

Causal Inquiry in Historical Social Science: Reading Max Weber in Light of Contemporary Approaches

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1 Introduction

This memo seeks to crystallize Max Weber’s approach to historical causal inquiry by comparing and contrasting it to contemporary quantitative and qualitative methodologies. I argue that Weber’s logic is fundamentally congruent with the contemporary scholarship on process-tracing, but that both approaches differ from statistical methods in important and revealing ways. I begin by outlining how process-based and outcome-focused historical inquiry differs in its underlying assumptions and causal logic from frequentist and variable-focused inquiry. I subsequently outline how both Weber and contemporary process-tracing methodologists utilize counterfactual logic for causal leverage, embrace a deterministic understanding of causation, construct logical ‘tests’ to isolate the historical conditions of greatest causal importance, and emphasize the role of causal mechanisms.

2 Historical Causal Inference: Comparisons and Foundations

To shed light on the historical logic outlined by Weber and embraced by contemporary advocates of process-tracing, it is helpful to begin by contrasting both approaches with the econometric methods frequently employed by social scientists. Specifically, we can stress (1) the distinction between variable-based approaches and outcome-based approaches; (2) the distinction between causal leverage gained via randomization and the procurement of a large number of unit-homogenous, independent observations and causal leverage gained via counterfactual logic and the gathering of unit-heterogenous, interdependent observations; and (3) the distinction between theoretical and empirical counterfactuals. Whereas the first two help us distinguish historical inquiry from most of the quantitative approaches currently *a la mode*, the latter helps us distinguish between two means for causal inference in historical narrative whose appropriateness depends upon the level of contextual knowledge possessed by the researcher and the historical outcome under study. Let us consider each topic in turn.

First, unlike econometric approaches, which seek to uncover the average treatment effect of an explanatory variable of interest within a population without purporting to explicate any individual case, process-based approaches seek to uncover how a concatenation of concrete historical events produced a specific outcome (Goertz and Mahoney 2012). That is, “the historian’s problem of causality . . . is always directed towards the attribution of concrete effects to concrete causes, not to the investigation of abstract ‘general laws’” (Weber 1906: 115). In the language of the contemporary process-tracing literature, historical causal inquiry substitutes outcome-centric approaches for variable-centric ones, focusing on “explaining-outcome causal

inference” rather than probing a variable’s mean impact across a set of cases (and hence obtaining an estimated causal effect that is not concretely realized in any given case) (Beach and Pedersen 2013).

The foregoing distinction begets a divergence in the means employed for causal inference. Variable-centric econometrics is based upon frequentist logic. Consequently, the average treatment effect of an explanatory variable is obtained by leveraging the rules of probability - which is feasible either via random sampling for observational research or random treatment assignment for experimental research (Collier, Brady, Seawright 2010). This approach thus probes empirical associations between the independent and dependent variables of interest (not unlike David Hume (1738)’s conception of causation as “constant-conjunction”). As Weber puts it, a numeric probabilistic estimate “can only be obtained in the area of ‘absolute randomness’ . . . that is, in cases where, as for instance in throwing a die or drawing different coloured balls from an urn which always contain the same mixture of them, certain simple and unambiguous conditions remain absolutely the same over a very large number of cases” (for quantitative observational studies, we attempt to simulate this experimental setting by controlling for factors correlated with both our independent and dependent variables) (Weber 1906: 125-126). Importantly, notice how this frequentist approach rests upon two important assumptions: (i) *Unit homogeneity* and (ii) *independence* (Goertz and Mahoney 2012). Unit homogeneity means that each observation - say, the array of responses provided by a randomly-sampled survey respondent - contributes equally to statistical power and to the confidence we have in the accuracy and magnitude of our causal estimates. Indeed, it is the unit homogeneity assumption that underlies the dictum that one should always seek to “increase the number of observations” (King, Keohane, and Verba 1994). By independence, I mean that there is no clustering or covariance in the error terms between two or more observations, such that, for example, knowing that survey respondent #1 supports candidate X does not alter the probability that survey respondent #2 supports candidate X.

By contrast, outcome-centric historical approaches are derived from process-based logic, and consequently the causal significance of an event is obtained by leveraging purposively selected or constructed counterfactuals rather than large-N random sampling. In Weber’s words, we seek both “isolation” and “generalisation:” To isolate an historical event - which can range from the structural, such as rapid industrialization, to the individual, such as the decision of a military commander - and to generalize about its causal significance by leveraging our “nomological” knowledge to construct a scenario whereby that event is eliminated and the consequences for the outcome of interest are deduced (Ibid: 120). Crucially, such counterfactuals can only be constructed following the targeted collection of historical sources to help us achieve the “maximum degree of knowledge of [the] conditions” surrounding an event that may be of causal significance to the outcome of interest (Weber 1906: 116). That is, by perceiving, via reconstruction, the event as completely and vividly as possible (a luxury that rarely graces historical agents or analysts whose perceptions are subject to time constraints and clouded by incomplete information (Ibid: 118-119)) - we can subsequently create the most complete and vivid counterfactual. Notice that, unlike frequentist methods, this process-based approach incorporates two alternative assumptions: (i) *Unit heterogeneity* and (ii) *interdependence* (Goertz and Mahoney 2012). The unit heterogeneity assumption means that not all historical evidence is treated alike, and indeed some ‘observations’ may better enable historical reconstruction than others because they are more proximate and centrally located to the event under study. Proximity is why historians tend to accord greater ‘weight’ to primary sources than to secondary sources, and centrality explains why, for example, a historian studying the causes of World War II would accord more weight to secret communications authored by Hitler than to public declarations delivered by a low-level official (see also Trachtenberg 2009; Tansey 2007). This highlights that when it comes to the procurement of historical evidence, more is not always better: A single, critical piece of evidence may better contribute to the reconstruction of an event - thereby permitting counterfactual reasoning - than a hundred pieces of evidence lacking in both historical proximity and centrality.

In short, we seek not to increase the *number* but the *quality* of the observations. Finally, by interdependence I mean that because time is “fateful” (Sewell 2005), temporally prior events in a causal chain will not be independent of subsequent events, and consequently neither will the evidence we gather to reconstruct said events. It is for this reason that process-tracing methodologists usually refer to causation via *concatenation* as opposed to causation via *correlation* (Waldner 2012).

Finally, we should note that counterfactuals do not come in ‘one size fits all’. In general, there are two types of counterfactuals that can be leveraged for causal inference: *Theoretical counterfactuals* and *empirical counterfactuals*. Weber, by following Goethe’s pronouncement that “fact involves theory,” emphasizes theoretical counterfactuals: “The attribution of causes takes the form of a thought process which encompasses a series of acts of abstraction. The first and most important of these acts involves our thinking of one or several of the actual causal components of the occurrence as altered in a certain direction and asking ourselves whether, if the conditions of the occurrence were to be altered. . . the same effect (in ‘essential respects’) would result, or, if not, which other effect would be ‘to be anticipated’. . . we make this comparison in ‘imagination’ . . . [hence] in order to gain insight into the real causal connexions, we construct unreal ones” (Weber 1906: 119; 117; 127-128). By contrast, empirical counterfactuals are those leveraged in comparative politics and comparative historical sociology via Millian methods. Here, the logical equivalent to Weber’s theoretical counterfactual is the “most-similar case” design, whereby two concrete cases with divergent outcomes are matched based upon their having similar ‘values’ on a series of control ‘variables’ (or being characterized by similar historical events) except for the independent variable (or event) of interest (Lijphart 1971; Collier 1991; Falletti and Mahoney 2015). Discerning which counterfactual logic is most appropriate ultimately hinges upon both researcher and subject matter. Generally, I submit that theoretical counterfactuals are best employed by (i) historians who (ii) seek to study *sui generis*, or empirically incomparable, outcomes. They are best employed by historians because the latter’s “gift of ‘intuition,’” emerging from immersive and detailed engagement with the historical record, enables them to imagine particularly appropriate and realistic counterfactuals (Weber 1906: 121). Further, theoretical counterfactuals are best employed by those seeking to study *sui generis* outcomes, such as the outbreak of World War II, because such events can only be matched with an historical counterpart via misleading empirical analyses (Sewell 2005) or problematic conceptual stretching (Sartori 1970). Ultimately, because few contemporary social scientists possess the requisite contextual knowledge to construct theoretical counterfactuals, and because social scientists increasingly seek to probe comparable outcomes rather than unique events, empirical counterfactuals obtained via Millian methods are often more appropriate for the non-historian.

3 Deterministic Causation, Process-Tracing Tests, and Causal Mechanisms

To further connect Weber’s historical logic with process-tracing methods, I wish (1) to highlight the deterministic understanding of causation embraced by both, (2) to link such an understanding to a series of ‘tests’ for identifying causally relevant historical conditions, and (3) to showcase how the mechanistic logic inherent in Weber’s conception anticipates contemporary approaches for historical causal inquiry.

First, both Weber and process-tracing methodologists embrace a deterministic understanding of causation, whereby an outcome of interest is traced to a concatenation of temporally sequenced necessary and sufficient conditions. *Necessary conditions* are historical states of the world whose counterfactual absence would always preclude the occurrence of the outcome of interest: That is, if $\neg X$, then $\neg Y$ (where \neg is the logical ‘not’) (Mahoney et al. 2009). Necessary conditions are invoked by Weber when he asks us to judge that “if a particular historical fact were thought of as absent from a set of historical conditions . . . this would have caused historical events to proceed in ways which were different in certain definite, historically

important respects” (Weber 1906: 113). *Sufficient conditions* are those whose presence always produces the outcome of interest, but whose absence does not preclude the outcome: That is, if X , then Y (Mahoney et al. 2009). Weber discusses sufficient conditions when he asks us to “make a positive judgment to the effect that [a condition/set of conditions] ‘could’ . . . have caused the effect claimed to be ‘objectively possible’; but that means simply that if we were to ‘think’ of it as having actually happened, we should recognise the facts so altered in our minds as ‘sufficient causes’” (Weber 1906: 120). Finally - and perhaps most commonly in comparative historical analysis - there exist *INUS conditions*, or necessary components of an unnecessary but sufficient condition (Mahoney et al. 2009). In other words, these conditions are jointly sufficient for an outcome, but not individually necessary. Weber refers to this concept as “adequate causation,” wherein “there is a connexion between certain complexes of ‘conditions’, unified and considered in isolation by historical reflection, and an ‘effect’ which has occurred” (Weber 1906: 127). He suggests rejecting that an event is an INUS condition if “it does not seem to have played any part in the causation of those elements” essential to the outcome of interest (Ibid: 117). INUS conditions are most prevalent in historical causal narratives because they allow for *equifinality* (the possibility that there are multiple causal paths to the same outcome), make a weaker causal claim than one of sufficiency, and typify the conjunctural causal processes that predominate complex historical processes (Goertz and Mahoney 2012).¹

Like present-day historical analysts, Weber outlines ways to identify those conditions that were most important to the outcome of interest: “We ask first . . . how the attribution of a concrete ‘effect’ to a particular ‘cause’ is possible. . . in view of the fact that in reality an infinity of causal factors have influenced the occurrence of the particular event” (Weber 1906: 115). In this light, he argues that we should not seek to “reproduce the event, leaving nothing out,” but rather to isolate “those ‘elements’ and ‘aspects’ of the event in question which are. . . essential . . . [as opposed to] trivial details” (Ibid: 116). He elsewhere suggests that we eliminate any factor - termed “chance causation” - that is not an INUS condition, namely “factors. . . at work which produced an effect which was *not*, in this sense, ‘adequate’, to a complex of conditions thus unified in thought” (Ibid: 127; see also 116-117). Contemporary process-tracing methodologists add that necessary conditions can also be eliminated if they are trivial (for example, the presence of the earth, or oxygen in the air). A necessary condition is thus worthy of our attention insofar as it becomes empirically rare and is present only when the outcome of interest is also present (that is, it increases in importance the more it approaches being sufficient for the outcome) (Mahoney et al. 2009).

Expanding upon Weber’s logic, contemporary scholars have volunteered their own series of process-tracing ‘tests’ to uncover necessary and sufficient conditions (Collier 2011; Mahoney 2012). To illustrate these tests, I follow both Weber and process-tracing methodologists in leveraging the example of a criminal investigation. Specifically, suppose that a bank robbery has occurred and resulted in murder, and that we seek to ascertain whether the suspect under custody committed the criminal act. In this light, *hoop tests* uncover necessary conditions: That is, they are evaluative standards applied to the historical record which, if met, affirm the relevance of a hypotheses without confirming it and, if failed to be met, eliminate it from consideration. For example, establishing a suspect’s proximity to the bank in question at the time of the robbery can be considered a hoop test. *Smoking gun tests* uncover sufficient conditions: That is, if passed a hypothesis is confirmed, but if failed it is not eliminated. For example, video surveillance footage of a suspect holding up the bank clerks can be considered a smoking gun test. *Doubly-decisive tests* uncover necessary and

¹Of course, there also exist *necessary and sufficient conditions*, whereby $\neg X$, then $\neg Y$ and if X then Y , but these are so exceptionally rare in social science that they remain logical possibilities that are seldom empirically realized (Mahoney et al. 2009).

sufficient conditions: That is, if passed a hypothesis is confirmed, and if failed the hypothesis is eliminated. We might consider the results of DNA tests, insofar as they are available, to constitute a doubly-decisive test. Finally, *straw-in-the-wind tests* surface conditions that are neither necessary nor sufficient, but tend to increase the probability of an event occurring (we might think of these as tests for what Weber terms “chance causation”). For example, assessing whether the suspect held some grievance against the bank or its employees could constitute a ‘straw-in-the-wind’ test.

Finally, it is important to underscore the extent to which Weber anticipates contemporary process-tracers in his emphasis and treatment of *causal mechanisms*. That is, while we might obtain direct historical evidence of necessary or sufficient conditions, the mechanisms that concatenate them together into a causal chain are understood by Weber to be both unobservable and posited solely via deductive reasoning. Weber embraces this perspective when he discusses how historical “facts,” ascertained from an examination of the empirical record (which constitutes our “ontological knowledge”) can be connected with subsequent “facts” in a causal chain only by applying our “nomological“ or “positive knowledge of the ‘rules of the historical process... derived from our own practical experience of life and our knowledge of the behavior of others” (Weber 1906: 119-120). This approach is echoed in contemporary expositions of process-tracing methods. For example, one recent manual notes that “most discussions of mechanisms place them on the ontological level. We make hypotheses or theories about how such ontological entities as mechanisms might work, and we test the observable implications of these hypotheses, but we do not observe causal mechanisms directly” (Bennett and Checkel 2015: 10). Furthermore, while Weber does not preclude such unobservable causal mechanisms from operating at the structural level, he places particular stress on individual-level mechanisms resulting from “human actions” (Ibid: 115). In this way, Weber anticipates both the rational choice critique of comparative historical analysis for lacking microfoundations (Bates et al. 1998) as well as Elster’s famous “plea for mechanisms” (Elster 1998), whereby social scientists are asked to identify the individual-level psychological logics spurring action that links together a temporal sequence of events. Finally, Weber equally foreshadows historical institutionalist approaches seeking to reconcile structural determinism with contingent acts of agency (Katznelson 2003) via reference to an “eventful temporality” comprised of relatively rare “critical junctures” - that is, moments when structural constraints upon individual action are loosened, thereby bestowing individuals with the opportunity to author structural change (Sewell 2005; Capoccia and Kelemen 2007; Soifer 2012). This is particularly evident when Weber notes how the historical actor “takes into account those ‘conditions’ of the future course of events which interest him which are ‘external’ to him and... fits into the causal nexus various ‘possible’ courses of action for himself... [the historian then evaluates] whether the agent’s assessment of the given, ‘externally’ existing conditions... in fact corresponded to the real situation at the time: this is shown to him by the actual degree of success of the action” (Weber 1906: 112).

4 Conclusions: The Long Shadow of Weberian Historicism

Nuances aside, the degree to which present-day historical causal inquiry remains fundamentally faithful to Weber’s approach is remarkable. Ultimately the differences between the two approaches are more in form - compare the precision and parsimony of process-tracing methods to Weber’s elusive complexity - than in content. Indeed, ‘reading Weber forwards’ and situating his contribution within contemporary methodological debates helps highlight the enduring relevance and value of his temporal logic.

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