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# Analyzing inconsistent cases in Management fsQCA studies: A methodological manifesto☆

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ABSTRACT

Cases inconsistent with theoretical expectations are by default indicators for a lack of theory-data fit, and as such are prime candidates for theory building. However, the conventional tendency is to ignore inconsistent cases in Management research. The current article focuses on the theory-building prowess of inconsistent or deviant cases which turn up during an fsQCA study. The study looks at some of the key tenets of QCA: A cross-tabulation of cause and effect can demonstrate superior explanatory completeness only if one can account for all cases (be they deviant or not). To improve the neat theory-data fit characteristic of QCA, the paper proposes two new strategies for analyzing inconsistent cases of necessity and sufficiency in fuzzy set QCA studies and discusses their contributions to methodological sophistication.



## 1. Introduction

An important arena for using multi method research is in the analysis of inconsistent cases or outliers. The inconsistent cases can occur both in quantitative survey-based research designs as well as in qualitative case study research, and are often clear indicators for a lack of theory-data fit, and as such are prime candidates for theory building (see Katz, 1988; Sullivan, 2011). A research design allowing for outlier analysis would therefore help re-establish the cases' significance in the theorizing process (Locke, Golden-Biddle, & Feldman, 2008). In Management, despite their theory-building competence, researchers tend to ignore, and sweep the outliers under the proverbial carpet of model fit (Aguinis, Gottfredson, & Joo, 2013; Gibbert, Nair, & Weiss, 2014). Typically, outliers are small in number, calling for a qualitative, and often comparative, analysis of the cases that deviate from the main body of observations (Kendall & Wolf, 1949; Pearce, 2002).

Fundamentally, Qualitative Comparative Analysis (QCA) is herein a particularly promising method. One of QCA's hallmarks, the cross-tabulation of cause and effect, can demonstrate superior explanatory completeness only if one accounts for all cases (be they deviant or not). To improve the neat theory-data fit characteristic of QCA, the current study proposes two new strategies for analyzing inconsistent cases of necessity and sufficiency in fuzzy set QCA studies. Specifically, the paper conceptually details two post-QCA research strategies, namely "Comparative Outlier Analysis" (COA), and discusses their relative merits in terms of building theory more rigorously. The paper deliberates examples for both strategies, from prior studies on and applying QCA. With QCA progressively acknowledged as a viable research method in Management and Organization Research (Greckhamer, Misangyi, Elms, & Lacey, 2008; Fiss, 2007; 2011), a research design integrating QCA and COA will be not only timely, but also very relevant for theoretical advancement in Management research as well as methodological progress in QCA.

## 2. Case oriented strategies in QCA

Prior research addresses the importance of case oriented strategies for supplementing QCA studies. Case study research serves as a pre-QCA step (Schneider & Rohlfing, 2013) providing help in ascertaining the specific cases (Ragin, 2000), establishing and calibrating the relevant conditions included in the analysis (Berg-Schlosser, De Meur, Rihoux, & Ragin, 2009), and addressing contradictory configurations and outcomes (Ragin, 1987). Case oriented strategies are also applicable simultaneously during the course of QCA studies for refining causal arguments and addressing "empirical refutation of initial arguments" (Ragin & Schneider, 2012).

Finally, case studies are also suitable for identifying post-QCA deviant cases. Process tracing a deviant case is helpful in further improving the theory and the QCA model (Schneider & Rohlfing, 2013). The present paper moves beyond process tracing of a single deviant case and offers further steps for comparatively analyzing a series of post-QCA deviant cases. The focus here is predominantly on fsQCA cases, so as to present a clear application scenario for the application of the COA technique.

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Clearly, the underlying strategy is also suitable for analyzing csQCA deviant cases. But for expository purposes and space constraints, the current study does not discuss csQCA deviant case scenarios.

## 3. Why analyze the inconsistent cases in QCA?

The QCA technique bases itself on Mill's "canons," especially the Method of Difference and the Method of Agreement. The Method of Difference states that if an instance where a phenomenon occurs and an instance where a phenomenon does not occur have every circumstance in common except one, which occurs in the former instance and not in the latter, the particular circumstance is the cause, or an indispensable part of the cause, of the phenomenon. The Method of Agreement instead deals with similarities in observed cases. The logic states that if two or more instances of a phenomenon show only one circumstance in common, that particular circumstance then constitutes the cause or effect of the given phenomenon (Mill, 1875). Both methods have to do with establishing common causal relationships by eliminating all other possible alternative explanations (Berg-Schlosser et al., 2009). Nonetheless, rigid positivistic assumptions of cause and effect relationships may not always work so neatly in the case of social sciences, where a multitude of causes and conditions intersect in time and space to produce a particular outcome.

In fact, non-conforming cases may even be more important than typical cases as they can be of great help in the understanding of causal complexity. Unlike in other research methods, where researchers neglect deviant cases or outliers as unavoidable nuisance, QCA "tends to give explanations without dismissing exceptions or outliers" (Berg-Schlosser et al., 2009). The tendency occurs because most studies undertaking a regression or similar methods focus on averaging out the large numbers of cases under study. QCA, meanwhile, takes into consideration even a combination of conditions that explains only a single case (Berg-Schlosser et al., 2009).

However, sometimes even in QCA, researchers tend to reject cases inconsistent with expectations (Rihoux & Ragin, 2009). The rejection significantly reduces the concerned study's explanatory power (i.e. internal validity). The rationale behind the above rife tendency is the belief that the exceptional circumstances are somehow idiosyncratic, unlikely to be repeated elsewhere, and are therefore of little interest theoretically. From the perspective of the philosophy of science, clearly one would be unwise to take the same stance. Instead of trying to ignore or resolve deviant cases, authors should rather accept paradoxical cases, and use them constructively for theory development (Gibbert, 2006; Välikangas, Hoegl, & Gibbert, 2009). In addition, one of the hallmarks of QCA is that a cross-tabulation of cause and effect can demonstrate superior explanatory completeness (Western, 2001) only if there is the possibility of accounting for all cases, deviant or not (Ragin, 1987). The present study hones in on the very essence of QCA by providing a road map for analyzing the deviant cases identified during a QCA study in terms of two concrete strategies.

Naturally, since deviant cases are assessable only in relation to an explicitly framed theoretical model, the relative deviance of a case would also change when altering the general model (Seawright & Gerring, 2008). In a similar vein, what constitutes a QCA deviant case is very much in the eye of the beholder, and so depends upon the specifications made by the researcher regarding just which causal conditions apply, and which individual cases to include or exclude from the initial study. Without any reflection and systematic application to the available data, there would be a serious impairment to both the internal as well as the external validity of the emergent theory.

## 4. COA—how to analyze outliers in a QCA?

The current section details the methodological sophistication of the two COA designs and their potential in terms of providing stronger (i.e. more internally and externally valid) theory. Outlier analysis techniques have their basis in Yin's (2003) "Replication Logic." Replication Logic is a tool for selecting further cases for comparison with an initial case, in order to enhance a study's potential for making causal claims. Two basic approaches exist; Literal Replication and Theoretical Replication (Yin, 2003).

"Literal Replication" involves comparing cases that are similar to each other, are from the same end of the theoretical spectrum, and could predict similar results (Yin, 2003; Gibbert et al., 2013). The Literal Replication procedure is similar to the Replication Deviant Case Method (Gibbert et al., 2014) or the Most similar system design (Method of Agreement) (Faure, 1994; Levi-Faur, 2006), both of which involve a comparison of cases which are very similar to each other in terms of the phenomena of interest. The cases are similar not only in terms of the causal condition, but also in terms of the outcome. Outlier Literal Replication (OLR), the first COA strategy, has its basis herein.

"Theoretical Replication," on the other hand, involves the comparison of cases from different ends of a theoretical model and the prediction of dissimilar results, but due to foreseeable reasons (Yin, 2003; Gibbert et al., 2013). The strategy is comparable to the Full Range Deviant Case Method (Gibbert et al., 2014) in qualitative and quantitative studies. As per the Method of Difference and Method of Agreement, two possible types of Outlier Theoretical Replication (OTR) could exist (Faure, 1994; Levi-Faur, 2006). The first design is the Most similar system (Method of Difference). In the design, the comparison is between cases which show the same causal condition as typical cases, but with a different (though theoretically predictable) outcome. The underlying notion is that, the more comparable the cases are with respect to the causal conditions, the greater the feasibility to segregate factors which cause the disparity in the outcome. The second type of OTR is the Most different system (Method of Agreement). The design considers cases which are similar in the outcome shown, but differ from each other in terms of the causal conditions. Comparing cases which differ with regard to the causal conditions supposedly causing the observed effects (Gibbert et al., 2013) helps in exploring plausible alternative explanations, the development of new causal claims (Gibbert & Ruigrok, 2010) and, ultimately, building stronger theory (i.e. theory which is both internally and externally valid).

For emphasis, one can recall that the outlier analysis techniques would differ in csQCA and fsQCA, and also with respect to the necessity and sufficiency of conditions. Here, the focus is specifically on the fsQCA inconsistent cases. As fsQCA handles varying degrees of membership in the causal condition and outcome (Ragin, 2008), a wide range of typical and outlying cases are available for COA, making fsQCA particularly attractive and instructive as an application context.

## 5. Analysis of multiple outliers in fsQCA

Analyzing and comparing multiple outliers is of great importance in theory building because doing so would help establish the internal validity and external validity of the modified proposition (Lijphart, 1971). COA permits the researcher to do within-case and between-case comparisons that would help determine whether the deviance noticed is just a one-off case, or is observable across several cases (Eisenhardt & Graebner, 2007). Unlike in prior studies on outlier analysis techniques, the general purpose of COA is not to find the necessary and sufficient conditions for an outcome and explain how each term relates to the phenomenon of interest exclusively (Berg-Schlosser et al., 2009; George & Bennett, 2005). Rather, the focus is on ascertaining the plausibility of causal relationships between variables (Mill, 1875; Cook, Campbell, & Day, 1979; Gibbert, Ruigrok, & Wicki, 2008), expanding the scope of the theory in hand, or even laying the foundations for a new theory. For the same reason the focus here is not solely on positive outcomes, but on different combinations of memberships and outcomes. The first step here would also be conducting the analysis of a single deviant case. The specification of the causal recipe herein could in turn function as a hypothesis about other cases (Ragin & Schneider, 2012). The OLR and OTR would follow consecutively.