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The Currency of Violence: Applying Sociological Knowledge to the Modelling of Political Violence

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Abstract

This paper explores the process of how sociological knowledge can be usefully applied in the development of a mathematical model of social phenomena. Specifically, it explores issues of translating sociological theory for the purposes of modelling and establishing the conceptual links necessary to achieve interdisciplinary understanding of political violence. The paper begins by describing the literature on violence in the Southern Philippines, focusing on Eric Gutierrez's (2000) typology of violence. Second, it discusses social modelling as an interdisciplinary practice, including our reinterpretation of Gutierrez' work into a conceptual scheme and how sociological theory might

contribute to the development of a mathematical model based on this scheme. The paper concludes by discussing sociology's contribution to interdisciplinary social modelling.

The discussion of interdisciplinary collaboration exemplifies how applied sociological knowledge can be appropriated for different audiences and in a variety of working contexts. This paper argues that social models which integrate sociological theories and concepts present an opportunity for people who are not social scientists to better understand the structural processes that might influence political violence.

Keywords: sociology as a discipline, crime and governance, economic, science and technology, power and inequality.

Introduction

Thomas Fararo (2000) argues that sociological theory proposes three types of social models of social structure. *Representation* refers to a theoretical paradigm that describes the broad principles of scientific knowledge about society. *Idealisation* is a more specific abstraction of social reality, such as a typology. *Approximation* is a quantification of the formal properties of a conceptual scheme that explores the relations, causes or consequences of social processes (see also Coleman 1964: 431). Although quantified social models can be developed using a variety of scientific applications, this paper focuses on *interdisciplinary social modelling* that applies computational methods and mathematical techniques in the analysis of social processes and human behaviour (Resnyansky 2008: 28).

James Coleman argues that, while researchers can never model ‘true’ social reality, mathematical language can act as a representation of social theories about the real world. He warns, however, that the ‘extraordinary complexity of structures of relations between people makes the task of developing measures for them a difficult one’ (1964: 430). In order for quantification of society to be a useful scientific endeavour, Coleman argues that the social concepts being represented and the causal relations being tested should be explicated using relevant social theory. This might seem a moot point for sociologists, but this is not the case for interdisciplinary teams that work with multiple (often disparate) representations of an ontological object that is guided by their individual scientific epistemologies (see also Resnyansky 2008: 21). Resnyansky (2008) argues that integrating social-scientific theories in the design of social models requires a

iterative relationship to knowledge production: both modellers and social scientists must educate one another about their epistemological approaches. They exchange information and expertise in mutual dependency in order to translate, transform and incorporate their individual scientific knowledge into one product (the social model).

This paper explores the process of translating sociological knowledge for the purposes of building a social model of political violence. The paper begins by describing the literature on violence in the Southern Philippines. Second, it discusses social modelling as an interdisciplinary practice, including how sociological theory might contribute to the development of a conceptual ontology of political violence that can be later represented as a mathematical model.

We argue that social modelling which integrates applied sociological knowledge provides an opportunity for different audiences to rethink their assumptions about political violence in the Southern Philippines. Specifically, social models act as analytical tools that allow practitioners who are not social scientists to better understand the structural processes that might influence political violence.

Violence in the Southern Philippines

Unlike the rest of the Philippines, which is a Christian-majority country, the Autonomous Region of Muslim Mindanao (ARMM) is predominantly populated by Muslims. There is ongoing socio-economic stratification in the ARMM, including land disputes between various interest groups (such as farmers and elite families), as well as armed conflict and

secessionism against the Philippines government (Fegan 1993; Gutierrez and Borrás 2004; McKenna 1998). Various groups in the ARMM use physical force and psychological terror in order to achieve political objectives, a process known as *political violence*. This includes groups that seek to strengthen Islamic institutions, such as The Moro National Liberation Front (MNLF), The Moro Islamic Liberation Front (MILF) and The Abu Sayyaf Group (ASG) (McKenna 1998; Wolters 2002). Their violent tactics are carried out in defence of Islam, and yet religious leaders denounce the tactics. Brian Fegan (1993) argues that the ASG in particular can be thought of as ‘entrepreneurs of violence’ whose defining characteristic is their ability to manipulate conflicts and to use brute force for multiple causes, ends and allegiances.

Using Fegan’s work, Gutierrez maps a typology of five types of violence perpetrated in the ARMM, in order to explain why groups such as the ASG continue to flourish and receive local support, where other groups such as the MNLF and MILF receive relatively less support (2000: 354-358). He notes that these categories are for analytical purposes only, because in many cases violence in this region is difficult to categorise (2000: 356). The types are:

1. *Random, spontaneous violence*: this refers to conflicts arising from land entitlement disputes at the inter-personal level, as well as ‘typical frontier violence’, including petty crime that occurs in areas where policing and governance is ineffective. Gutierrez writes: ‘Under this condition, it is up to the settlers or natives to provide for their own security’ (2000: 355).

2. *Organised and syndicated violence*: this form of violence is often led by a strongman or warlord (2000: 356). This type is characteristic of vigilante groups, private armies or by gangs that are left unchecked by higher forces of social control. This form of violence takes form when the first type of violence has proliferated in society and it signifies an attempt to forcefully reclaim authority and control over local territories.
3. *Revolutionary and political violence*: this is a more sophisticated version of the second type of violence and it is characterised by its discourse of Islamic unification and sovereignty (2000: 356). These groups publicly declare their acts of violence to be legitimate and justified through ideological rationalisations. This category is exemplified by the MILF and MNLF.
4. *Vigilante-type violence initiated and organised by the state*: this refers to instances of violence where the Philippines military covertly supports and sustains armed militia and vigilante groups, in exchange for cooperation or material goods. For example, the military may sometimes support kidnapping and profiteering (2000: 356-357).
5. *New type of violence (entrepreneurs of violence)*: This type of violence emerges due to violent struggles for political power, and they are enacted as turf wars, lucrative moneymaking rackets, smuggling, illegal logging and kidnapping (2000: 357). Acts of violence are centred on a localised competition for authority in a region where political leadership is weak or corrupt, and where a revolutionary social movement has failed to develop a unified symbol under which armed men can rally together. This violence type is exemplified by the ASG.

Gutierrez sees that all of these violence types co-exist and often co-operate, so that the existing status-quo is maintained (2000: 357). He argues that the entrepreneurs of violence (EV) use violence as a form of social capital – they gain not only money through their enterprise of kidnapping and piracy, but also the *galang* or respect of other groups. This accords them social power that allows them to form alliances with other insurgent groups, the military, and elite families with a stake in local politics, all of whom elicit the EV's skills to serve their various political aims (2000: 358-359).

Gutierrez's typology has intrinsic scientific value. It already signifies a formal social model (an idealisation), because it classifies different forms of violence which are, in reality, amorphous and chaotic. The EV's 'success' in exchanging violence as a form of social and economic capital under the current social context poses questions about how things might be different if the social structures changed. The typology is useful, but its application is somewhat limited for practitioners, particularly for those who are not social scientists, considering questions such as how the supremacy of the EV might be challenged if the social conditions were different.

The purpose of building a social model based on Gutierrez's (2000) typology is to allow practitioners to rethink their assumptions about political violence, particularly the notion that it is motivated by religious ideology, rather than structural processes and specific material conditions. The aim is not to represent the 'reality' of the people living in Jolo or to predict their behaviour, but rather to create a simulated analytical environment to

explore different social dynamics that might contribute to the patterns of violence in the Southern Philippines.

The following section details how we used Gutierrez's (2000) typology as a conceptual framework that will later inform an interdisciplinary social model.

The conceptual framework

Knowledge about society is complex; the purpose of representing social phenomena in a social model is to simplify particular social processes for specific analytical aims – in this case, to capture sociological knowledge about Jolo for interdisciplinary practice. In order to build a conceptual framework for the model, we begin by redefining Gutierrez's (2000) typology for our modelling purposes using social theory. Second, we decide on the 'objects' (or constructs) that will populate the model. Should we model individuals, groups or an entire society? Next, we formalise how the model will work. How do the objects interact and what causes them to change their behaviour? What are the specific social processes that drive the model?

First, we apply an appropriate theoretical framework that will help us to redefine Gutierrez's (2000) typology. Social behaviour might be explained through different sociological theories, depending on the analytical focus of the researcher. This may be on *social facts* (issues of social structure); *social behaviour* (group social transactions); or *social definition* (individual subjective reality) (Ritzer 2005: 543). Gutierrez's (2000) typology suggests that violence patterns are dictated by self-interest (some individuals

use violence in order to accumulate more economic and social capital). Gutierrez's work provides no data about subjectivity, but, to the sociologist, it does highlight the societal conditions that contribute to political violence. Sociology might therefore redescribe these patterns of violence as a *social process* that perpetuates social stratification among different interest groups. In this light, rather than focusing on self-interested actors, the focus is on the structural consequences of political violence on social organisation. The typology might therefore be seen to position each violence type as providing a social service that is traded in response to economic and political institutions.

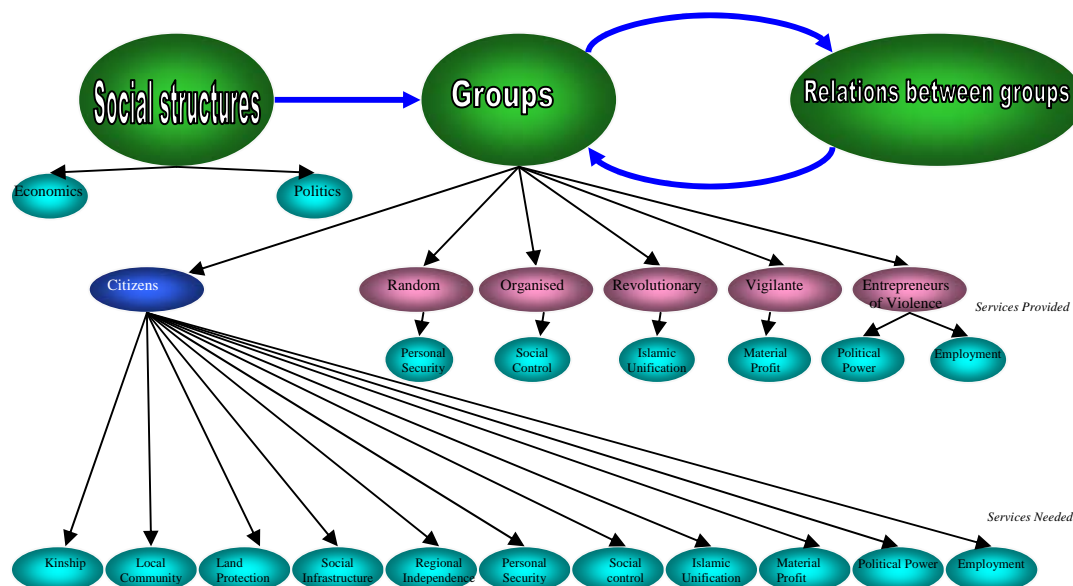
Second, in order to 'transform' Gutierrez's (2000) ideal types into 'objects' of approximation/quantification, we reinterpret their essential characteristics using a political-economic structural framework. While all five types use violence, our reinterpretation of Gutierrez's typology suggests that they are distinguished by the primary service that they embody in relation to political and economic structures at the societal level. The random violence type describes a way to achieve *personal security* where the institution of politics is weak. The organised violence type describes a way to achieve *low-level social control* at the local level where the institution of politics is weak. The revolutionary violence type describes a way to achieve *Islamic unification* among Muslims where the institution of politics is weak. The vigilante violence type describes a way to accumulate *short-term material profit* where the institutions of the economy and politics are weak. The EV provide both *political power* and *illegal employment* where the institutions of the economy and politics are weak.

Reframing Gutierrez's typology as a network of social exchange sees that each violence type provides a social service that is not adequately met by existing social institutions. The objects of our model are therefore groups: the violence types become *violence groups* (random, organised, revolutionary, vigilante and EV), and the ordinary citizens of Jolo will also be represented as a group. We aim to model the service provision of violence to ordinary citizens as the outcome of group interaction and social structures. Our research question is therefore: under what structural conditions might each of the violence types' services be in more or less demand?

Third, we formalise the social processes and the characteristics (or *states*) which affect the interactions between the groups. Given that we cannot include the full complexity of society within a social model, there are restrictions on the social processes that we might capture. We have negotiated these restrictions through debate and discussion about the literature and our individual scientific approaches. Our conceptual framework is the outcome of this negotiation, and it signifies our interdisciplinary ontology of political violence.

The figure below represents the three central processes of our conceptual model – structural, group and relational – which we will now go on to describe.

Figure 1: Visual representation of the conceptual framework: Violence as the outcome of social structure



This conceptual model acts as a scheme of approximation, because it specifies the formal properties that will be later quantified using mathematics (cf. Fararo 2000). The *structural* process includes two social institutions – the economy and politics, which affects the violence groups, ordinary citizens, and their relations. The states of these two social institutions range from a ‘very weak’ to a ‘very strong’ *institutional support to the citizens*. For example, where the institutions of the economy and politics are weak, the employment prospects of the citizens are affected. There is therefore a higher likelihood that ordinary citizens will require the services of one or more of the violence groups (in this case, the vigilantes and EV).

The *groups* are violence groups and citizens. The states of the violence groups range from a ‘very weak’ to a ‘very strong’ *service provision*, and their services are as detailed

earlier. (For example, the EV group provides political power and illegal employment.) The violence groups may or may not be able to provide their unique service, depending upon the extent to which the structural processes are meeting the citizens' needs.

The ordinary citizens will need a range of services at different times. The states of the ordinary citizens range from a 'very weak' to a 'very strong' *service need*, depending upon how the structural processes impact their living circumstances. These needs reflect the key structural issues that affect the citizens of Jolo, as identified in the literature (including Gutierrez's work): upholding kinship obligations, maintaining local community customs, land protection, social infrastructure, regional independence, personal security, local-level social control, Islamic unification, material profit, employment, and political power (for example see Fegan 1993; Gutierrez 2000; Gutierrez and Borras 2004; McKenna 1998, Wolters 2002).

The *relational* process represents the strength of the interdependent social relations between the violence groups and the ordinary citizens. This process is dynamic: the ordinary citizens need a range of services and the violence groups can each provide a specific service that reflects the citizens' requirements. The states of the relational process range from a 'very weak' to a 'very strong' *relationship*. When a violence group is unable to meet the citizens' requirements due to structural processes, their relationship to the ordinary citizens is weakened. In turn, the ordinary citizens' relationship with that service provider is also weakened. The relational process applies to all the possible reiterative relationship combinations, because all relations go both ways. The citizens

will have a relation with the random group; random to citizens; citizens to organised; organised to citizens; and so on.

We are currently in the process of representing the conceptual framework we have outlined as a formal mathematical model using stochastic modelling techniques. This will enable us to use probability theory to test different scenarios of political violence in Jolo. It is important to continue this formalisation as a reiterative process. The mathematical structure and the parameters of the model need to be informed by sociological theory, in order to adequately represent the complex social dynamics that influence political violence. The outcomes will therefore have to be tested against sociological knowledge: it is necessary to know if the results support sociological theory about political violence. If not, why might this be? Validation of the model against social theory amounts to a separate, and intricate, research task.

In order to give the sociological audience an idea of what the formal model may look like, we present an equation that we have devised, which redescribes the relational process of our model (how the groups interact) using mathematical language. We do not present this as a final model, because this would require engaging with mathematical theory, which is beyond the scope of this paper. Additionally, we do not define the mathematical properties in detail but, rather, we discuss the equation more generally, to emphasise the difficulty of navigating our interacting fields of knowledge.

Figure 2: An example of the relations process redescribed as a mathematical formula

$$q_{\sigma_{n_1, n_2} \sigma_{n_1, n_2}} = \frac{1}{N} \exp \left(- \sum_{l \in \text{Society}} \frac{1}{2\beta_l^2} (\bar{\sigma}_{n_1, n_2} - \sigma_l)^2 - \sum_{k \in \text{Group}} \frac{1}{2\beta_k^2} (\bar{\sigma}_{n_1, n_2} - \sigma_k)^2 - \sum_{i, j \in \text{Rel}} \frac{1}{2\beta_{ij}^2} (\bar{\sigma}_{n_1, n_2} - \sigma_{n_1, n_j})^2 \right)$$

This equation aims to express the probability of transitioning from the current relational state between two entities into a new state. For example, suppose that the entities are groups (citizens and the revolutionary group): if we consider that their relationship is currently weak, this equation will define what the probability may be of the groups transitioning to a stronger relationship. The three terms (mathematical premises) in the equation will help us to quantitatively postulate how different types of social relations might influence political violence. In this case, we might think about how the three processes (structural, group and relational) influence this probability.

The first term $\sum_{l \in \text{Society}} \frac{1}{2\beta_l^2} (\bar{\sigma}_{n_1, n_2} - \sigma_l)^2$ aims to explore how the relational process depends on the structural process. For example, a relation between the citizens and the revolutionary group is likely to become stronger if politics is weak. Sociological theory is needed to quantify how politics affects social interaction.

The second term $\sum_{k \in \text{Group}} \frac{1}{2\beta_k^2} (\bar{\sigma}_{n_1, n_2} - \sigma_k)^2$ seeks to explain how the relational process depends upon the group process. For example, if Islamic unification is required by the citizens, then they might forge a stronger relationship with the revolutionary group.

Sociology must quantify how Islamic unification and the strength of the relationship with the revolutionary group should be correlated.

The final term $\sum_{i,j \in \text{Rel}} \frac{1}{2\beta_{ij}^2} (\bar{\sigma}_{n_1, n_2} - \sigma_{n_1, n_j})^2$ might examine how the relational process is likely to be reciprocal, given the structural process. That is, if the citizens want to maintain a weak relationship with the revolutionary group, but the political structure becomes weaker, it is likely that the citizens will come to need the service of the revolutionary group. This strengthens the citizens' relationship to the revolutionary group, but does this mean that the revolutionary group will form a stronger relationship with the citizens? The strength of reciprocity will be based on what sociological theory tells us about the effect of political forces on social action.

The next step in our research is to formulate the complete mathematical model that incorporates sociological theory on how the structures of economy and politics might affect the social interaction between the different social groups described in our conceptual framework.

Conclusion

Interdisciplinary collaboration is a slow, difficult but rewarding scientific process that requires the development of a shared 'working' ontology, given that achieving mutual understanding of the same concepts necessitates ongoing education. The conceptual scheme we presented signifies our collaborative ontology. Sociology's contribution to

interdisciplinary social modelling is in helping social modellers to adopt a more critical approach in their representations of societies. Equally, social scientists need to work closely together with social modellers on practical 'translations' of social theory.

Interdisciplinary modelling that incorporates sociological concepts and theories stimulate analysis and debate among practitioners who are not trained in social science, by allowing them to better understand social processes that they might not otherwise have considered or understood in their abstract form. Models that use mathematical methods as a way to explore social processes exemplify how applied sociological knowledge is both relevant and useful to different audiences and in a variety of working contexts.

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