Subnational Peripheries and the Comparative Method

Thomas B. Pepinsky
Department of Government
Cornell University
pepinsky@cornell.edu

FIRST DRAFT: December 21, 2013
THIS DRAFT: January 6, 2014
Subnational Peripheries and the Comparative Method

Introduction

The subnational comparative method (Snyder 2001) has become an indispensable tool in political science. Like the cross-national comparative method, within-country comparative research designs leverage variation across space to test causal hypotheses, but the focus is on regional variation within one state instead of national variation across states. This makes the subnational comparative method a particularly revealing approach for political phenomena that have broad substantive importance for countries around the world: state capacity, violence and insurgency, identity, social cleavages and voting, and the basic forces of local or regional politics that often shape national politics itself.

Despite the distinct benefits of the subnational comparative method, the assumptions that underlie that comparative method are the same at any level of analysis (national, subnational, or individual), and the plausibility of those assumptions varies as well. This paper identifies subnational peripheries as regions with historical trajectories and social formations that differ from those the majority of state’s territory, and that present distinct inferential challenges to within-country comparative designs. These challenges are directly interpretable using standard concepts in quantitative and qualitative political methodology: unit heterogeneity, unobserved heterogeneity, complex interactive causes, small-n problems, and nonignorable missing data.

While it is well understood that these sorts of inferential challenges are possible in the context of within-country comparisons,¹ subnational research designs are frequently praised with reference to their distinct advantages in terms of greater comparability across units, more accurate data,

---

¹ Snyder (2001: 96) notes, for example, that “within-nation comparisons do not necessarily improve our ability hold constant cultural, historical, ecological, and socioeconomic conditions.” See also Peters (1998: 35).

---

* Thanks to Ed Aspinall, Tyrell Halberkorn, Charles Keith, Duncan McCargo, and Budy Resosudarmo for helpful discussions, and to Rebecca Townsend for excellent research assistance. All errors are my own.
and the ability to control for country-specific factors which complicate causal inference (these are common claims; among others, see Snyder 2001: 94; Hecock 2004: 951; Goldberg et al. 2008: 487-8; Malesky 2008b: 99; Ziblatt 2008: 619-20; Adhikari 2012: 597; Berger 2012; Weitz-Shapiro 2012: 572). By explicitly conceptualizing subnational peripheries in terms of the relationship between a region’s history or social structure and the testing of general causal propositions, this paper uncovers a neglected tension inherent in the subnational comparative method whose consequences may not be properly understood.

I illustrate the stakes of the argument for current practice using three questions for which the subnational comparative method is ideally suited—local public goods and economic development, identity and insurgency, and ethnic voting—in the context of six Southeast Asian countries: Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam. Southeast Asia is a particularly useful region through which to explore these issues because of its rich cross-national diversity of state forms, political institutions, and colonial histories; the concomitant internal diversity of each state in geographic, cultural, and historical terms; and because the region plays an increasingly prominent role in mainstream comparative politics research (Kuhonta et al. 2008; Pepinsky forthcoming). Moreover, each country case features at least one distinct subnational periphery. A map of the region and of the subnational peripheries addressed in this paper appears in Figure 1.

*** Figure 1 here ***

Drawing on the examples of regional support for the incumbent regime in Sabah and Sarawak, rural electrification in Papua, insurgent violence in Pattani, and others, I illustrate some of the limits of the subnational comparative method. These and other arguments target key questions in comparative politics, and the types of challenges that emerge in the Southeast Asian cases are in
fact typical of the types of problems associated with subnational peripheries through the world, including the well-known case of the South in U.S. politics.

Clarifying exactly how subnational peripheries complicate causal inference through within-country comparisons, and illustrating these problems in the context of central debates in comparative politics, is this paper’s first contribution. Its second contribution is to show that the inferential challenges presented by subnational peripheries are not insurmountable. Available strategies for confronting subnational peripheries include modeling the sources of heterogeneity, adjusting the scope conditions of the causal claim, and embedding subnational comparisons within designs that exploit additional inferential leverage at other levels of analysis. The upshot of this discussion is that the existence of subnational peripheries is not fatal to comparative method.

However, using these tools entails making tradeoffs. The third contribution of this paper is to show how solutions to the problems raised by subnational peripheries in the subnational comparative method frequently change the causal parameter of interest, or alternatively, the population being studied. They also force researchers to be modest in their aspiration to “replac[e] proper names of social systems by the relevant variables” by recognizing that some social formations are best understood as “finite conjunctions of constituent elements” rather than “residua of theoretical variables” (Przeworski and Teune 1970: 30). To the extent that subnational peripheries are themselves the objects of investigation, rather than nuisances to be accounted for, this has substantial implications for current practice.

The paper proceeds as follows. The next section provides a conceptual overview of subnational peripheries, defining key terms and introducing the notation used throughout the paper. The following section outlines the five inferential problems in greater detail, linking the
inferential hurdles in general terms with subnational peripheries in particular. The following
section illustrates each inferential problem in the context of the six Southeast Asian cases, and
shows how established statistical and methodological tools can help practitioners to avoid some
of the inferential problems that arise when subnational peripheries are include in within-country
comparative research designs. The final section concludes by returning to the tradeoffs inherent
in using subnational peripheries in comparative research designs.

Preliminaries

I begin by defining subnational peripheries, and then discussing some important
characteristics that many subnational peripheries share. To fix notation, a country is comprised
of $K$ regions, indexed $k$. Units $i$ may be nested in regions—depending on the research question,
these units may be individuals, or other regions aggregated at a lower level of analysis. As is
standard, $X$ and $Y$ denote independent and dependent variables, respectively, and $D$ denotes a
binary independent variable (or treatment) for the exposition of causal effects. The task of the
researcher is to make inferences about causal relationships, either at the regional level (where
$Y_k = f(X_k)$), or at the subregional level (where $Y_{ik} = f(X_{ik})$). The function $f(\cdot)$ denotes any
operator relating the value of independent variable to that of a dependent variable, from a link
function in a generalized linear model to a deterministic claim of necessity or sufficiency.
Finally, the subnational comparative method refers to any research design that leverages within-
country regional variation to gain inferential leverage on causal hypotheses.\textsuperscript{2}

\textsuperscript{2} The subnational comparative method therefore excludes single-country research designs where inferences are
based exclusively on temporal variation. Surveys and experiments fall within the scope of the subnational
comparative method to the extent that regional variation complicates causal inference in the precise sense outlined
below.
Subnational Peripheries Defined

Subnational peripheries are regions within a state’s territory with (1) historical trajectories or social formations that are different from the majority of the state’s territory and where (2) those trajectories or formations affect the researcher’s ability to derive valid causal inferences by comparing across regions. For example, a region may have a history of incorporation into the national state that is different from the rest of the country’s territory. That historical process of state incorporation may produce a distinct form of central government responsiveness to local demands, yielding heterogeneity between core and periphery in the effect of village conditions on the state’s willingness to provide local public goods. This is the example of Papua in Indonesia, to be discussed below. Alternatively, a region may have an ethnic and religious makeup that differs from the rest of the country. Any differences in that region’s relationship with the central state may be plausibly attributed to ethnic differences or to religious differences, but also to the interaction of the two, or to the particular ethnicity and religion in the region (instead of simply just the observation that each differs from the ethnicity and religion of the core). This is the example of Pattani in Thailand, also discussed below. The essential characteristics of subnational peripheries, then, are that they have distinct histories and/or social structures with consequences for comparative inquiry.

The notation of Imbens and Gelman (2013) helps to clarify. Denote $Z_k$ as some characteristics of a region, which may be observed or unobserved, and $W_k$ as “characteristics of units… that are known to, or expected to, be related to the outcome” (4). We expect that $Y_k \perp Z_k|W_k$, meaning that there is no relationship between the characteristics of a region and our outcome of interest conditional on the available explanations for that outcome. Subnational peripheries are regions for which this does not hold. Progress in causal inference requires either
observing more background determinants of \(Y_k\)—call them \(W_k^*\)—in order to show that
\[Y_k \perp Z_k | W_k^*,\]
or uncovering another cause \(X\), such that \(Y_k(X) \perp Z_k | W_k\).

Three features of this definition of subnational peripheries warrant further comment. First, this definition implies particular understandings of both causality and of the logic of inference using the comparative method. Both are understood here follow the standard potential outcomes framework. In the case of a single independent variable \(D\) that can take the values 0 and 1, the unit-level causal effect of \(D\) is \(\delta_i = y^1_i - y^0_i\), or the difference between the outcome for unit \(i\) in the treatment state and control state. Because units can never occupy both the treatment and control states, causal inference proceeds through comparing observed values of collections of units under the treatment and control states, augmented by assumptions about the process through which units come to occupy the treatment and control states and, where necessary, models of those processes. The logic of inference is complementary, and follows Przeworski and Teune (1970: 30); not only is it the case that “classes of social events are viewed as generalizable beyond the limits of any particular historical social system,” but such generalization is necessary to make causal statements. In even stronger terms, “the professional goal of all scientists should be to attempt to demonstrate that context makes no difference whatsoever” (King 1996: 160). I make these assumptions explicit here, both to clarify the framework of social scientific inquiry that underlies the definition of subnational peripheries, and to reinforce that nothing in this paper should be interpreted as a critique of that standard framework.

Second, part (2) of the above definition of subnational peripheries holds that their histories or social structures affect the researcher’s ability to derive valid causal inferences by comparing across regions. This second part of the definition is critical because, trivially, every
region within a country has its own unique history and structure. That uniqueness itself does not create subnational peripheries, or undermine the logic of comparative inquiry, under the maintained assumption that causal inference can only proceed through comparing observed values of collections of units under treatment and control conditions. That is, aggregating across individual-level causal effects is in general both valid and useful: it is not only possible, but also meaningful, to investigate average causal effects. The challenge is in determining the extent to which unit-level heterogeneity threatens the ability of the researcher to draw valid inferences across collections of units. This point will prove important in the discussion of unit homogeneity and constant effect assumptions below.

Third, and following directly from the preceding points, subnational peripheries are defined in terms of their relationship to causal questions, not their histories or social structures alone. Because there are many causal questions, there are in principle many subnational peripheries, and one region may be a subnational periphery for some questions but not others. To anticipate the discussion below, Mindanao in the Philippines and Kachin State and Rakhine State in Myanmar may be subnational peripheries for understanding the effects of economic backwardness on insurgent mobilization, but only Mindanao and Rakhine State will serve as subnational peripheries for questions of Muslim identity and insurgent mobilization. Over time, a region that was once a subnational periphery may even cease to be peripheral—illustrative examples from outside of Southeast Asia include Cornwall and Alsace. As I shall discuss below in the case of Sabah and Sarawak in Malaysia, it is sometimes possible to test whether regions are in fact subnational peripheries, depending on the nature of the causal question, the unit of analysis, and the availability of data. It also follows that the existence of subnational peripheries
does not challenge the enterprise of making comparisons across regions, it raises distinct problems in the use of the comparative method to draw causal inferences.

*Common Features of Subnational Peripheries*

To reiterate, subnational peripheries are peripheral only with respect to causal hypotheses, meaning that peripheralness is not an inherent feature that a region possesses or does not possess. But many subnational regions nevertheless share common features that, while neither necessary nor sufficient for identifying them as subnational peripheries, clearly set them apart from the rest of the country in which they are found. Moreover, these common features of subnational peripheries constitute some of the obvious explanations for why these regions are so challenging: they involve geographies, colonial legacies, social structures, identities, and other features that condition subnational politics.

*Geography* is the most characteristic feature of subnational peripheries: these are frequently regions that sit at the borders of modern nation states, making them literally peripheral in a geographic perspective. Examples abound: Xinjiang, Assam, Patagonia, Chiapas, Lappi/Lappland (province of Finland), the Basque Country, and Biafra. But while subnational peripheries often sit at borders, they need not. In the case of countries with a single predominant urban agglomeration, it may make sense to conceptualize that urban center as a periphery in the precise sense entailed by the definition advanced above. Examples would include Amman, Jordan or Ulaanbaatar, Mongolia. Subnational peripheries may also be “vertically” peripheral, as in the region of upland South and Southeast Asia known as Zomia (van Schendel 2002; Scott 2009). In this sense, borrowing from the notion of the “state of exception” (Agamben 2005), subnational peripheries might also be conceptualized as “regions of exception.”
Geographic peripheralness is characteristic of many subnational peripheries, and sometimes a periphery’s particular geography itself present the theoretical challenge for causal explanations—mountainous peripheries may be uniquely resistant to state penetration, for instance. But in most cases, geography is a marker or proxy of other regional characteristics with clearer theoretical implications. In many cases, the colonial legacy or history of state incorporation of a region sets it apart from its neighbors. In postcolonial states in particular, border regions are often subject to distinct trajectories of incorporation into the colonial state: outside of Southeast Asia, examples include Zanzibar, Jammu and Kashmir, Newfoundland, Casamance in Senegal, Cabinda in Angola, and the Chaco region of Paraguay. In other states, border regions were simply incorporated into the modern state at a different historical juncture: relevant examples are Alsace, Catalonia, and Dagestan. In either case, a region’s incorporation within the broader national state follows a distinct process from that of the remainder of the country. This may have implications for questions of national identity, secessionism, local state capacity, regional economic development, or other issues.

Subnational peripheries also frequently have distinct social structures. These may include a distinct ethnic or racial profiles, patterns of traditional land use, patron-client relations, partisan attachments, levels of inequality, or any number of other salient characteristics of the regional social fabric that differ from those in the remainder of the country. To the extent that these characteristics are unique or distinctive in a particular region, they can define the types of causal questions for which a region is peripheral.

Another common characteristic of subnational peripheries is the politicization of regional distinctiveness. This phenomenon of contested regional identity corresponds to political debate about the “ideal” extent of the state and the relationship between state and region. Often this
debate is couched in nationalist terms, with regional identities aspiring to equal status with a national identity. The example of Spain is illustrative: depending on the causal hypothesis, Catalonia, the Basque Country, Galicia, and Andalucía may be subnational peripheries due to their distinct social structures and histories of incorporation into the Spanish state, although only Basque and Catalonian identities are politically salient. The existence of contested regional identities has clear implications for causal questions about identity and secessionism, but also may influence questions about uneven spatial development or regional voting patterns.

Finally, many subnational peripheries are commonly understood by their own national governments as having special characteristics. Such distinctions are often legally recognized with special administrative status. In some cases these statuses are historical legacies with little contemporary import, as in the case of Special Area of Yogyakarta in Indonesia. In other instances, such as Aceh or Catalonia, special administrative status has tangible political consequences—Aceh, for example, is the only administrative division in Indonesia where regional parties are legal, which may in turn lead to a distinct logic of ethnic politics with implications for phenomena such as coalition formation in local legislatures. In still other cases, the formal importance or legal consequences of having special administrative status may be minor, but administrative status nevertheless reflects the historical and social reasons why regions may subnational peripheries for particular causal questions. Such examples include the autonomous regions of China, the ethnic states of Myanmar, and some of the autonomous republics and regions of Russia.

Subnational Peripheries and Challenges to Causal Inference

Given the definition of subnational periphery above and an understanding of the common features that many subnational peripheries share, the following section turns to a more precise
explication of the research design challenges that subnational peripheries present. I illustrate each through the example of support for the incumbent Barisan Nasional coalition government in the Malaysian states of Sabah and Sarawak.

*Unit heterogeneity*

Unit homogeneity is the assumption that across units, the expected value of a dependent variable is identical for identical values of an independent variable. This is the assumption that units are comparable, and some version of this assumption “lies at the base of all scientific research” (King et al. 1994: 93). This assumption may be violated when differences between the subnational periphery and the remainder of the state lead to heterogeneous causal effects. Stated formally in the case of a binary treatment, $K$ can be partitioned into two sets of regions, $P$ and $C$ (denoting the Periphery and the Core). Following the notation in Morgan and Winship (2007), define $Y^1, Y^0$ as the outcomes observed for units receiving in the treatment ($D = 1$) and control ($D = 0$) states, respectively, and define the average treatment effect (ATE) as $E(\delta) = E(Y^1 - Y^0)$. Unit heterogeneity in subnational peripheries arises when $E(\delta_{k \in P}) \neq E(\delta_{k \in C})$. An illustration of unit heterogeneity is if the relationship between an electoral district’s ethnic composition and vote for an incumbent coalition differs systematically between peninsular Malaysia and Sabah and Sarawak, due at least in part to the distinct ethnic structures of the two East Malaysian states.

Unit heterogeneity reflects the general tension between the definition of causality in the potential outcomes framework as a unit-level phenomenon and the impossibility of observing unit-level causal effects. Causal effects are only estimable in the aggregate, yet the assumptions that justify aggregating across units to estimate average causal effects are not derived from the data and, *by their very definition*, obscure unit-level heterogeneity. In one recent formulation,
Due to the ubiquity of heterogeneity in social phenomena, it is impossible to draw causal inferences at the individual level. All efforts to draw causal inferences in social science must take place at the group level. However, comparison of groups requires classification of intrinsically heterogeneous individuals into seemingly homogeneous groups. This is a fundamental dilemma facing all researchers in social science (Xie 2013).

Because it is possible to choose any subset of units and explore whether causal effects appear to differ between these units and others, unit heterogeneity is particularly thorny issue, and assumptions of comparability must defended in the context of particular research questions and theoretical expectations. The utility of unit homogeneity assumptions cannot be settled in the abstract. Regions with distinct historical trajectories or social structures, however, are natural sources of violations of unit homogeneity assumptions.

*Unobserved heterogeneity*

Unobserved heterogeneity commonly refers to a specific form of omitted variable bias in which one or more confounders varies systematically across units, but the analyst does not observe it. It is common in any data structure featuring units that are nested in different levels, such as panel data with observations grouped by region and year, or cross-sectional data grouped by region. In the running example of Sabah and Sarawak, we may suspect that historical factors unique to each state, but which cannot be captured in variables that are measurable across Malaysian states, affect the expected degree of support for the incumbent coalition in each electoral district.

Unobserved heterogeneity is more conceptually straightforward than unit heterogeneity. Moreover, to the extent that these unobserved confounders are constant within regions, fixed effects estimators readily adjust for all sources of unobserved heterogeneity (although without auxiliary assumptions about unit homogeneity and treatment assignment these do not estimate
the average treatment effect; see Angrist and Pischke 2009: 221-3; Imai and Kim 2013). Yet if
the goal is to explore each region’s differences rather than simply to account for them, fixed
effect estimators are unsatisfying due to their inability to adjudicate among competing region-
specific sources of variation. This observation about treating unobserved heterogeneity as a
nuisance rather than a problem to be analyzed previews the discussion below about the tradeoffs
inherent in subnational peripheries. It also provides a convenient segue to the discussions of
small-n problems and complex interactive causality.

Small n problems

Small-n problems are the well-known problem that arises when there are insufficient
observations to adjudicate among competing explanations for an observed outcome, or when
there are more independent variables than there are cases, resulting in an indeterminate research
design (King et al. 1994: 118-24). In the example of Malaysian states, suppose that we found that
the states of East Malaysia were comparatively more supportive of the incumbent coalition than
the other states in Malaysia. There are many potentially “deep” causes of such regional
inequality, including these states’ unique ethnic structures, the distinct nature of the colonial
regimes in East Malaysia, the different terms of incorporation into the Federation of Malaysia,
and others. Some of these candidate explanations appear in Table 1.

*** Table 1 here ***

Any research design designed to uncover the region-level differences in support for the
incumbent regime between the East Malaysian states and the peninsula faces an immediate
problem of indeterminacy: the states of Sabah and Sarawak differ from the rest of Malaysia
across multiple observable dimensions, even if they do share several observable characteristics
with some peninsular Malaysian cases (a non-Malay majority is common to Sabah, Sarawak, and
Penang; these three plus Malacca have no titular sultan, unlike the “Malay states”). Furthermore, it is not possible to “increase the n” by adopting the electoral district as the unit of analysis, for these additional observations at a lower level of analysis are not independent from one another, therefore cannot increase inferential leverage on region-level variation. Even worse, several of the observable dimensions across which Sabah and Sarawak differ are perfectly collinear with one another. As a result, the very existence of these two states’ distinctive historical and social structures prevents us from gaining causal leverage on the consequences of that distinctiveness using the subnational comparative method.

Complex interactive causality

Complex interactive causality is a general term to describe the possibility that the effects of multiple causal variables are conditional on one another. Consider the case of two binary treatment variables $D_1$ and $D_2$. In a deterministic setting, we may believe that the effect of $D_1$ is conditional on the value of $D_2$, as represented in Table 2 with the standard illustration of the possibility that $D_1$ and $D_2$ are each an insufficient but necessary part of an unnecessary but sufficient cause of $Y$ (Mackie 1965; Ragin 2000).

*** Table 2 here ***

In a probabilistic setting, recalling the definition of the ATE as $E(\delta) = E(Y^1 - Y^0)$ and denoting $\delta_1$ as the ATE for $D_1$, we may believe that $E(\delta_1|D_2 = 0) \neq E(\delta_1|D_2 = 1)$, which parallels the discussion of treatment effect heterogeneity above. In the most general case, consider two continuous independent variables $X_1$ and $X_2$ in a probabilistic setting. Clark et al. (2006) describe the claim that the effect of $X_1$ is conditional on the value of $X_2$ as an example of “an asymmetric, probabilistic, multivariate causal claim.” In our example of electoral support for the incumbent coalition in Sabah and Sarawak, we may believe that the distinctiveness of politics
in East Malaysia is the result of both their unique history of incorporation into the Federation and their distinct ethnic structure—two variables that are jointly necessary but individually insufficient causes of support for the incumbent coalition.

The inferential challenge that arises in this context is that even if we assume that every relevant causal variable is observable to the analyst, subnational peripheries are peripheral precisely because their complex interactive configurations of causal variables are rare. In that sense, complex interactive causality makes small-n problems more acute, for the number of independent observations necessary to use comparative methods to make causal inferences rises exponentially with the number of potential interactive causes. Even if we follow a deterministic model of causality, we do not have sufficient variation in the data to distinguish whether Sabah and Sarawak’s history of incorporation and ethnic structure are (1) jointly necessary, (2) jointly necessary and mutually reinforcing, (3) individually necessary, or (4) one is necessary but the other is not, as causes for higher average support for the incumbent coalition.

**Nonignorable missingness**

Nonignorable missingness occurs when the values for some observations within a dataset are not observed, and the probability of their absence is a partial function of data that are not available to the researcher. Following King et al.’s (2001) notation, denote $V$ as a matrix containing all dependent and independent variables $Y$ and $X$ which can be partitioned into the portions which are missing and observed: $V = \{V_{\text{missing}}, V_{\text{observed}}\}$; and the matrix $M$ as an indicator matrix which labels each observation for each variable in $V$ as either observed or missing. If the probability of each piece of being missing is truly random, then $P(M|V) = P(M)$,

---

3 For deterministic causal propositions, $J$ interactive causes require at minimum $2^J + 1$ independent observations under the auspicious conditions of no overlap across observations (see also Pepinsky forthcoming). For probabilistic causal propositions, or where the values of variables overlap across some observations, the number of observations needed is much higher still.
termed Missing Completely at Random. If the probability of each piece of data being missing can be predicted by the values of the observed variables, then \( P(M|V) = P(M|V_{\text{observed}}) \), termed Missing At Random. If the last equality does not hold, meaning that the probability of missingness cannot be predicted using the observed data, then missingness is nonignorable. To conclude our running example of East Malaysia, suppose we are interested in the relationship throughout Malaysia between the percentage of an electoral district’s population that is of Indian ancestry and electoral support for the incumbent coalition. However, in Sabah and Sarawak, data on the percentage of a district’s population that is of Indian ancestry is not collected.\(^4\) We can predict perfectly that whether the values of the variable \( \text{Percent Indian} \) are missing with an indicator variable for Sabah and Sarawak, but such a prediction is trivial. And although we may be able to predict that the values of \( \text{Percent Indian} \) are small in Sabah and Sarawak, without strong assumptions about the joint distribution of Indians and other residents across regions we cannot make inferences about the distribution of the Indian population by electoral district in Sabah and Sarawak.

This last point helps to illustrate the consequences of nonignorable missingness for causal inference and some of the ways forward. Nonignorable missingness is never testable, but it may be possible to proceed using standard techniques if we assume that the observed data are sufficient to model the missingness, meaning that the data are actually Missing at Random. In the case of missing data on Indians in Sabah and Sarawak, one might assume that in Sabah and Sarawak, as in the rest of Malaysia, there is a correlation between the percentage of an electoral district that is Chinese and the percent that is Indian and, furthermore, that Indians are more likely to cluster in urban areas in Sabah and Sarawak. But these are assumptions, and they might

\(^4\) In these two states, Indians are recorded together with foreigners, see e.g. Jabatan Perangkaan Malaysia (2011: 41-5).
easily generate misleading inferences if migrants from Indonesia and the Philippines (who comprise most of the “Other” census category in Sabah and Sarawak) are also disproportionately present in these two states, which is almost certainly the case. An alternative strategy, the traditional method of handling missing data by dropping the missing observations, has the special consequence in this case of dropping the entire subnational periphery altogether. This is equivalent to changing the causal question of interest from the effect of Percent Indian on incumbent vote share in Malaysia to the effect of Percent Indian on incumbent vote share in peninsular Malaysia—a question that, depending on the context, may be of more interest.

In sum, unit heterogeneity, unobserved heterogeneity, small-n problems, complex interactive causality, and nonignorable missingness are all well known challenges to causal inference. While subnational peripheries are far from the only sources of these problems, they illustrate precisely how subnational peripheries complicate causal inference in within-country comparisons by relating common features of subnational peripheries to the general class of inferential problems to which they belong. In the following section I turn to a more substantive discussion of these problems using concrete examples from subnational research designs.

**Subnational Peripheries in Southeast Asia**

This section expands on the previous discussion in the context of the six Southeast Asian states of Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam. The highlighted regions in Figure 1 are denoted as “potential” subnational peripheries because, depending on the causal question at hand (and following the definition of subnational peripheries
advanced in this paper), they may be subnational peripheries for some questions and not others.\(^5\)

I proceed thematically, beginning with local economic development.

*Local Public Goods and Economic Development*

Public goods provision is a core issue in comparative political economy, both because public goods may prove to be the key foundations upon which economic development takes place, and because the provision of public goods frequently follows a political rather than a technocratic logic (Kramon and Posner 2013). Indonesia is a particularly rich country context through which to explore the causes and consequences of local public goods, due both to its striking levels of spatial inequality and to the rich base of social and economic data which make Indonesia, as described by one prominent scholar quoting an anonymous graduate student, a “data-producing country” (Aspinall forthcoming).

One natural question is how social and economic characteristics of Indonesia’s local political units affect the availability of public goods provided by the central state. This speaks to enduring questions about the role of the state in providing the infrastructural foundations for shared growth in diverse developing countries, and to recent research which has conceptualized the provision of electricity in Brazil and India in terms of distributive politics (Min 2010; Lipscomb et al. 2013; Golden and Min forthcoming). For example, are smaller and more remote villages less likely to be incorporated into the state’s electrical grid, provided by the state-owned power company (Perusahaan Listrik Negara, PLN)? Answering this question in the aggregate is relatively straightforward, but the distinct relationship between the provinces of Papua and West Papua and the Indonesian central state may complicate the inferences drawn from simple descriptives. Put baldly, a general perception among Indonesians that Papuans are primitive,

\(^5\) Other subnational peripheries are possible as well—including Battambang province in Cambodia and North Sulawesi in Indonesia—but as they do not figure in the discussion in this paper here they are not shaded.
backward, or even racially inferior may imply that the central state does not interpret objective conditions in Papua as warranting state efforts to provide public goods.

Figure 2 neatly summarizes the distinctiveness of electrification in these two provinces using data from the 2011 Village Potential Survey (PODES 2011). Conducted at three-year intervals by Indonesia’s Central Statistical Agency, PODES contains detailed information and social, economic, and political conditions in each of Indonesia’s 77,961 villages. The figure shows the proportion of the villages in each province without access to electricity (blue) and without access to electricity provided by PLN (red).

*** Figure 2 here ***

The differences between the two provinces in Papua and the rest of the archipelago are immediately apparent. Not only are a greater proportion of villages in Papua and West Papua provinces unable to access electricity from PLN, a far greater proportion of villages in these two provinces are also unable to access electricity from other sources (which may include generators, illegal tapping from the electrical grid or from nearby enterprises, and others).

This province-level heterogeneity may have substantial implications for understanding village-level provision of public goods. Returning to the question outlined above, one possible explanation for differences in electrification across villages is simply village fundamentals: larger, less remote, and more urban\(^6\) villages should each be more likely to receive electricity from PLN. To the extent that these are more common in Papua and West Papua provinces—a remote, historically rural, and sparsely populated region—this may explain their differences. This possibility is explored in Table 3.

*** Table 3 here ***

---

\(^6\) PODES surveys every inhabited place in Indonesia, and some “villages” (desa) are actually kelurahan, akin to urban wards.
The first column of Table 3 (Model 1) is a simple regression of village population, the natural logarithm of distance in kilometers from the village to the office of the district head (a measure of village remoteness), and a dummy variable capturing whether the village is rural or urban (desa or kelurahan), on the percentage of a village’s households with access to state-provided electricity from PLN. Province fixed effects are included but not reported. There is, not surprisingly, a strong and highly statistically significant relationship between each independent variable and the percentage of households with access to state-provided electricity. It is not possible to give a causal interpretation to findings about village population without further analysis of the determinants of village population—perhaps people migrate to those villages where electricity is available, especially in the most remote regions—but distance to the office of the district head and the rural dummy are almost certainly strictly exogenous to the processes that generate electrification (on the exogeneity of the village-level urban/rural distinction to contemporary politics, see Martinez-Bravo forthcoming).

But are these relationships the same across provinces? The remaining three columns in Table 3 model the heterogeneity explicitly using a multilevel modeling approach (Jones and Steenbergen 2002; Gelman and Hill 2007: 251-99). Model 2 is a so-called random-slope model, in which the relationship between each independent variable and the proportion of households with electricity is allowed to vary across provinces. This will illustrate whether, for example, larger villages in Papua and West Papua provinces have less access to electricity than do larger villages in other provinces. Model 3 includes two province-level covariates to determine whether they can explain the provincial-level variation in the average level of electrification for typical villages. And finally, Model 4 interacts each province-level predictor with each village-level predictor to account for differences in province-specific slopes. By proceeding in this fashion,
the analysis first acknowledges the presence of unobserved province-level heterogeneity (Model 1), then also the possibility of unit heterogeneity across provinces (Model 2), and finally, attempts to model both using observables (Models 3 and 4).

Rather than interpret the model outputs directly, I plot the random effects estimated from Models 2 and 4; that is, the estimated relationship between each independent variable and the proportion of the villages with access to electricity from PLN, and the estimated proportion of a households within a typical village in each province with electricity. These results appear in Figure 3.

*** Figure 3 here ***

Begin first with the top left hand graph, produced from Model 2. In provinces with high penetration of PLN electricity, there is only a weak relationship between village population and electrification. In provinces with low PLN penetration, however, there is a stronger relationship, which is consistent with a model of public goods provision where larger villages are first to receive public goods (net of other determinants of village electrification) in regions where public goods remain scarce. Yet Papua province has both a low level of electricity penetration and a weak relationship between village population and access to electricity. Interestingly, West Papua province does not stand out in the same way; the relationship between electricity provision and village population is indistinguishable from that of other provinces with similar average levels of state-provided electricity. The same is true for the second and third graphs in the first column of Figure 3. Most striking is the bottom left-hand graph, which shows that rural villages in Papua province (but again, not in West Papua provinces) have far less access to electricity than others.

Model 4 attempts to model the heterogeneity across provinces, focusing on distance to Jakarta and provincial religious composition. First, the distance between a provincial capital and

---

7 To facilitate this interpretation, each independent variable is centered around its grand mean.
Jakarta is a measure of provincial remoteness, capturing the intuition that remote villages in remote provinces might explain the low level of electrification for Papua. Second, the percentage of majority Muslim villages in each province might also explain why Papua, a majority non-Muslim province, features such low electrification (although high electrification rates in the majority Hindu province of Bali and the majority Protestant province of North Sulawesi suggest that this is not the case). In this way, Model 4 tests the propositions that Papua province is different because it is distant or Christian.

Looking to the top right graph in Figure 3, we indeed see a weaker correlation between provincial slopes and intercepts when accounting for observable differences in provincial remoteness and religious composition. (This is confirmed in Table 3, where the coefficient for Corr[Village Population, Constant] is no longer statistically significant at conventional levels in Model 4.) Yet this model does not overturn the previous finding that rural villages are much less likely to have access to state-provided electricity in Papua province than in the rest of Indonesia.

Beyond the substantive findings about local public goods provision in Indonesia, three important methodological conclusions emerge from this analysis. The first, optimistic conclusion is that it is straightforward to identify subnational peripheries and to address some of the inferential challenges that they pose. To the extent that the purpose of the analysis is to focus on average causal effects of village-level variables, standard tools will suffice. The second, less optimistic conclusion is that employing such tools abandons the comparativist’s goal of conceptualizing variation in nomothetic rather than idiographic terms. Indeed, we have taken clear steps to heed Przeworski and Teune’s admonition to “replac[e] proper names of social systems by the relevant variables,” but the province of Papua stubbornly resists these efforts. The third conclusion, once again more optimistic, is that—perhaps surprisingly—nomothetic
explanations do prove satisfactory in the case of West Papua. For understanding local public goods provision, only Papua province, not all of Indonesian Papua, is the subnational periphery.

**Identity, Insurgency, and Secessionism**

The next illustration of subnational peripheries in Southeast Asia focuses on the broad question of identity, insurgency, and secessionism in multiethnic societies. Subnational comparative research designs are particularly well-suited for studying civil conflict, which almost always is characterized by marked spatial variation within countries (Humphreys and Weinstein 2006; Kalyvas 2006; Weidmann 2009; Blattman and Miguel 2010). The approach in this section is primarily qualitative, with a focus on explaining regional variation in the presence of insurgent secessionist violence in the six major states of Southeast Asia. In contrast to the discussion of rural electrification in Indonesia, where the existence of a subnational periphery complicated the estimation of causal effects for units at the subregional level, the following discussion emphasizes the difficulty of using focused within-country qualitative comparisons to study the determinants of insurgency and secessionism—which is in most cases so rare that it renders subnational research designs indeterminate.

Note first that five of the six countries have at least one region with a history of secessionism. In Indonesia, both Aceh (prior to 2005) and Papua and West Papua (ongoing) have seen armed insurgencies. In Myanmar, low-level insurgencies have erupted in each of the seven ethnic states. The southern regions of the Philippines, on the island of Mindanao and neighboring islands in the Sulu Sea, insurgents have sought to create an independent state for the Muslim Moro ethnic group since the late 1800s. In the southernmost provinces of Thailand, another ethnoreligious insurgency has been ongoing for decades. The Republic of Vietnam was an attempt to create an independent non-communist state in the southern portion of present-day
Vietnam. Only Malaysia has avoided a regionally-based insurgency movement since independence, although there are periodic calls for Sabah and Sarawak to secede from the Federation of Malaysia, or for parts of Sabah to join a so-called Sulu Sultanate incorporating parts of the Philippines.

Each of the six Southeast Asian states is a diverse modernizing society whose contemporary borders are the product of colonialism, which leads to the natural question of why only some regions have experienced secessionism and armed insurgency. In Myanmar the answer is straightforward: secessionists emerge in the ethnic states but not in the Burmese-majority regions that cluster around the center of the state’s territory around the Irrawaddy river (every constitution of independent Myanmar/Burma has distinguished between “states”, named after the non-Burmese ethnic group that forms its majority population, and Burmese-majority “regions,” previously known as “divisions”). In the other country cases, however, such easily-observable patterns cannot be uncovered.

The case of Thailand illustrates the problem well (see Table 4).

*** Table 4 here ***

While the Thai nationality has proven remarkably adaptive to ethnic groups such as Yuan (Northern Thai), Isan (Northeast Thai), Thai Chinese, and Khmer, the same is not true of the Malays of southern Thailand, and only in southern Thailand is there any history of violence and insurgency (McCargo 2011). Why? Thai Malays are ethnically distinct, but so too are Isan, Yuan, and Thai Chinese—their “Thainess” is a political construction (Thongchai 1994; Selway 2007), and one which remains an ongoing project for Thai Malays and Khmers as well. Thai Malays are geographically concentrated in the far south of Thailand, but so too are the Isan and Khmer in the northeast and Yuan in the north. Thai Malays are the majority ethnic group in three
provinces, but so too are the Isan and Yuan in their respective territories. Thai Malays can look back to a powerful historical kingdom whose territory is divided across contemporary state borders (Pattani), but so too can the Isan and Yuan (Lan Xang and Lanna, respectively). Thai Malays can look across a close national border to a state in which a closely related ethnic group forms a majority (Malaysia), but so too can Isan and Khmer (Laos and Cambodia, respectively). Thai Malays are Muslims, and therefore a religious minority vis-à-vis the overwhelmingly Theravada Buddhist state, yet there are substantial numbers of Thai Muslims as well. Not only are Thai Muslims’ patriotism and their status as members of the Thai nation generally unquestioned—the leader of the tacitly palace-approved 2006 coup is a Thai Muslim—there is no history of insurgent violence by Thai Muslims, or any evidence of common cause between Thai Muslims and Malay Muslims as insurgents.

In sum, there are more plausible causes of identity-based insurgency and secessionism in Thailand than there are cases of identity-based insurgency in Thailand, and monicausal explanations fail to account even for this variation. It is plausible that a complex interactive account of some subset of these variables could explain the Thai Malay insurgency, but it is also possible that particular features of the Malay identity itself, and of the Thai state’s relationship to that identity, explain insurgent violence in Pattani and its absence elsewhere. Such claims are theoretically coherent and analytically precise, and underlie compelling analyses such as McCargo (2006), yet they not falsifiable using the subnational comparative method.⁸

In terms of the inferential challenges, the Muslim insurgency in the southern Philippines parallels that of Pattani. As in the case of Thai Malays, we might define a “Moro identity” as the interaction of local ethnic identities, Islam, accumulated historical grievances dating back to the period of Spanish colonialism, and postcolonial policies targeting the south for migration from

⁸ And in fact, that is not McCargo’s methodology.
other regions of the Philippines. Yet such an account, while both plausible and theoretically coherent, is not falsifiable using the subnational comparative method.

Insurgency and secessionism in Indonesia are likewise difficult to explain. Only three regions in a phenomenally diverse country have had active regionally-based secessionist movements since independence. The successful case of Timor Leste is perhaps the signature example of a subnational periphery when it was still a province of Indonesia: a former Portuguese colony invaded by Indonesia in 1974, predominantly Catholic in a Muslim-majority country, a prominent *mestiço* political and social elite with close ties to metropolitan Portugal, and in a far-off region of the Lesser Sunda islands. Among the unsuccessful cases, though, Aceh is Muslim while Papua and West Papua are predominantly Christian. Both have experienced substantial in-migration from Java, but this is common in many parts of Sumatra, Sulawesi, Indonesian Borneo, and other regions. Each lies at the end of a sprawling archipelago, but the capital city of Banda Aceh is no more difficult to access than are other major cities in eastern Indonesia. The most compelling comparative analyses of nationalist mobilization in Indonesia (e.g. Bertrand 2004) do not explain the existence of secessionism, they explain the processes, mechanisms, and dynamics through which mobilization and conflict unfold. The most careful analyses of the causes of secessionism in one region present complex interactive explanations (e.g. Aspinall 2009).

Indonesia is also a rich environment for quantitative studies of local conflict (see e.g. Tajima 2013), both because of the remarkably detailed longitudinal data on local violence and its spatial variation. Yet Indonesia also illustrates how nonignorable missingness can plague

---

9 The Acehnese political identity has been constructed as “more Muslim” than the rest of Indonesia. Yet there are several other regional identities that are similarly constructed as “more Muslim” than the plurality Javanese population, such as Makassarese, Madurese, Bantenese. Moreover, using a measure of piety described in Pepinsky (2013), I find no evidence that the distribution of Islamic piety is different between Acehnese and other Indonesian Muslims.
quantitative subnational comparative designs. Figure 4 displays a summary of the prevalence of local violence by province, and information about the extent to which the nature of the violence went unrecorded in the 2008 round of PODES.

*** Figure 4 here ***

We see that a substantial portion of violence incidents in Papua are recorded but not described using the standard classification scheme: intravillage violence, intervillage violence, violence against security forces, violence against the government, student violence, ethnic violence, and other. It is not clear if the data is missing because it was not collected, not reported, not recorded, or not published. In any case, one obvious reason why is that such violence corresponds to actions by Organization for Papuan Independence (Organisasi Papua Merdeka, OPM), or to irregular actions by others who reject Indonesia’s presence in Papua. To the extent to which the goal of a subnational analysis of violence in Indonesia is to explain violence against the government or security forces, its existence in Papua goes unmeasured, and precisely because of what the data might show.

At first glance, Vietnam may appear not to fit the discussion of regional insurgencies, especially if the Second Indochina War is conceived as civil war between two territorially based political factions representing competing visions for the ideological foundations of the postcolonial Vietnamese state. Yet a generation of revisionist scholarship now implies that the existence of a non-communist, independent, Republic of Vietnam located in the southern region of the contemporary Socialist Republic of Vietnam is not self-evidently reducible to a product of the U.S. Cold War containment strategy. The southern reaches of contemporary Vietnam were historically part of the kingdoms of Funan, Champa, and Chenla rather than Dai Viet (see Figure 5).
These “Indianized” kingdoms practiced Hinduism and Theravada Buddhism, and unlike northern Dai Viet were subject to much less influence from China. Even under the French colonial administration, present-day Vietnam was ruled as three separate protectorates (Tonkin, Annam, and Cochinchine). Recent scholarship notes European perceptions that there were at least two distinct polities occupying what is today Vietnam (Dror and Taylor 2006: 15-22), with the southern polity and its economy and society drawing far less on the Sinitic/Confucian model than its northern counterpart (Li 1998).

This has implications for Vietnamese regional politics in the postcolonial era. Writes Keith Taylor in *A History of the Vietnamese*,

> Northerners are more disciplined to accept and to exercise government authority, they are proud of inhabiting what they view as the center of Vietnamese culture, they tend to be cautious about contact with the overseas world, and they are inclined to view what is happening in China as a model. Southerners are more *individualist, egalitarian, entrepreneurial, interested in wealth more than authority*, proud of carrying within themselves their own sense of culture, open to the outside world, and wary of how things are done in China (2013: 624, emphasis added).

I am not aware of any explicit argument that southern Vietnamese political culture was less compatible with communism than northern Vietnamese political culture, but such an implication is not hard to draw from Taylor’s discussion. It also parallels post-unification debates about “the attempt to extend North Vietnamese political culture into the unfamiliar social terrain of the southern half of the country” (P. Taylor 2001: 27). This perspective raises a host of questions about the extent of latent popular support for an independent, non-communist Republic of Vietnam in the south. This argument need not imply a monolithic or essentialist view of “southern Vietnamese culture,” and following Laitin (1988), it is certainly the case that “shared symbols constitute a political resource that can be effectively exploited by political
entrepreneurs” (591). But if the distribution of preferences for Vietnamese unification varied between north and south, then this too would require explanation. And as with Pattani, it would probably be impossible to use the subnational comparative method alone to adjudicate among a host of determinants of this variation: pre-colonial cultural heritage, pre-colonial political conflict, or the lineages of colonial rule, among others.

**Ethnic voting**

The final substantive illustration of how subnational peripheries complicate within-country comparisons is ethnic voting. I begin by returning to the running example of Sabah and Sarawak, and analyze ethnicity and voting patterns in the 2013 Malaysian General Election. Ethnic politics in Malaysia is complicated, yet central to understanding the country’s political structure as a multiparty competitive authoritarian regime.

The most salient divisions in Malaysian politics are between *bumiputeras* (sons of the soil) and non- *bumiputeras*. *Bumiputeras* are the country’s “indigenous” inhabitants, while non- *bumiputeras* include the substantial proportion of Malaysians of Chinese and Indian descent—the latter comprising approximately 30% and 10% of Malaysia’s population, respectively. The incumbent Barisan Nasional (BN) coalition is comprised of a Malay party (UMNO), a Chinese party (MCA), and an Indian party (MIC), each based in the Malay peninsula; two tiny multiethnic parties also rooted in the peninsula (Gerakan and PPP); and nearly a dozen multiethnic parties based exclusively in Sabah and Sarawak. The Malaysian constitution explicitly affords special rights to Malays, and pervasive affirmative action policies—beginning

---

10 Indigenous appears in quotation marks because the effective category of *bumiputeras* also includes assimilated migrants from present-day Indonesia and the Philippines, as well as sizable Eurasian, Arab-Malay, and Thai populations. Moreover, Malays are not the true indigenous inhabitants of the Malay peninsula; small communities of *orang asli* (“original people”) represent the remnants of much earlier human groups that precede the migration of Malay peoples into the region.
with the New Economic Policy (1971-90) and continuing today—target *bumiputeras* for a wide range of subsidies and privileges. The fusion of effective redistributive policy, a strong party organization, and favorable demographic trends has meant that UMNO, by far the largest party in the BN, has maintained power virtually without contest since 1957 on the basis of consistent electoral support from *bumiputera* voters.

The 2013 General Election, the most closely fought race in Malaysian political history, is a window into the continuing relevance of ethnicity in Malaysian politics. Preliminary analyses have focused on competing drivers of vote choice, including urbanization, modernity, and post-communal political identities—as well as the distinct ethnic political landscape in East Malaysia which complicates any discussion of “the Malay vote.” Figure 6 contains a scatterplot of BN vote share by the percentage of an electoral district’s population that is *bumiputera*.

*** Figure 6 here ***

The fit is tight, both with and without East Malaysia. This suggests that while East Malaysia is likely best understood as a subnational periphery for questions of money politics and patronage, it may actually *not* be a subnational periphery for understanding the relationship between indigenous identity and support for the BN.11

In Table 5 I investigate further the extent of state-level heterogeneity in the relationship between *bumiputera* population share and BN vote share in 2013. First I estimate a simple fixed effects regression of *bumiputera* population and its square (Model 1). I then include an East Malaysian dummy and drop the fixed effects (Model 2). In Model 3 I estimate a random slope models, allowing the coefficient on *bumiputera* to vary across states. Model 4 also controls for

---

11 These are ecological correlations, and so it is not possible to make inferences about the distribution of individual support for the incumbent coalition by ethnicity. For one attempt at such an analysis, see Pepinsky (2009).
the land area of each electoral district, on the intuition that this will capture some of the competing urban-rural cleavage that has received wide attention.

*** Table 5 here ***

The random effects coefficients for Model 4 appears in Figure 7.

*** Figure 7 here ***

The pattern is abundantly clear: in states where the average level of support for the BN is high, a larger bumiputera population per electoral district is associated with more support for the BN. And while Model 2 shows that districts in East Malaysia return higher BN vote shares, this is fully explained in Model 4. Vis-à-vis other Malaysian states, the link between ethnicity and BN support in Sabah and Sarawak is not atypical.

Even recognizing that the political, social, and historical in East Malaysia is altogether different than in peninsular Malaysia, this does not complicate the general relationship between ethnicity and BN support in 2013. In fact, the subnational peripheries are actually Kelantan and Terengganu, two rural, overwhelmingly Malay, and economically backward peninsular states that are known for being the stronghold of Malaysia’s Islamist opposition. I do not address the determinants of these peninsular states’ distinctiveness here, but rather emphasize that the Sabah and Sarawak examples illustrate how standard statistical tools can—in some occasions, and for some causal questions—fully account for the challenges that potential subnational peripheries present.

The same is not true in the case of ethnic voting in Thailand. The Thai census does not record ethnicity, but it does record religion and minority language use. The version of Thai spoken among Yuan and Isan in northern and northeastern Thailand differ from standard Thai, but are not counted separately, whereas Pattani Malay, Khmer, and “hill tribe languages” are.
This makes it possible to estimate the percentage of the population which is Malay using Malay language as a proxy, but it is impossible to estimate the percentage of the population that is Isan or Yuan using the same source. Figure 8 contains maps of Thai language and religion by province based on the 2010 Thai census.

*** Figure 8 here ***

The predominance of Malays and Muslims in Thailand’s far south is immediately clear: we can identify minority-dominant regions in the south via official language statistics. The northern portions of Thailand show relatively large proportions of non-Thai speakers, but these reflect Shan, Karen, and other hill tribes. The northeast region shows smaller fractions of non-Thai speakers.

The consequence is that we can infer that the northern and northeastern regions of Thailand have relatively more Yuan and Isan, but not their distribution of these more numerous groups by province or electoral district, which is necessary for the ecological correlations shown in the Malaysian case. Regional vote returns for the 2011 Thai general elections show clear differences in the support received by Peua Thai, the successor of Thaksin Shinawatra’s disbanded Thai Rak Thai Party; see Table 6.

*** Table 6 here ***

However, beyond the very coarseness of these results, they conflate ethnicity with other determinants of Peua Thai support such as urban/rural cleavages and relative poverty, all of which varies by region as well. For this reason, the absence of subnational data on the most revealing measures of ethnicity renders the subnational comparative method infeasible for studying ethnic voting in Thailand.
Conclusion: Tensions and Solutions

By exploiting within-country variation in political outcomes, the subnational comparative method provides an indispensable framework for gaining inferential leverage on questions of general theoretical interest. However, the existence of variation is a necessary but insufficient condition for causal inference. Fortunately, practitioners of the subnational comparative method are increasingly well placed to identify subnational peripheries and the challenges that they pose. To the extent that the growing push for credible identification strategies recommends close engagement with national and regional politics to better identify research design opportunities and untapped sources of data (Malesky 2008a), subnational peripheries should not be hard to discern. This paper has provided a framework for thinking about how subnational peripheries complicate causal inference in the subnational comparative method, and has illustrated the consequences of subnational peripheries using examples from Southeast Asian politics. By way of conclusion, I discuss in this final section the tensions that arise when scholars confront subnational peripheries.

If the main inferential challenge posted by a subnational periphery is unobserved heterogeneity, then standard best practices—region fixed effects—already suffice. However, even under the best of circumstances, this strategy requires an assumption of unit homogeneity in order for fixed effect regressions to have treatment effect interpretations. Moreover, as discussed above in the case of rural electrification in Papua, fixed effects come at the expense of the goal of conceptualizing social systems in nomothetic terms. If we proceed along Przeworski and Teune’s template for comparative inquiry, or King’s directive to “attempt to demonstrate that context makes no difference whatsoever,” we should recognize that simply accounting for unobserved heterogeneity entails abandoning that goal. Multilevel modeling provides one way to
model that heterogeneity, but it relies on observables, and provides little additional insights when regional predictors are collinear or rare.

Fortunately, unobserved heterogeneity is an inferential nuisance. Unit heterogeneity, small-n problems, complex interactive causality, and nonrandom missingness are not. Each creates a barrier to inference that may be insurmountable: subnational comparisons may simply not feature enough observations, variation, or enough nonmissing data to allow inferential leverage on particular causal questions. There are three solutions these problems, but each raises its own issues. One is to redefine the population of interest in a way that excludes the subnational periphery: Indonesia except for Papua province, or Vietnam except for the South. The problem that this raises is a form of selection bias (Geddes 1990). It is not technically selection bias because population has been defined in a way that excludes the troublesome region, but the act of redefining the population in this way clearly amounts to a post-hoc adjustment. The second solution is to “increase the n” by adding additional countries into the sample—this, however, sacrifices the within-country comparability that the subnational comparative method promises. The third solution is to pair the subnational comparative method with some other inferential method, which may include process tracing or counterfactual analysis. Doing so, however, abandons the subnational comparative method. And even so, abandoning the subnational comparative method may not solve the problems that subnational peripheries raise. A researcher seeking to use qualitative field techniques to understand violence in Papua will quickly find that the same process that generates missing data in PODES 2008 also prevents him or her from gaining a close understanding “on the ground” of violence during that era.

There is still a deeper tension. Explaining the unique character of a subnational periphery—violence in Pattani, or anti-BN voting in Kelantan—is difficult to reconcile with the
logic of comparative inquiry that forms the foundation of this paper. It is an example of what Imbens and Gelman (2013) term “reverse causal inference,” which they deem incompatible with the potential outcomes framework. Recall that progress when the relationship $Y_k \perp Z_k | W_k$ does not hold requires either observing more background determinants of $Y_k$ in order to show that $Y_k \perp Z_k | W'_k$, or uncovering another cause $X$ such that $Y_k(\alpha) \perp Z_k | W_k$. It is straightforward to interpret the approaches taken throughout this paper such terms. When this fails, however—as it has in several of the causal questions tackled above—we are left with causal questions for which inference using the subnational comparative method is not possible.
Figure 1: "Potential" Subnational Peripheries in Southeast Asia

The pink shaded regions in this map are regions that may be considered subnational peripheries in the context of the causal hypotheses outlined in this paper.
Figure 2: Electrification by Province in Indonesia (2011)

This figure, based on the 2011 Village Potential Survey (PODES 2011) in Indonesia, shows the proportion of the villages in each province without access to electricity (blue) and without access to electricity as provided by the state owned energy company Perusahaan Listrik Negara (PLN) (red). Provinces are grouped by the island-group in which they are located.
Figure 3: Village Characteristics and Electrification by Indonesian Provinces (2011)

Each graph plots the empirical Bayes estimates of the random slopes and intercepts for village population, distance to village head’s office (kantor bupati), and the rural dummy as estimated from Models 2 and 4 in Table 3. Estimates for the provinces of Papua and West Papua are highlighted in red.
Figure 4: Violence by Province in Indonesia (2008)

This figure, based on the 2008 Village Potential Survey (PODES 2008) in Indonesia, shows the proportion of the villages in each province experiencing some sort of local violence (blue). It also shows the proportion of those incidents of violence for which data on the type of violence and its severity is not recorded (red). Provinces are grouped by the island-group in which they are located.
A map of historical kingdoms (c. 1200) in present-day Vietnam. The borders of contemporary Socialist Republic of Vietnam are outlined in pink. The yellow region corresponds to the territory held by the Kingdom of Champa. The green region corresponds to the region occupied by the Khmer kingdom of Chenla. The pink region corresponds to the region held by Dai Viet.
Each graph plots the percent vote share going to incumbent Barisan Nasional coalition in the 2013 Malaysian general elections. The blue points correspond to electoral districts in peninsular Malaysia, and the red points correspond to electoral districts in Sabah and Sarawak. The $x$-axis measures the percent of the population that is “indigenous” in the local context. In peninsular Malaysia this corresponds to the percent Malay, and in Sabah and Sarawak this includes non-Malay bumiputeras as well.
This graph plots the empirical Bayes estimates of the random slopes and intercepts for *bumiputera* population share by state or federal territory, using Model 4 in Table 5. Estimates for Sabah and Sarawak are highlighted in red.
Figure 8: Language and Ethnicity in Thai Census

This map shows Muslims, non-Buddhists, Malay speakers, and all speakers of non-Thai languages as a fraction of provincial population in the 2010 census (National Statistical Office 2010). 2000 census figures were used for five provinces with missing data.
<table>
<thead>
<tr>
<th></th>
<th>Sultanates</th>
<th>States without Sultanates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Malacca</td>
<td>Penang</td>
</tr>
<tr>
<td>Date of incorporation into Malaysia</td>
<td>1957</td>
<td>1957</td>
</tr>
<tr>
<td>Colonial regime</td>
<td>Federated and Unfederated Malay States</td>
<td>Straits Settlements</td>
</tr>
<tr>
<td>Geographic location</td>
<td>Malay peninsula</td>
<td>Malay peninsula</td>
</tr>
<tr>
<td>Size (km²)</td>
<td>14306 (average)</td>
<td>1652</td>
</tr>
<tr>
<td>Plurality ethnic group</td>
<td>Malay</td>
<td>Malay</td>
</tr>
</tbody>
</table>
Table 2: Interactive Causality in a Deterministic Setting

<table>
<thead>
<tr>
<th>$D_1$</th>
<th>$D_2$</th>
<th>$Y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 3: Determinants of Village Electrification (2011)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village population (ln)</td>
<td>0.07</td>
<td>0.07</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td>Distance to village head’s office (ln)</td>
<td>-0.06</td>
<td>-0.06</td>
<td>-0.06</td>
<td>-0.07</td>
</tr>
<tr>
<td></td>
<td>(-16.78)</td>
<td>(-10.66)</td>
<td>(-10.65)</td>
<td>(-11.20)</td>
</tr>
<tr>
<td>Rural dummy</td>
<td>-0.06</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td>(-7.34)</td>
<td>(-5.36)</td>
<td>(-5.37)</td>
<td>(-5.40)</td>
</tr>
<tr>
<td>Distance to Jakarta (ln)</td>
<td>--</td>
<td>--</td>
<td>-0.00</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(-0.34)</td>
<td>(-1.97)</td>
</tr>
<tr>
<td>Percent Muslim Villages</td>
<td>--</td>
<td>--</td>
<td>-0.03</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(-0.59)</td>
<td>(0.41)</td>
</tr>
<tr>
<td>Village population * Distance to Jakarta</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.01</td>
</tr>
<tr>
<td>Distance to village head’s office *</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-0.01</td>
</tr>
<tr>
<td>Distance to Jakarta</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>(-1.36)</td>
</tr>
<tr>
<td>Rural dummy * Distance to Jakarta</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>(-1.11)</td>
</tr>
<tr>
<td>Village population * Percent Muslim</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-0.02</td>
</tr>
<tr>
<td>Distance to village head’s office *</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-0.03</td>
</tr>
<tr>
<td>Percent Muslim</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>(-1.48)</td>
</tr>
<tr>
<td>Rural dummy * Percent Muslim</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0.08</td>
</tr>
<tr>
<td>Constant</td>
<td>0.57</td>
<td>0.54</td>
<td>0.54</td>
<td>0.55</td>
</tr>
<tr>
<td></td>
<td>(95.34)</td>
<td>(20.01)</td>
<td>(20.06)</td>
<td>(21.52)</td>
</tr>
<tr>
<td>Random Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St Dev[Village population (ln)]</td>
<td>--</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(-22.21)</td>
<td>(-22.21)</td>
<td>(-22.53)</td>
</tr>
<tr>
<td>St Dev[Distance to village head’s office (ln)]</td>
<td>--</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(-25.67)</td>
<td>(-25.66)</td>
<td>(-26.07)</td>
</tr>
<tr>
<td>St Dev[Rural dummy]</td>
<td>--</td>
<td>-16.24</td>
<td>-16.23</td>
<td>-16.80</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>0.15</td>
<td>0.16</td>
<td>0.14</td>
</tr>
<tr>
<td>St Dev[Constant]</td>
<td>--</td>
<td>(-14.97)</td>
<td>(-14.40)</td>
<td>(-15.62)</td>
</tr>
<tr>
<td>Corr[Village population, Distance to village head’s office]</td>
<td>--</td>
<td>-0.13</td>
<td>-0.13</td>
<td>-0.13</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(-0.70)</td>
<td>(-0.70)</td>
<td>(-0.69)</td>
</tr>
<tr>
<td>Corr[Village population, Rural dummy]</td>
<td>--</td>
<td>0.14</td>
<td>0.14</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(0.77)</td>
<td>(0.77)</td>
<td>(1.60)</td>
</tr>
<tr>
<td>Corr[Distance to village head’s office, Rural dummy]</td>
<td>--</td>
<td>-0.22</td>
<td>-0.23</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(-1.18)</td>
<td>(-1.19)</td>
<td>(-0.59)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Corr[Constant]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr[Village population, Constant]</td>
<td>--</td>
<td>-0.39</td>
<td>-0.39</td>
<td>-0.29</td>
</tr>
<tr>
<td>Corr[Distance to village head’s office, Constant]</td>
<td>--</td>
<td>(2.23)</td>
<td>(2.21)</td>
<td>(1.60)</td>
</tr>
<tr>
<td>Corr[Rural dummy, Constant]</td>
<td>--</td>
<td>0.23</td>
<td>0.21</td>
<td>0.31</td>
</tr>
<tr>
<td>St Dev[Residual]</td>
<td>--</td>
<td>(-564.52)</td>
<td>(-564.52)</td>
<td>(-564.52)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>77961</td>
</tr>
<tr>
<td>33</td>
<td>77961</td>
</tr>
<tr>
<td>33</td>
<td>77961</td>
</tr>
<tr>
<td>33</td>
<td>77961</td>
</tr>
</tbody>
</table>

T statistics appear in parentheses. Model 1 is an OLS regression with province-level fixed effects (not reported). Models 2-4 are multilevel models. Each independent variable is centered at its grand mean to facilitate interpretation.
Table 4: Roots of Insurgency in Pattani

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Isan</td>
</tr>
<tr>
<td>I Linguistic Difference</td>
<td>1</td>
</tr>
<tr>
<td>II Census Minority</td>
<td>0</td>
</tr>
<tr>
<td>III Geographic Concentration</td>
<td>1</td>
</tr>
<tr>
<td>IV Local Majority</td>
<td>1</td>
</tr>
<tr>
<td>V Religious Difference</td>
<td>0</td>
</tr>
<tr>
<td>VI Historical Kingdom</td>
<td>1</td>
</tr>
<tr>
<td>VII Neighbor Majority State</td>
<td>1</td>
</tr>
<tr>
<td>VIII Malayness</td>
<td>0</td>
</tr>
<tr>
<td>I ∩ III ∩ IV ∩ V</td>
<td>0</td>
</tr>
<tr>
<td>II ∩ III ∩ IV</td>
<td>0</td>
</tr>
<tr>
<td>V ∩ VI ∩ VII</td>
<td>0</td>
</tr>
<tr>
<td>Insurgent Violence</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 5: Determinants of BN Vote (2013)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Indigenous</td>
<td>0.45</td>
<td>0.29</td>
<td>0.49</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>(9.88)</td>
<td>(4.34)</td>
<td>(12.49)</td>
<td>(9.62)</td>
</tr>
<tr>
<td></td>
<td>-0.00</td>
<td>-0.01</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Percent Indigenous Squared</td>
<td>(-3.18)</td>
<td>(-3.82)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>East Malaysia Dummy</td>
<td>--</td>
<td>11.81</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>(3.25)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>District Land Area (ln)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1.93</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>(4.59)</td>
</tr>
<tr>
<td>Constant</td>
<td>54.23</td>
<td>53.76</td>
<td>53.30</td>
<td>54.29</td>
</tr>
<tr>
<td></td>
<td>(114.34)</td>
<td>(22.31)</td>
<td>(25.34)</td>
<td>(26.85)</td>
</tr>
<tr>
<td><strong>Random Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St Dev[Percent Indigenous]</td>
<td>--</td>
<td>--</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(-5.16)</td>
<td>(-5.97)</td>
</tr>
<tr>
<td>St Dev[Constant]</td>
<td>--</td>
<td>--</td>
<td>7.88</td>
<td>7.55</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(9.13)</td>
<td>(8.50)</td>
</tr>
<tr>
<td>Corr[Percent Indigenous, Constant]</td>
<td>--</td>
<td>--</td>
<td>1.14</td>
<td>1.71</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(2.26)</td>
<td>(2.46)</td>
</tr>
<tr>
<td>St Dev[Residual]</td>
<td>--</td>
<td>--</td>
<td>6.82</td>
<td>6.57</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>(37.95)</td>
<td>(36.96)</td>
</tr>
<tr>
<td>States and Federal Territories</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Electoral Districts</td>
<td>221</td>
<td>221</td>
<td>221</td>
<td>221</td>
</tr>
</tbody>
</table>

T statistics appear in parentheses. Model 1 is an OLS regression with state-level fixed effects (not reported). Model 2 is an OLS regression without fixed effects and a dummy for East Malaysia. Models 3-4 are multilevel models. Each independent variable is centered at its grand mean to facilitate interpretation.
Table 6: Party Results by Thai Region (2011)

<table>
<thead>
<tr>
<th>Party</th>
<th>Bangkok</th>
<th>Central</th>
<th>North</th>
<th>Northeast</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puea Thai</td>
<td>10</td>
<td>41</td>
<td>49</td>
<td>104</td>
<td>0</td>
</tr>
<tr>
<td>Democrats</td>
<td>23</td>
<td>25</td>
<td>13</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>Bhum Jai Thai</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Chat Thai Pattana</td>
<td>0</td>
<td>11</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>96</td>
<td>67</td>
<td>126</td>
<td>53</td>
</tr>
</tbody>
</table>

Source: Whelan and Lidauer (2011: 87)
References


