

Using Generalized AI to Reanalyze Viterna's Study of Women's Mobilization into the Salvadoran Guerrilla Army

Jocelyn Viterna (2006) applies key principles of generalized AI in her pathbreaking study of women's mobilization as FMLN guerrillas in the Salvadoran Civil War (1980–92). Viterna distinguishes five different outcomes—three distinct paths to guerrilla activism (politicized, reluctant, and recruited) and two non-guerrilla paths (collaborators and nonparticipants). Rather than define the analysis as a binary contrast between the three guerrilla paths versus the two non-guerrilla paths, she focuses instead on the separate conditions linked to each of the five outcomes. In other words, she views each of the five outcomes as worthy of separate analytic attention and avoids conventional dichotomization of the outcome as “guerrilla versus non-guerrilla.” This feature of her study aligns well with generalized AI as described in this book.

A respondent is categorized as a guerrilla if she “lived and worked in or alongside an FMLN guerrilla camp as a primary, permanent residence . . . for at least six months” (Viterna 2006: 16). The thirty-eight respondents classified as politicized, reluctant, or recruited guerrillas (the three paths to guerrilla activism) all met this criterion. *Politicized* guerrillas ($N = 7$) were motivated to join the guerrillas by their opposition to the Salvadoran government. *Reluctant* guerrillas ($N = 14$) joined the guerrillas following a crisis, and typically faced an absence of viable alternatives to joining the guerrilla camps. *Recruited* guerrillas ($N = 17$) were residents of refugee camps who were persuaded to join the guerrillas by members of the FMLN. Collaborators ($N = 12$), by contrast, “maintained a household as a primary residence, but held a formally defined role of support for the guerrilla camp.” Finally, non-participants ($N = 32$) “maintained a household as a primary residence and did not hold any formal positions of support for the guerrillas” (2006: 16).

TABLE 8-1 Conditions relevant to guerrillas

Condition (name)	Description	Measurement
Previous organizational involvement (previnv)	Participated in a political or religious organization advocating reform (predating FMLN mobilization)	yes = 1, no = 0
Family ties (activefam)	Had FMLN family member(s), predating or simultaneous with FMLN mobilization	yes = 1, no = 0
Refugee/repopulated community (rcamp)	Lived in a refugee camp or repopulated community at moment of FMLN mobilization	yes = 1, no = 0
Motherhood (mother)	Had children at moment of FMLN mobilization	yes = 1, no = 0
Family completeness (complete)	Either with parents or partner at moment of FMLN mobilization	yes = 1, no = 0
Age (young)	Age at FMLN mobilization	7-17 years = 1, 18+ years = 0
Mobilization period (early)	FMLN mobilization occurred early or late	1980-83 = 1, 1985-91 = 0

TABLE 8-2 Conditions relevant to collaborators and nonparticipants

Condition (name)	Description	Measurement
Previous organizational involvement (previnv)	Participated in a political or religious organization advocating reform, prior to or during the war	yes = 1, no = 0
Family ties (activefam)	Had FMLN family member(s), prior to or during the war	yes = 1, no = 0
Refugee/repopulated community (rcamp)	Lived in a refugee camp or repopulated community at some point during the war	yes = 1, no = 0
Motherhood (mother)	Had children prior to or during the war	yes = 1, no = 0
Family completeness (complete)	Had either parents or partner during the entire length of the war	yes = 1, no = 0

Tables 8-1 and 8-2 list the background conditions Viterna used in her five analyses. The conditions differ for guerrillas and non-guerrillas. Not only are some conditions not relevant to non-guerrillas (e.g., regarding the timing of becoming a guerrilla), but there are also differences in contexts. For example, “motherhood” for guerrillas refers to the period prior to mobilization as guerrillas, while for non-guerrillas it refers to the condition of motherhood at any point prior to or during the civil war. More generally, it is important to point out that when researchers study multiple outcomes, it is not unusual for the relevant antecedent conditions to differ, sometimes substantially, across outcomes.

TABLE 8-3 Tabular data on politicized guerrillas

name	young	early	mother	complete	rcamp	preinv	activefam
Vilma	1	1	0	1	0	1	1
Alicia	1	1	0	1	0	1	1
Estela	1	1	0	1	0	1	1
Pati	0	1	1	1	0	1	1
Zoila	0	0	1	1	0	1	1
Gregoria	1	1	0	1	0	1	0
Gloria	1	1	0	0	0	1	0

TABLE 8-4 Data on politicized guerrillas converted to recipes

young	early	mother	preinv	activefam	<i>N</i>
1	1	0	1	1	3
1	1	0	1	-	2

POLITICIZED GUERRILLAS

Table 8-3 summarizes the tabular data that Viterna presents on the seven guerrillas she classifies as “politicized.” She states that these guerrillas were pulled into participation by their strongly held beliefs in the political causes of the FMLN (Viterna 2006: 20). This connection is reflected in the fact that all seven politicized guerrillas described previous involvement in organizations advocating reform (preinv) and explained their recruitment to the FMLN movement through these networks. Viterna also notes that five of the seven politicized guerrillas had family members who were active in the FMLN—another network connection (activefam). However, she describes the biographical details of the seven guerrillas as varied.

Using generalized AI, it is possible to examine combinations of background and network conditions and thereby to identify “modal configurations”—widely shared combinations of conditions. For this analysis two conditions, rcamp and complete, are not used because the data on these two conditions is inconsistent with substantive and theoretical expectations. Refugee camps (rcamp) offer a networking venue, but rcamp = 0 for all politicized guerrillas. Having a complete family (complete) is expected to hinder mobilization, but six out of seven politicized guerrillas have complete = 1.

Table 8-4 presents the conversion of table 8-3 into causal recipes, accomplished in three steps. First, cases are sorted into rows based on their profiles. Second, dichotomized conditions are transformed from “present versus absent” codings to “contributing versus irrelevant.” The revised codings are based on substantive and

theoretical knowledge. For example, the *absence* of family members active in the FMLN is not considered a condition that contributes to joining the FMLN. Dashes are used in the table to indicate irrelevance (see chapter 6). Third, low-frequency combinations ($N < 2$) are dropped from the table, a step that is motivated by the focus on widely shared combinations of antecedent conditions.

The two recipes shown in table 8-4 can be reduced to one, because the first recipe is a logical subset of the second. Joining these two rows yields a single recipe covering five of the seven cases (71.4 percent). The modal configuration for politicized guerrillas is

previnv•young•early•~mother → politicized

Here and below, an arrow indicates the superset/subset relation, a multiplication sign indicates logical *and* (combined conditions), and a tilde indicates *not* (set negation). In other words, the modal politicized guerrilla was a young woman, not yet a mother, who—based on her prior involvement in oppositional organizations—joined the FMLN during the early years of the struggle.

RELUCTANT GUERRILLAS

Table 8-5 summarizes Viterna's tabular data on the fourteen reluctant guerrillas included in her sample. These women joined and worked in the guerrilla camps because they had no other option. Each woman faced a life-threatening crisis in the early, more violent years of the war and was unable to escape to a refugee camp. Many had family members who were active in the FMLN, which may have facilitated their absorption into the guerrilla camps. The conditions listed in table 8-5 provide several important leads for specifying modal combinations. Most reluctant guerrillas joined the guerrilla camps during the early years of the war (early); most did not have the resources of a complete family (complete); by definition, none of the reluctant guerrillas resided in refugee camps (rcamp); and many had family members active in the FMLN (activefam).

Table 8-6 summarizes the conversion of the tabular data, just described, into recipes. Again, there are three steps: (1) sorting the cases according to their profiles of conditions; (2) converting "presence versus absence" conditions into "contributing versus irrelevant" conditions, based on substantive and theoretical knowledge; and (3) deleting low-frequency recipes ($N < 2$). The two final recipes are listed in table 8-6. The first listed recipe is a logical subset of the second. Thus, the table reduces to a single modal configuration. Note that the fourteen reluctant guerrillas all experienced life-threatening crises, which should be considered part of the modal configuration, even though it is not listed by Viterna as a condition in her tabular data:

early•~rcamp•activefam (•crisis) → reluctant

This combination embraces eleven of the fourteen reluctant guerrillas, a coverage of 78.6 percent. The recipe reflects that these women became guerrillas, reluctantly,

TABLE 8-5 Tabular data on reluctant guerrillas

name	young	early	mother	complete	rcamp	previnv	activefam
Julia	1	1	0	0	0	0	1
Claudia	1	1	0	0	0	0	1
Maria	1	1	0	0	0	0	1
Yenifer	1	1	0	0	0	1	1
Blanca	1	1	0	1	0	0	1
Juana	0	0	1	0	0	1	1
Gladis	0	1	1	0	0	1	1
Lulu	0	1	1	0	0	1	1
Angela	0	1	1	0	0	1	1
Margarita	0	1	1	1	0	1	1
Mirna	0	1	1	0	0	0	1
Rosmaria	0	1	1	0	0	0	1
Yaniris	0	1	1	0	0	0	0
Andrea	0	1	1	1	0	0	0

TABLE 8-6 Data on reluctant guerrillas converted to recipes

early	complete	rcamp	activefam	number
1	0	0	1	9
1	-	0	1	2

in the early, more violent years of the war, were unable to take shelter in the refugee camps, and often relied on family members who were active in the FMLN.

RECRUITED GUERRILLAS

In the later period of the war, FMLN activists visited the refugee camps in a concerted effort to recruit women to become guerrillas. Viterna (2006: 31) notes that the women “were not invited to participate because they shared common ideologies with the guerrillas, but rather were identified by their perceived biographical availability.” Recruiters targeted young, childless women, who had “incomplete” families. These women had fewer barriers to participation (2006: 30) and were seen as prime candidates for recruitment. Table 8-7 summarizes Viterna’s tabular data on the seventeen recruited guerrillas included in her sample. The commonalities shared by the seventeen recruited guerrillas reflect the fact that the recruiters had a specific profile in mind: most were young, most were recruited during the second phase of the war, most were not mothers, most lived in refugee camps, and most had family members active in the FMLN.

TABLE 8-7 Tabular data on recruited guerrillas

name	young	early	mother	complete	rcamp	previnv	activefam
Marlene	1	0	0	0	1	0	1
Rebecca	1	0	0	1	1	0	1
Elsy	1	0	0	0	1	0	1
Bellini	1	0	0	0	1	0	1
Minta	1	0	0	0	1	1	1
Sury	1	0	0	0	1	1	1
Aracely	1	0	0	0	1	0	0
Candelaria	1	0	0	1	1	0	1
Leonora	1	0	0	0	0	0	1
Marta	1	0	0	0	1	0	1
Lorena	1	0	0	0	1	0	1
Dolores	1	0	0	0	1	0	1
Lupe	1	0	0	0	1	0	1
Amarenta	1	0	0	0	1	0	0
Magaly	1	0	0	0	1	0	1
Yamileth	1	0	0	0	1	0	0
Rosa	0	1	1	1	1	0	1

TABLE 8-8 Data on recruited guerrillas converted to recipes

young	early	mother	complete	rcamp	activefam	number
1	0	0	0	1	1	10
1	0	0	0	1	-	3
1	0	0	-	1	1	2

Table 8-8 summarizes the conversion of the tabular data, just described, into recipes. As with politicized and reluctant guerrillas, there are three steps to the conversion: (1) sorting the cases according to their profiles of conditions; (2) converting “presence versus absence” conditions into “contributing versus irrelevant” conditions, based on substantive and theoretical knowledge; and (3) deleting low-frequency recipes ($N < 2$). The three final recipes are listed in table 8-8. The first listed recipe is a logical subset of the second and also of the third, which reduces the number of recipes to two. The two remaining recipes are almost identical. One is $\text{young} \bullet \sim \text{early} \bullet \sim \text{mother} \bullet \text{rcamp} \bullet \sim \text{complete}$; the other is $\text{young} \bullet \sim \text{early} \bullet \sim \text{mother} \bullet \text{rcamp} \bullet \text{activefam}$. They differ on only one condition each ($\sim \text{complete}$ vs. activefam). These two conditions can be seen as “substitutable” (see chapter 7) because

TABLE 8-9 Tabular data on collaborators

name	mother	complete	rcamp	preinv	activefam
Francesca	1	0	1	0	1
Eva	1	0	1	1	1
Susana	1	0	0	1	1
Tina	1	0	0	0	1
Griselda	1	0	0	0	1
Lisa	1	1	1	1	1
Nina	1	1	0	1	1
Nela	0	1	1	1	1
Celestina	0	1	0	0	1
Marina	0	1	0	0	1
Magdalena	0	1	0	1	1
Deisy	0	0	0	0	0

they both refer to family contexts that support recruitment to the guerrilla cause. Thus, the table can be reduced to a single modal configuration:

$$\text{young} \bullet \sim \text{early} \bullet \sim \text{mother} \bullet \text{rcamp} \bullet (\sim \text{complete} + \text{activefam}) \rightarrow \text{recruited}$$

Here and below, the plus sign indicates alternate conditions (logical *or*). This modal configuration embraces fifteen of the seventeen recruited guerrillas, a coverage of 88.2 percent.

COLLABORATORS

Collaborators were women who took on the risk of having a defined support role for the guerrillas, but who maintained a primary place of residence away from the camps. Their shared characteristics were few. Viterna describes two main types of collaborators: (1) mothers with incomplete families (typically, a single mother with young children) and (2) young non-mothers living with complete families (typically, both parents). Table 8-9 presents Viterna’s tabular data on collaborators. A few in both groups (mothers versus non-mothers) experienced living in refugee camps (rcamps), and a few in both groups had previous involvement in organizations advocating reform (preinv). The only widely shared condition, however, is having family members active in the FMLN.

Table 8-10 summarizes the conversion of the tabular data, just described, into recipes. As with the other analyses, there are three steps to the conversion, described previously. However, a different cutoff value was used to identify low-frequency rows ($N < 3$), in order to better represent Viterna’s account of the

TABLE 8-10 Data on collaborators converted to recipes

mother	complete	activefam	N
1	0	1	5
0	1	1	4

conditions relevant to collaborators. The first recipe is specific to mothers with incomplete families (\sim complete); the second recipe is specific to young non-mothers residing with complete families. Having FMLN-active family members is central to both groups. The two groups can be joined using logical *or*, yielding

$$\text{activefam} \bullet (\text{mother} \bullet \sim \text{complete} + \sim \text{mother} \bullet \text{complete}) \rightarrow \text{collaborators}$$

Note that the two pairs of conditions joined by logical *or* (plus sign) both involve family situations that posed obstacles to joining the guerrilla camps (single mothers or uncooperative parents). The recipe covers nine of the twelve collaborators, which is a coverage of 75.0 percent.

NONPARTICIPANTS

Nonparticipants constitute a large and heterogeneous subset of Viterna's data. In some respects, the diversity of nonparticipant cases confirms the discussion of "heterogeneous complements" presented in chapter 4. Cases that are united only by their failure to exhibit the focal outcome (or any one of several focal outcomes, as in Viterna's study) are likely to be heterogeneous. While it may be possible to determine the types of things that "happened instead" of the focal outcomes, it is often either difficult to do so or simply not a priority, given the primary goal of explaining cases with the focal outcomes. In her brief discussion of nonparticipants, Viterna (2006: 35) focuses on what nonparticipants generally lacked: "Unlike politicized guerrillas, few nonparticipants took part in previous political organizations. Unlike reluctant guerrillas, most nonparticipants with crises had the necessary resources to reach a refugee camp. . . . Unlike recruited guerrillas, most nonparticipants living in refugee camps had a complete family and did not have a history of political involvement."

Delving into the various fates of the thirty-two nonparticipants would have constituted an entirely different investigation, well beyond the scope of Viterna's study. For example, from time to time, some of the nonparticipants collaborated with the guerrillas, but without taking on a formal support role. Others avoided such risks altogether. Some fled to refugee camps in San Salvador, far from the front line of the civil war, and so on.

Still, it is useful to identify general patterns in the data. Viterna's tabular data on the thirty-two nonparticipants is presented in table 8-11. The most striking finding is the widespread absence of previous involvement with political or religious

TABLE 8-11 Tabular data on nonparticipants

name	mother	complete	rcamp	previnv	activefam
Perona	1	1	1	0	1
Prudencia	1	1	1	0	1
Teresa	1	1	1	0	0
Clara	1	0	1	0	1
Virginia	1	0	1	0	1
Elena	1	0	1	0	1
Ines	1	0	1	0	1
Norma	1	0	0	0	1
Nidia	1	1	0	0	1
Flor	1	1	0	1	0
Erlinda	1	0	0	0	1
Morena	1	1	1	0	1
Olga	1	1	1	0	1
Daniela	1	1	1	0	1
Cornelia	1	1	1	0	1
Gilda	1	0	1	0	1
Isabela	1	0	1	0	1
Dorotea	1	1	0	0	0
Doti	1	0	0	0	0
Lola	1	0	0	0	0
Monica	0	1	1	0	1
Feliciana	0	1	1	0	1
Adela	0	0	1	0	1
Concepcion	0	0	1	0	1
Vicenta	0	0	1	0	1
Orbelina	0	0	1	0	1
Ancelma	0	0	1	0	1
Alejandra	0	0	1	0	1
Dina	0	0	1	0	1
Nicolasa	0	0	0	0	1
Dora	0	1	0	0	0
Gabriela	0	0	0	0	0

TABLE 8-12 Data on nonparticipants converted to recipes

mother	rcamp	previnv	number
1	1	0	13
-	1	0	9
1	-	0	6

reform organizations (previnv). Also noteworthy is the high proportion of mothers, a biographical factor known to pose major obstacles to participation. Furthermore, many nonparticipants fled to the safety of the refugee camps, including camps in the capital city San Salvador.

Table 8-12 summarizes the conversion of Viterna's tabular data into recipes. As described previously, there are three steps to the conversion. The cutoff value for low-frequency rows was $N < 4$. The first recipe is a logical subset of the other two recipes. The second and third recipes can be joined using logical *or*, yielding

$$\sim\text{previnv} \cdot (\text{mother} + \text{rcamp}) \rightarrow \text{nonparticipant}$$

The recipe covers twenty-eight of the thirty-two nonparticipants (87.5 percent). It indicates that a lack of previous involvement with reform organizations is the main driver of nonparticipation, especially when combined with a biographical obstacle (i.e., motherhood) or an overarching concern for safety (residence in a refugee camp).

CONCLUSION

Viterna's study of Salvadoran women offers a useful platform for a demonstration of generalized AI. Viterna posits substantial diversity in the outcomes she studies and does not let the guerrilla/non-guerrilla dichotomy straitjacket her analysis. She delineates sharp distinctions among the guerrillas, ranging from those who joined on the basis of prior political commitments, to those who had little or no choice but to join, to those who were recruited. Among the non-guerrillas, a substantial number of collaborators were committed to supporting the FMNL cause but, for various reasons, did not reside in the guerrilla camps. The nonparticipants were diverse, united primarily by their lack of prior involvement in oppositional organizations.

It is important to note that Viterna separates the five outcomes and analyzes them one at a time, a practice consistent with generalized AI. This approach to the evidence allows for the possibility that different conditions may be linked to different outcomes. Furthermore, in some contexts it is possible for a condition to be a contributing factor, while in other contexts the same factor could be an inhibiting factor. As Viterna (2006: 2) states, "the same causal factor that promotes mobilization in some people may actually inhibit mobilization in others."

TABLE 8-13 Coverage of focal outcomes compared to incidence in other outcomes*

Modal configuration	Prevalence in focal outcome	Prevalence in other outcomes
Politicized	0.714 (N = 7)	0.040 (N = 75)
Reluctant	0.786 (N = 14)	0.220 (N = 68)
Recruited	0.882 (N = 17)	0.154 (N = 65)
Collaborators	0.750 (N = 12)	0.314 (N = 70)
Nonparticipants	0.875 (N = 32)	0.420 (N = 50)

*Differences in proportions are statistically significant in each row ($p < 0.05$).

The five applications of generalized AI culminated in five modal configurations, with each one covering more than 70 percent of the cases with the outcome in question:

- politicized: $\text{preinv} \bullet \text{young} \bullet \text{early} \bullet \sim \text{mother}$
- reluctant: $\text{early} \bullet \sim \text{rcamp} \bullet \text{activefam} [\bullet \text{crisis}]$
- recruited: $\text{young} \bullet \sim \text{early} \bullet \sim \text{mother} \bullet \text{rcamp} \bullet (\sim \text{complete} + \text{activefam})$
- collaborators: $\text{activefam} \bullet (\text{mother} \bullet \sim \text{complete} + \sim \text{mother} \bullet \text{complete})$
- nonparticipant: $\sim \text{preinv} \bullet (\text{mother} + \text{rcamp})$

The modal configurations for politicized guerrillas and recruited guerrillas are especially well articulated. Politicized guerrillas conform closely to literature-based expectations regarding women who become guerrillas. The recipe for recruited guerrillas reflects the profile expectations of the FMLN recruiters. Table 8-13 contrasts the prevalence of each modal configuration in its focal outcome with its prevalence in the four other outcomes combined. The differences are all substantial and statistically significant, ranging from a 0.728 gap for recruited guerrillas to a 0.455 gap for nonparticipants. In general, larger gaps indicate better-articulated modal configurations.