1) as activations of triggering factors, (2) as manipulations aimed to build stable systems and (3) as systematic manipulations. Traditional manipulability approaches assume the feasibility of stable causal factors, so they end up drawing analogies of interventions with vending machines (see for instance Cartwright, 2009b). But if socioeconomic processes are not the consequence of stable causal factors, then analogies should not be associated with vending machines, but with cases that involve permanent or systematic interventions, such as driving a car or coaching a team. It is undeniable that driving a car cannot be done without prior knowledge of the basic operations of the car (e.g., how to work the foot pedal or the shift lever). It is also important to bear in mind where to go, how to get there, etc. However, drivers face a world that to some extent is unknown. For instance, they do not know if a street of the route will be closed to traffic o if some mechanism of the car will break up; even less will they be able to predict all the other drivers' maneuvers of the same road, and so on. Because of that, drivers must intervene systematically. Similarly, a coach may design its "ideal" team. He may also have assistants who collect information about rival teams (e.g., players' performances, usual tactics, etc.). However, once the game has kicked off things may not turn out as expected. The rival may try out a different tactic; players of his own team may be injured; others may be penalized. Unless we are clairvoyants, it is impossible for us to possess this knowledge beforehand. It is therefore natural that new interventions be carried out *during* the game. The same is valid when implementing a policy: despite having invested a great effort both in designing the blueprint and in collecting information about some specifications of the target system, unplanned events are bound to occur. When this happens, the policy maker will have to carry out new interventions.

Conclusion

Knowledge of invariant causal factors - conceptualized as capacities, regularities that support active counterfactuals, mechanisms or nomological machines - is of great interest for manipulability approaches because of its (apparent) reliability for policy implementation. The present paper proposes that in the social realm this way of thinking turns out to be problematic. Since the course of social processes or phenomena widely depend on people's activities -which in turn depend on their formed expectations, on structural factors and other constituents of people's decision-making - they should not be understood through the logic of stable causal factors but the logic of possibility trees or open-ended results. This means that

there is no single and predetermined social process, but a set of alternative processes where any course of action is plausible in principle.

This does not mean that social policies do not make sense or that they are always unfruitful. Social policies can be successful, although the knowledge that substantiate them and the ways in which interventions are carried out must be pondered carefully. In this juncture, it has been argued that such knowledge is associated with social policy blueprints which, because they belong to the conceptual system, do not represent causal but logical relationships between variables (Bunge, 1997). More precisely, information provided by social policy blueprints is not about stable causal factors that already exist in the target system (and the policy maker need only make use of them), but about those logical relationships that could potentially become causal if a specific set of circumstances occurred in the real world.

However, the very implementation of the blueprint in the real world is not enough for the success of a policy. The results will not be automatically obtained once all the blueprint restrictions are met. Quite the contrary, they must be managed through the creation of institutions and signals that lead to the formation of the desired expectations and decisions. For this reason, in this paper a new notion of intervention that involves not only *ex-ante* but also *systematic* manipulation has been proposed.

References

Bunge, M. (1997). "Mechanism and explanation". *Philosophy of the Social Sciences*, Vol. 27, No. 4, pp. 410–465.

Bunge, M. (2004). "How Does It Work? The Search for Explanatory Mechanisms". *Philosophy of the Social Sciences*, Vol. 34, No. 2, pp. 182-210.

Cartwright, N. (1989). *Nature's Capacities and Their Measurement*. Oxford: Clarendon Press.

Cartwright, N. (1995). "Ceteris Paribus Laws and Socio-Economic Machines". *Monist*, Vol. 78, No. 3, pp. 276-294.

Cartwright, N. (1997). "Models: The Blueprints for Laws". *Philosophy of Science*, Vol. 64, Supplement. Proceedings of the 1996 Biennial Meetings of the Philosophy of Science Association. Part II: Symposia Papers, pp. S292-S303.

Cartwright, N. (1998). "Capacities". En J. Davis, W. Hands, y U. Maki (Eds.), *The handbook of economic methodology*. Cheltenham: Edward Elgar, pp. 45-48.

Cartwright, N. (1999). *The Dappled World.* Cambridge: Cambridge University Press.

Cartwright, N. (2007). *Hunting Causes and Using Them –Approaches in Philosophy and Economics.* Cambridge: Cambridge University Press.

Cartwright, N. (2009a). "If no capacities then no credible worlds. But can models reveal capacities?". *Erkenntnis*, Vol. 70, No.1, pp. 45-58.

Cartwright, N. (2009b), "Causal laws, policy predictions, and the need for genuine powers". En Handfield, T. (Ed.), *Dispositions and Causes,* Oxford University Press, pp. 127-157.

Cartwright, N. y Efstathiou, S. (2011). "Hunting Causes and Using Them: Is There No Bridge from Here to There?". *International Studies in the Philosophy of Science*, Vol. 25, No. 3, pp. 223-241.

Cartwright, N. y Hardie, J. (2013). *Evidence-Based Policy. A Practical Guide to Doing It Better*. Oxford University Press.

Glennan, S. (2002). "Rethinking Mechanistic Explanation". *Philosophy of Science,* Vol. 69, pp. S342-S353.

Hedström, P. and Swedberg, R. (eds.) (1998a), *Social Mechanisms. An Analytical Approach to Social Theory*. Cambridge: Cambridge University Press.

Hedström, P. and Swedberg, R. (1998b). "Social mechanisms: an introductory essay". En P. Hedström y R. Swedberg (eds.), *Social Mechanisms: An Analytical Approach to Social Theory*. Cambridge: Cambridge University Press, pp. 1–31.

Hedström, P. and Ylikoski, P. (2010). "Causal Mechanisms in the Social Sciences". *Annual Review of Sociology*, Vol. 36, No. 1, pp. 49–67.

Keynes, J. (1936). *The General Theory of Employment, Interest and Money*. India: Atlantic.

Lawson, T. (1997). *Economics and reality*. London: Routledge.

Lucas, R. (1976). "Econometric policy evaluation: A critique". *Carnegie-Rochester Conference Series on Public Policy*, Vol. 1, No. 1, pp. 19-46.

Machamer, P., Darden, L. y Craver, C. (2000). "Thinking About Mechanisms". *Philosophy of Science*, Vol. 67, No. 1., pp. 1-25.

Mäki, U. (1992). "On the Method of Idealization in Economics". *Poznan Studies in the Philosophy of the Sciences and the Humanities*, Vol. 26, pp. 319-354.

Mäki, U. (2011). "Models and the locus of their truth". *Synthese*, Vol. 180, No. 1, pp 47-63.

Woodward, J. (1996), "Explanation, Invariance, and Intervention". *Philosophy of Science*, Vol. 64 (Proceedings), pp. S26-S41.

Woodward, J. (2002). "What Is a Mechanism? A Counterfactual Account". *Philosophy of Science*, Vol. 69, pp. S366-S377.

Woodward, J. (2003). *Making Things Happen: A Theory of Causal Explanation*. Oxford: Oxford University Press.