

Of ends and means: Development policy assessment with human development and multiple causality

Sobre los fines y los medios: evaluación de la política para el desarrollo con desarrollo humano y causalidad múltiple

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Abstract

Policy assessment often involves the study of outcomes and their causes. Development policy analyses have conventionally used an economic perspective with a focus mainly on pecuniary indicators and the search for the one model of best fit. However, i) if development policy outcomes are ultimately to be assessed in terms of people's quality of life; and, ii) if policies establish similar outcomes for different people in different contexts, alternative approaches seem required to study a policy's ends and means. As such, this article advances the combined use of the Human Development and Capability Approach with fuzzy set Qualitative Comparative Analysis as a promising option. While the former, being a people-centred framework, can contribute to assess policy ends, the latter, enabling the study of multiple conjunctural causation, can shed light on the diverse means leading to them.

Keywords by author: Government policy, human development, set theory, causal analysis, comparative analysis.

JEL Classification: B49, I3, O15, Z18.

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Resumen

La evaluación de política pública usualmente implica estudiar resultados y sus causas. Los análisis de política para el desarrollo convencionalmente han utilizado perspectivas economicistas enfocadas en indicadores pecuniarios y en el modelo único mejor adaptado a la información. Sin embargo, a) si los resultados de esta política se evalúan en términos de la calidad de vida de las personas; y, b) si las políticas establecen resultados similares para diferentes personas en distintos contextos, enfoques alternativos parecen necesarios para estudiar sus fines y medios. Consecuentemente, este artículo promueve el uso combinado del Enfoque del Desarrollo Humano y Capacidades con el análisis cualitativo comparado con conjuntos difusos como una opción prometedora. Mientras el primero, al ser un marco conceptual enfocado en las personas, puede contribuir a la evaluación de los fines, el segundo, al permitir el estudio de la causalidad coyuntural múltiple, puede iluminar los diversos medios que llevan a ellos.

Palabras clave del autor: política pública, desarrollo humano, teoría de conjuntos, análisis causal, análisis comparativo.

Clasificación JEL: B49, I3, O15, Z18.

Introduction

Development is not only a descriptive but also a normative concept. It suggests the idea of progress, advancement, and improvement (Alkire & Deneulin, 2010a). In other words, it not only entails the idea of change but "good change" (Chambers, 2004). This highlights the fact that different authors, organizations, sectors in society, and stakeholders in general, may have different understandings of what development is, if it is desirable at all, and, in the case that it is, how to attain it.

There is a variety of theories and alternatives to assess development. Regardless of the particular approach, development entails the notion of progress and improvement (Alkire & Deneulin, 2010a). Therefore, in every such exercise, values and judgments underpin what is regarded as worth improving: the units on which the focus lies (what is measured), and the route (the direction of change). Thus, ideas about development are important because they indicate what matters.

Indeed, as Stiglitz, Sen and Fitoussi (2010, p. xix) assert, “[w]e see the world through lenses not only shaped by our ideologies but also shaped by the statistics we use to measure what is going on, the latter being frequently linked to the former”. Despite this, relatively little attention has been given in the literature to fundamentally question the techniques and approaches we use to measure and capture or operationalize the concepts and phenomena of interest; it has, instead, opted for rather marginal critiques. One plausible explanation for this is the dominance of economics in the field of (international) development (studies). In this sense, Woolcock (in Summer & Tribe, 2008, p. 73) asserts “there can be little doubt that, for better or worse, economics is the lingua franca of international development”.

Furthermore, beyond the theory, which indicates what ought to be changed and how, in every study of development, values and judgments underpin the choice of methods as well. That is, there is normativity in the choice behind how ‘what matters’ is approached. This entails the selection of methods to determine the relevant case(s), variable(s), indicator(s) and techniques or strategies used to collect and analyse that data. Again, presumably because of the dominance of economics, the study of development has conventionally employed its preferred methods, i.e. quantitative, with all the advantages and limitations they entail.

These implications seem to apply to development policy analysis as well. In particular, this can be attested in the case of policy evaluation, i.e. the scrutiny of “[...] whether and to what extent a program has its desired effect” (Birkland, 2011, p. 54). As such, this phase of the policy cycle is concerned with causation and, therefore, the focus is placed both on the outcomes and the causes leading to them: or the policy’s ends and means. Evaluative exercises, encompassing both aspects, have conventionally fallen within the economic tradition and its emphasis on quantification, there have also been claims for objectivity, a mechanical approach to analysis, and limited attention has been paid to understanding causal processes (Turok, 1991). Therefore, a revision of both, ends and means, which very roughly corresponds to theory and method seems warranted.

In light of the above, it is deemed pertinent to question what is meant by development and the manner in which its causes are studied. In order to do so, this paper is divided into four sections. At the outset the notion of development, as it relates to the ends of policy, is discussed and the case for adopting the

Human Development and Capability Approach is made. Then, concerning the means to those ends, the second section presents fuzzy set Qualitative Comparative Analysis as a method to study one particular kind of causality, namely, multiple conjunctural causation. The third section bridges the relevant gap between these literatures as it elaborates on the resonance between the aforementioned framework and method, shows their potential benefits and argues in favour of combining them in policy evaluation exercises. The final section concludes.

I. The notion of development or the ends of policy

Ideas about development matter because they indicate what matters. Hence, this section addresses the importance that conceptual frameworks have for development policy making and evaluation; it argues in favour of the human development approach for policy evaluation, which is discussed in light of the still-dominant approach.

A. Economistic development

For decades, the most conventional approach, by far, to measure and assess country development has been economic growth as measured by GDP per capita (Alkire, 2010; Spence, 2010). Although this measurement was not really intended as an indicator of well-being whether at country or people level, it has been used as such, thereby influencing policy making. Its attractiveness is clear: it is relatively easy to measure, allows comparability among quantities of different types, and is rather difficult to forge (Nussbaum, 2011). Moreover, it is an important measure of material wellbeing (Spence, 2010).

Several heroic assumptions have been made in order to equate economic growth, and other measures of opulence derived from or otherwise related to development. Among other things, it has been assumed that higher growth increases people's income and hence their quality of life and that income encompasses other dimensions of life (Alkire & Deneulin, 2010a). The reasoning behind this has been the belief that measurements of opulence are consistent with a utilitarian conceptualization of well-being: a raise in income leads to more consumption and the latter increases utility (McGillivray, 2007). However, the evidence does not seem to support such logic. Growth and destitution can coexist. In fact, people in countries with high growth figures can

suffer from great deprivations, as there can be growth without development (Clower, Dalton, Harwitz, & Walters, 1966; Ranis, Stewart, Ramirez, 2000).

Additionally, GDP per capita obscures relevant factors and entails questionable assumptions. Aspects such as inequality, happiness, particular needs (Alkire & Deneulin, 2010b; Sen, 1999), the composition of growth, the burden on the Earth's resources (Alkire, 2010), and non-market activity (Klugman, Rodríguez, & Choi, 2011): all essential in people's quality of life are omitted. Furthermore, using one pecuniary indicator assumes that income per capita encompasses other dimensions of well-being. It suggests that a single figure encompasses information about aspects of life that are distinct and poorly correlated with each other (Nussbaum, 2011; Sen, 2000). This negates the incommensurate nature of the dimensions of well-being when experience suggests otherwise. Income per capita, however, captures but one dimension of well-being, namely, material well-being. Hence, as Sen (1985) argues, using this indicator to measure development is reducing well-being to being well-off: effectively confusing well-being with well-having. Finally, given that income or wealth are only intrinsically important (they are only valuable for what they can lead to), measures of opulence mistake the means with the ends of development. Despite these shortcomings, by the turn of the century, it was asserted that "GNP per capita has continued to be regarded as the 'quintessential' well-being indicator" (Dasgupta, 2001, p. 53). Although this position has been increasingly challenged, the preference for pecuniary indicators has proven rather pervasive.

B. Human development

The Human Development and Capability Approach, henceforth HDCA, provides a plausible answer to the plea for a development framework that focuses on the actual ends of development, namely, on people and their quality of life. As such, it regards the purpose of development as the enlargement of people's choices and encompasses all dimensions of a person's life (Haq, 2004).² At the core of this approach lies important questions: what are individuals free to do

2 Mahbub ul Haq (2004, p. 31), one of the fathers of the approach, put it best: "The human development paradigm covers all aspects of development – whether economic growth or international trade; budget deficits or fiscal policy; savings, investment or technology; basic social services or safety nets for the poor. No aspect of the development model falls outside its scope, but point of references remains the widening of people's choices and the enrichment of their lives. All aspects of life – economic, political or cultural – are viewed from that perspective. Economic growth therefore becomes only a subset of the human development paradigm".

or be? (Alkire & Deneulin, 2010b), and what do people choose to do and be? (Robeyns, 2017). In providing an answer, the HDCA expands the informational space of inquiry to those aspects that make life worthwhile (Sen, 1999). These choices encompass everything that is valuable in and of itself. Thus, the move beyond economic variables, one dimensional approaches, and single indicators becomes conspicuous. The HDCA, however, does not disregard the relevance of the economy and monetary factors. It acknowledges the latter, but only as one of several (instrumental) aspects in people's lives.³

The HDCA is the product of the work of many highly regarded scholars, most notably Amartya Sen's Capability Approach (Alkire, 2010). Sen's (1999) framework (re)defines development as freedom. Thus, it puts people and the expansion of their freedoms as the end of development and advances the use of a plurality of data to evaluate quality of life. For the purposes of this paper, three concepts are of special interest: functionings, capability, and conversion factors.

Functionings are the doings and beings that people value and have reason to value (Sen, 1999). That is, they are reflected-upon, valued types of life (Sen, 1993) that are constitutive to a person's being (Sen, 1990). These are already-achieved states to which a person can aspire. Insightful illustrations could be: to be literate, to use public services, to vote, to enjoy holidays, to participate in community life.

Capability, in turn, is a vector of possible functionings (Sen, 1999). It reflects the freedom that people have to lead different types of life (Sen, 1993). As such, capability denotes the opportunity individuals have to choose from valuable possible lives. This underscores the fact that the sheer amount of options available is not what matters, but rather the number of choices which people value and have reason to value. For instance, a person may have access to higher education, but if the study program they hope to pursue is not available, the number of programs available becomes meaningless. In such cases, capabilities are restricted and, to some extent, so are functionings. This is a restriction on freedoms. Thus, according to Sen (1999), development should be considered within the space of capabilities.

3 "The human development paradigm performs an important service in questioning the presumed automatic link between expanding income and expanding human choices. Such link depends on the quality and distribution of economic growth, not only on the quantity of such growth." (Haq, 1995, p. 15)

However, the translation from resources to functionings and/or capabilities is not unmediated. Different people with different individual features in different contexts may require more or less resources in order to achieve analogous levels of doings and beings and freedoms. These are known as *conversion factors*, which can be internal or external. The former refers to personal characteristics (e.g. age, gender, health). The latter refers to social and environmental characteristics (e.g. culture, institutions, location). Telling examples could be: the difference between the possible-achievements of two people with the same disability but who live in different areas (say urban and rural); the functionings available to two single mothers, in the same place, but with considerable different ages (imagine one being underage, for instance); or the possible-achievements of a woman and a man seeking employment within a profession that, because of social and institutional custom, prefers one sex over the other.

Hence, the HDCA proposes a move of focus from the means to the ends of development. It argues for privileging intrinsically valuable dimensions of human life over those instrumentally valuable dimensions. By so doing, it also expands the informational base, from single indicators to multiple ones, recognizing the multidimensionality of human experience.

In this sense, from the HDCA perspective, development policy ought to seek the improvement of people's quality of life and to be assessed accordingly. This means that people should be at the heart of the exercise. The Human Development Reports, the main communicational tool inspired by the HDCA, suggest three dimensions on which the outcomes of policies can be evaluated: health, education, and standards of living. However, this is not an exhaustive list since the HDCA is by nature a multidimensional framework and has left the relevant dimensions open to public discussion. That being the case, policy outcomes are likely to vary depending on the policy but, from a HDCA viewpoint, they ought to be people-centred and, as such, focus on functionings and/or capabilities.

Additionally, the plurality in human experience entailed by the HDCA has important implications for policy analysis. Mainly expressed by the multiplicity of lives people may have reason to value, as well as the diversity of personal and contextual characteristics making up people's lives, the HDCA's plurality suggests that there is likely to be more than one path for a given policy outcome. Given that policies are strategies to achieve an outcome or result, and

that development policies ought to focus on people, it may prove quite useful to acknowledge that there are multiple means to those ends when assessing the latter.

Once the policy ends have been established, the nature of policy evaluation and its concern with the analysis of what works (and what does not) ought to be addressed. In other words, there is an interest in identifying the pathways to given outcomes (or the obstacles to them), or the means to the policy ends. How to tackle this task is the issue I will next address.

II. Accounting for causality or addressing the means of policy

The merits of the HDCA, however, have also been regarded as shortcomings. It has been described as an information-demanding framework due to its multidimensional-context-dependent-counterfactual-normative nature (Comim, 2008). Thus, empirical applications have proven to be rather daunting. To an extent, this is presumably due to the traditionally-employed methods. Indeed, by far the most dominant strategies and techniques in HDCA applications have fallen within the conventional quantitative, statistical approaches (Farvague in Zimmermann, 2006). Despite their virtues, these techniques have limitations that force such exercises to resort to important compromises. Sen (1999) himself, as an economist versed in those methods, has acknowledged this to a certain extent.

In order to propose an alternative, this section provides an alternative method: fuzzy set Qualitative Comparative Analysis, henceforth fsQCA, and makes the case for its application in HDCA-inspired exercises. This promising synergy can be complementary to conventional applications, thereby reducing the compromises that have so far been accepted. Thus, fleshing it out as a foundation on which empirical exercises can build is the main contribution this article makes. This section sets out by introducing Qualitative Comparative Analysis, next it presents fuzzy sets, and then it addresses both as one method.⁴

4 The argument in favor of fsQCA is made as an option that is not necessarily a substitute to more traditional methods but that is complementary to them, depending on what is assumed by the analysis and the purposes of the exercise.

A. Qualitative Comparative Analysis (QCA)

Originally proposed in Charles Ragin's (1987) seminal work, QCA is a method used to study a particular type of causation: multiple conjunctural causation. When it is likely that there is more than one pathway to an outcome, as is arguably the case in public policy in general and social policy in particular (Garcés, 2018a),⁵ this tool can prove useful. There are at least four broad features that characterize QCA, which are elaborated below. First, although QCA has been conceived in a variety of ways (see e.g. Delreux & Hesters, 2010; Rihoux & Ragin, 2009), perhaps it is best understood as a *set-theoretic method*. This discussion addresses fuzzy sets to complement QCA (or 'fsQCA'). Second, it is a case-oriented not a variable-oriented method. Third, its approach to causality is by focusing on sufficiency and necessity. Fourth, and finally, as a consequence of the latter, QCA is characterized by equifinality, non-additivity, and asymmetrical causation. Each point is elaborated in the following sections.

1. Set theory and logic

QCA is a set-theoretic method,⁶ so the first step is converting concepts into sets. In brief, sets are well-defined groupings of elements, which are based on a common denominator or shared characteristic that justifies their membership within a group. An example could be the set of 'developed nations', which would require a concept of 'development' and an approach to capture and measure it. Then, all countries are ranked from the most developed to the least and a criterion is employed to identify 'developed nations'; therefore, they are distinguished from 'non-developed nations' (the opposite set). Importantly, the latter is the negation of the original set: not automatically 'undeveloped nations' but 'non-developed nations' as the former could be different from

5 In his argument, Garcés (2018a) elaborates a useful syllogism that can be summarized as follows: 1) social policies usually establish a minimum goal that all policy beneficiaries should ideally reach; 2) human beings are inherently heterogeneous and so are the environments in which they live; therefore, 3) social policies seem to assume that there is an array of ways for different people in different contexts to attain those goals.

6 As a method, QCA encompasses different versions depending on the assumptions and purposes of the exercise. When fuzzy sets are employed, it is expressed as fsQCA, when only crisp sets are used, it is referred to as csQCA (for an elaboration using additional versions see Schneider & Wagemann, 2012; Berg-Schlosser et al. 2009). For the purposes of this text, when the acronym QCA is used (without a prefix), the argument is general and applies to most variations of the method

the latter. As such, from the same population or different distribution sets, at least two are required (in this case) in order to capture different concepts.

In order to represent concepts as sets, the data is translated into membership scores in those sets. The most basic approach has been to assign scores of one (1) for membership and zero (0) for non-membership. These are referred to as *crisp sets* and neatly denote two qualitatively different states. For example, in the literacy analysis, for the set of literate people, a score of one (1) would be assigned to literate individuals and a score of zero (0) to non-literate individuals (not to be confused with illiterate, as explained above).

However, as can be gathered from the aforementioned examples, "[...] many social science concepts are dichotomous *in principle*, but [...] their empirical manifestations occur in degrees" (Schneider & Wagemann 2012, p. 14). The importance of this is twofold and has bearings both among the sets as well as within them. Among the sets, there can be considerable variation above and below the cut-off points defining the set's common denominator. Returning to the examples, country development and a person's literacy are a matter of levels rather than being all-or-nothing conditions; countries are more or less (under)developed and people are more or less (il)literate. By grouping observations located above or below the cutoff point, observations are left outside the sets. This is certainly the intention when creating sets, but there are meaningful differences among the observations outside the set. Those located just outside the boundaries of the set are presumably more different than those located far from them. While exclusion from the set may be easier in the latter case, it may be harder in the former. In fact, it may be possible that observations just in and just out the cut-off point have more in common than some observations within the set. Within the sets, therefore, the situation is similar. Considerable variation, which can be potentially insightful, is obscured by grouping observations with different degrees in the variable of interest into one set, which could eventually call into question the operationalization of the concept.

Therefore, a more sensitive method to capture that partial membership is needed. *Fuzzy set* theory offers a plausible alternative to the dichotomous custom since it is a mathematical framework that allows the treatment of categories that have partial membership or degrees (Smithson & Verkuilen, 2006). "[A] fuzzy set is a continuous set that has been carefully calibrated to indicate degree of membership" (Ragin, 2000, p. 154). Hence, fuzzy sets define

both qualitative states (full membership = 1, full non-membership = 0) and the level of membership in between.⁷ Therefore, the fuzziness does not derive from imprecise empirical information but from non-sharp conceptual boundaries (Schneider & Wagemann, 2012).

Thus, instead of forcing fuzzy concepts into exact measurements, as conventional statistical approaches seek to do, fuzzy sets seek to capture their fuzziness. Fuzzy sets can capture qualitative distinctions among cases, just as crisp sets do, but they add also differences in degree. Hence, fuzzy sets can be used together with crisp sets. The advantages of fuzzy sets, nevertheless, also entail complications, which separate them from statistics as usual. Unlike variables in conventional variable-oriented research, which are calibrated according to measures of central tendency and dispersion (Ragin, 2000), fuzzy sets are bound to external standards that have face validity (Ragin, 2008). It is an exercise in which qualitative anchors are carefully specified to each break-point on continua (Ragin, 2000; 2008). That is, they answer to an explicit rationale based on theoretical or substantial knowledge (Ragin, 2000). Table 1 shows an illustration of what such calibration process might look like in the case of the set of 'developed countries'. For this example, the data from the 2015 Human Development Index (HDI) in the latest Human Development Report (HDR) is used (UNDP, 2016a). As can be appreciated, while the report uses rather arbitrary cut-off points for its categories,⁸ those scores could be expressed in a different way using fuzzy sets. This is the case when the exercise simply entails following the distribution of the data. It is potentially even more so when the exercise requires using qualitative anchors based on theoretical and substantial knowledge.

7 Fuzzy sets should not be confused with ordinal scales. The latter are rankings of categories arrayed relative to each other often with no reference to external criteria in order to link categories to degree of membership (Schneider & Wagemann, 2012).

8 Regarding the country groupings, the technical note (UNDP, 2016b, p. 3) simply states: "This Report keeps the same cutoff points of the HDI for grouping countries that were introduced in the 2014 Report" and establishes the following: Very high human development: 0.800 and above; high human development: 0.700 – 0.799; medium human development: 0.550 – 0.699; and, low human development: below 0.550. There is no justification for these categories

Table 1. Illustration of fuzzy set calibration in contrast to the data and categories established in the HDR regarding the HDI 2015

Country	HDI score (2015)	HDI category	(fuzzy) Set developed countries	(fuzzy) set Not developed countries
Norway	0.949	Very high human development	1	0
Kuwait	0.8	Very high human development	0.9	0.1
Belarus	0.796	High human development	0.9	0.1
Uzbekistan	0.701	High human development	0.7	0.3
Moldova	0.699	Medium human development	0.7	0.3
Pakistan	0.55	Medium human development	0.3	0.7
Swaziland	0.541	low human development	0.3	0.7
Central African Republic	0.352	Low human development	0	1

Source: UNDP (2016a)

2. Case-orientation

Regarding its treatment of observations, QCA moves beyond variables and focuses on cases, considering each case as a configuration of conditions. That is, each case is a complex unit of analysis constituted by several features of interest, a focus perhaps more readily associated with qualitative methods. By placing the focus on cases instead of variables, QCA allows for a study of complexity related to causality, which would be daunting in statistical methods, unless rather large populations or samples are used so as to preserve enough degrees of freedom, which in turn has its own challenges.

Similarly, from probabilistic causal reasoning, QCA moves towards diversity (Ragin, 2000). Because QCA views causality as context and conjuncture specific, it rejects permanent causality (Ragin, 1987). That is, the goal is not to find one single causal model that best fits the data, as in conventional statistical techniques, such as "means, correlations, and regressions—computed across all cases at the same time—which average out the respective constellations and ignore specific, distinct patterns and 'outliers'" (Berg-Schollosser, De Meur, Rihoux, & Ragin, 2009, p. 9), which, have dominated applications of the HDCA by a long way. Instead, the researcher must determine the number and character of the various causal models that there are among comparable cases (Ragin, 1987), considering all equally relevant. Indeed, a combination

of conditions that explains several cases is not considered *a priori* to be more relevant than another combination of conditions accounting for one single case because each case is important (Berg-Schlusser et al. 2009).

3. Focus on sufficiency and necessity

QCA studies causation by placing the locus of attention on sufficiency and necessity. The goal is to eliminate all other possibilities by exposing the conditions that are sufficient and/or necessary to produce an outcome. A condition is necessary for an outcome only when it is present every single time the outcome occurs, i.e. the outcome cannot take place in absence of the condition, but the condition can lead to other outcomes. In set-theoretic terms, the condition is a super set of the outcome, or the outcome a subset of the condition ($X \leftarrow Y$). By the same token, a condition is sufficient for an outcome only when an outcome occurs every single time the condition is present, i.e. the condition cannot take place without the outcome, but the outcome could result from other conditions. In set-theoretic terms, this amounts to the outcome being a superset of the condition or the condition being a subset of the outcome ($X \rightarrow Y$).⁹

4. Equifinality, conjunctural causation, and asymmetry

In light of the above, QCA has three distinct attributes that characterize it and thus differentiate it from conventional quantitative methods, namely, equifinality, conjunctural causation, and asymmetry. Firstly, in terms of equifinality, unlike statistical methods' interest in finding the one model of best fit to explain an outcome, because QCA focuses on sufficiency, it assumes that there can be more than one condition sufficient for an outcome (Schneider & Wagemann, 2012). Moreover, instead of averaging out or dismissing outliers as exceptions, QCA gives the same importance to all causal paths, regardless of how many cases each path encompasses, which enables further theorization regarding

9 The complexity of social phenomena may require greater detail regarding its causes. An outcome of interest may be the result of more than one cause or condition, which can ensue in a variety of combinations. In order to account for such specificity, QCA can also explore an Insufficient but Necessary part of a condition which is itself Unnecessary but Sufficient for the outcome (INUS causes) as well as a Sufficient but Unnecessary part of a condition which is Insufficient but Necessary for the result (SUIN causes) (Schneider & Wagemann, 2012).

the unexpected causal pathway.¹⁰ Put simply, equifinality means that there may be more than one path leading to the same outcome.

Secondly, conjunctural causation is related to the complexity of phenomena under study. The identification of the multiple means to an end may show that set relationships are compound. Rejecting additivity or the assumption, usually underlying conventional statistical techniques, that each single cause has an isolated and independent effect on the outcome (Berg-Scholsser et al., 2009), QCA acknowledges that single conditions may show no effect on the outcome unless combined with other conditions. Moreover, when it comes to causal effects, no uniformity is assumed. Conversely, it is expected that a condition may have different effects in combination with other conditions. Conjunctural causation is the term that describes this situation. Adding to it, the insights of equifinality produces what is known as *multiple conjunctural causation*.

Thirdly, asymmetrical causality is favoured. This entails adopting the idea that the presence and absence of an outcome of interest requires different explanations (Berg-Schlosser et al., 2009). The logic behind this is to be found in the set-theoretic nature of the method since the representation of concepts by sets requires two separate definitions of concepts, while only one may be employed in conventional approaches. This is what is meant by asymmetry. That being so, two different sets are needed in order to adequately capture two qualitatively different states. Accordingly, the causal implication is that the explanation for presence/absence of the outcome does not automatically stem from the explanation of the presence/absence of a condition (or conditions or combinations thereof) (Schneider & Wagemann, 2012).

In practical terms, these characteristics are operationalized via what is called a truth table (Ragin, 2000). The following section details a brief introduction that presents the basic intuitions of the method; a detailed elaboration of the process can be found elsewhere (e.g. Medina, Castillo, Álamos-Concha, & Rihoux; Ragin, 2000; 2008; Schneider & Wagemann, 2012). This table shows all the cases and the relevant conditions making up each of them as well as the outcome of interest: all captured as fuzzy sets (see Table 2). Because the goal is to explore multiple causality, the focus is on sufficiency, i.e. the task

10 This important feature has been argued also in terms of its virtues for abduction or abductive analysis (see Garcés, 2016).

is to find the combinations presenting a score value lower than or equal to the value of the outcome of all logically possible combinations.¹¹ In order to achieve this, first the cases are analysed. For each case, the highest score value from all combinations is kept (in bold in Table 2). Next, the conditions are studied and only those combinations with the highest value in one case, which is also lower than their corresponding score in the outcome, are kept for the analysis (see Table 3).

Table 2. Analysis of all logically possible combinations of conditions related to the outcome

Cases	Conditions			Logically possible combinations of conditions (truth table rows)								Outcome	
	A	B	C	ABC	AB~C	A~BC	~ABC	A~B~C	~AB~C	~A~BC	~A~B~C	Y	
Case 1	0.7	0.8	0.8	0.7	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.6	
Case 2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.6	0.7	
Case 3	0.7	0.2	0.7	0.2	0.2	0.7	0.2	0.3	0.2	0.3	0.3	0.9	
Case 4	0.9	0.6	0.9	0.6	0.1	0.4	0.1	0.1	0.1	0.1	0.1	1	
Case 4	0.3	0.8	0.2	0.2	0.3	0.2	0.2	0.2	0.7	0.2	0.2	0.8	
Case 6	0.9	0.6	0.1	0.1	0.6	0.1	0.1	0.4	0.1	0.1	0.1	0.7	
Case 7	0.7	0.4	0.8	0.4	0.2	0.6	0.3	0.2	0.2	0.3	0.2	0.7	
Case 8	0.3	0.2	0.7	0.2	0.2	0.3	0.2	0.3	0.2	0.7	0.3	0.6	
Case 9	0.7	0.6	0.4	0.4	0.4	0.4	0.3	0.4	0.6	0.4	0.4	0.8	
Case 10	0.3	0.4	0.6	0.3	0.3	0.3	0.4	0.3	0.4	0.6	0.4	0.9	
Membership in row \leq membership in Y				0	1	1	0	0	1	0	1		

Since all logically possible combinations of conditions have been analyzed, it is necessary to filter out those lacking empirical evidence. In order to facilitate the analysis, columns are turned into rows of a matrix that shows the all conditions and their combinations as one (1) being the set and zero (0) as its negation. Finally, those combinations with lower values than the outcome are considered sufficient and associated cases are identified.

¹¹ Because generating a set also creates its negation, all logically possible combinations includes the latter as well (represented as $\sim X$). Additionally, in set theoretic terms, a combination is an intersection of sets (represented as $X \cdot Z$ or just XZ). For this operation, the result equals the lowest score value from the combining sets (for more details regarding the operations see Schneider & Wagemann (2012)).

Table 3. Analysis of sufficiency between combinations of conditions and outcomes

Row	Conditions			Sufficient for	Cases
	A	B	C	Y	
1	0	0	0	1	case 2 (0.6)
2	0	0	1	0	case 8 (0.7); case 10 (0.6)
3	0	1	1	0	
4	1	0	0	0	
5	1	1	0	1	case 6 (0.6)
6	1	0	1	1	case 3 (0.7); case 7 (0.6)
7	0	1	0	1	case 5 (0.7); case 9 (0.6)
8	1	1	1	0	case 1 (0.7); case 4 (0.6)

$\sim A \sim B \sim C + AB \sim C + A \sim BC + \sim AB \sim C \rightarrow Y$

Hence, QCA focuses on diversity, understood as encompassing both complexity and generality. The result of the analysis is a model depicting the different combinations of conditions that lead to an outcome. The fact there are different possible pathways to the outcome is a sign of complexity. The number of all possible models is given by $2^k - 1$ (where k = number of conditions). Thus, the number of resulting models can depend on the number of conditions. In order to reduce the number and gain some parsimony, Boolean algebra is used. Boolean minimization is the main strategy used. This could be done manually; however, the larger the number of cases and conditions, the more taxing such exercise becomes. Fortunately, there is software available to carry out these operations, which is readily available at COMPASSS.org.

III. Using fsQCA for HDCA inspired policy evaluation

The features characterizing fsQCA make it an appealing method in policy analysis in general and evaluation in particular. In fact, QCA, in any of its variants, has been increasingly used in policy analysis although evaluative exercises have received relatively less attention. This is rather surprising given its advantages for the study of causality and the causal nature of policies. A quasi-comprehensive review of the application of QCA in the public policy field was carried out by Rihoux et al. (2011) and found around 140 published documents that used the method in some way to contribute to policy analysis.

From these, only six (6) publications have used QCA for policy assessment or evaluation and none of these contributions studied people as cases. An up to date review of the literature has shown similar results. Certainly, QCA has been used with human development related themes, such as the relationship between democratization and human development in post-communist countries (Cassani, Luppi, & Natalizia, 2016) or the analysis of welfare properties on human development (Kühner, 2015); the cases or units of analysis in such exercises are countries. There are also explorations of some implications of this combination on a rather abstract level (Garcés 2018b, 2018c). The purpose of this paper is to contribute to those efforts with an orientation towards practice, thereby bridging the gap in the literature, which provides fertile ground for empirical applications. As this section argues, there is much promise in such a combination. Each of the features characterizing fsQCA is redolent to the concerns of the HDCA. In this sense, this section discusses each characteristic and fleshes out the argument; therefore, the case is made for the benefits of such use in policy evaluation.

A. Functionings, capabilities, and conversion factors in set theoretic terms

Schneider and Wagemann (2012, p. 4) assert that "[v]irtually all social science concepts have fuzzy boundaries, and fuzzy sets are a tool for numerically expressing that". This seems to be particularly the case for the HDCA. Since it is concerned with issues related to *inter alia* deprivation, poverty, growth, fulfilment, and freedom in different dimensions relevant to human experience (e.g. health, self-esteem, education, prestige), those concepts can be usefully represented by fuzzy sets. As Chiappero-Martinetti (2006, p. 7) states, "[a]chievements are a matter of degree not all or nothing conditions". The dichotomous tradition does not recognize that most people are not either rich or poor, healthy or sick, educated or not educated, happy or unhappy, confident or insecure, but rather they lie somewhere in between.

Certainly, the same applies to capabilities, which cannot be simply captured by a black and non-black conception of the world. This is because they are a vector of possible functionings. Therefore, if the latter take place in terms of degrees, then this characteristic also affects capabilities. Additionally, capabilities can be regarded as occurring gradually if the sheer amount of doings and beings that people value and have reason to value change. More valuable options would indicate an increase in people's freedoms while less would signal a reduction.

Finally, conversion factors are also a matter of degree. Individual characteristics manifest themselves in terms of degrees. For instance, most people are neither completely young nor totally old, absolutely tall nor entirely short, fat nor thin. Similarly, external characteristics ensue gradually. When it comes to social norms and institutions, they are often not totally strict or lax, discriminatory or impartial, progressive or regressive. Features of the environment, in turn, are not either cold or warm, arid or fertile, populous or unpopulated. A calibration of fuzzy sets can be seen in the example below (see Table 4).

Table 4. Illustration of the expressing and calibrating functionings (deprivations), capabilities (unfreedoms) and conversion factors as fuzzy sets

Functioning		Capability		Internal Conversion Factor		External Conversion Factor	
A	~ A	B	~ B	C	~ C	D	~D
1	0	0.2	0.8	1	0	1	0
1	0	0.4	0.6	1	0	1	0
0.9	0.1	0	1	1	0	0.8	0.2
0.7	0.3	0	1	1	0	0.8	0.2
0.3	0.7	0.8	0.2	0	1	1	0
0	1	0.6	0.4	0	1	0.6	0.4
0	1	1	0	0	1	1	0
0.3	0.7	0	1	1	0	0.6	0.4
0.1	0.9	0	1	0	1	1	0
1	0	0.4	0.6	1	0	0.8	0.2

- A Membership in set of people who are literate
- ~ A Membership in set of people who are not literate
- B Membership in set of people who have access to running water
- ~ B Membership in set of people who do not have access to running water
- C Membership in set of people who are women
- ~ C Membership in set of people who are not women
- D Membership in set of people who live in a urban area
- ~ D Membership in set of people who do not live in an urban area

Whether functionings, capabilities, or conversion factors they seem to be inherently ambiguous concepts. That is, their boundaries are fuzzy and, as such, cannot be precisely established. This situation may appear as a limitation only when using conventional methods of measurement and operationalization,

which favour precision and exactness. Therefore, using such tools to capture concepts for which they were not designed may not deliver optimum results.

As mentioned earlier, in set theory, the fuzziness does not lie in the measurement but in the concept itself. Thus, fuzzy sets enable the nature of concepts to be captured, especially vague ones. Sen's (1990, p. 45) HDCA argues in favour of this, and it is worth quoting him in full:

There are many ambiguities in the conceptual framework of the capability approach. Indeed, the nature of human life and the content of human freedom are themselves far from unproblematic concepts. It is not my purpose to brush these difficult questions under the carpet. In so far as there are genuine ambiguities in the underlying objects of value, these will be reflected in corresponding ambiguities in the characterization of capability. The need for this relates to a methodological point, [...] that if an underlying idea has an essential ambiguity, a precise formulation of that idea must try to capture that ambiguity rather than attempt to lose it. Even when precisely capturing an ambiguity proves to be a difficult exercise, that is not an argument for forgetting the complex nature of the concept and seeking a spuriously narrow exactness. In social investigation and measurement, it is undoubtedly more important to be vaguely right than to be precisely wrong.

B. The capability approach and case-orientation

Related to the above, it has been argued that empirical applications of the HDCA have proven a daunting task (Comim, 2008). For policy analysis, the information-demanding nature of the framework presents a considerable challenge. On the one hand, as has already been argued, using the HDCA can shed light on policy analysis, but this can require a lot of information. On the other, policy evaluation requires a certain level of generalization. After all, policies can often affect thousands of people, and, therefore, large samples are needed. Here, the trade-off between internal and external validity becomes evident since, for practical reasons, the larger the sample the less cost-effective it is to collect data. Arguably because of this, applications seem to suit rather micro-level studies (Comim, 2008). Since fsQCA can be used for small-, medium, and even large-N exercises and provide moderate generalization (Ragin, 2008), it constitutes an alternative that, to some extent, alleviates the compromises that have to be made.

Moreover, this case-orientation resonates largely with the HDCA. If people are treated as cases, the fact that QCA sees cases as configurations of conditions allows each person to be seen as a complex unit of conditions. In terms of the HDCA, these conditions are conversion factors, achievements/deprivations or capabilities/unfreedoms, which mediate the translation from resources to functionings and/or capabilities. As such, they become meaningful factors (or means) on which the achievement of given policy outcomes (or ends) can depend. This is exemplified in Table 5.

Table 5. Illustration of treating people as cases, consisting of combinations of conditions, which can be functionings (deprivations), capabilities (unfreedoms) and conversion factors

Cases	Conditions											
	Functioning		Capability		Internal Conversion Factor 1		Internal Conversion Factor 2		External Conversion Factor 1		External Conversion Factor 2	
	A	~ A	B	~ B	C	~ C	D	~D	E	~E	F	~F
Person 1	1	0	0.2	0.8	1	0	0.8	0.2	1	0	0	1
Person 2	1	0	0.4	0.6	1	0	0	1	1	0	0.1	0.9
Person 3	0.9	0.1	0	1	1	0	1	0	0.8	0.2	0.3	0.7
Person 4	0.7	0.3	0	1	1	0	0.4	0.6	0.8	0.2	0.7	0.3
Person 5	0.3	0.7	0.8	0.2	0	1	1	0	1	0	0	1
Person 6	0	1	0.6	0.4	0	1	0	1	0.6	0.4	0	1
Person 7	0	1	1	0	0	1	0.2	0.8	1	0	1	0
Person 8	0.3	0.7	0	1	1	0	0.6	0.4	0.6	0.4	0.7	0.3
Person 9	0.1	0.9	0	1	0	1	0.2	0.8	1	0	0.9	0.1
Person 10	1	0	0.4	0.6	1	0	1	0	0.8	0.2	0.7	0.3

- A Membership in set of people who are literate
- ~ A Membership in set of people who are not literate
- B Membership in set of people who have access to running water
- ~ B Membership in set of people who do not have access to running water
- C Membership in set of people who are women
- ~ C Membership in set of people who are not women
- D Membership in set of people who live in a urban area
- ~ D Membership in set of people who do not live in an urban area
- E Membership in set of people with a disability
- ~ E Membership in set of people without a disability
- F Membership in set of people living in a patriarchal society
- ~F Membership in set of people not living in a patriarchal society

C. The capability approach and sufficiency and necessity

The focus on sufficiency to study multiple causal paths resonates deeply with the HDCA, particularly given the importance the latter places on human plurality. In order to avoid redundancy, and given that multiple causality is deeply related to equifinality, this argument is further elaborated in the next subsection. For an illustration of the multiple conjuncturally causal analysis in terms of sufficiency see Table 2 above.

D. The capability approach and equifinality, conjunctural causation, and asymmetry

Equifinality: the HDCA recognizes the complex aspect of reality by acknowledging that the same (or similar) functionings and capabilities can be achieved in different ways. Indeed, this is the intuition behind social policies that often establish all beneficiaries achieve minimum goals with the same allocation of resources, despite their plurality of characteristics and circumstances (Garcés, 2018a). In the HDCA these are the conversion factors, functionings/deprivations, capabilities/unfreedoms that account for the diversity in human experience. Hence, if the same (or similar) functionings and/or capabilities can be reached in different ways by various peoples under a myriad of circumstances, it is relevant for policy to account for them. QCA can aid in that endeavour.

Conjunctural causation: once again, the resonance with the HDCA is evident. On the one hand, there are the possible effects that the presence (or absence) of functionings and capabilities can have on the presence (or absence) of other functionings and capabilities. Capabilities interrelate with one another, and improvements in one may lead to improvements in another (Sen, 1999). This suggests that achievements on one dimension do not necessarily have isolated and independent effects from other dimensions on people's quality of life; instead they may result in 'positive externalities'. In this sense, capabilities are not only the ends of human development, but also some of its most important means (Sen, 1999). On the other hand, the same can be attested in achievements and deprivations. This is illustrated by the notions of fertile functionings and corrosive disadvantages (see Wolff & de-Shalit, 2013). 'Fertile functionings' are those that are likely to secure other functionings. The opposite also seems plausible. That is, the existence of deprivations on a given dimension that have negative effects (negative externalities) on other

dimensions. 'Corrosive disadvantages' are those disadvantages that cause further disadvantages.

Asymmetry: such fine-tuning in the approach to the explanation of the presence/absence of an outcome can prove to be very useful when studying deprivation. For example, while conventional methods translate one concept to one variable, e.g. making rich and poor the two ends of the same spectrum, from a set-theoretic perspective, rich and poor are two qualitatively different concepts (people who do not belong in the rich people set do not automatically belong in the poor people set). The accuracy that set membership can provide can allow better identification of specific groups or sectors in order to design policies or evaluate their effects. Moreover, together with the insights from the HDCA, the benefit of a set-theoretic approach can be greatly enhanced.

IV. Conclusion

Ideas about development are important because they indicate what matters. This is a necessary realization because, to a great extent, development studies involve applied instrumental research (Mehta, Haug, & Haddad, 2006) that seeks to have practical consequences, namely, to change what matters. This is evident in the translation from academic insights to policy recommendations. Therefore, the theories of and approaches to development used in policy making and analysis are consequential for pointing out i) what matters, ii) the change that is desirable; and, iii) how to attain it. That is, as they influence policy, they suggest both its ends and means.

This paper has sought to tackle both issues. Regarding the ends of policy, it has argued in favour of the Human Development and Capability Approach as an adequate framework with which to assess (development) policy, i.e. evaluate its outcomes or ends. Contrary to the dominant approach, which has focused exclusively on monetary indicators and variables, the HDCA places people and their quality of life at the locus of attention. By so doing, it privileges the various intrinsically valuable aspects of human experience over those only instrumentally valuable. As such, it constitutes a move from the means to the ends of development that can prove insightful for policy analysis and evaluation.

Studying the means to those ends, has made the case for fuzzy set Qualitative Comparative Analysis. This alternative can potentially reduce the compromises to which conventional approaches have to resort. fsQCA is a set-theoretic method that focuses on cases, regarding them as configurations of conditions, the combinations of which can shed light on the pathways leading to a given outcome by studying their sufficiency or necessity regarding the latter. In this sense, fsQCA enables the study of multiple configurational causation. That being so, it resonates greatly with the insights of the HDCA.

Not only does the HDCA place people and their quality of life at the centre of policy, it regards people as complex and multidimensional, making their quality of life dependent on personal as well as contextual factors, and exposes the ambiguity in the concepts with which it is concerned, i.e. freedoms/unfreedoms, achievements/deprivations, conversion factors. Some of these features have proven challenging to account for with conventional methods, and some compromises have been required. In order to reduce this need, and to better account for what are arguably some of the most relevant contributions of the CA, this paper has argued in favour of fsQCA. Fuzzy sets enable the operationalization of inherently ambiguous concepts by allowing for partial set membership. QCA, in turn, focuses on cases, accounts for complexity, and allows the study of more than one pathway leading to an outcome. This resonates with the CA's emphasis on the plurality of individuals and its implication that personal and contextual characteristics in different combinations may lead to similar results.

Consequently, the main contribution that this essay seeks to make is arguing in favour of their application in tandem for policy analysis and evaluation. The discussion is elaborated at a conceptual level, but with an orientation towards practical application because such argument has intrinsic as well as instrumental importance. Intrinsically, arguing about the pertinence of the strategy in light of the theory adds to the robustness and force of the argument. Instrumentally, such discussion is logically prior to empirical applications so the latter can build upon it. To date, empirical exercises combining these tools have not been carried out. Certainly, such exercise falls beyond the scope of this paper, but hopefully the argument developed here constitutes the first necessary step in that direction.

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