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Better Multimethod Design: The Promise of Integrative Multimethod Research

JASON SEAWRIGHT

As this symposium suggests, we are in the middle of a boom time for multimethod research in the social sciences. Gary Goertz's essay shows how case studies can test claims about causal pathways; this suggestion should be seen as an element of a broader set of possibilities. "Integrative multimethod designs" provide a family of compelling strategies for linking qualitative and quantitative components of an overall design, while also enhancing the quality of causal inferences. Given that rigorous and credible causal inferences are essential to both scholars and policymakers, integrative multimethod research designs deserve our attention.

As Gary Goertz suggests, the social sciences in general, and security studies in particular, are in the middle of a boom in multimethod research. This boom is premised on the proposal that well-designed and well-executed multimethod research has inferential advantages over research relying on a single method. In principle, this stance seems sound, although in practice multimethod research is not always more successful than single-method research.

For multimethod research to be worth the effort, the design must be constructed so that additional methods test assumptions that are generally untested in single-method research. When this is done well, the multimethod approach can transform key issues of descriptive and causal inference from matters of speculative assertion into points of empirical debate. Goertz provides an extensive and compelling argument that case studies can contribute within multimethod designs by testing assumptions about causal mechanisms; I will argue that this suggestion should be seen as an element of a broader set of possibilities.

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A good multimethod research design will shape the whole research process around testing and refining the assumptions on which the final causal inference will depend. The three essays in this symposium provide multiple insights into the ways that multimethod approaches can improve inference in security studies, raising critical questions regarding the definition of multimethod research, the contributions of quantitative and qualitative components in such research, and the linkage between methods in a single-research endeavor. In this essay, I argue that multimethod causal inference is a rapidly growing and distinctive methodological domain. I then suggest that much current multimethod practice is not achieving the inferential gains that motivate such research and that these limitations can be avoided if scholars adopt an integrative as opposed to triangulation paradigm for designing multimethod research.

THE MULTIMETHOD BOOM

As Goertz proposes, multimethod research involves combining data gathering and analyzing techniques from two or more methodological traditions. Out of the wide range of possible multimethod combinations, the literature overwhelmingly focuses on designs that combine quantitative and qualitative methods to strengthen causal inference. Hein Goemans and William Spaniel offer an intriguing set of proposals for how to extend the literature on multimethod research beyond this core focus on empirical methods for causal inference toward the combination of case studies and game theory. While involving different issues than designs combining empirical methods, conjunctions of game theory and case studies seem worth analyzing. Goemans and Spaniel emphasize ideas about causal pathways and process tracing in their discussion, but it may be the case that the best designs involve a different set of qualitative tools.

After all, game theoretic models mostly do not theorize causal processes over time. Instead, actors strategically forecast the behavior of all other decision makers before the game begins. Hence, there is no sequence of causal steps over time for a qualitative researcher to trace. The lack of a sequential causal pathway distances this method from process tracing. Instead, Goemans and Spaniel's framework in which qualitative methods carefully measure the key parameters of the game-theoretic model, as well as the final outcome, corresponds with a pattern-matching mode of case-study research in which the scholar deduces a series of not necessarily temporally structured implications of a theory and confirms whether the pattern as a whole fits the data.¹

¹ For the pattern-matching mode, see Donald T. Campbell, "'Degrees of Freedom' and the Case Study," *Comparative Political Studies* 8, no. 2 (July 1975): 178–93.

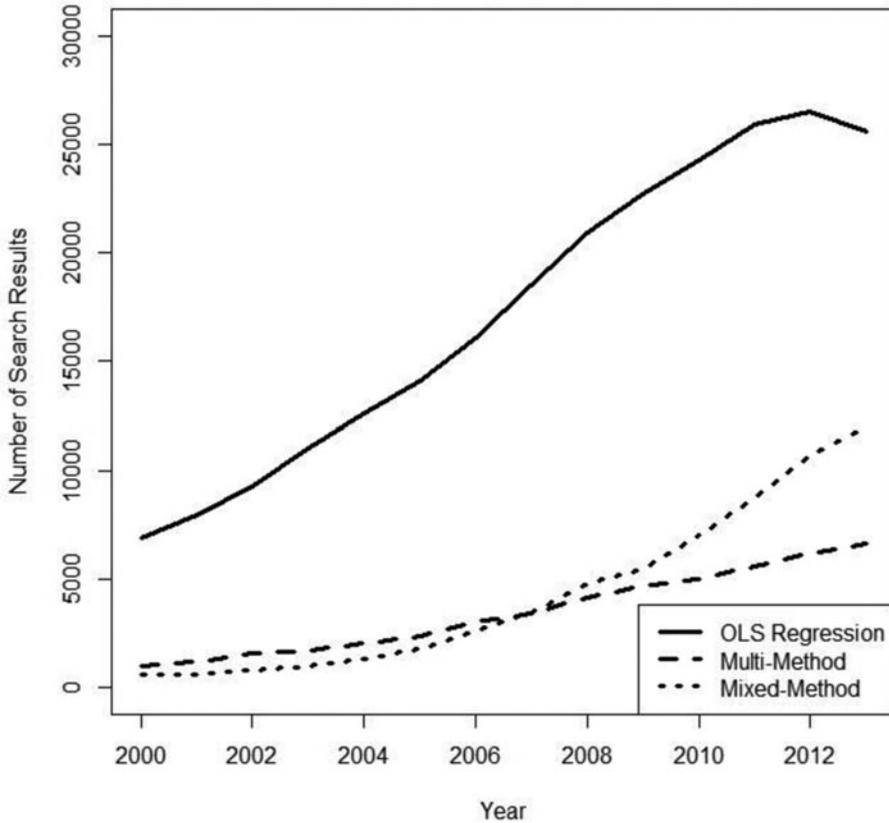


FIGURE 1 Google Scholar search results related to multimethod research.

While questions of how best to combine methods of theory development with qualitative causal inference are of course worthwhile, issues of how best to combine different empirical methods to form the basis for a causal inference are at the heart of the ongoing boom in multimethod research. As a rough measure of the development of multimethod techniques, consider the number of Google Scholar search hits for the terms “multimethod” and “mixed-method.” Figure 1 shows the number of scholarly texts that contain these two search texts for each year from 2000 to 2013. By way of comparison, the figure also includes the trend for “OLS regression” during the same time period. All three search categories show increasing numbers of hits, so relative comparisons are most informative. During this period, the number of references to multimethod research grew from 14 percent of the references to OLS regression to 26 percent. References to mixed-method research grew far more impressively, from 8 percent to 47 percent of the number of search results for OLS regression. These suggestive data, combined with qualitative indicators such as the publication of textbooks and

the launching of a specialized journal, the *Journal of Mixed Methods Research*, specifically devoted to the methodology of multimethod research, indicate quickly and substantially growing scholarly interest in, attention to, and application of research designs combining qualitative and quantitative strategies.

PROBLEMS WITH TRIANGULATION

While multimethod research is evidently experiencing a surge of popularity, there are reasons to worry about whether multimethod applications are in fact producing more grounded, justified, and persuasive inferences than studies using a single method. These concerns arise from the “triangulation” framework that serves as the prototypical research design for multimethod social science.² Triangulation involves asking the same question of causal inference using two different methods and checking that the same substantive conclusions are produced by both.

Triangulation in the social sciences has major flaws. One is widely discussed. What conclusion should be drawn when the two methods produce different findings? Unfortunately, the list of intellectually plausible responses to such an outcome is all but unbounded. In decades of writing about triangulation, no definitive guidance has yet emerged about how to respond to divergent findings between the multiple methods in a study.

In my view, this frequently discussed limitation of triangulation designs is a product of a deeper incoherence in their conception. What, in fact, does it mean to say that a qualitative and a quantitative and/or experimental study ask and answer the same research question? In a general sense, the answer is perhaps clear: if both methods produce causal inferences in which a particular concept is important, then there is some degree of overlap in the results. Yet because qualitative and statistical approaches produce results that are different in kind, it is only possible to assess such convergence very abstractly. This requires essentially ignoring the magnitude of the quantitative effect estimate, as well as qualitative inferences about sequence and context—effectively, everything but the sign of the inference must be disregarded. At any more detailed level of analysis, it becomes difficult or impossible to decide whether qualitative and statistical results correspond.

For example, if a scholar does a cross-national statistical analysis relating various hypothesized explanatory variables to the outcome of civil war and

² For the triangulation framework, see Todd D. Jick, “Mixing Qualitative and Quantitative Methods: Triangulation in Action,” *Administrative Science Quarterly* 24, no. 4 (December 1979): 602–11; Sidney Tarrow, “Bridging the Quantitative-Qualitative Divide in Political Science,” *American Political Science Review* 89, no. 2 (June 1995): 471–74; Eugene J. Webb et. al, *Unobtrusive Measures: Non-Reactive Research in the Social Sciences* (Chicago: Rand McNally, 1966).

then conducts case-study analysis of the dynamics of civil war or its absence in some of the cases used in the statistical part of the study, then it is clearly true that we have a quantitative and a qualitative study of the outcome of civil war.³ If one finds “positive” results on related variables from the statistical analysis and the case studies, then there is an overlap and the triangulation design has made a connection.

Yet if the question is taken more seriously, this connection becomes far more tenuous. For example, in James D. Fearon and David D. Laitin’s logit analysis of civil wars, the logged percentage of a state’s territory that is mountainous has a coefficient of 0.219 (and a causal effect of roughly 5 percent)—estimates that are significantly different from zero.⁴ What kind of finding from a case study analysis of Colombia would confirm this estimate? What would contradict it? Colombia is, of course, a mountainous country with a history of endemic civil war. So far, so good (for the quantitative finding, if not for Colombia).

With a closer examination, though, the apparent agreement between case study and statistical result becomes mired in dilemmas. At some moments, the mountainous regions of Colombia have in fact been host to key events in the civil war. For example, an early event in Colombia’s ongoing conflict involved a military attack on leftists in the high Andes.⁵ Similarly, the M-19 revolutionary movement was based in mountainous regions of Colombia.⁶ At the same time, the mountainous areas near the national capitol at Bogota have often been among the safest areas and the zones with strongest state presence in the entire country. Furthermore, mountain-free regions in the southeast and along the Caribbean coast have also served as important areas of refuge for anti- and non-state armed actors, thereby facilitating and prolonging the civil war. Thus, case-study consideration of Colombia suggests that mountainous terrain plays a supporting role at some points and for certain actors in the Colombian conflict but is not relevant at other points.

How does this compare with the estimated causal effect from the model? I think it is in fact impossible to decide. The fundamental problem is that the qualitative and quantitative methods are not actually asking the same question, even though they are focused on the same topic. The statistical analysis estimates the difference in conditional probability of civil war associated with a given contrast in geographies across countries, while the case study asks

³ James D. Fearon and David D. Laitin, “Integrating Qualitative and Quantitative Methods,” in *The Oxford Handbook of Political Methodology*, ed. Henry E. Brady, Janet Box-Steffensmeier, and David Collier (New York: Oxford University Press, 2008), 300–18.

⁴ For a logit analysis of civil wars, see James D. Fearon, and David D. Laitin, “Ethnicity, Insurgency, and Civil War,” *American Political Science Review* 97, no. 1 (February 2003): 75–90.

⁵ Jacobo Arenas, *Diario de la resistencia de Marquetalia* (Bogota: Ediciones Abejón Mono, 1972)

⁶ Mauricio García Durán, Vera Grabe Loewenherz, and Otty Patiño Hormaza, “M-19s Journey from Armed Struggle to Democratic Politics: Striving to Keep the Revolution Connected to the People,” technical report, Berghof Research Center for Constructive Conflict Management, Berghof Transitions Series No. 1, Berlin, Germany, 2008.

whether there is within-case evidence consistent with the proposition that terrain features played roles in a particular civil war. These *questions* are fundamentally different, and so it is essentially useless to ask whether the *answers* are the same.

The practical result of a triangulation perspective on multimethod research is the proliferation of studies in which scholars effectively carry out two separate analyses sharing a broad topic and theoretical orientation but with no serious intellectual interaction at any level of detail. Factors which “matter” to some extent in both studies are emphasized, while the actual meaning of inferences drawn in each study as well as any contrasts in results are neglected.

INTEGRATIVE MULTIMETHOD RESEARCH

Multimethod research can be much more powerful than the triangulation design. I advocate a contrasting family of multimethod designs, which I will refer to as integrative multimethod research. Integrative designs are multimethod designs in which two or more methods are carefully combined to support a single, unified causal inference. With such a design, additional methods are used to test or reframe the assumptions behind the central causal inference—potentially opening the door to an improved overall causal inference.

An integrative approach to multimethod analysis using the Fearon and Laitin example would not use a Colombia case study as a simple parallel test. Instead, in-depth evidence from Colombia could test key assumptions in the statistical analysis. Qualitative evidence would ask whether the pivotal variables are correctly measured, whether there are confounding variables not yet accounted for, whether any included control variables are post-treatment, and so forth. By testing and pointing toward possible improvements in the statistical model, the qualitative analysis strengthens the causal inference much more directly than in a triangulation design.

In Goertz’s essay, case studies contribute to a quantitatively based causal inference by tracing out causal pathways. This is a good example of an integrative multimethod approach, because our causal concepts typically assume that the existence of a causal pathway is a necessary condition for causal inference; however, case studies have far more to offer. For example, the scholar may use a regression-type model to produce the final causal inference, drawing on case-study research to test and adjust key assumptions about measurement, omitted variables, and causal interactions, as well as pathways.

Integrative designs may also ultimately rely on case-study methods to produce a final causal inference. In such designs, quantitative analysis is often used to test especially important, sensitive, or elusive steps in the case

study's causal chain connecting the initial cause to the outcome of interest; if these analyses support the existence of a causal effect at key points then the overall claim regarding the set of connections from cause to effect is strengthened and the case study inference becomes more robust.⁷

Some scholars in security studies have used integrative multimethod designs, even though the triangulation paradigm remains predominant. Alexandra Scacco's study of participation in Nigerian ethnic riots primarily builds its causal inference around the quantitative analysis of survey data but combines this with qualitative methods carefully designed to test and rule out possible confounding variables.⁸ Similarly, Dara Kay Cohen uses case-study analysis of the Sierra Leone conflict to deal with the possible alternative explanation of material resources, an issue that was left pending after her quantitative analysis of the prevalence of rape in civil wars.⁹ Even some scholars who do not self-consciously employ multimethod designs make integrative moves; for instance, Joshua R. Gubler and Joel Sawat Selway's statistical analysis of civil war onset and the degree to which cleavages are crosscutting resorts to brief qualitative consideration of extreme cases to check for measurement error on their cleavage indicators.¹⁰ Surely the opportunities for inferential gains from more self-conscious integrative multimethod design are widespread.

CASE SELECTION AND INTEGRATIVE MULTIMETHOD RESEARCH

Goertz rightly places substantial emphasis on case selection in discussing multimethod research. The best case-selection rule to use depends to a large extent on the role that the qualitative component is intended to play in multimethod analysis. Goertz rightly recommends attention to cases that are extreme on the main independent variable. Goertz suggests also ensuring that the outcome variable has a high value, on the grounds that only in these cases can the causal pathway of interest actually generate the outcome. This argument seems not quite complete. After all, when testing a theory about a causal pathway, the goal is to see if that pathway exists and appears to function causally as hypothesized—not to ensure that in this particular case it brings about a given outcome. Thus, for purely pathway-related research,

⁷ For a parallel discussion focused on integrative multimethod designs for natural experiments, see Thad Dunning, "Improving Process Tracing: The Case of Multi-method Research," in *Process Tracing: From Metaphor to Analytic Tool*, ed. Andrew Bennett and Jeffrey T. Checkel (New York: Cambridge University Press, 2015), 211–36.

⁸ Alexandra Scacco, "Who Riots? Explaining Individual Participation in Ethnic Violence" (PhD diss., Columbia University, 2010).

⁹ Dara Kay Cohen, "Explaining Rape during Civil War: Cross-National Evidence (1980–2009)," *American Political Science Review* 107, no. 3 (August 2013): 461–77.

¹⁰ Joshua R. Gubler and Joel Sawat Selway, "Horizontal Inequality, Crosscutting Cleavages, and Civil War," *Journal of Conflict Resolution* 56, no. 2 (April 2012): 206–32.

it is not yet clear that scholars should select on both the cause and the outcome.

Goertz also argues that scholars should avoid cases where the main cause of interest is absent. When the cause of interest is binary, this seems reasonable enough. However, many causes are quantitative rather than binary, and for such causes very low-scoring cases seem likely to be useful. In many social-science theories, cases with extremely low scores on a causal variable are expected to experience the same causal pathway as those with very high scores, but in reverse. In such a scenario, avoiding cases where the case has a low score is counterproductive. These issues notwithstanding, Goertz's emphasis on case selection as a way of linking qualitative and quantitative methods within a multimethod design is clearly valuable and indeed a hallmark of integrative multimethod research.

THE STRENGTH OF INTEGRATED RESEARCH

Integrative multimethod designs have a number of strengths that current practices based on triangulation lack. In integrative designs, it is possible to offer a clear accounting of exactly what each method contributes to the final causal inference; this is not the case for triangulation. Integrative research designs altogether bypass the dilemmas of deciding whether two different results agree and determining how to proceed if they do not. Perhaps most importantly, integrative multimethod research offers scholars the opportunity to test more of their assumptions and therefore to produce better and more empirically grounded causal inferences.

Unfortunately, triangulation and not integrative research is the dominant multimethod paradigm in security studies as in the rest of the social sciences. Will integrative multimethod research be more influential among security scholars and policy actors in comparison with existing triangulation-based work? Tanisha M. Fazal strongly argues that quantitative analysis should be increasingly relevant to policy debates; this implies that multimethod research need not be at a disadvantage relative to qualitative work in terms of policy relevance. As multimethod designs become increasingly common in policy and academic debates, integrative multimethod research should be more influential than triangulation-based scholarship. The reason is simple: while triangulation provides multiple, somewhat incommensurable answers to causal questions, each based on dubious assumptions, integrative multimethod research offers the promise of a single, more rigorous, more credible inference. Given that rigor and credibility are the *sine qua non* of good social science—and absolutely essential to successful policymaking—integrative multimethod research designs deserve our attention.