

# Desertion, Terrain, and Control of the Home Front in Civil Wars

Journal of Conflict Resolution  
2014, Vol. 58(8) 1419-1444  
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DOI: 10.1177/0022002714547901  
jcr.sagepub.com  


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## Abstract

This article examines desertion in civil wars, focusing on the role of combatants' hometowns in facilitating desertion. Analyzing data from the Spanish Civil War, the article demonstrates that combatants who come from hill country are considerably more likely to desert than combatants whose hometowns are on flat ground. This is because evasion is easier in rough terrain. The finding implies that the cohesion of armed groups depends on control, not just positive incentives, and that control of territory in civil wars goes beyond rebel-government contestation, and consists also of control behind the lines. The article bridges micro and macro approaches to civil wars by indicating the multiple uses to which individuals can put structural conditions like rough terrain. This helps to clarify the macro-level link between rough terrain and civil war. It also shows that micro-level research can profitably examine structural variables alongside individual characteristics and endogenous conflict dynamics.

## Keywords

civil wars, internal armed conflict, military power, rebellion, social networks

Under what circumstances do combatants in civil wars desert? This article addresses this question with a focus on characteristics of combatants' hometowns. Specifically, the article demonstrates that combatants who come from rough terrain are considerably more likely to desert than combatants whose hometowns are

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on flat ground. This, I argue, is in large part because difficult terrain is difficult to control: the opportunities for evasion are considerably greater on rough ground.

This article develops its argument via a statistical analysis of an original data set on desertion drawn from Santander province in the Spanish Civil War (1936 to 1939). It combines characteristics of soldiers and of their hometowns in a multilevel model. The article supplements the statistical analysis with qualitative evidence.

This article advances our knowledge of civil wars in three different respects. First, with regard to the relatively small literature on desertion in civil war, this article develops an underexplored line of research. Some have focused on conditions within an armed group, such as its composition or its use of control at the front. Others examine combatants' motivations, to the exclusion of their opportunities to desert. While denying neither the importance of motivation nor of conditions within soldiers' units, this article seeks to shore up our knowledge of opportunities to desert, and to assert that efforts to prevent desertion go well beyond policing soldiers at the front, and extend into civilian life.

Second, this analysis highlights an underexplored form of territorial control in armed conflict. Kalyvas (2006) greatly clarified the impact of the balance of control between armed camps. Where control is contested between two sides, civilians are much likelier to defect, because they have options. I extend Kalyvas's insight to a second form of control: *internal* control within the state-like entities ruled over by armed groups in civil wars (McColl 1969). Control varies, even within rearguard areas that are not seriously contested by the other side. I argue that terrain is one important source of variation in control of the home front.

Third, the article provides new insight into the role of terrain in conflict. Scholars have argued that rough terrain facilitates insurgency, because it creates areas beyond the state's remit where rebel groups may find safe haven to prepare rebellion. This article suggests that rough terrain can also impede some armed groups' success, by making it easier for their combatants to desert. Both logics emphasize how hills help the weak to evade: both weak rebel groups in evading the state and individual combatants in evading their military organizations.

A broader point emerges from this discussion. The article demonstrates that it is useful to bridge micro and macro approaches to civil wars through micro-level analysis of the impact of structural conditions. This kind of analysis departs from a standard, and often productive, division of labor, in which macro analysis focuses on structural conditions, while micro-level work deals with endogenous processes and individual traits. By demonstrating the multiple uses to which individuals can put rough terrain, this article clarifies macro-level analyses: it identifies the ability to evade as the key property of rough terrain in conflict, which, in turn, sheds light on macro-level findings about the role of rough terrain in civil wars. At the same time, it suggests to scholars working at the micro level that individual choices in wartime, like desertion, can be shaped by persistent, structural conditions and not only by endogenous wartime processes.

This article proceeds in five stages. The next section outlines the theoretical approach to desertion that is taken here. I then detail the empirical analysis, including background to the case, hypotheses, and data. The third section presents statistical results, while the fourth turns to qualitative evidence. The final section draws out broader lessons for the role of terrain in conflict and for the micro–macro divide in civil war research.

### *Desertion, Control, and Hometowns*

This article defines desertion as rule-breaking exit from military service, including both desertion proper (i.e., returning to civilian life) and defection (i.e., switching sides).<sup>1</sup> A kind of shorthand conventional wisdom focuses on soldiers' positive incentives to fight or desert. In one approach, scholars begin with the large labels applied to civil wars—what Kalyvas (2003) calls the “master cleavage.” They then characterize how soldiers stand with regard to that cleavage and predict their desertion decisions from there. For example, in ethnic conflicts, some scholars predict that individual loyalties will fall along ethnic lines (Kaufmann 1996; Horowitz 2000, 465; for a conditional view, see McLauchlin 2010). Scholars may also focus on a lack of commitment to the cause, for example, highlighting desertion in the Confederacy as a consequence of economic interests beyond slavery (Giuffre 1997) or a lack of socialization into Southern nationalism (Bearman 1991). A second group of scholars builds on the collective action problem (Olson 1971) and efforts to overcome it via positive inducements. Some suggest that a positive balance of economic incentives keeps soldiers fighting (Collier and Hoeffler 2004). Others focus on the social solidarity of the unit as providing reasons to stay and keep fighting (Wickham-Crowley 1993, 63–68; Costa and Kahn 2003, 2008; McLauchlin 2014).

The focus on positive incentives is helpful, but insufficient. It suggests that soldiers essentially have the freedom to act as they see fit. Costa and Kahn (2008, 5) argue that in the Union Army in the U.S. Civil War, “most soldiers stood by their comrades even though a rational soldier would have deserted. Punishments were too rare and insufficiently severe to deter men from deserting.” This assertion ignores important variation in the ability of armed groups to inflict such punishment. For example, on the Confederate side, efforts against desertion improved dramatically after General Gideon Pillow formed a special military branch to try to find deserters, rather than relying on the ill-equipped and undermanned Conscript Bureau (Lonn 1928, 53). In any case, there is a selection bias at work in using the capture rate of deserters as an indicator of the likelihood of punishment. If those who desert are those who anticipate that they are unlikely to get caught, there still may be many who fear punishment and never try to leave. Thus, a low punishment rate among deserters may say very little about the overall degree of control that soldiers face. Individuals do not participate out of wholly free choice, but also in an environment of fear (Kalyvas and Kocher 2007).

Second, soldiers fight for a variety of reasons, from ideology to community defense to personal gain; likewise, they desert for multiple reasons and in different conditions (for testimony and survey data, see Peters and Richards 1998; Humphreys and Weinstein 2004; Arjona and Kalyvas 2006). Combatants' motives will often go beyond macro understandings of conflict in terms of master cleavages or greed. Since such understandings will frequently mischaracterize motives, especially missing *local* variations in the axes of conflict (Kalyvas 2003), they will likewise miss important sources of reasons to leave, such as intrafactional conflicts and disputes (Staniland 2012; McLauchlin 2014).

Beyond this, the complexity and multiplicity of local motivations suggests that, to secure the compliance of individuals with a diverse array of interests, armed groups need to exercise control over individuals and communities (Kalyvas 2003, 2006). To grow beyond a relatively small size often requires recruiting soldiers with highly diverse motivations, including among combatants with a problematic and unclear commitment to a cause (Mueller 2000; Weinstein 2007). In this context, whatever the soldier's motivations, desertion can be prevented or deterred by watching soldiers' behavior closely and threatening punishments that anyone would try to avoid. Within military units, control can rest on features like the autonomy that subordinate military units have and the physical distance between the armed group's command and its soldiers (Gates 2002; Johnston 2008).

But control can also be exercised over soldiers' hometowns, and the degree of control that the faction exercises can have a strong influence on a soldier's opportunities to desert. First, deserters often head back to home districts as a matter of first resort, relying on families or friends for help, including shelter and food. Second, deserters' families often bear punishment for their desertion. This helps to create a deterrent by issuing a threat that may be realized even if the deserter is not caught. The punishment of families also means that hometowns are important for defection—that is, side-switching—as well as for desertion proper, back to the home front; if a soldier defects, his family can still be punished. That threat may be more or less credible depending on the degree of control the armed group has over the soldier's hometown.

I focus on rough terrain as an indicator of this control. It has historically been quite difficult to exercise control over mountainous locations. It is, of course, easier to hide in the hills than on flatland. In addition, the classic loss-of-strength gradient, based on the difficulty of transporting soldiers and supplies over distance (Boulding 1962), is compounded by the friction of terrain (Scott 2009, 43-48). Thus, heading to the hills is a ubiquitous feature of desertion. Confederate deserters hid in bands in the hills to resist capture. When the Confederate War Office was analyzing the problem of desertion, it noted that “[t]he condition of things in the mountain districts of North Carolina, South Carolina, Georgia, and Alabama menaces the existence of the Confederacy as fatally as either of the armies of the United States” (Lonn 1928, 25). The increasing ability to cross rough terrain, especially through road building, is therefore a vitally

important part of state building conceived of as the projection of control of peoples over distance (Herbst 2000).<sup>2</sup>

Those best able to take advantage of the opportunities to hide should be those who are actually *from* hill communities. So, for example, Giuffre (1997) finds that Confederates from the piedmont of inland North Carolina were more likely to desert than were soldiers from the coastal plains. Giuffre focuses on the piedmont's detachment from the slave economy and hence from the Southern cause. I argue that another mechanism may be at work as well: high desertion rates among highland peoples may also stem from their ability to escape control. Possessing an unparalleled local knowledge of the terrain, soldiers from the mountains will be able to exploit the opportunities for physical concealment that mountains provide. Moreover, deserters who are actually from the hills can rely both on the physical concealment provided by terrain and on help from family and friends, whereas deserters from flatland will have to choose between favorable terrain and aid from these networks when deciding where to go.

The potential for individuals to use rough terrain to evade may have an additional, longer run impact on desertion. People may self-sort by terrain. Because it should be easier for people living in highlands to evade impositions like military service (as well as, e.g., taxation or cultural assimilation), those who want to evade such obligations may disproportionately move to, or remain in, such "regions of refuge" (Aguirre Beltrán 1979; see also Scott 2009). The impact of terrain may thus be correlated with a motivation to evade military obligations, and not only with the opportunity to do so. Controlling for conscription versus voluntarism, as I do subsequently, should account for a large part of this explanation. That is, we should expect highlanders who want to avoid military service not to volunteer, but to serve only when forced and to look for a chance to desert. In any event, the sorting mechanism itself depends on people's strategic use of rough terrain and the opportunity it creates to evade obligations, none more onerous than military service in wartime. Thus, to the extent that this self-sorting mechanism helps explain a relationship between terrain and desertion, it still speaks to the importance of the opportunity to evade that rough terrain provides.

### *The Setting: Santander Province, Spain*

The setting for this analysis, Santander province (now Cantabria) in the Spanish Civil War, is an appropriate location in which to investigate a terrain-based explanation for desertion in the face of explanations based on positive incentives alone. It includes considerable variation in terrain, from lowland core to highland periphery (though it does not offer much variation on other kinds of rough terrain, such as dense rainforest, which may also plausibly facilitate hiding and desertion). But it also is an easy case for approaches based on individual combatants' convictions: as a predominantly right-wing province on the side of the Left, historians argue that its desertion rate was due to its many soldiers who found themselves fighting

for the wrong side. Conventional wisdom thus places weight on motivation over opportunity.

The left–right divide, though overlaid on numerous factional and conflicts, is generally regarded as the “master cleavage” of the Spanish Civil War (1936 to 1939). Fought in the three years prior to the Second World War, this war pitted a tense coalition of Left Republicans, Socialists, Communists, and Anarchists in defense of the incumbent Second Spanish Republic against General Francisco Franco’s right-wing “Nationalist” rebellion, which drew on junior military officers, conservatives, monarchists, and the fascist Falange party (Thomas 1994; Graham 2002; Preston 2007). The failed coup attempt that started the war, on July 18, 1936, divided the map of Spain between these two camps. But in its prevailing right-wing politics, Santander was wholly different from much of the Republic. Of all Spain’s provinces that were held by the Republic, Santander had returned the one of largest proportions of votes for right-wing parties, and in fact a right-wing majority, in the elections of February 1936 (Linz and de Miguel 1977, 43). It also had a weaker union presence than most other Republican provinces. Despite its conservatism and the weak presence of organized left-wing forces, the Republic held on to Santander through certain fortuitous circumstances, notably much greater initiative among Republican officers during the coup attempt (Solla Gutiérrez 2005).

Other than its right-wing politics, in broad outlines, Santander’s system of government and military organization was not substantially different from the rest of the Republic. Santander province, along with Asturias to the west and the Basque Country to the east, formed part of a strip of land along most of the northern coast, controlled by the Republic but cut off from the rest of Republican territory as of September 1936. Isolated from the bulk of the Republic, Santander developed an autonomous government and war effort, as did the Basque Country and Asturias next door. However, Santander’s war effort followed the Republic’s policies closely. As in the rest of the Republic, its regular military forces were shattered by the coup attempt. It initially relied on a loose volunteer militia system based on political parties and unions, and the remnants of the uniformed security forces that remained loyal to the Republic, but gradually centralized these into a regular army, the *Cuerpo de Ejército de Santander* (CES). In this, the autonomous government followed the letter of directives laid down by the capital. Moreover, its formal political forces closely mirrored those of the Republic in general in the period 1936 to 1937. Finally, as elsewhere, political power fragmented among local committees at first, and it was a long and difficult process to reassert it at the center. In some ways, therefore, Santander province was the Republic in miniature (Solla Gutiérrez 2006).

Though reliable figures for desertion across all of Spain do not exist, Santander is widely believed to have had among the highest rates. The consensus is that this is because of the province’s conservatism. Both Republican and Nationalist military analysts subscribe to this view (Gámir Ulibarri 1939, 37; Salas Larrazábal 1973,

358-59; Martínez Bande 1980, 153, 167). There was, it is argued, a poor fit between the political attitudes of the population (and hence of its soldiers) and the side of the master cleavage that the province was called to fight for. If there is support, here, for an approach based instead on local control, then that support should be particularly telling.

The military analysis that explains desertion by right-wing attitudes emerged in the course of explaining why Santander province was lost to the Republic. After the coup attempt in July 1936, a stable and relatively quiet front was quickly set up on Santander's southern frontier. Stability, punctuated by desultory offensives, lasted until April 1937. Then, the Nationalist forces, with their Italian and German allies, carried on with the conquest of the Basque Country. Bilbao, the Basque capital, fell at the end of June; at this point, it was only a matter of time before Santander faced a Nationalist invasion. This began in mid-August and was over within two weeks: the CES's resistance collapsed in the face of the assault. Some CES forces remained in Asturias to fight on until October; others took to guerrilla warfare, which lasted sporadically until the late 1950s; others fled by sea to France or other parts of the Republic; many more surrendered (Martínez Bande 1972, 1980; Solar 1996). My study covers desertion from the consolidation of a regular force in January 1937, when, as discussed below, record keeping about desertion became consistent, to the end of conventional fighting in the province in August of that year.

## Study Design

I test my argument by examining whether soldiers in the CES were more or less likely to desert conditional on characteristics of their hometowns (including terrain) and on their own individual characteristics. I use statistical control to isolate the relationship between terrain and desertion net of indicators of motivations that may be correlated to both terrain and desertion. The result is a multilevel logit model, with individual combatants aggregated into municipalities of origin.

The focus of this article, on soldiers' hometowns, would perhaps be best treated with a hometown-by-hometown sampling method. However, this proved impractical. No complete set of hometown-by-hometown lists of soldiers exists, and so there was no real basis for sampling this way. Instead, therefore, I decided to sample on individuals.

Data on deserters and other soldiers were obtained from the *Archivo General de la Guerra Civil*, located at the Centro Documental de la Memoria Histórica in Salamanca. I began by identifying deserters based on army records. The army defined a deserter as a soldier who failed to appear for three consecutive roll calls without leave. I identified deserters from three kinds of document. First, the army compiled lists of deserters' names, by battalion and month.<sup>3</sup> Second, beginning in January 1937, the army produced individual records of desertion, including the deserter's name, background details, and circumstances of desertion. The preservation of these

reports is unfortunately highly inconsistent.<sup>4</sup> Finally, the army produced a card for each of its soldiers indicating his background information and subsequent military career, including desertion. I searched through the 32,000 army cards that have been preserved, recording all soldiers whose cards listed a desertion report. Unlike the desertion files, these cards appear to have no serious inconsistency in preservation, aside from undersampling some military units.<sup>5</sup> There were other deserters that are not included by these methods. Scattered and disorganized military reports refer to reported deserters who are not elsewhere referenced.

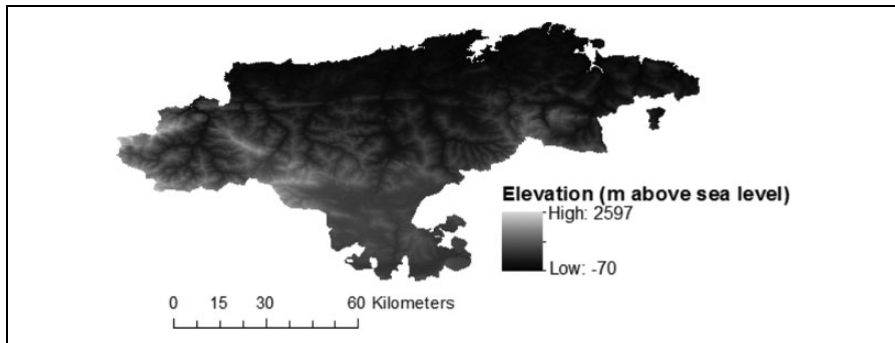
I included every deserter as defined previously, totaling 1,313. This almost certainly understates the true number of deserters. I then took a simple random sample of 1,305 nondeserters from the remaining army cards. This sampling strategy, a “case-control” or “endogenous stratified” method, is effective given that desertion is a rare event. It allows me to avoid two problems that would have emerged if I had ensured that the proportion of deserters in the sample equaled the proportion in the population. First, it enables me to preserve all of the information about deserters (unlike, e.g., taking only a sample of deserters). Second, it minimizes the costs of data collection on nondeserters (unlike, e.g., taking an enormous sample of nondeserters). Moreover, subsequent analysis can account for this sampling strategy using a very simple correction to the constant term (King and Zeng 2001). In any case, I reestimated the model using weights (see the Online Appendix), and the results are the same.

The army began to consistently report desertion in late 1936, at the same time as it apparently began producing the army cards for each soldier. Hence, no nondeserter is listed as having left the army prior to January 1, 1937, which means that both deserters and nondeserters were sampled from the same timeframe—from January to August 1937, when the war in Santander province ended.

Of the 2,618 soldiers in the sample, over half are deleted from the eventual analysis, reducing the data set to 1,254. First, I limited the sample to soldiers from Santander province, eliminating 174 combatants. This was done in order to focus data-gathering efforts on the direct ambit of the Santander regional government, the authorities who attempted to find and capture deserters. Second, cards for 348 deserters are nonexistent or blank apart from their name, battalion number, and a report of their desertion, as are cards for 28 nondeserters. One can think about these combatants as akin to nonrespondents. They are concentrated among those who deserted prior to January 1937. This fits the fact that the military’s data gathering only really became consistent in early 1937, as military organization consolidated, so that little would be known about deserters who left at an early stage. My data thus can say very little about the desertion problem prior to January 1937.

This introduces an important bias: when the army was disorganized enough to have poorer records, earlier in the war, it may plausibly have been easier for anyone, regardless of terrain, to desert. Principally, the findings here speak to the ability of individuals to escape relatively well-organized armies.





**Figure 1.** Relief map of Santander province.

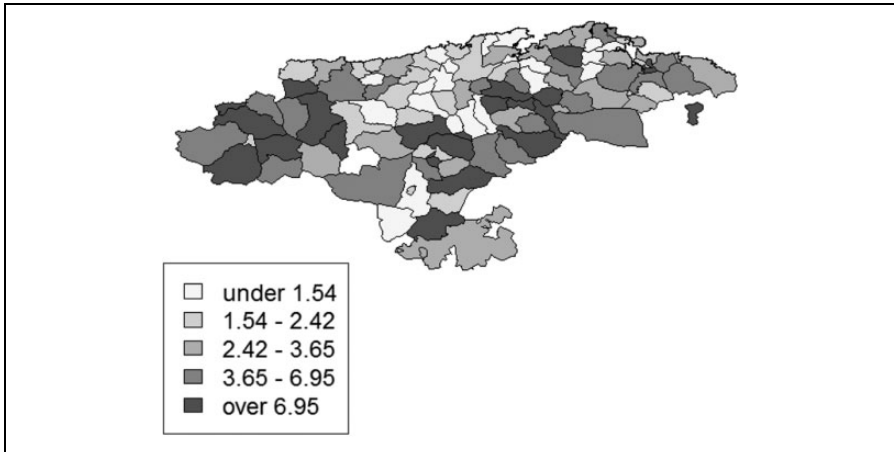
Source: Jarvis et al. (2012).

Finally, the remaining 814 soldiers who are deleted from the analysis have missing data on one or more variables. Yeomen farmers are thus underrepresented in the final sample; unskilled workers, industrial workers, and those from the capital region are overrepresented. This indicates an urban bias: more is apparently known about urban soldiers than about rural soldiers. Multiple imputation using Amelia (available in an Online Appendix) addresses this third problem of missing values on individual variables (King et al. 2001). The article's principal result is robust to this analysis, indicating that this last missing data problem does not much affect the overall result.

### *Hypotheses and Control Variables*

As I outline previously, my chief interpretation of rough terrain is its ability to allow deserters and their families to evade capture. I hypothesize that the rougher the terrain in a combatant's hometown, the likelier he is to desert. I measure rough terrain with two indicators: elevation and slope (or steepness). Centers of power are often located on low ground, and this was certainly the case in Santander province (see Figure 1), with its capital in Santander city on the coast, in a lowland industrial core. Elevation implies difficult access from a lowland base, increasing transportation costs and thus the costs of projecting power over distance. Steeply sloping terrain measures more localized sources of difficulty in using force, abstracting from the cost of moving from a lowland core to the highlands. Steep terrain creates places to hide and makes transportation even more costly.

Soldiers' hometowns were given on their cards. I classified these hometowns according to the 102 municipalities in Santander province. Figure 2 indicates the geographic pattern of desertion in Santander province, according to the estimated desertion rate for each municipality. Using satellite data on elevation in 90 m × 90 m grid cells (Jarvis et al. 2012), I employed geographic information system (GIS) analysis to



**Figure 2.** Estimated rate of desertion by municipality (percentage of soldiers), Santander province.

Source: Author's data.

calculate the mean elevation and mean slope (the change in elevation from cell to cell) in each municipality (with boundaries defined by GADM Project 2009).

Another indicator of lack of control *may* be the local rate of violence. This is fundamentally ambiguous, however. Lack of control can allow for more violence to occur or violence could be the result of an attempt to *impose* control on a place (Cohen, Brown, and Organski 1981). On the Republican side during the Civil War, rates of local violence were correlated with prewar political competition, so that closer election results predicted higher rates of violence (Balcells 2010, 2011). Violence may thus indicate the pursuit of local rivalry and competition outside of the Republican leadership's interests, and hence a lack of Republican central control; or, from another point of view, it may indicate efforts to eliminate the opponents of the left, and hence an attempt to assert control. I include a measure of deaths in local violence (Gutiérrez Flores 2006) up to January 1, 1937 (when data on desertion begin, to avoid endogeneity), divided by the population according to the 1930 census. Because local violence may be an ambiguous indicator of state control of a location, this measure is included as an exploratory project, rather than to test a theory-derived hypothesis. The core measure of lack of control is mountainous terrain.

Of course, peripheral mountain communities may often have very different social, economic, and political conditions than the center. Terrain may therefore be associated with desertion rates not because of control but because of different positions on the war's master cleavage. In Santander province, the economic development of the late nineteenth and early twentieth century was very much concentrated in the lowlands: in the ports of Santander and Astillero and the

surrounding mining basin. Although railroads permitted closer integration of rural communities into the broader economy (De Puente Fernández 1992), many mountainous areas did not have easy access to highways or railroads (Obregón 2007, 30-31). Mining and manufacturing, the two major early targets of left-wing unionization, were relatively uncommon in mountainous districts (Gutiérrez Lázaro and Santoveña Setién 2000; Toca 2005), while Socialist efforts to unionize agriculture were belated and of limited success (Obregón 2007, 36-37). The Left had little political appeal. These characteristics indicate the importance of controlling for economic development and the balance of political support. If high altitude and steep terrain have a substantial correlation with desertion even after controlling for these two variables, it indicates that terrain has a relationship with desertion goes beyond its association with macro-political motives.

To capture economic and social conditions, I used data on property wealth gathered by the state for the purposes of taxation and redistribution (in *Boletín Oficial de la Provincia de Santander* [BOPS], September 28, 1936) and divided this by the population figure from the 1930 census to arrive at a per capita wealth figure; this variable should separate economically central from marginal regions. I also use literacy rates drawn from the 1930 census (Dirección General 1930). Political balance was given by grouping all parties into left and right and taking the right-wing vote share in the municipality-by-municipality results of the most recent elections, in February 1936 (published in BOPS, February 26, 1936).

Soldiers from rough-terrain communities may also desert more often because of differences in individual characteristics. They may be less likely than their lowland comrades to want to serve in the first place, for example, because of the self-selection mechanism discussed previously. They may more frequently be agricultural workers, with their families depending on them for survival. Rural soldiers may be more likely to be married and to feel the pull of home more strongly than others. I conduct a multilevel analysis, therefore, to control for these individual motivations systematically.

First, volunteers should have had a stronger preference for serving than conscripts, for any number of reasons. Thus, conscription status is a good all-purpose indicator of a preference to serve: it reveals information about whether the combatant had wanted to serve in the first place or was forced to join. It should, therefore, capture much of the individual-level variation in motivations. Data on conscription status were gathered from the card's indicator *Soldado o miliciano*—soldier or militiaman. This indicates whether the soldier was a member of the ad hoc volunteer militias that had emerged at the beginning of the war, or was regularly incorporated via the draft. Second, whether or not a soldier has an official party or union affiliation may also indicate a general political commitment to the left. If the soldier had a left-wing political affiliation, it was listed on the card. (No one was listed as having a right-wing affiliation—unsurprisingly, as these were anathema in wartime.)

I also include age, marital status, and occupational category, to capture several demographic characteristics thought to correlate with a propensity to desert

**Table 1.** Descriptive Statistics: Individual-level Variables.

Categorical variables	Analyzed sample		Whole sample	
	Frequency	Percent	Frequency	Percent
Nondeserters	838	66.83	1,305	49.85
Deserters	416	33.17	1,313	50.15
Conscripts	856	68.26	1,200	68.49
Volunteers	398	31.74	552	31.51
Unaffiliated to left-wing organization	345	27.51	445	26.74
Affiliated to left-wing organization	909	72.49	1,219	73.26
Single	862	68.74	1,450	70.15
Married	392	31.26	617	29.85
Occupation				
Unskilled/day laborer	287	22.89	420	20.04
Yeoman farmer	421	33.57	799	38.14
Mining/industrial	332	26.48	506	24.15
Services	174	13.88	279	13.32
Student	13	1.04	33	1.58
Commercial/professional	27	2.15	58	2.77
Home county				
Santander city	354	28.23	488	22.74
Elsewhere in Santander province	900	71.77	1484	69.15
Other provinces			174	8.12
Continuous Variables	Mean (SD)	Minimum, Maximum	Mean (SD)	Minimum, Maximum
Age	25.89 (5.42)	16, 62	25.76 (5.41)	16, 62
Date of enlistment (days since July 17, 1936)	195 (81.07)	1 384	189 (84.47)	1 392

(Bearman 1991; Costa and Kahn 2003). Date of enlistment and age were straightforwardly coded from the soldiers' files. I included a square term for each, because there is a plausible nonlinearity. In the Spanish Civil War, the young (out of fear) and the old (out of family commitment) were thought to desert more often than those in their mid-twenties (Corral 2007, 162-63). As for date of enlistment, I included a square term because two effects may be present: an early date of joining may indicate greater commitment, but a late date potentially subjects the soldier less to exhaustion and the burdens of war. It is possible, therefore, that date of enlistment has an inverted-U relationship with desertion rates. Marital status was also taken directly from soldiers' files. I included widowers under the category of married, because this variable is intended to capture soldiers' attachments at home, and widowers would have attachments to children and in-laws.

**Table 2.** Descriptive Statistics: Hometown-level Variables.

	Mean (SD)	Minimum Maximum
Average elevation (m above sea level)	415.7 (351.0)	14.6 1,270.1
Average slope (percentage)	14.6 (6.4)	2.3 29.9
Violence (deaths per 10,000 population as of 1930)	.171 (.217)	0 1.3
Literacy rate (percentage)	69.9 (5.50)	46.7 80.5
Property value (pesetas) per 1930 population	52.9 (16.5)	21.4 122.1
Right-wing vote share (percentage)	67.0 (14.8)	30.2 95.0

I coded occupations by economic sectors: day laborers and unskilled workers, yeomen farmers (*labradores*), miners and industrial workers (because they were the targets of labor mobilization), service-sector workers (other than businessmen and professionals), students, and a combined business professional category. Existing industrial and agricultural wage data (Ministerio de Trabajo y Previsión 1931; Bringas Gutiérrez 2000) were of limited utility. Industrial wage data come from only a few businesses in any given province, and we have little agricultural wage information. It seemed more plausible and fairer to an important control variable to employ broad income categories in the analysis. In any event, when my best estimate of wages was included as a regressor instead (not shown), it had no substantial impact on the results.

Table 1 gives summary statistics of individual-level data, both for the sample of soldiers that is included in the statistical models and for the full sample before geographic limits and missing data delete cases. Table 2 gives descriptive statistics for the hometown-level variables, measured at the level of the 102 municipalities. One municipality had only six soldiers sampled, and they dropped out due to missing data, leaving 101.

## Results

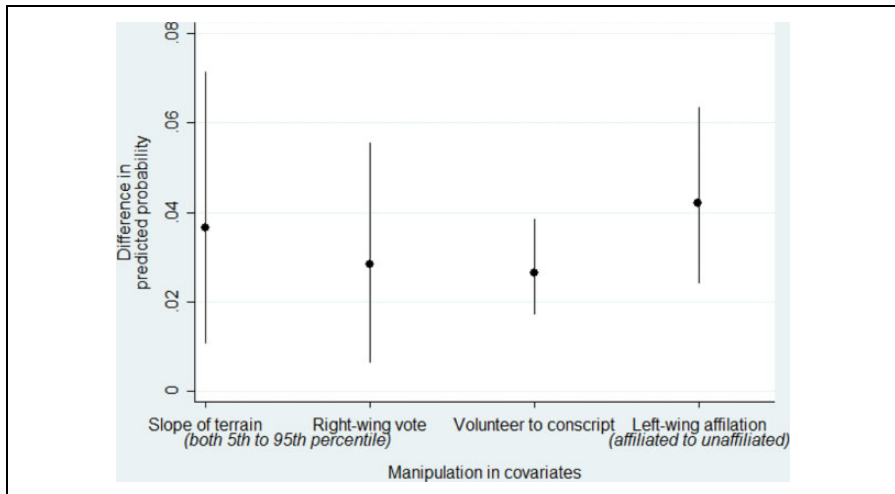
I ran two random-effects<sup>6</sup> logit models where the grouping variable is the combatant's home municipality. The first model includes elevation, and the second includes steepness. Because my selection method oversampled deserters, I adjusted the constant according to King and Zeng's "prior correction" technique (2001). Results are in Table 3. Both of the measures of terrain have positive, statistically significant associations with the likelihood of a soldier deserting. The

**Table 3.** Multilevel logit results.

Dependent variable: 0 = did not desert; 1 = deserted				
	Model 1		Model 2	
	Estimate	(SE)	Estimate	(SE)
Conscript	1.544***	(.258)	1.540***	(.258)
Left-wing affiliation	-.842***	(.166)	-.851***	(.165)
Married	-.112	(.190)	-.082	(.189)
Age	.331*	(.166)	.316	(.165)
Age squared	-.006	(.003)	-.006	(.003)
Date of enlistment	.025***	(.006)	.026***	(.006)
Date of enlistment squared	-.00005***	(.00001)	-.00006***	(.00001)
Occupation: Yeoman	.181	(.210)	.176	(.209)
Occupation: Mining or industrial	.508*	(.224)	.502*	(.224)
Occupation: Services	.062	(.272)	.073	(.272)
Occupation: Student	1.628*	(.700)	1.638*	(.703)
Occupation: Commercial or professional	.152	(.523)	.149	(.522)
Hometown literacy rate	-.006	(.017)	.013	(.017)
Hometown property wealth	-.0005	(.004)	.0002	(.004)
Hometown violence	.016	(.382)	.022	(.370)
Hometown right-wing vote share	.021**	(.007)	.018**	(.007)
Hometown elevation	.0007**	(.0003)		
Hometown slope			.044**	(.015)
Constant	-12.126***	(2.446)	-13.452***	(2.444)
Panel-level standard deviation	.253	(.201)	.182	(.329)
Log likelihood	-622.333		-621.964	
BIC statistic	1380.215		1379.476	
N of individuals	1254		1254	
N of hometowns	101		101	

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

association with slope was particularly substantively important. Considering a soldier with typical values on the other covariates, if he came from the municipality with the largest average slope, he was over three times likelier to desert than a comparable soldier from the flattest terrain municipality. Figure 3 shows how the predicted probability of desertion differs with differences in terrain, right-wing vote share, conscription status, and political affiliation for a typical soldier. I generated these values with simulations (using code adapted from Brambor, Clark, and Golder 2005). As Figure 3 indicates, the substantive relationship between terrain and desertion was comparable to that of plausible indicators of individual motivations to desert. In short, it seemed to matter just as much whether a soldier came from rough terrain as whether he was a conscript.

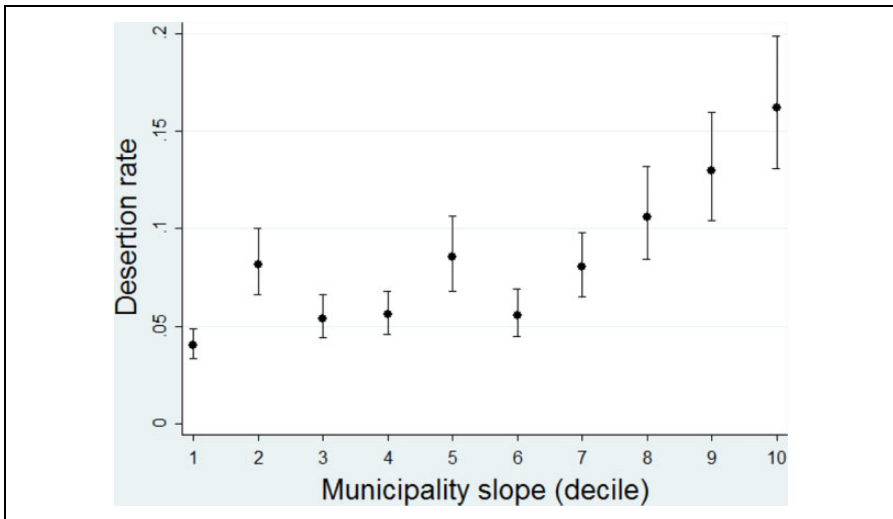


**Figure 3.** How the predicted probability of desertion differs with manipulations of covariates. Note: Based on estimates in model 2; 95 percent confidence intervals shown.

We can better characterize the form of the relationship between terrain and desertion through a visual representation. Figure 4 gives an estimate of the desertion rate at each decile of terrain steepness. It indicates an inflection point, with trendless fluctuation below the fifth decile, and a very clear relationship between steepness and desertion in the sixth decile and above. The rough terrain–desertion relationship thus seems to be a property of particularly mountainous locations.

Local right-wing vote share had a robust, positively signed association with desertion. This indicates that desertion was generally likelier among soldiers from a given municipality, the stronger the local right wing. There are a few possible interpretations of this result. It might be taken as an ecological indicator, suggesting that individual soldiers from right-wing locations were more likely to hold right-wing attitudes themselves. The association with desertion rates would then be explained by the stronger motivation of the soldiers in question not to fight for the Left. However, considering the difficulties of ecological analysis, other possibilities exist. Deserters from such towns may have been less likely to be denounced by their neighbors, making desertion a safer option. This may be an interesting area for future research.

Local violence, included for investigative purposes rather than for hypothesis testing, had no apparent relationship with the likelihood of desertion. This is unsurprising since, as noted previously, there is a plausible case that violence can indicate either lack of control or efforts to reassert control. Similarly, literacy rates and property wealth did not have any clear association with desertion rates. This suggests that even if local development patterns gave individuals different economic interests in fighting, this did not translate into a decision to desert or not to desert.



**Figure 4.** Estimated desertion rates by steepness decile (with standard error of estimate).

As for the control variables, voluntarism versus conscription was statistically significant and substantively important, as was membership in a left-wing party or union. The date of enlistment was likewise important: later recruits were *overall* more likely to desert than were earlier recruits, but the negative sign on the square term indicates a downward-trending curvilinear relationship. That is, as time wears on, later recruits have a *lower* likelihood of desertion. Older combatants may have been somewhat more likely to desert, but married ones were not.

The pattern of occupational categories is interesting. Yeomen farmers were not particularly likely to desert, despite a stereotypical association between this class and the political right. Students were more likely to desert. This fits an interpretation where those with better economic opportunities outside the armed group desert more often: students (especially military-age students, who would generally be in college or university) came from elite families. Miners and industrial workers were also more likely to desert. This is surprising, as these were two principal targets of unionization in Santander, as noted previously. However, because many unskilled industrial workers would be classified as day laborers, it is possible that this category essentially captures more skilled industrial workers, and hence, in part, a labor elite.

Further analyses, not shown here but available in an Online Appendix, indicate the robustness of the major result and my interpretation of it. The slope result holds up with different measures of terrain, alternative specifications with fewer control variables, with a model using spatial regression to account for the clustering of desertion rates in neighboring municipalities, with longitudinal analysis, using weights rather than prior correction to account for my endogenous stratified sampling strategy, and using multiple imputation to manage the missing data problem.



### *Qualitative Evidence from Santander*

The statistical analysis described earlier is strongly suggestive of an association between difficult terrain and high desertion rates. Does this association occur for the suggested reason—because deserters from towns with rough terrain, and their families, find it relatively easy to hide? There is suggestive qualitative evidence in this regard.

Deserters did worry about capture, attempting to learn where army posts and patrols were located in order to avoid being caught (Obregón 2005, 90; 2007, 131-32; García Guinea 2005). The hills, of course, could help them hide, and this loomed large in the calculations of deserters. One civilian witness from a valley distinguishes between *arriba* (above) and *abajo* (below, where he lived) in describing the importance of the hills: “Those from [the village of] Esles up above . . . did not want to go the militia . . . Around here, below, there wasn’t anyone who was hiding out.” The mountains of the Peña Herrera massif, near Esles, served as a refuge for dozens, and, according to Obregón (2005, 90, 157), “it was said that the militiamen never came up looking for them.”

Those who were actually *from* hilly areas had particular advantages. A good knowledge of the terrain could assist with hiding. The Pasiegos, a group of nomadic pastoralists in the mountainous Pas area (Freeman 1979), typically made their way in itinerant fashion among a network of cabins in the hills. When Pasiego soldiers deserted—which was often, according to a June 1937 letter from the commander of the Second Division<sup>7</sup>—they tended to hide in those very cabins (Obregón 2009, 125; 2005, 90). In contrast, those who did the searching were frequently lowlanders, according to one witness: “If they caught you they shot you, but they [the Republican military authorities] did not know [the hills]” (Obregón 2005, 90; bracketed notes are Obregón’s). Pasiegos had long had a reputation for managing to avoid military service (Obregón 2009). Noted the commander of the second Division, the Pas area “even in normal times is difficult to control.”<sup>8</sup>

Those who were from mountainous zones also had an advantage because deserters sought the aid of family and friends; those from the hills could therefore get both family help and the advantages of rough terrain in the same place. For example, in the Pas region, one witness remembers keeping his brother in a hayloft for several days early on in the war. Another remembers that her fiancé was kept hidden in a sort of sepulcher in his mother’s house for nine months, his mother advising him whenever a car—indicating a patrol—was coming (Obregón 2009, 125, 192). Neighbors also helped: “if anyone came from Santander to look for us, our neighbors warned us. We lived this way almost a year, until [the Nationalists] took Santander” (Obregón 2005, 90; bracketed note is Obregón’s).

Families were also important because, as elsewhere in Spain, family members were punished for desertion. It was standard bureaucratic procedure in Santander province to initiate a local investigation and attempt to apprehend family members. The standard order to a local municipal government was to detain the deserter in

question, but if he could not be detained within forty-eight hours, the government was directed to seize his family and goods.<sup>9</sup> This applied both to deserters and to defectors. In a typical example, when a soldier in Battalion 118 deserted, the head of the Information Section of the General Staff wrote the Popular Front committee of his town of residence, Torrelavega, to request that an investigation take place to determine if his family or friends were sheltering him or if one of them might have encouraged him to defect to the enemy.<sup>10</sup> If a soldier could anticipate that his family was likely to suffer from his defection, therefore, he might be less likely to defect. Deserters' families were apparently able to escape punishment more easily if they lived in mountain districts. Whole families in Reinosa, a valley town in southern Santander province, took to the nearby hills for safety at the outset of the war (García Guinea 2005, 17). Civilians also took to the hills to flee in the Pas district, where they were aided by the thick fogs that are characteristic of hill country (Obregón 2009, 132-34).

As noted, the left had very little presence in mountain districts, where industrialization and the labor movement had not penetrated very far. Right-wing villages did provide refuge for hidden deserters, and deserters sometimes conceived of physical space in political, left-right terms. One deserter from Lloreda remembers: "We were hidden, there were many who were hidden, Lloreda was a very right-wing village" (Obregón 2005, 90). However, mountain districts were also just isolated from mainstream politics. The county of Liébana, among the most mountainous regions of the province, was certainly right-wing politically. But this was, it seems, more a default option than strong mobilization by the right: before the war, Catholic agricultural syndicates, a key locus of right-wing organizing, had as little presence as left-wing unions (Obregón 2007, 38). Beyond their position on the master cleavage of the war, mountain districts had a sense of isolation from the war. There was little highway access in Liébana at the time, but, as a common expression had it (Obregón 2007, 23), "the war happened on the highway."

Indeed, right-wing sentiment, though prevailing over left-wing attitudes in the mountains, did not determine the role of the mountains in the civil war. An interesting piece of evidence comes from Liébana as well. This was both a district of very high desertion from the Republican side *and* a key locus of eighteen years of anti-Franco guerrilla fighting after the war (Obregón 2007, 334-35, 340-49). This was not just *guerrilleros* from other districts taking advantage of the hill country: in fact, Lebaniego soldiers themselves staffed the guerrilla force in this district, drawing once again on families and friends and their local knowledge to evade capture. While their activity generated local resentment for the repression that it produced, and while places that identified as right-wing often denied the guerrilleros aid, the fact that the guerrilleros organized in rough terrain says something telling about hills. They help people hide, no matter what "side" they are hiding from. It was the potential for evasion that they created, not just their association with the left-right master cleavage of the war, that produced hills' association with desertion.

## Conclusion

The quantitative data analysis and the qualitative evidence suggest a consistent story: soldiers from mountainous terrain had a comparative advantage in their ability to evade capture. Mountainous districts were less easily controlled than others. While mountain districts were also more right-wing than flatter ground, this political difference did not exhaust the distinctions between the two areas. Qualitative evidence indicates, instead, that mountains helped people to evade. This article thus indicates that opportunities to desert may be as important as positive motivations; desertion is not as free a choice as it is often presented. When we observe a deserter from, say, the Afghan National Security Forces, we should not conclude that that individual is an insurgent sympathizer while a nondeserter is not; what separates them may have more to do with opportunities to leave that are not immediately evident.

This discussion produces some concluding thoughts about structural variables and the micro/macro divide. There is a general association between macro analyses and structural variables, and micro analyses and endogenous conflict processes. As a running example, consider civil war onset. Macro analyses seek to identify structural conditions in a country that will give people reasons or opportunities to fight (Fearon and Laitin 2003; Collier and Hoeffler 2004; Hegre and Sambanis 2006; Cederman, Buhaug, and Rød 2009). Micro-level analyses tend to have more roles. First, micro-level studies have examined the microfoundations of macro accounts of recruitment (Humphreys and Weinstein 2008), seeking mainly to establish whether macro theories work as is claimed. Second, micro analyses also have a special opportunity to explore endogenous processes of mobilization (Brass 1997; Petersen 2001; Wood 2003; Viterna 2006) because they have access to a level of detail not open to macro analyses. These analyses add richness and depth to our understanding of conflict.

While this division of labor has been productive, this article suggests that it can be worthwhile to cross it. This article uses structural features of a conflict to illuminate the micro level, and disaggregated, endogenous individual agendas to illuminate the macro level. This produces two new insights for the study of civil wars. By using terrain, a structural variable par excellence, to explain patterns of control, this article goes beyond existing micro-level studies of control by suggesting that armed groups may confront problems of maintaining control that persist from times of peace. Second, by exploring the multiple uses to which individuals can put rough terrain, it tries to identify what these different uses have in common, clarifying just what a macro-level analysis says when it employs this structural variable.

The first point is to offer a refinement on Kalyvas's well-known control-collaboration approach to civil war behavior (Kalyvas 2006). In Kalyvas's work, patterns of control correspond to the contestation between two armed groups. In areas where this contestation is fiercest, individual civilians (as well as certain combatants like militias) have a clear opportunity to defect. In uncontested ground, however, individuals lack this ability to switch sides: one group's control is firmly in

place. Control thus emerges endogenously from the contestation that comes with civil war. Since this contestation is what is distinctive about civil wars, the logic that Kalyvas offers is broadly applicable and compelling.

However, the approach that I develop here reinforces an additional logic of control. Whereas Kalyvas argues that there is strong control in zones that are uncontested by opponents, this article suggests that this control may vary even within such zones, with important consequences for the war effort. Just as states can vary in their ability to compel citizens' compliance (Mann 1986; Migdal 1988; Tilly 1992), armed groups in civil wars can vary as well. Other scholars have already investigated variations in degrees of internal control, within territories that are not contested by other armed groups (Weinstein 2007). I extend this point to argue that just as state control varies in part by geographical factors (Herbst 2000), so does control exercised by armed groups within civil wars.

This new account suggests that control is not just endogenous to the context of civil war, but instead can have some strongly structural origins relating to terrain. While contestation between armed groups is the essence of civil war, civil war actors will also confront challenges that state builders face in peacetime. For example, if it is particularly expensive for an armed group to impose its control over a place, the armed group may be willing to make greater concessions in negotiating an alliance with the civilian community working there, for example, greater autonomy, lower taxation rates, or more favorable terms of service for that community's young men. The autonomy of geographic peripheries in civil wars is thus an interesting avenue for future research.

The second point concerns the impact of rough terrain on armed groups. Rough terrain has attracted considerable interest as a predictor of civil war. The principal argument, the insurgency thesis, asks how weak nascent rebel groups are able to survive at all against much more powerful states. The answer offered is that mountains provide a safe haven to organize insurgency (Mao 2000; Sinno 2008). This generates a structural argument par excellence, explaining why some countries and some ethnic out-groups are more prone to rebellion than others in virtue of unchanging geographic characteristics (Fearon and Laitin 2003; Cederman, Buhaug, and Rød 2009).

Some may wonder if this article's main finding challenges the insurgency thesis: how can rough terrain at once impede and facilitate armed organizations? Here, it is important to underline the Spanish context: a conventionally fought civil war pitting two fairly evenly matched rival states, both based in the lowlands, against each other. It was not the sort of highly asymmetric conflict that is the focus of the insurgency thesis. As I note earlier, after the Republic was defeated and the conflict became asymmetric guerrilla warfare, the same mountains that had provided refuge for deserters from the Republican forces now did the same for Republican insurgents. This article's finding can be read as a reminder that the insurgency thesis applies in the first instance to weak guerrilla groups and that stronger armies may find rough terrain more a hindrance than a help at the margins.

This article's finding, indeed, highlights the multiple uses of rough terrain in civil wars. People can want to hide for different reasons in a civil war context, and mountains can help them do so. Accepting this is consistent with taking seriously that individuals have multiple agendas in civil wars. Both guerrilla groups in asymmetric conflict, and deserters from armed groups, are weak actors who can use terrain to evade stronger ones: state security forces and the deserter's own armed group, respectively. James Scott (2009, 94-95, 146-49) finds a similar polyvalence of terrain. Hilly terrain in Southeast Asia has allowed civilians to flee wars, and the conscription and pillaging that they entail, but it has also allowed them to start and continue wars, such as the Karen insurgency in Myanmar.

This analysis in fact clarifies the case for the structural importance of terrain in the onset of civil war. Rough terrain facilitates evasion, and many forms of evasion can facilitate civil war. The terrain–insurgency link has come under some criticism recently: at small geographic scales, mountainous terrain is not any likelier to experience violence than flat ground (Buhaug and Rød 2006), and irregular warfare is not any more associated with rough terrain than conventional war is (Kalyvas and Balcells 2010). But insurgency does not exhaust the link between terrain and civil war. Rough terrain permits some ethnic groups to live beyond the reach of the state, as in Latin America's "regions of refuge" (Aguirre Beltrán 1979), fostering separation among peoples and giving impetus to ethnonationalist rebellions (Cederman, Buhaug, and Rød 2009). It may also make taxation more difficult and thus reduce the state's fiscal resources for confronting rebellions (Hendrix 2011). In some instances, rough terrain may even facilitate rebellion by weakening the government army through desertion—an intriguing area for future research. What all of these mechanisms—insurgency, ethnic separation, tax resistance, and desertion—have in common is that they involve individuals using rough terrain to avoid the agents of the state. They help explain why *countries* with rough terrain still seem to have more civil wars than others, even if specific areas of rough terrain suffer no more violence than others. By reminding us of the evasive potential of rough terrain, and of the multiple ways in which hiding matters for civil wars, this article's micro-level analysis helps to clarify the macro-level impact of a structural variable. Mountainous terrain can be hard to rule, and people can use it to evade for different reasons. In a civil war context, "head for the hills" can mean many things.

## Acknowledgments

I am indebted to Juan Carlos García Funes for able research assistance in Salamanca. I thank Laia Balcells and Patricia Justino for their excellent comments and editorial help. I received enormously helpful advice and commentary from many, above all from Hudson Meadwell and Steve Saideman, and from Rob Blair, Juan Díez, Stathis Kalyvas, Janet Lewis, Joan R. Roses, Stuart Soroka, Ora Szekely, two anonymous reviewers, and audiences at the Households in Conflict Network and at Yale, Queen's, and Tufts Universities.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author gratefully acknowledges funding by a Canada Graduate Scholarship and Michael Smith Foreign Study Supplement from the Social Sciences and Humanities Research Council of Canada.

## Notes

1. I do not discuss civilian defection or ethnic defection (the phenomenon of coethnics fighting on the “wrong” side).
2. Is it also not hard to find people in urban settings, with labyrinthine streets and the anonymity of crowds? Possibly, but, unlike with mountains, an armed group possessing a city would often concentrate its rearguard personnel there, for efficiency’s sake—and hence provide a counterweight to any opportunities for evasion. It is not clear that there should be any net benefit for deserters. As it happens, I found no relationship between urban settings (measured by population density in each municipality and by the percentage of property wealth listed by the Santander government as urban rather than rural) and desertion rates.
3. Centro Documental de la Memoria Histórica (CDMH), Sección Político-Social (PS) Santander A, caja 180, carpeta 7; CDMH, PS Santander A, caja 190, carpeta 4.
4. CDMH, PS Santander C, caja 26, carpetas 1-4; CDMH, PS Santander M, caja 7, carpeta 12; CDMH, PS Santander A, caja 188, carpeta 4.
5. The large bulk of these files are contained in CDMH, PS Santander A, cajas 1-72.
6. A fixed-effects model is impossible in this context: municipality-fixed effects would preclude the analysis of municipality-level variables like terrain.
7. Letter, June 23, 1937. Archivo General Militar, Ávila [AGMAV], Documentación de la República [DR], armario 63, legajo 855, carpeta 1, document 1, page 3.
8. Letter, June 23, 1937. AGMAV, DR, armario 63, legajo 855, carpeta 1, document 1, page 3.
9. For example, letter, August 9, 1937. CDMH, PS Santander L, caja 412, carpeta 18, page 25.
10. Letter, June 22, 1937. CDMH, PS Santander L, caja 406, carpeta 5, page 57.

## Supplemental Material

The online appendices are available at <http://jcr.sagepub.com/supplemental>.

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