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# How much will be gained and how much will be lost with this policy? The importance of examining asymmetry of results

## ¿Cuánto se ganará y cuánto se perderá con esta política? La importancia de examinar la asimetría de resultados



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**Abstract:** Cartwright and Hardie (2012) claim that for a policy to work *here* two types of searches must be carried out: one concerning the causal principle or policy variable (vertical search) and the other concerning the factors that support such principle (horizontal search). However, they leave aside the fact that, during the implementation, a policy may deviate from its expected course. In the best of cases, these deviations make the policy to end up failing. But in other situations, such deviations may have highly damaging effects. In the present paper it is argued that, at least in the socioeconomic realm, these deviations may be more common than thought. As a consequence, it is argued that a policy maker should examine the degree of *asymmetry* of results –that is, how much would be gained and how much would be lost if the policy were implemented. It will be shown that, insofar as this asymmetry is more pronounced, the horizontal and vertical search becomes less relevant for a policy maker's decision.

**Keywords:** evidence-based policy, horizontal and vertical search, asymmetry of results, uncertainty, policymaking.

**Resumen:** Cartwright y Hardie (2012) afirman que, para que una política funcione *aquí*, se deben realizar dos tipos de búsquedas: una relativa al principio causal o variable política (búsqueda vertical) y otra relativa a los factores que sustentan dicho principio (búsqueda horizontal). Sin embargo, los autores dejan de lado el hecho de que, durante la implementación, una política puede desviarse de su curso esperado. En el mejor de los casos, estas desviaciones hacen que la política termine fracasando. Pero en otras situaciones, tales desviaciones pueden tener efectos altamente dañinos. En el presente artículo se argumenta que, al menos en el ámbito socioeconómico, estas desviaciones pueden ser más comunes de lo que se piensa. Como consecuencia, se argumenta que el hacedor de políticas debería examinar el grado de *asimetría* de los resultados, es decir, cuánto se ganará y cuánto se perdería si se implementara la política. Se mostrará que, en la medida en que esta asimetría sea más pronunciada, la búsqueda horizontal y vertical se vuelve menos relevante para la decisión de un hacedor de política.

**Palabras clave:** política basada en la evidencia, investigación horizontal y vertical, asimetría de resultados, incertidumbre, formulación de políticas.

## 1. INTRODUCTION

Cartwright and Hardie (2012) consider that policies are case-specific. Approaches such as Evidence Based Policy are prone to have external validity problems, since they are based on the idea of using policies that worked "somewhere", regardless of whether or not there are discrepancies between previous and actual circumstances. The fact that a policy works somewhere –claim Cartwright and Hardie– is not as important as the fact that it works here. For this to happen, the authors suggest dividing the analysis into two parts. On the one hand, the causal principle must be described at the right level of abstraction so that it can be extrapolated to different scenarios. Once this principle is found, the next step consists of “lowering” the levels of abstraction in order to find those factors that support such causal principle.

Although this approach emphasizes the importance of not using that which simply worked somewhere but designing and implementing policies for specific cases, it says very little about what could happen if the causal path of such policy was deviated from its expected course; that is to say, if some variables as people’s activities, institutional arrangements or some other background conditions turned out to behave different than planned. This is not a minor issue, as there is the chance that an unsuccessful policy may worsen a scenario instead of improving it.

The reasons why a socioeconomic policy -the kind of policies that will be examined in the present paper- may fail are manifold. On the one hand, there is the chance that the causal principle assumed in a policy is not congruent with the principle working in the target system. Almost always there is more than one cause for the same effect. Consequently, there is more than one causal principle explaining or solving a particular problem. The level of abstraction of a causal principle is important for a good policy implementation, but it is also important that the principle specified in the policy should resemble the principle that would solve the problem in the real world. If a country experiences economic growth problems, the causes can be attributed to low social returns, low social appropriability, high cost of finance, etc. If we think that economic growth problems are always due to the same cause -for example, high cost of finance- then it is very likely that the corresponding economic policies end up failing, even if their causal principle is described at the right level of abstraction.

Likewise, the volatile nature of human action and the underlying complexity of the environment where these actions take place makes that, in some situations, policy forecasts may not be reflected in the real world. People perceive signals from the world, interpret them, form expectations and make decisions, which are not only subjective but can also change over time. Also, people interact with each other, and these interactions may bring about unintended results. In setting up a policy, a policy maker attempts to control a set of relevant causal factors. However, he has no control over all of them. When designing a socio-economic policy, certain people’s behaviors, institutions and other background conditions must be assumed. The problem is that there is no certainty that such assumptions will be met in the target system.

Once we accept the fact that a policy may deviate from its planned course, the next question is what consequences derive from such deviations. The “asymmetry” of results becomes relevant here. According to Taleb (2012), a result is asymmetric when the consequences of gaining something differ from those of losing it. A policy outcome cannot be known beforehand. However, we can get an idea of what could happen if it succeeds or fails. Analyzing the asymmetry of scenarios allows us to decide whether or not to implement a policy. For instance, if what we have to lose is much higher than what we have to gain, then regardless how well done the vertical and horizontal search has been carried out it would be coherent not to implement that policy.

The article is divided as follows. The next section outlines the general ideas of the Cartwright and Hardie approach. The second section consists in a revision of the literature associated with epistemological issues of evidence-based policy. Particularly, the notions of “complexity” and “uncertainty” put into question the instrumental rationality of this kind of policymaking. Subsequently, the fact that a good abstraction in the

description of the causal principle is sufficient for its extrapolation to any scenario is questioned, and it is proposed that, since there are several causal principles for a same effect, a complementary step to the vertical search consists of eliminating all those causes or principles that are not congruent with the principle working in the target system. The fourth section mentions the reasons why a socio-economic process deviates from its expected course. The case of the "Keynes effect" will be taken as an example. In the fifth section the notion of "asymmetry" is introduced, and it is argued that vertical and horizontal searches lose weight in a policy maker's decision as long as the asymmetry becomes increasingly pronounced. Some important considerations a policy maker should take into account before designing and implementing a policy will be stated in the fifth section. Concluding remarks are mentioned at the end of the paper.

## 2. THE CARTWRIGHT AND HARDIE APPROACH

Cartwright and Hardie (2012) examine the external validity problems that underlie evidence-based policies (EBP). Basically, the fundamental principle of this approach is to use policies that have worked somewhere. It is assumed that there is a stable causal factor that can be discovered with methods such as the "randomized controlled trials" (RCT). After its discovery, the causal factor is to be used in different scenarios. However, while it is true that the information this method provides is related to a policy or causal factor that worked somewhere, it tells us nothing about whether the policy to be implemented will work in the target system. In this regard, Cartwright and Hardie (2012) differentiate between three types of causal claims:

1. it works somewhere
2. it works in general
3. it works here

In the first place it is necessary to know whether a causal factor can produce a certain effect (it works somewhere); this is the cornerstone of EBP. Nevertheless, it does not mean that the factor will work in the target system (it works here) and much less than it will work "always" (it works in general). The extrapolation to a new situation from uncontroversial success in another one is not warranted because it is based on simple induction (Cartwright, 2012). The scenario where a policy was successful is not the same as the scenario where the new implementation will take place.

Cartwright and Hardie (2012) illustrate this situation with the World Bank policies to cope with child malnutrition. At the end of the 20th century the World Bank created a wide range of interventions in developing countries. One of them was carried out in Bangladesh. The Bangladesh Integrated Nutrition Project (BINP) was a program modeled on a program carried out in India: the Indian Tamil Nadu Integrated Nutrition Project (TINP), albeit with little effort to adapt the project to local circumstances. While the TINP was successful in lowering the rate of malnutrition, the same did not happen with the BINP. One of the main goals of these programs was to improve the nutritional status of pregnant and lactating women as well as infants in the poorest communities in Bangladesh. To achieve this, the BINP provided nutritional counseling to pregnant women and supplementary feeding for children under 24 months. Such counseling was expected to be effective not only to improve malnutrition rates, but also to bring about a transformation of certain norms and beliefs of Bangladeshi people.

If the TINP was successful, why did the BINP fail? There are two factors that contributed to this: food leakage and substitution. In the first place, the food was often not used as a supplement but as a substitute. Additionally, certain foods intended for mothers and children ended up being "leaked" to other family members. These two factors are linked to a socio-cultural pattern significant enough to alter the policy outcome: the mothers' control at home. The TINP was a program designed for the culture of India, where women are responsible for their home administration. But in Bangladesh this is not so. On the contrary, it is the mothers-in-law who have control. Mothers do not shop either; it is the fathers who take care of it. So,

whereas in India the factor "mothers have control at home" was not significant, it turned out to be crucial in Bangladesh, where its absence contributed to results very different than expected.

In order for a policy to be effective here, Cartwright and Hardie (2012) consider that much more information is needed: not only about causal principles, but also about the "support factors" that complement them. In this juncture, they suggest that a policymaker should perform two searches prior to implementing a policy: the horizontal search and the vertical search. In the vertical search, one must find out if the causal principle has been characterized at the right level of description. Such a description helps to reason if a policy is workable in different scenarios. The TINP turned out to be a successful program, and served as the basis for the design of the BINP. However, the result was not as expected. This is because the causal principle used in such programs did not have the correct degree of abstraction. To better understand this point, consider the following statement:

**Principle 1:** Better nutritional knowledge in mothers plus supply of supplementary food can improve the nutritional status of their infants.

It is a principle that was successful somewhere (e.g., Tamil Nadu), but not necessarily here (e.g., Bangladesh). Exporting this principle from the TINP to the BINP was a mistake, since the two populations did not share this principle. However, Cartwright and Hardie (2012) suggest that they could share a common principle. All it has to be done is to "ascend" to a more abstract principle, such as:

**Principle 2:** Better nutritional knowledge can improve infants' nutrition if the persons who have the knowledge are those who

- a. provide the child with supplementary food
- b. control what food is procured
- c. control how food gets dispensed
- d. hold the child's interests as central in performing a, b, and c.

Unlike principle 1, principle 2 is feasible for both Tamil Nadu and Bangladesh. Abstraction then helps to reason whether a policy based on a certain causal principle is likely to work in different scenarios. However, this is a partial aid. The next step is to get back down the ladder of abstraction in order to specify the crucial elements for a policy to work in the target system. This is when horizontal search becomes important. In the horizontal search the policy maker examines whether the support factors of a certain population (e.g., Tamil Nadu) are also available in the target population (e.g., Bangladesh). For example, the horizontal search would reveal that in Tamil Nadu mothers have the control of the house, while in Bangladesh fathers do the shopping and mothers-in-law have the control of the house.

Another way Cartwright and Hardie understand the causal role of a policy is through the notion of "causal cake". The policy variable is one ingredient in the cake, and it plays its causal role by working with other ingredients to produce a contribution to the effect. Such ingredients are what Cartwright and Hardie call "support factors". They may be understood as INUS conditions: an Insufficient but Necessary part of a condition which is in itself Unnecessary but Sufficient for its effect (Mackie, 1965). An INUS condition is an ingredient, a part of the cake: without this, the cake's causal contribution will not take place. It is therefore a necessary condition to produce it. However, it is an insufficient part: it is not enough that it produces a contribution on its own, but it needs other factors or ingredients to support it. On the other hand, a cake is considered sufficient to produce a causal contribution. However, this contribution can always be generated from a variety of different cakes with different ingredients. That is the reason why each particular cake is also an unnecessary condition for getting a contribution to the effect. "Supply of supplementary food" and "nutritional counseling" are two ingredients of a cake that works in Tamil Nadu. They are necessary parts to produce the effect. Yet they are not sufficient; we must specify who has the control of the house. At the same time, the TINP is sufficient to produce a causal contribution in Tamil Nadu, but it is unnecessary for getting a contribution to the effect; in other words, other policies different than the World Bank interventions may be carried out.

### 3. COMPLEXITY AND UNCERTAINTY IN THE SOCIAL WORLD

Policy making is a combination of intervention and prediction. The very implementation of a policy is an intervention in the real world in order to achieve a specific and desired result. But it also involves a predictive aspect; not only about its future outcome, but also about the underlying conditions that are assumed to occur.

The notion of evidence-based policy and practice fits well with a rational decision-making model of the policy process (Nutley and Webb, 2000, p.15). Within this rational model, the focus lies in improving the 'instrumental' use of research and evaluation. Schwandt (1997, p. 74), for example, argues that according to this model of instrumental rationality, policymakers seek to manage economic and social affairs "rationally" in an apolitical and scientized manner such that social policy is more or less an exercise in social technology.

Nevertheless, this supposed rationality that underlies evidence-based policy has been questioned on more than one occasion. In closed systems, it is possible to think of making interventions such that the desired result is achieved. All that is required is to isolate the system through local closures. An example of this is the idea of "nomological machines" developed by Nancy Cartwright (1995, 1999). According to her, a nomological machine is "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). But in open systems -that is, in cases where the target system constantly interacts with its environment- this is not the case. In these systems there is an ineliminable complexity and uncertainty that makes the prediction of certain variables a very complicated task (see Chick and Dow, 2005).

Another important basis for criticism of evidence-based policy has been the constructivist or interpretivist position (Crotty, 1998; Guba and Lincoln, 1989). This position asseverates that knowledge of the social world is socially constructed, as well as culturally and historically contingent. Scientific knowledge can have no unique claim to objectivity. Research does not simply inform policy development in an instrumental way, but rather plays an important role in promoting broader 'enlightenment' of policy makers (Sanderson, 2002).

Despite this epistemological controversy, Sanderson (2002) asserts that the "realist" tradition in the philosophy of social science is enjoying something of a revival in the context of the concern to make policy making more evidence based (see, for example, Archer 1995; Archer et al. 1998; Kirk 1999; Pawson and Tilley 1997; Searle 1995; Trigg 2001). Realists argue that there are social phenomena independent of cognition to be explained in terms of underlying mechanisms (which may not be directly observable), and that the task of social science is to understand the way in which mechanisms work in conjunction with contextual factors to generate social outcomes. Realists argue that they provide the basis for a "middle ground" between the over-optimistic claims of objectivists on the one hand and over-pessimistic nihilism of relativists on the other (Trigg 2001).

According to Sanderson (2002), this new realistic tradition offers the prospect of a better understanding of what is likely to work in terms of public policies and programs. This provides a potentially important basis for effective governance, albeit a broader institutional framework is required to deal with social complexity that goes beyond traditional command and control models (Mulgan 1998). Amin and Hausner (1997), for instance, have developed the notion of 'interactive governance' as the basis for strategic guidance of increasingly complex societies. They argue that the idea of society as a web of interlocking networks of affiliation and interaction, structured around a multiplicity of formal and informal institutions, constitutes "a powerful metaphor for grasping the problems of social complexity" (p. 10). Networking (or "relational interaction"), involving both state and non-state governance structures, provides a basis for overcoming the rigidities associated with hierarchy –interactive, deliberative networks with a multiplicity of shared values and responsibilities being more discursive and democratic (pp. 14–19). Strategic guidance –the ability to coordinate, arbitrate and facilitate multiple governance networks– is seen as "the quintessence" of governing social complexity (p. 18).

Different scholars have recognized the need for an enhanced capacity for learning as a means of reconciling the implications of increasing social complexity with the requirements of effective public policy intervention. Examples of this is the notion of “experimenting society” (Campbell and Russo 1999), where policy and society interact in an active and evolutionary way, appealing to trial and error. Similarly, Dunsire (1986) argues that under conditions of uncertainty about the ex-ante “correctness” of policy decisions, there is a need to strengthen the role of evaluation in providing up-to-date, relevant information on actual performance, and to build the capacity to take action to modify policy design and implementation in the light of such information. Rescher (1998) also points out that, in situations of high and unmanageable complexity, practice in matters of public policy should be guided more effectively by localized experimental trial-and-error than by the theorizing resources of an intellectual technology unable to cope with the intricacy of interaction feedbacks and unpredictable effects. (p. 189). As can be seen, a major burden is placed upon policy experimentation and evaluation as key institutional practices in interactive governance to provide the basis for reflexive social learning.

#### 4. POSSIBLE CAUSES OF THE SAME PROBLEM

Let us suppose that a country is facing economic growth problems. The standard theory of economic growth claims that the different steady states among countries are the result of different investment rates, which in turn depend on saving. Specifically, this theory states that every act of investment corresponds to an act of saving. Evidence supports this position: there is a close empirical relationship between national saving, investment and income per capita in countries. Also, the principle “saving leads to economic growth” has the right degree of abstraction, since it does not refer to a particular population but to a general situation.

The policy maker can then make use of this principle, although it will have to be complemented with a set of support factors. Let us suppose then that, despite having made a good horizontal search, the chosen policy ends up failing. According to Cartwright and Hardie stance, the trouble must lie in one of the two searches. This may not necessarily be the case. There exists the chance that the problem does not lie in the horizontal or in the vertical searches, but in the “choice” of the causal principle. Thus, the problem of low economic growth that that country faces may be associated with a cause different than insufficient saving. In particular, problems of low economic growth may occur due to two main reasons: low economic activity or high cost of finance. Low return to economic activity may occur due to low social returns or to low appropriability. Low social returns may be caused by a poor geography, a low human capital or a bad infrastructure. On the other hand, low appropriability may be due to government failures or to market failures. This latter may be caused by information externalities (“self-discovery”) or by coordination externalities. Finally, if there is a high cost of finance, it may occur because of bad international finance or bad local finance, and the latter may be due to low domestic savings or to poor inter-mediation (Rodrik, 2007).

For Cartwright and Hardie, an effective policy implementation depends on finding a principle with a degree of abstraction enough to avoid external validity problems. However, there are different causes for the same effect, so causal principles are not useful for any situation except for those who solve the problem in question. Suppose that there is a problem P. Cartwright and Hardie claim that there exists a causal principle C that must be combined with a set of support factors in order to design a policy that solves P. Nevertheless, there are different causal principles C1, C2, ... Cn related to P, that is, there is more than one cause for the same effect. Regardless of whether these causal principles are described with the highest level of abstraction, each of them will be useful for particular cases. If a country has problems with economic growth, it is fallacious to think that this problem will always be due to insufficient savings; there can be institutional problems, human capital problems, infrastructure problems, etc.

How then should the policy maker act in this case? First, he must know each of the causes that contributes or hinders economic growth. Causes are multifarious. However, they can be schematized

through a possibility tree. At bottom, the problem of growth is due to two main reasons: low economic activity performance or high cost of finance. If the problem is not related to the cost of finance, then such cause - and all its subsequent causes - can be removed from the analysis. Two important elements in the policy maker's analysis can be appreciated here. On the one hand, we can mention the elimination of possible causes that are not relevant for the present case. If we recognize the fact that there may be more than one cause for the same effect, then we must investigate what specific cause is bringing about the problem. In order to do this, we must discard all those causes that are not related to the problem to be solved. On the other hand, we must highlight the way in which causes are chained. Arranging them under a possibility tree scheme facilitates the elimination of possible causes. If the policy maker recognizes that the problem is not associated with the country's saving capacity, then that cause - and all its ramifications - can be ruled out of the analysis. This would not be achieved without a possibility tree scheme.

Therefore, no matter how well the economic principles are described in their degree of abstraction, they always have external validity problems, and this is because they refer to a possible cause among many others. If a policy is designed on the basis of an incorrect principle, even if both vertical and horizontal searches are carried out in the right way, such a policy will end up failing. Policies are case-specific, but not only due to the use of different support factors, but also due to the different causal principles involved.

## 5. SOCIOECONOMIC PROCESSES TYPICAL ROADS AND THEIR DEVIATIONS

Let us suppose that a policy maker is expecting to increase the amount of national income of a country. He has at his disposal different kinds of macroeconomic instruments. For instance, he may increase public spending, reduce taxes or increase the money supply. An underlying mechanism to this positive relationship between money supply and national income is known as the "Keynes Effect" (KE). According to this mechanism, when the money supply is increased, people tend to buy more bonds. The excess demand for bonds will push up their price. Since there is a negative relationship between bond prices and the interest rate, then the latter will tend to fall. Likewise, a lower interest rate turns the cost of loans cheaper, so it will have a positive impact on firms' investment projects. If an increase in investment is to occur, then employment in the investment industries will go up. Through Kahn's multiplier, such increase will mean a higher increase in total employment. Finally, the increase in total employment will increase the level of national income.

Nevertheless, the KE is a mechanism that works as long as a set of restrictions is met. For instance, entrepreneurs must have good expectations about their future sales, there must be no liquidity preference, changes in primary employment in the investment industries must bring about proportionally greater changes in total employment, etc. If any of those restrictions is not met then the economic process will end up deviating from the expected target, that is to say, the KE will not take place. In Keynes' words:

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. Finally, if employment increases, prices will rise in a degree partly governed by the shapes of the physical supply functions, and partly by the liability of the wage-unit to rise in terms of money. And when output has increased and prices have risen, the effect of this on liquidity-preference will be to increase the quantity of money necessary to maintain a given rate of interest (Keynes, 1936, p. 155).

This situation may be represented through three deviations: (1) no change in interest rate, (2) no change in investment, and (3) no change in total employment. (1) is related to a situation where people's liquidity-preference is growing more than the amount of money. If so, then the monetary policy will have no impact on the interest rate, as people are not going to use that surplus of money for buying bonds; they will prefer

to keep their surplus of money. In (2) we must assume that the increase in money supply has successfully reduced the interest rate. However, entrepreneurs do not have good expectations of their future sales. As a consequence, there will be a decrease in the marginal efficiency of capital. If such decrease is higher than the decrease in the interest rate, then even if credits are cheaper there will be no impact in the level of investment. Finally, total employment not only depends positively on the employment in the investment industries but also on the value of the marginal propensity to consume. If as a result of propaganda in time of war in favour of restricting individual consumption the marginal propensity to consume ends up decreasing, then firms producing consumer goods will have no incentive to hire additional workers.

The relation between money supply and national income may not take place because of many other reasons. For example, monetarists argue that if the amount of money rises faster than the national income, then there will be an increase in prices. Keynesians also see a possible inflationary consequence in this monetary policy: if the increase in aggregate demand (caused by an increase in the amount of money) ends up exceeding the level of full employment, then an increase in prices will take place. The relation between expansionary monetary policy and inflation is also predicted by New Classical Economics. If prices are completely flexible, if public expectations are completely rational and if real economic shocks are white noise, then the increase in money supply will not bring about any increase in employment or production.

The multiple deviations from the KE's typical road occur because there is a multiplicity of people's possible actions. For this reason, when setting up a mechanism such as the KE, a broad set of conditions must be fulfilled. Assuming that entrepreneurs will have good expectations of future sales or that people will not have a high liquidity preference is necessary so that the causal process can be channeled towards a certain path. Therefore, the KE is not an isolated and stable mechanism that can be exercised whenever the right factor is properly triggered. On the contrary, the KE is a possible mechanism, that is, an economic process that might occur if certain conditions are met. Implementing an expansionary monetary policy involves not only increasing the amount of money in an economy. In order for the KE predicted results to occur in the real world, a set of conditions must be fulfilled in the target system. If any of them is not met, then it is very likely that the KE will not occur.

This leads to a problematic situation for the policy maker. If he makes use of stable mechanisms, it is highly probable that once it is activated, he obtains the desired result. There are social and natural mechanisms where the connection between inputs and outputs is stable. This is related to what Glennan (2002, 2008) calls "robust sequences" or to what Cartwright (1999) calls "causal laws". When a mechanism refers to robust sequences, there is a high confidence that by putting it into operation the causal process does not lead to alternative results. Yet the KE is not a robust sequence. By increasing the money supply the national income may increase or not. Whatever the outcome, it will depend on what expectations people have and what decisions they end up making.

It is also doubtful that a process such as the KE can be represented under the logic of "causal laws". Cartwright (1995, 1999) asserts that many of the causal laws exist because there is a nomological machine that supports them. The KE could then be understood as a nomological machine in which the connection between money supply and national income is assured as long as a very specific set of conditions are fulfilled. The problem is that the fulfillment of some of those conditions is not guaranteed beforehand. Despite the great effort in building and setting into operation a mechanism like the KE, the results may not appear if people do not act as planned. Likewise, even if we assume that the relation between money supply and national income is stable under very specific conditions, such regular behavior may break because of "endogenous" problems. The KE could be understood as a nomological machine provided that certain antecedent conditions are met. Let us 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 and robust correlation between money supply and national income will be observed. However, let us now suppose that, at some point in time, a little 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 towards 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. A nomological machine reproduces a causal process without deviations. A mechanism like the KE does not.

A policy may deviate from its intended course not only because people did not act according to planned, but also because the conditions or values assumed in a policy differed –at least in part– from real values. If we started with a Laplacian scheme where both the initial conditions and the principles that rule a target system were perfectly known, then we could design a policy to be successful for such a system. The problem is that this knowledge is only approximate, so we will always be somehow off-target in a policy design. Now, we can assume that this error is minimal, even insignificant. However, minimal errors in the start conditions can lead to significant errors in the results. In other words, the discrepancies a policy maker considers to be insignificant can lead to large discrepancies in the results. Monetary authorities may, for example, raise the interest rate in order to reduce inflation. This increase may be thought to be insignificant, and because of that it is expected that it will not affect the level of national income. Let us suppose, however, that the investment demand is more elastic than it had been estimated. This means that such a small increase in the interest rate will cause a sharp drop in investment demand. Finally, Kahn's multiplier tells us that the decrease in employment in the investment industries will cause a higher decrease in total employment, which amplifies even more the effect of the initial discrepancy. A policy always refers to idealized values, and such values will always differ –no matter how small– from the real values. The problem is that these small discrepancies can lead to large discrepancies in the results, which redounds to the failure of a policy that was thought to be successful.

Processes that emerge from a policy implementation may therefore deviate from their planned course. It does not matter how much effort is put into abstracting the causal principle and complementing it with the right support factors; they will not assure that a policy will work here. Policies contain several conditions to be met. The problem is that policy makers can do very little with the fulfillment of some of them (e.g., people's activities and expectations formation). Therefore, in the construction of a policy it should be also taken into account the knowledge about its possible deviations. Cartwright and Hardie's cakes only provide information about what would happen in very specific situations, but they are unable to tell us anything about what will happen if some of the policy conditions are not met. In other words, this approach overlooks what might happen if some of the elements of the real mechanism diverge from the planned mechanism. The problem is that, in some situations, knowledge of policy deviations may be as important as knowing the ingredients of that very policy. Such a problem will be examined in the next section.

## 6. ASYMMETRY OF RESULTS

If a policy maker intends to improve the national income of a country, he could make use of the KE. Since such a mechanism operates only in very specific circumstances, the policy maker must ensure that all causal principles and all support factors that contribute to the increase of national income are met. For instance, he must ensure that there is no inflation, that people's liquidity preference

If a policy maker intends to improve the national income of a country, he could make use of the KE. Since such a mechanism operates only in very specific circumstances, the policy maker must ensure that all causal principles and all support factors that contribute to the increase of national income are met. For instance, he must ensure that there is no inflation, that people's liquidity preference is not high, that entrepreneurs' expectations on their futures sales are good, that there are idle resources, etc. If all these conditions are met, then it is plausible that the KE mechanism will operate correctly.

A policy may work or not. On the one hand, it is relevant to know those conditions that lead to a desired outcome, but on the other hand it is also relevant to know the magnitude of the alternative consequences in

case it does not work. If the monetary policy fails, the economy will not get the expected increase in national income. This can be more or less negative depending on how much that increase is needed. However, it is also important to know the alternative consequences of such a policy: if for instance these are significantly negative, then the policy maker could change his decision, since what it has to lose is much higher than what it has to gain. Returning to the example of the KE, one of the most damaging side effects of increasing money supply is inflation. Thus, let us suppose that "unexpectedly" for the policy maker, the huge amount of money lying in the market starts to generate an important pressure on the general level of prices. However, the major problem is that the increase in prices can trigger an inflationary spiral: as commodity prices increase, it is likely that Unions begin to exert pressure for higher wages, which in turn will increase the entrepreneurs' costs, so they will end up increasing prices again. Although there is the chance that in the short run inflation may go hand in hand with increases in the national income, this process can be reversed in the long run: if the increase in prices is greater than the increase in wages, people will begin to demand fewer goods and services. Thus, it is likely that this inflationary spiral remains even in recessive periods. And therefore, a policy decision intended to improve a country's national income may end up contributing to stagflation.

Cartwright and Hardie cakes only provide very useful information about what would happen under a very specific situation, but as they refer to only one causal path, they are unable to tell us anything about their possible deviations. On some occasions, deviations may not be important. However, in situations like the one depicted above they may be crucial. For this reason, a policy maker's decision should not be grounded exclusively on a policy chance of success, but also on its deviations or alternative consequences. This is related to what Taleb (2012) calls "asymmetry".

According to Taleb, a result is asymmetric when the consequences of gaining something differ from those of losing it. There are situations –such as the expansionary monetary policy described above– where, qualitatively speaking, what we have to lose is far superior to what we have to gain. This is what is called "negative asymmetry". If we accept that policies are implemented in open systems where complexity and uncertainty are something "habitual", then we have no way of knowing ex-ante the outcome of a policy. However, we can get an idea of what could happen if it succeeds or fails. The asymmetry is negative if what we have to lose is qualitatively higher than what we have to gain. It can be represented through a concave function. In a concave function, losses (i.e., changes to the left of the function) are always greater in absolute value than gains (i.e., changes to the right of the function). The greater the concavity, the greater the negative asymmetry will be, that is, the more one has to lose in relation to what one has to gain.

Identifying negative asymmetry scenarios is important for the policy maker, as it allows him to decide whether or not to implement a policy. Specifically, if the policy involves a negative asymmetry scenario, then it would be coherent not to implement the policy, since what there is to gain is much lower than what can be lost. A negative asymmetry is observed in the KE example if the gains –an increase in the national income– are low in relation to a loss of considerable magnitude –an economy with stagflation or even hyperinflation. In general, the policy maker should be reluctant to implement policies that involve negative asymmetry scenarios. After all, the ways a policy maker has to achieve a result are multiple. It is plausible that other policies or "cakes" may attain the same effect, but without having to be involved in negative asymmetry scenarios.

In the same way, a policy may be associated with a positive asymmetry scenario. There is a positive asymmetry when what we have to gain is far superior to what we have to lose. It is represented through a convex function. In a convex function, gains are always greater in absolute value than losses. The greater the convexity, the greater will be the positive asymmetry, that is, the greater one has to gain in relation to what one has to lose. When a policy involves a positive asymmetry scenario, it would make sense to implement it, since the costs of failure are insignificant in relation to the benefits of success. Taleb (2012) uses as an example of positive asymmetry-based decision the investment of small portions of a portfolio into risky assets. What we have to lose is well known: assuming that 10% of an investment portfolio is located into risky assets, we

know that the maximum we can lose is just this 10%, so that losses are not only known but also manageable. However, what we have to gain can be far superior: if any of these investments are related to the invention of a new technology and it ends up shooting up in the market, then the gains will far outweigh any possible losses caused by the remaining risky assets.

In Cartwright and Hardie's approach it is important that all the support factors are met in the right way; otherwise, there is no guarantee that the policy will work in the target situation. However, it was said above that it cannot be guaranteed beforehand. Despite that, it is likely that in some situations it may not be necessary, as they are complemented with the analysis of asymmetry of results. Therefore, what is crucial here is not only whether the support factors are met, but also whether the policy maker can "exploit" the asymmetry involved in the target situation.

Let us take for instance a life-or-death situation: a child urgently needs a lung transplant, and since the waiting list is very long, the child's father decides to donate him one of his lungs. The ideal situation would be that the transplanted lung belonged to a child and not to an adult, since it would increase the chances that the body accepts the transplanted organ. The fulfillment of all support factors is important, but in some way less relevant than the consequences of carrying on or not the very transplant. The child's father faces a very strong asymmetric scenario: if he does not donate and waits for a lung, his son will most likely die. It is a situation where he has a lot to lose (his son's death) and rather very little to gain (keep his two lungs). Instead, if he decides to donate, he will have a lot to gain (save his child's life) and very little to lose (live the rest of his life with a single lung). To some extent, the fulfillment of support factors becomes less important. The decision of donating is not necessarily based on whether or not the support factors are met (in fact, if this decision were based on such factors the transplant should not be carried out), but on how asymmetric is the scenario involved.

## 7. WHAT SHOULD A POLICY MAKER DO?

The approach presented in this paper does not aim to question the importance of doing horizontal and vertical searches. These searches are essential for better policymaking. Cartwright and Hardie (2012) correctly show how a mere extrapolation of policies can lead to failure: a policy that worked elsewhere will not necessarily work here. Policies are, therefore, case specific. That is the reason why vertical and horizontal searches must be carried out. What is argued in the present paper is that, in some situations, this is not enough. It is also important to know a policy's deviations or alternative consequences. And once the policy maker makes use of them, his decision-making should be also influenced by the asymmetrical character of the scenario involved.

Thus, horizontal and vertical searches are only part of the story. It has been shown that, as far as the vertical search is concerned, more than one principle may be the cause of the problem to be solved. For this reason, the task of the policy maker will be, once it has a set of possible causal principles, to eliminate those that do not fit the target system. The vertical search does not only consist of finding the causal principle with the highest degree of abstraction such that it can be extrapolated to any situation. The task is dual: on the one hand, all those principles that could have a causal effect on the target system should be known; on the other hand, all cases that are not consistent with this target should be eliminated. This is the way in which the policy maker will obtain the right principle. And this principle will be the cornerstone on which the policy will be designed. As can be seen, it continues the idea that policies are case-specific, since the elimination of possible principles is nothing other than adding greater specificity to a policy design.

A second aspect a policy maker should take into account is a policy's alternative consequences or "deviations". Cartwright and Hardie (2012) focus on what we have to know in order for a policy to be successful. However, they overlook the fact that a process may deviate from its intended path. Many socioeconomic policies depend on how people act. Through certain signals a policy maker may manipulate

such actions. However, in a strict sense, he has no control over them. A policy will be implemented assuming certain people's expectations and activities. But there is no certainty about their fulfillment. Therefore, deviations are an important issue for the policy maker's decision, since in some situations the magnitude of these deviations can lead to revise the relevance of implementing a particular policy. The KE is an economic mechanism that works under very specific conditions, both at the institutional and people's actions level. If the policy maker's projections fail, consequences can be disastrous (e.g., stagflation). Once the policy maker knows this, he will decide whether it is actually worthwhile implementing such a policy. This is when it becomes relevant to investigate the degree of asymmetry of a scenario.

The fact that a policy maker must pay attention to the asymmetry of results does not mean that a policy's chances of success are not relevant for decision making. As a matter of fact, they are, and such chances will depend on several factors: the precision in horizontal and vertical searches, that people do not have incentives to act in a different way from that planned, that institutions taken as a framework for setting the policy do not change once it is implemented, etc. The greater the chances of success, the greater the policy maker's confidence for implementing a policy. However, the weight of such chances will become less relevant in a policy decision as long as the concavity increases. If the negative asymmetry is quite slight, then the discrepancy between what is to lose and what is to gain is not very significant. In cases like that it is reasonable that the policy maker grants a greater weight to a policy's chances of success. Nevertheless, to the extent that concavity becomes more pronounced, what we have to lose will be greater in comparison to what we have to gain; in other words, the margin of error will be decreasing. In cases like these, it is perfectly reasonable that the policy maker decides not to take the risk, since any deviation could leave the system in a situation worse than before the policy was implemented. The chances of success have weight in the policy maker's decision, but this weight decreases as the concavity becomes more pronounced.

## 8. CONCLUDING REMARKS

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