

Revisiting “Killings and Migration in Kosovo:”
responses to additional data and analysis¹

January 28, 2007

¹This report quotes from and expands ideas from the report “Killings and Migration in Kosovo,” by Patrick Ball, Wendy Betts, Fritz Scheuren, Jana Dudukovic, and Jana Asher. Washington, DC: AAAS and ABA/CEELI, 3 January 2002. The current report was prepared by Patrick Ball, Meghan Lynch, and Amelia Hoover of the Human Rights Program of the Benetech Initiative.

Executive Summary

In the following report on the causes of killings and refugee flow in Kosovo between March-June 1999, we confirm and expand upon the results presented in our 2002 analysis.

We describe a revised and expanded analysis of the potential causal relationship between KLA or NATO activity and peak periods of killing or refugee flow. We discuss how our coding scheme was intentionally conservative to provide the strongest possible test of the claims that the KLA or NATO was the primary cause of killings and refugee flow. As we show, with minimal, plausible assumptions, our conclusions would be even stronger.

We conclude by showing that the addition of new datasets on disappearances, the identification of human remains, and migration does not substantively change our prior results. With this report, we confirm our conclusions from 2002: we find that the data are inconsistent with the claim that the KLA or NATO could have been substantial causes of the killing and migration in Kosovo during the period March-June 1999.

Sequence of hypothetical causes and effects

Statistics do not prove that any particular process caused either refugee flow or mass killing patterns. However, analysis can show whether specific hypotheses are consistent with or contradicted by the statistical evidence.¹ In both the 2002 report and in the present report, we consider three hypotheses about the causes of observed patterns in refugee flow and killings. These three hypothesized causes are KLA activity, NATO airstrikes, or a systematic campaign conducted by Yugoslav forces; because of available data, we are only able to consider directly the first two.

If KLA activity or NATO airstrikes occur immediately before or during periods of high levels of killing and migration, these events may plausibly be the cause of the rise and fall pattern. However, if airstrikes or KLA activity does not precede the peaks in the number of killings and refugee flow, then the causal relationship should be questioned or rejected. An analysis of KLA activity and NATO airstrikes over time and place shows that neither occurred at the times and places necessary to be the primary cause of the refugee flow and killings.

In 2002, we used the following procedure to analyze the occurrence of KLA or NATO activity in relation to the pattern of killings and refugee flow. For each municipality in Kosovo, we listed chronologically, by two-day period, the numbers of refugees departing their homes, the number of reported killings, and the incidence of KLA and NATO activity.² For this analysis, KLA activity included

¹This section quotes from and expands Section 5, pages 8-11, including Figures 8 and 9, from the 2002 report.

²Note that for this analysis, we used only the number of reported killings, not the estimated total number. The data are inadequate to make estimates at the municipality-by-two-day level. In Appendix Two of the 2002 report, we showed that estimation to adjust for underreporting changed

both battles and isolated killings of Serbs. The two-day periods marking the peaks for refugee flow and killings were identified. If an incidence of KLA or NATO activity fell within the same period or in the two-day period preceding the peak, we concluded that the two events coincided. If there was no record of KLA or NATO activity at any point prior to the peak, we concluded that KLA or NATO activity occurred only after the peak. If an incidence of KLA or NATO activity occurred earlier than two days prior to the peak period, the municipality was counted as having an inconclusive pattern.

Across municipalities, the current analysis again shows no discernible causal relationship between KLA or NATO activity and peaks in migration and confirmed deaths. Because the data coding process was automated for the 2007 analysis, the analysis reached slightly different conclusions about a few peaks. However, none of these recategorizations alters the conclusions.

The procedure used in the current report was analogous to the procedure followed in 2002. However, to further increase precision, the analysis was automated: all conclusions regarding the relationship between KLA or NATO activity and peaks in refugee flow and killing were machine-generated. As in 2002, we conducted four analyses for each of twenty-nine municipalities: we investigated (1) the relationship between peak refugee flow and KLA actions, (2) the relationship between the peak period for killings and KLA actions, (3) the relationship between peak refugee flow and NATO bombings, and (4) the relationship between the peak period for killings and NATO bombings.

In the first analysis (1), we calculated the peak two-day period for refugee flow in each municipality, and then determined whether KLA activity (as described in the 2002 report) occurred during that two-day period or the two-day period immediately preceding it. If so, then the peak was coded as "Coincides" with KLA actions. If, alternatively, KLA actions preceded the peak refugee flow by two periods or more, then the evidence was labeled "Inconclusive": the data neither support nor refute hypotheses about the causal effect of KLA actions on refugee flow. Finally, if no KLA actions occurred prior to the period of peak refugee flow, then KLA actions could not have caused these peaks, and the evidence was coded as "No prior." We repeated the analysis for each hypothetical causal relationship in each municipality. The results of this analysis are presented in Table 1.

As noted above, the 2007 analysis is consistent with the conclusions of the original 2002 analysis. For both KLA and NATO, one or a few peaks have been recategorized, but the balance of categorizations remains similar. For example, while peak periods for killings were recoded as "Coincides" with NATO bombings in three municipalities, it is still the case that in 19 of 29 municipalities, no NATO activity preceded the peak period for confirmed deaths. Moreover, another three peaks have been recoded from "Inconclusive" to "No prior" or from "Coincides" to "Inconclusive," further weakening the case for the KLA and NATO hypotheses. We conclude that the evidence fails to support the hypotheses that

the magnitude and relative importance of peaks. However, the adjustment did not substantially alter the pattern of peaks and troughs which is in question here. An analysis of the potential impact of alternative peaks is shown below.

Table 1: Coincidence of KLA and NATO actions with killing and migration

| Municipality | KLA⇒kill | NATO⇒kill | KLA⇒migration | NATO⇒migration |
|--------------------|--------------|--------------|---------------|----------------|
| Decani | Inconclusive | Coincides | Coincides | No prior |
| Djakovica | Coincides | Coincides | Inconclusive | Inconclusive |
| Glogovac | Inconclusive | No prior | Coincides | No prior |
| Gnjilane | No prior | Inconclusive | No prior | Coincides |
| Gora | No prior | No prior | No prior | No prior |
| Istok | Inconclusive | No prior | Inconclusive | Inconclusive |
| Kacanik | Inconclusive | No prior | Inconclusive | No prior |
| Klina | Inconclusive | Coincides | Coincides | No prior |
| Kosovo Polje | No prior | No prior | No prior | Inconclusive |
| Kosovska Kamenica | No prior | No prior | No prior | No prior |
| Kosovska Mitrovica | Coincides | No prior | Inconclusive | Coincides |
| Leposavic | No prior | No prior | No prior | No prior |
| Lipljan | Coincides | Inconclusive | Coincides | Inconclusive |
| Novo Brdo | No prior | No prior | No prior | No prior |
| Obilic | No prior | No prior | No prior | No prior |
| Orahovac | Coincides | No prior | Coincides | Coincides |
| Pec | Coincides | Coincides | Coincides | Coincides |
| Podujevo | Inconclusive | Inconclusive | Inconclusive | Coincides |
| Pristina | Coincides | Coincides | Coincides | Coincides |
| Prizren | Coincides | No prior | Coincides | Coincides |
| Srbica | Coincides | No prior | Inconclusive | Inconclusive |
| Stimlje | No prior | No prior | No prior | Coincides |
| Strpce | No prior | No prior | No prior | No prior |
| Suva Reka | Coincides | No prior | Coincides | No prior |
| Urosevac | No prior | No prior | Inconclusive | Coincides |
| Vitina | No prior | Inconclusive | No prior | Inconclusive |
| Vucitrn | Coincides | No prior | Coincides | No prior |
| Zubin Potok | Inconclusive | Coincides | No prior | No prior |
| Zvecane | No prior | No prior | No prior | No prior |

either KLA or NATO actions could have been the primary cause of killings or migration.

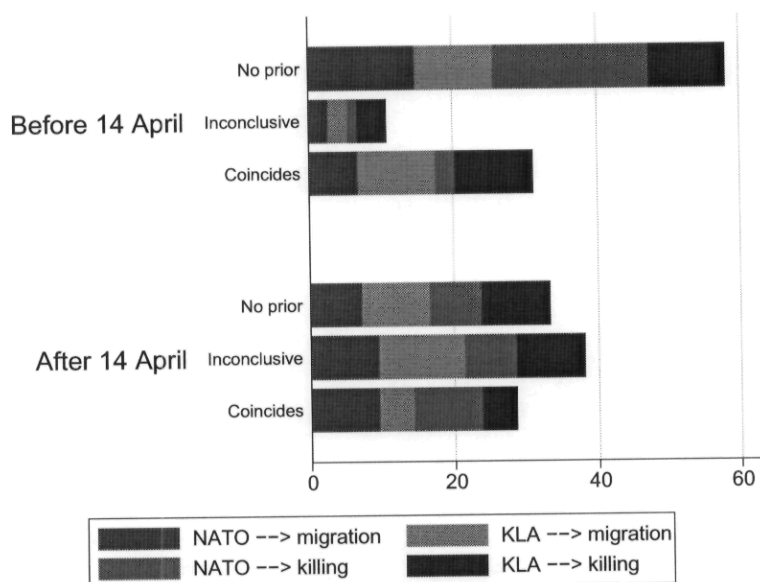
In the graphs presented in the Appendix, KLA activity, NATO bombings, refugee flow, and killings are shown by municipality over time. Examining a few representative graphs illustrates the coding described above. Seven of the twenty-nine municipalities (Gora, Kosovska Kamenica, Leposavic, Novo Brdo, Obilic, Strpce, and Zvecane) experienced no KLA or NATO activity prior to the peak period of migration or killings, indicating that in these municipalities, the peaks in migration and killing could not have been caused by KLA or NATO activity. In Gora, for example, there was significant migration from the area (8246 refugees on the peak day), but no KLA or NATO activity reported. In Podujevo, it is more difficult to draw conclusions from the patterns: the peak of killings, for example, is before the greatest period of KLA activity, but the effect of KLA on killing is coded as inconclusive because some non-zero amount of KLA activity occurred before the peak of killings. The peak of migration occurs shortly after a NATO bombing, so we code that peak as coinciding with NATO activity. Note that "coinciding" measures correlation rather than causation. We do not know what other events may have occurred at the same time, so the most we can infer from these data is that a NATO bombing occurred prior to a wave of migration. In Pristina, both KLA and NATO activity coincide with killings and refugee flow. Pristina experienced more NATO bombings (twelve) than any other municipality, and there were multiple KLA interactions with the police. However, these results are unsurprising because Pristina is the capital of Kosovo, the site of several military installations, and was consequently a center of KLA and NATO activity.

Re-evaluating the effect of the coding rules

Both the 2002 and 2007 analyses used "conservative" coding rules in order to give the KLA and NATO hypotheses the fairest possible test. That is, if there were any possibility that the KLA or NATO could have caused migration or killing, the municipality was coded as inconclusive or coinciding. The coding scheme that produced the categorization in the table above may have yielded excessively conservative results for three reasons.

The first reason is timing. Peaks are labeled as inconclusive with respect to NATO or KLA effect on killing or migration if *any* KLA or NATO activity was observed prior to the peak. Peaks toward the end of the period are thus more likely to be labeled as inconclusive, even if the KLA or NATO activity was far removed from the peak in time. For example, in Decani the peak of killings occurs late in the period, while most KLA activity occurred very early in the time period. Although KLA activity is unlikely to have affected these later-observed peaks, the case is nonetheless categorized as inconclusive with regard to KLA effect on killings. The data demonstrate that the "inconclusive" category includes some municipalities in which the peak refugee flow or peak period of killings occurred much later (even months later) than KLA activity or NATO bombing. If our "inconclusive" coding rule had limited the time difference between KLA

Figure 1: Percent Coded “Inconclusive” by Period



or NATO activity and peak refugee flows or killings, then several more municipalities would have been coded as “no prior.”

Indeed, “inconclusive” codings fall much more heavily in the second half of the period under analysis.³ If the length of time between putative cause and potential effect made no difference to the outcome of coding, we would expect to observe roughly equal proportions of “inconclusive” results in the first and second halves of our date range. However, this is clearly not the case (see Figure 1). Before 14 April, the fraction of all peaks that are categorized as inconclusive is approximately 10%, while it is nearly 40% for the peaks that occur after 14 April. As the period advances, there is more time available for KLA or NATO activity to have occurred earlier, thereby creating a possibly spurious “inconclusive” finding.

The second reason our coding scheme may have produced conservative results is that it considers only the *peak* of killings and migration. Some secondary or minor peaks provide further evidence of cases in which KLA or NATO activity did not affect killings or migration. In Stimlje, for example, a secondary peak of migration and of killings that both occur at the same time has no prior NATO or KLA activity. Even though the peak of migration in this graph coincides with

³Both the 2002 and the 2007 analyses considered 27 consecutive two-day periods in each of the 29 municipalities. The first half of this period begins 20 March and ends 13 April; the second half begins 14 April and ends 11 May.

a NATO bombing, a clear secondary peak does not coincide either with NATO or KLA activity. Similarly, in Urosevac, the peak of killing (29 reported dead) is followed shortly by another, secondary peak in killing (22 reported dead). No NATO or KLA activity was reported prior to either of the peaks; however, only one of the two peaks is counted as evidence that KLA and NATO activity were not the primary cause of killings and migration.

This analysis presents cases where peaks of migration and killing were preceded by NATO or KLA activity to see if positive evidence exists of NATO or the KLA's effect on killings and migration. However, we can also use negative evidence – looking at what did *not* occur. In addition to peaks of killings or migration not preceded by KLA or NATO activity, we can also look at periods of KLA or NATO activity not followed by killings or migration. For example, in Kosovo Polje, where two NATO bombings occur in the second half of the period (on 27 April and 9 May), no killings followed and extremely minimal migration is reported (of 11,502 total reported refugees from Kosovo Polje, only nine people left on or after 27 April). In Leposavic, there were three reported NATO airstrikes, none of which was closely followed by killing or migration. Urosevac provides a final example: out of 137 people reported killed during this time period, only four (2.9%) were killed after KLA activity began.

We conclude that the data are not consistent with the claim that either KLA or NATO activity could account for the timing or location of migration and killings. The patterns of killings and migration are widespread and systematic, but they do not consistently link to KLA or NATO activity, nor do KLA or NATO activity consistently link to the patterns of killing and migration. There are killings and migration unexplained by NATO and KLA activity, as well as NATO and KLA activity not followed by killings and migration. Therefore, some other factor is needed to explain the patterns of killings and migration in Kosovo during March-June, 1999.

Additional data from ICMP, ICRC, and OMPF

OTP made available datasets of identified human remains and persons missing from Kosovo. There were insufficient resources available to match the new datasets to the four datasets used in the earlier work in order to conduct further multiple systems estimation. However, we compared the ICMP, ICRC, and OMPF reported killings to the estimated total killings presented in the 2002 report; the results are shown in Figure 2.

This graph presents the maximum and minimum of the ICMP, ICRC, and OMPF data for each two day period, compared to the multiple systems estimate from the 2002 report.⁴ Relative to the estimates, there are fewer deaths

⁴“Multiple systems estimation” is a technique which uses two or more independent sources of information about a process to project the *total* number of cases of that process. The utility of this method is that the number of cases that are never documented can be estimated so that the resulting analysis is not biased due to some cases being hidden. The method is widely used to correct censuses and estimate wildlife populations.

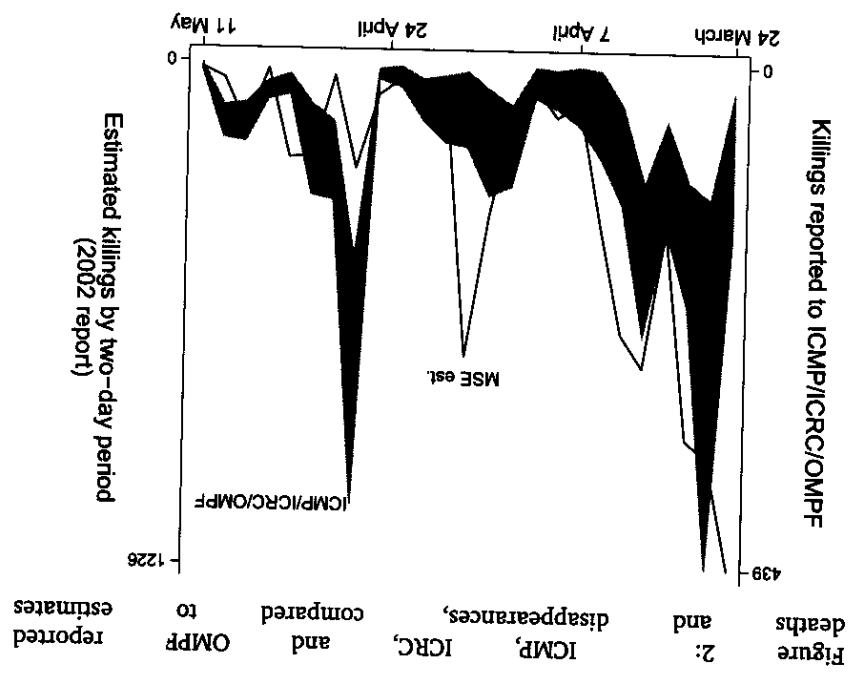


Figure 2: and deaths reported to ICMP, ICRC, and OMPF compared to reported estimates

in any one of the new series, so the maximum reported number of killings in any two-day period was 439, contrasting with the peak of 1226 maximum estimated killings. However, the ICMP/ ICRC/ OMPF reported deaths follow a very similar pattern to the 2002 estimates. The characteristic three-phase cycle of the conflict can be seen in the three new series. The new series report that the later period saw a brief high point of killings; this peak was relatively less important in the estimates. To evaluate whether this pattern is significant would require a complete match of all seven datasets and subsequent re-estimation of the pattern over time. Nonetheless, the minor difference observed in early May does not affect the substantive interpretation of the pattern presented in the 2002 report. We therefore find that it is unlikely that including one or all of the new series would substantially change the estimates or interpretations made in 2002.

Additional data from UNHCR

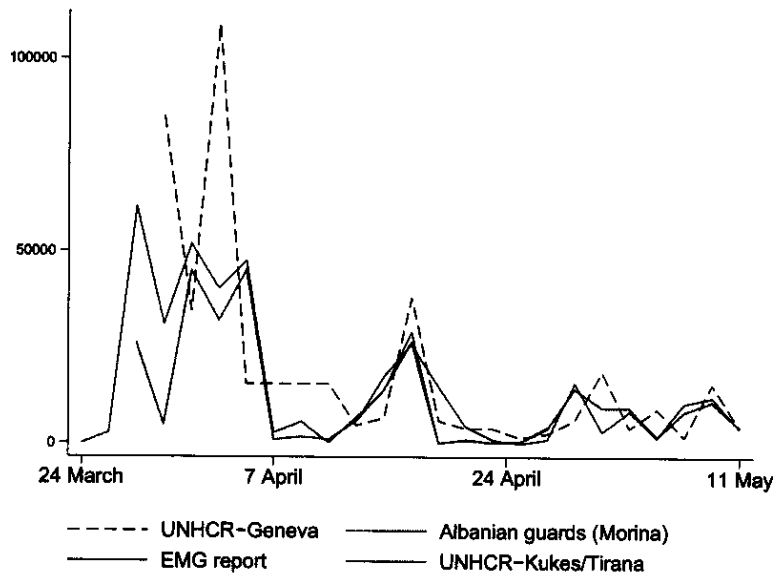
OTP made available a file from UNHCR-Geneva containing daily reported totals of refugees from Kosovo under protection in neighboring countries. The graph below compares the UNHCR Geneva series data on refugees in Albania to three other sources: the Albanian border guards' daily registries, the totals reported by UNHCR in Kukes and in daily press conferences in Tirana, and the totals reported by the Albanian government Emergency Management Group.

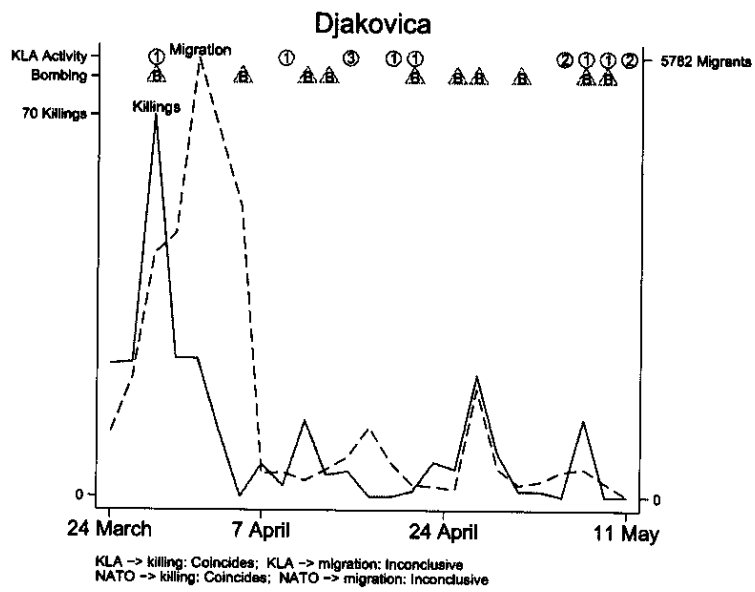
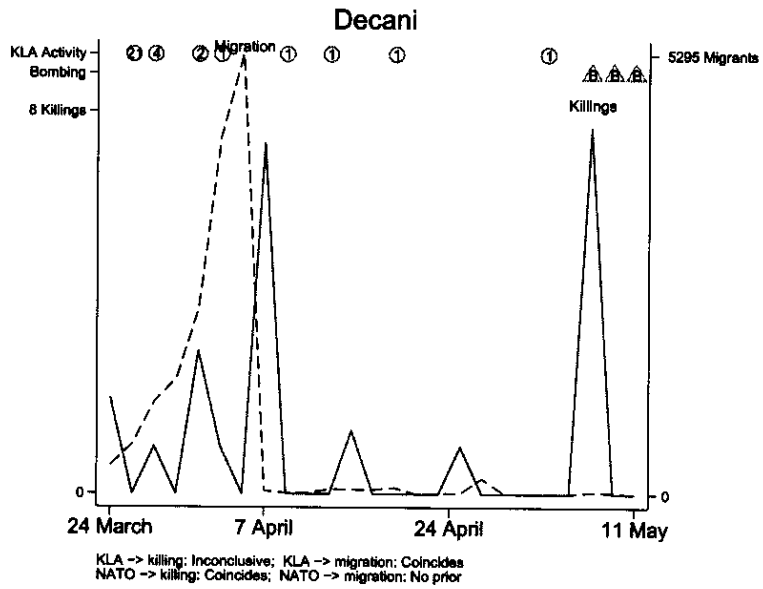
The series are substantially identical. The UNHCR-Geneva data tend to be episodic, as if the statistical reporting reached them only after several days. The characteristic three-phase rising and falling patterns coincide in all series. We conclude that adding the UNHCR-Geneva data to the 2002 analysis would not substantially change the statistical conclusions.

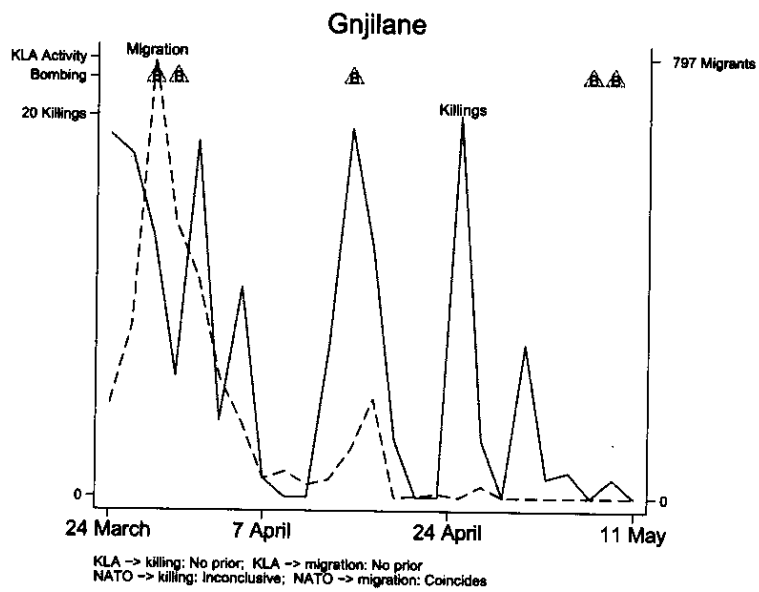
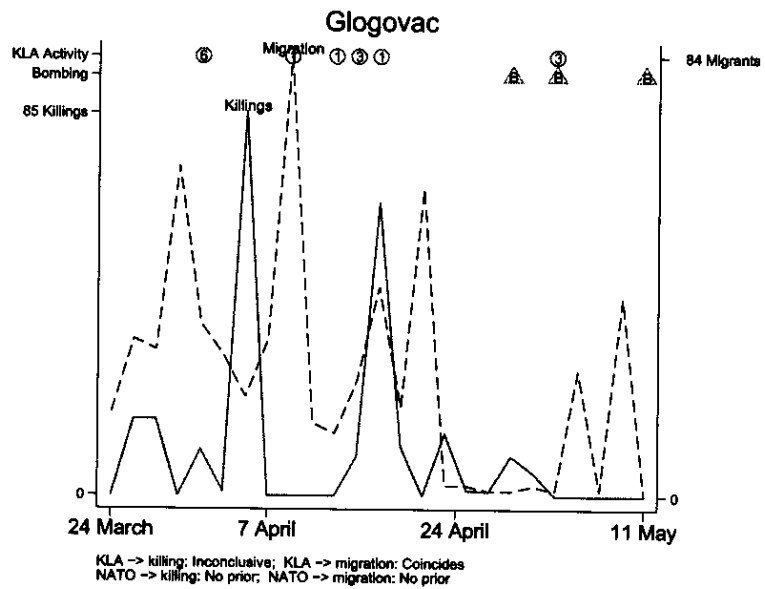
Appendix: Graphs of killing, migration, KLA and NATO activity, by municipality

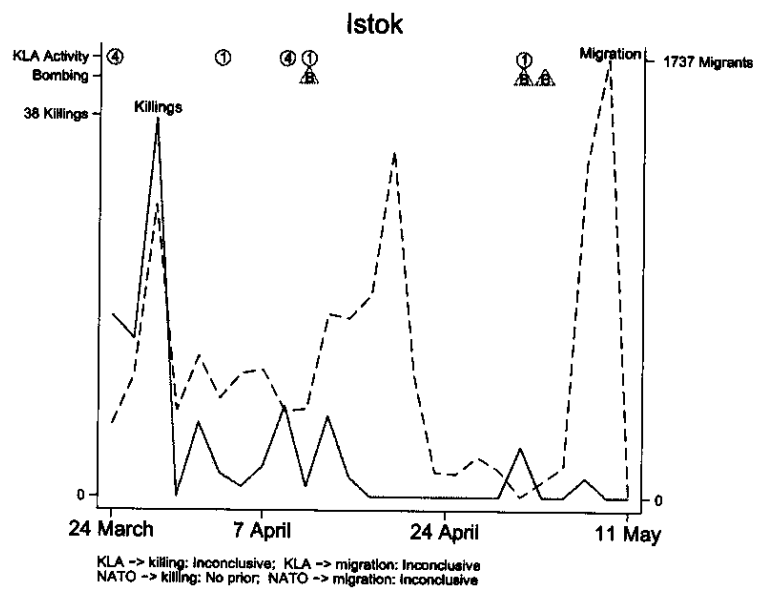
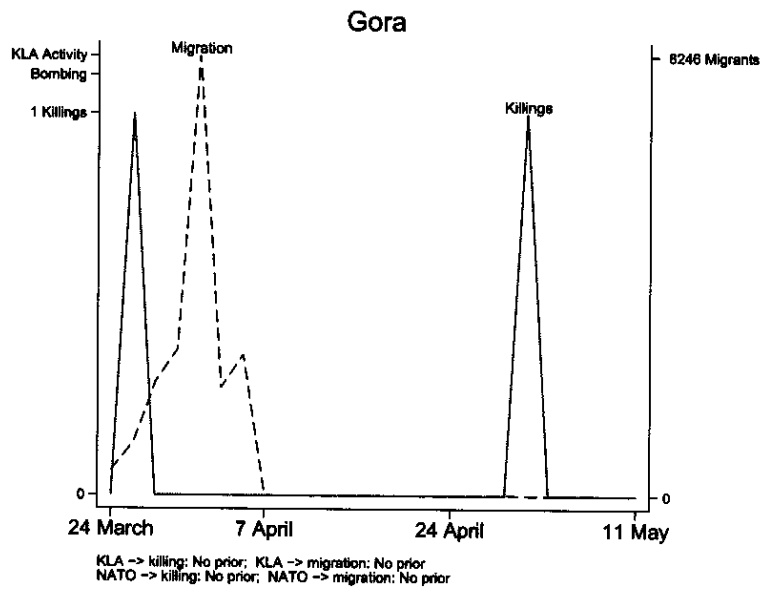
The graphs below show the two-day total reported killings, migration, KLA activity, and NATO airstrikes for each of Kosovo's 29 municipalities. Reported killings and migration are shown by lines on the graphs, with the peak of each series identified. The maximum numbers of killings and migrants are identified on the vertical axes. KLA activity is shown in circles across the top of the graph, with the number the of reported incidents in each two-day period in the circle. NATO airstrikes are denoted by triangles enclosing the letter "B."

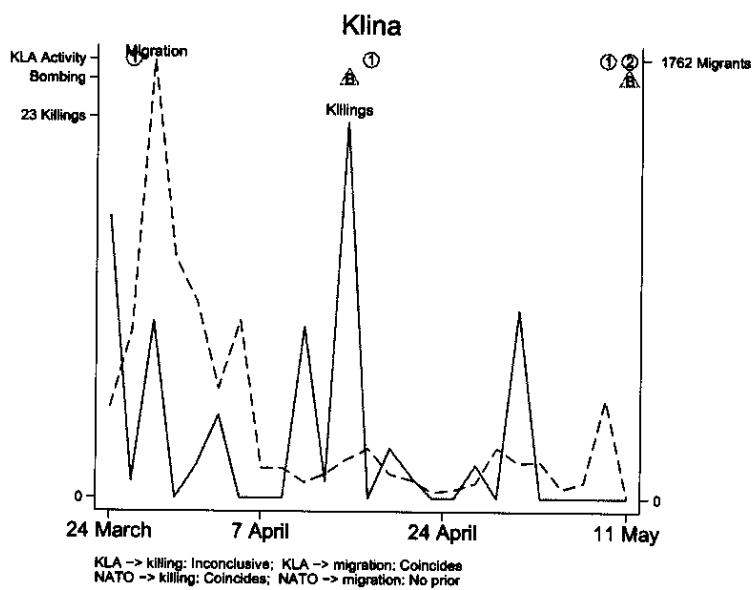
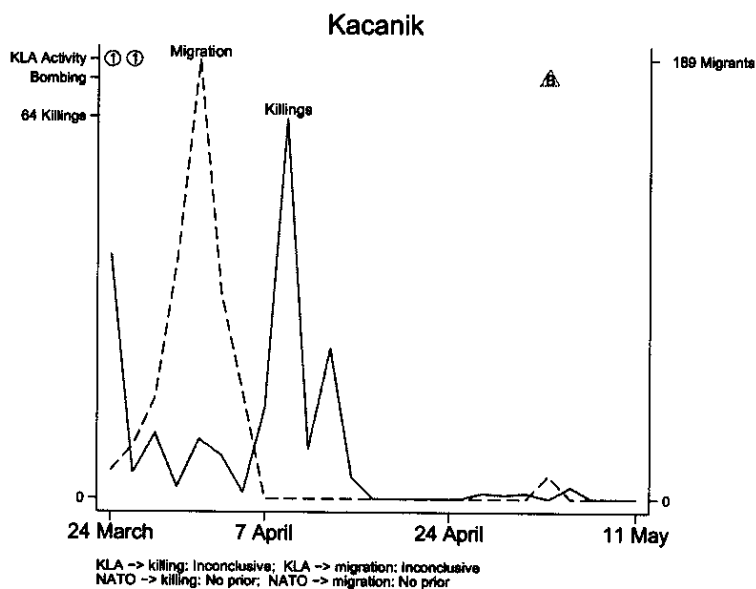
Figure 3: People leaving Kosovo, four sources

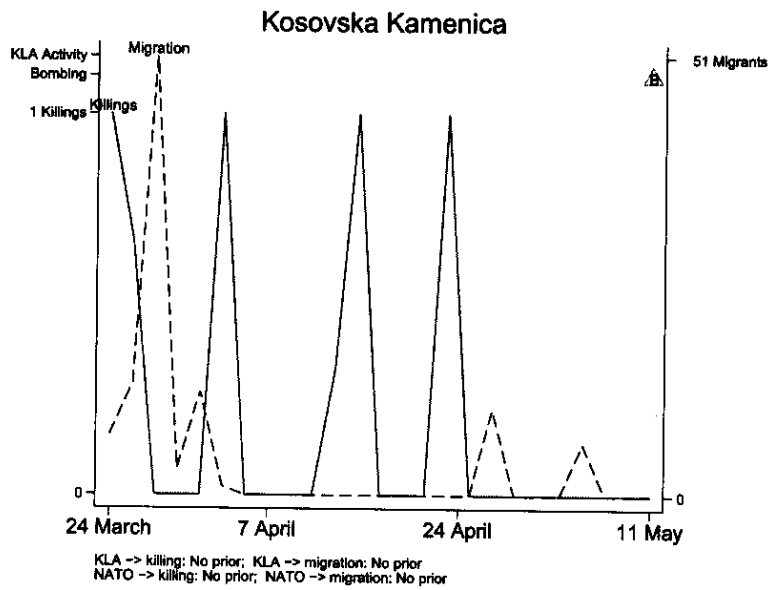
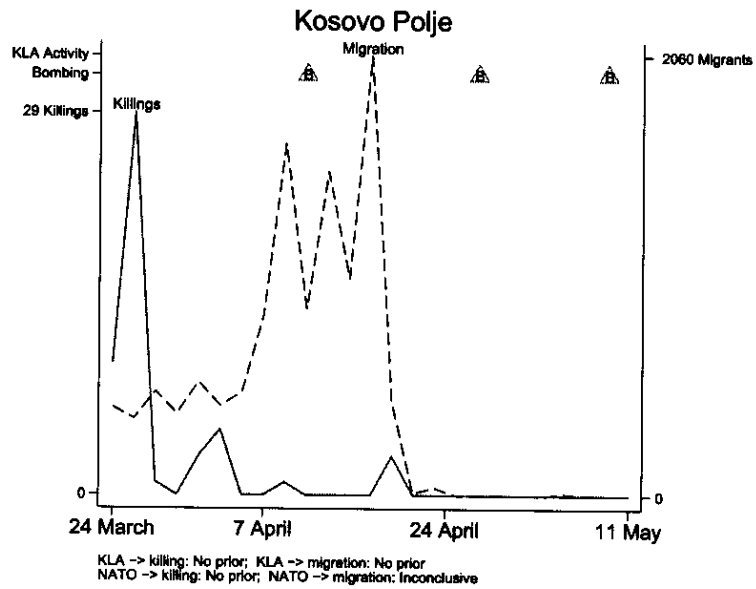


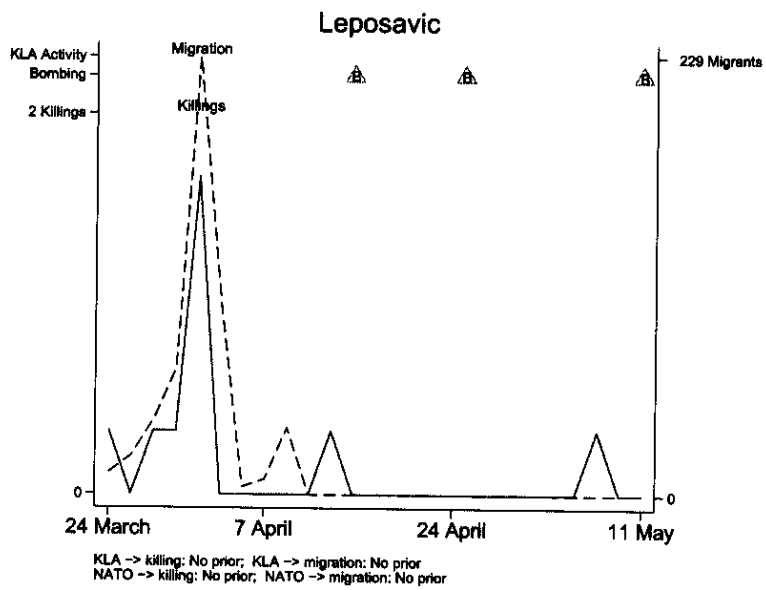
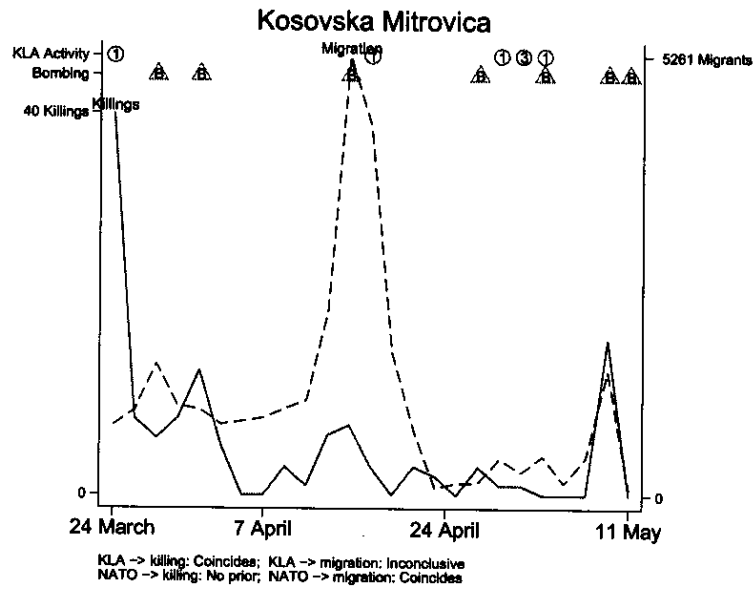


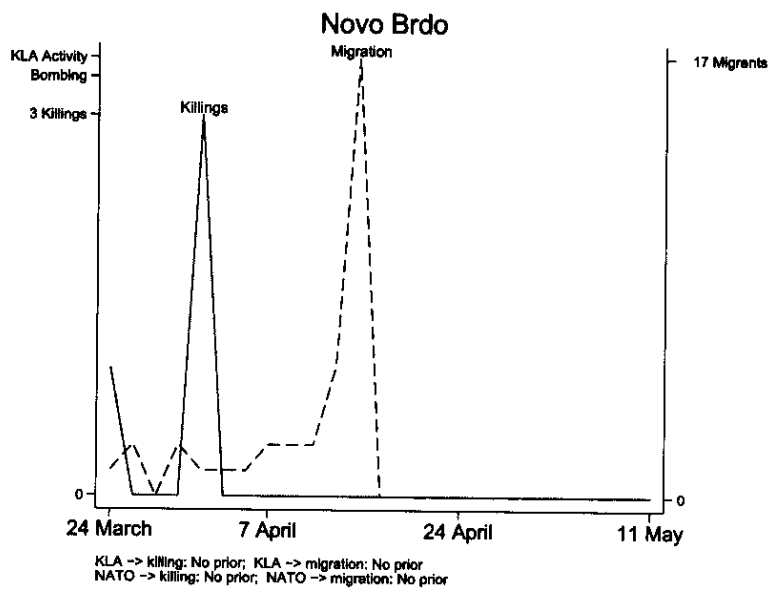
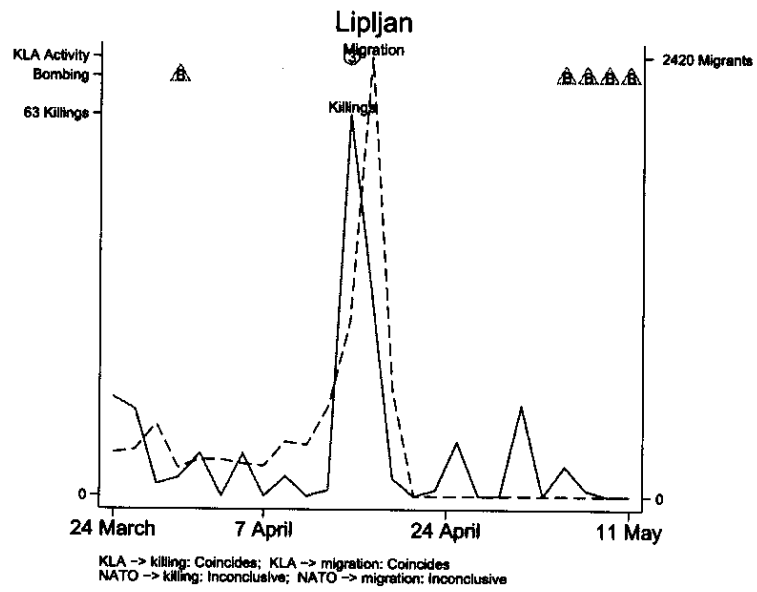


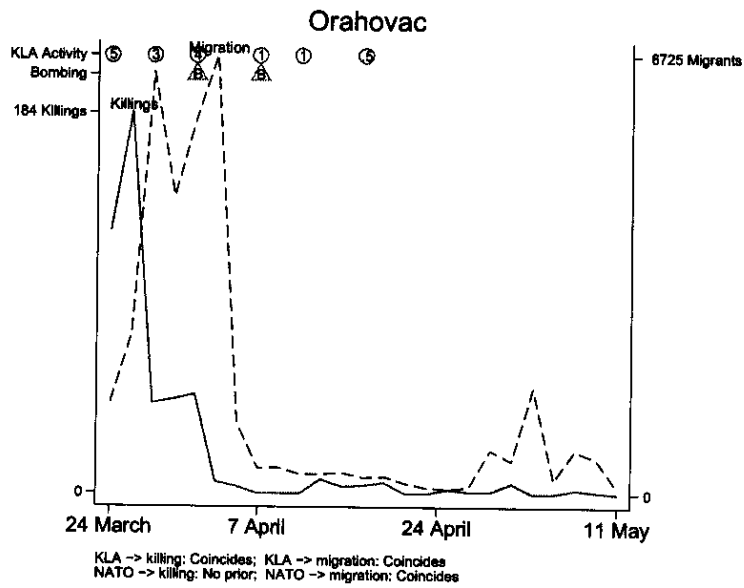
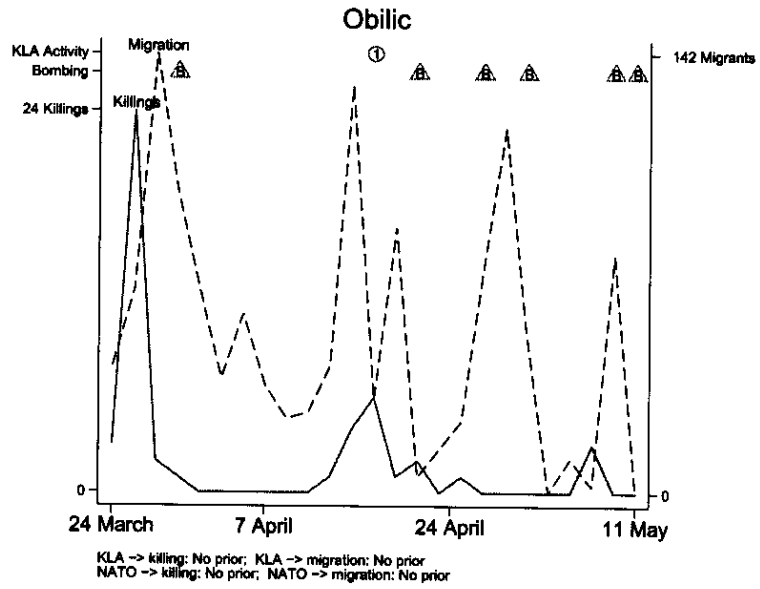


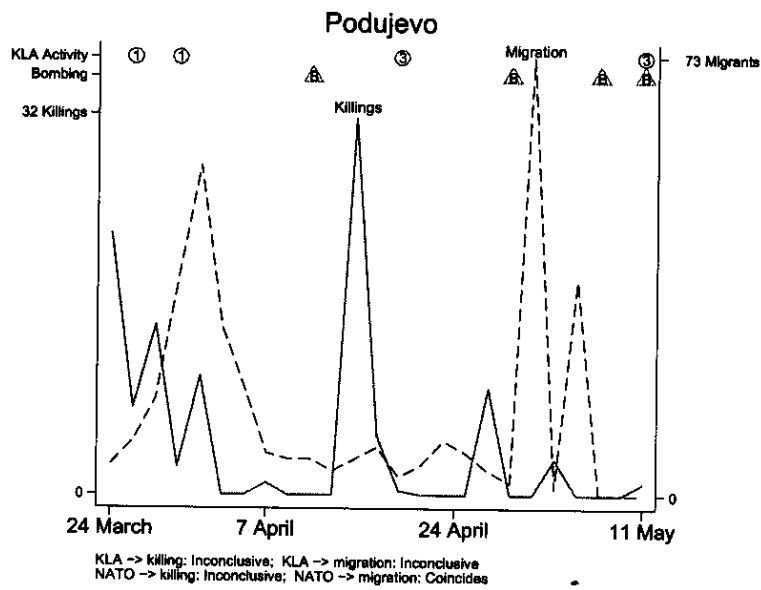
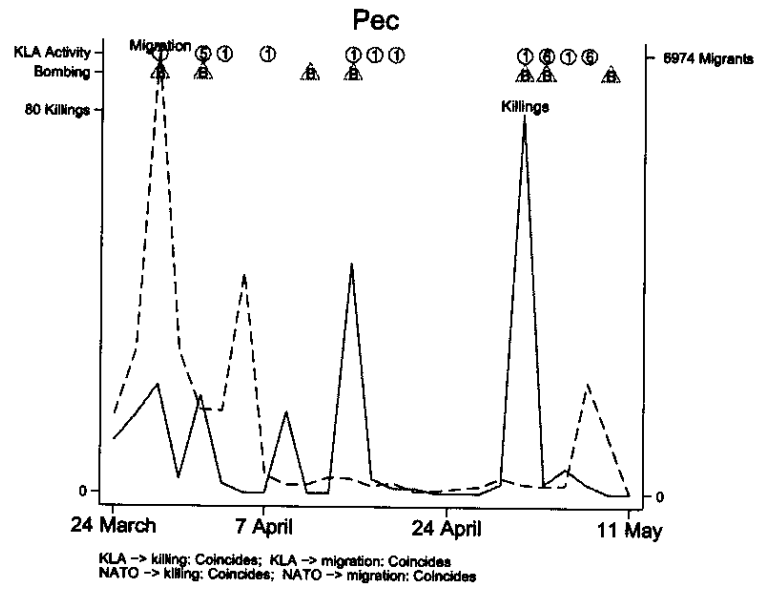


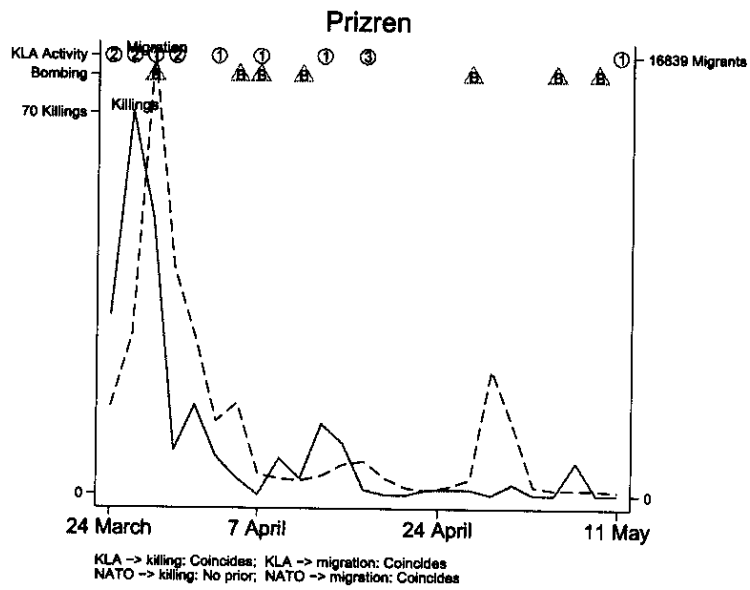
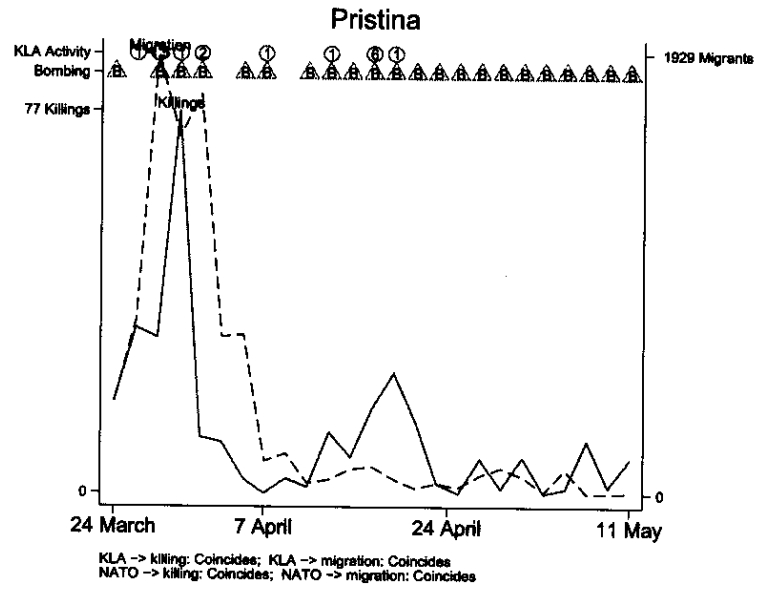


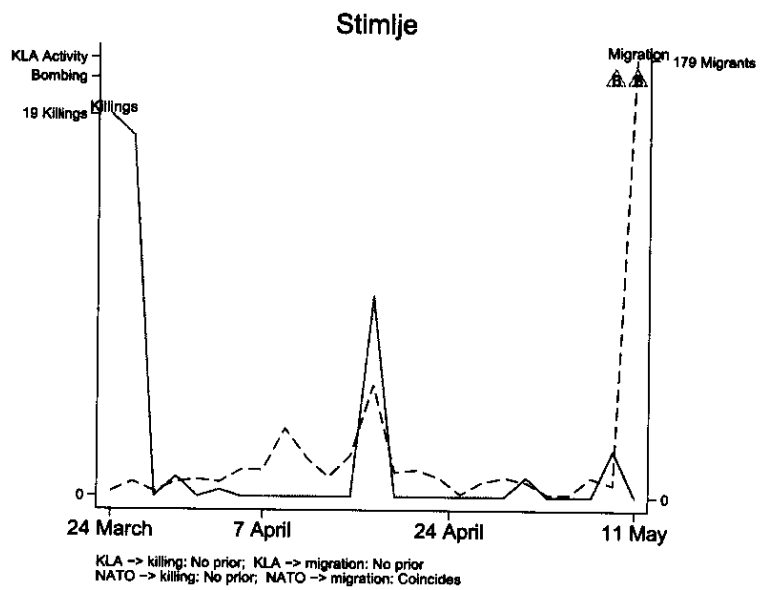
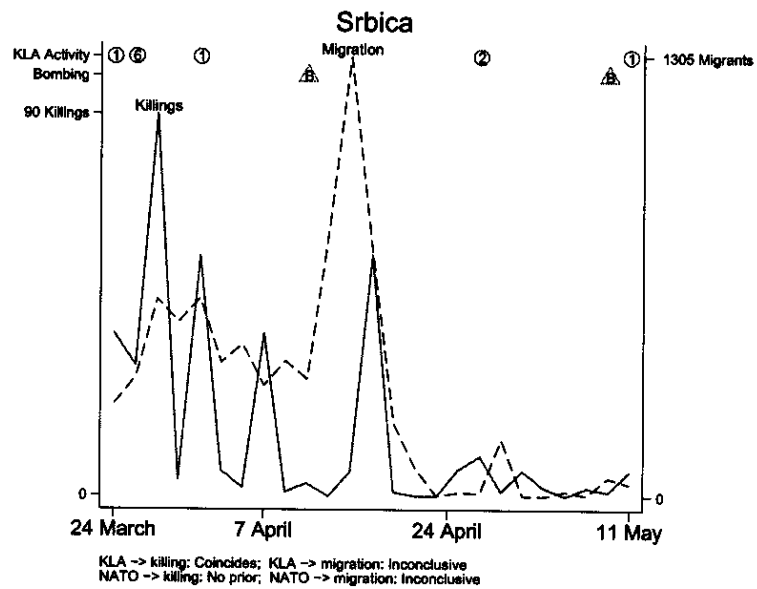


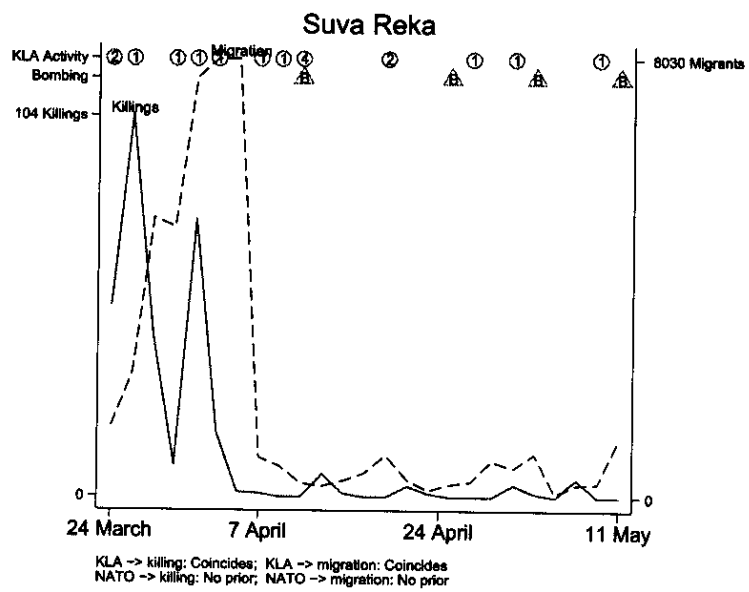
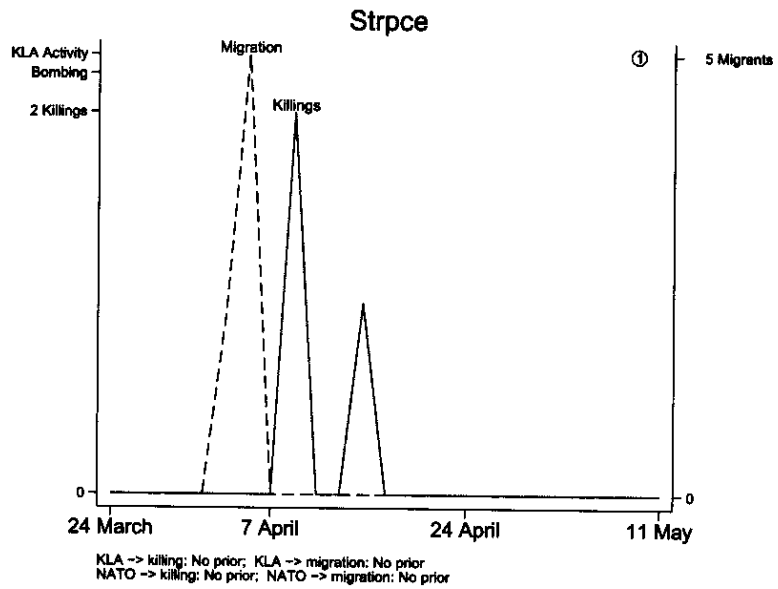


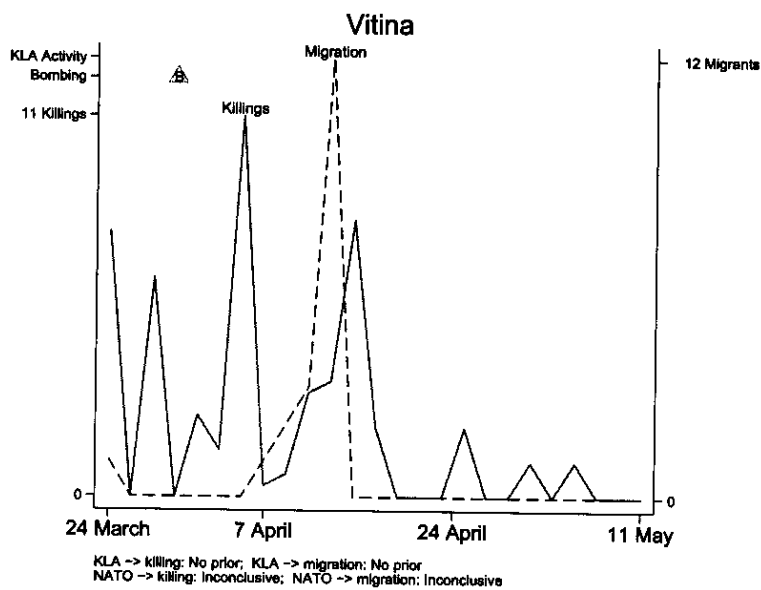
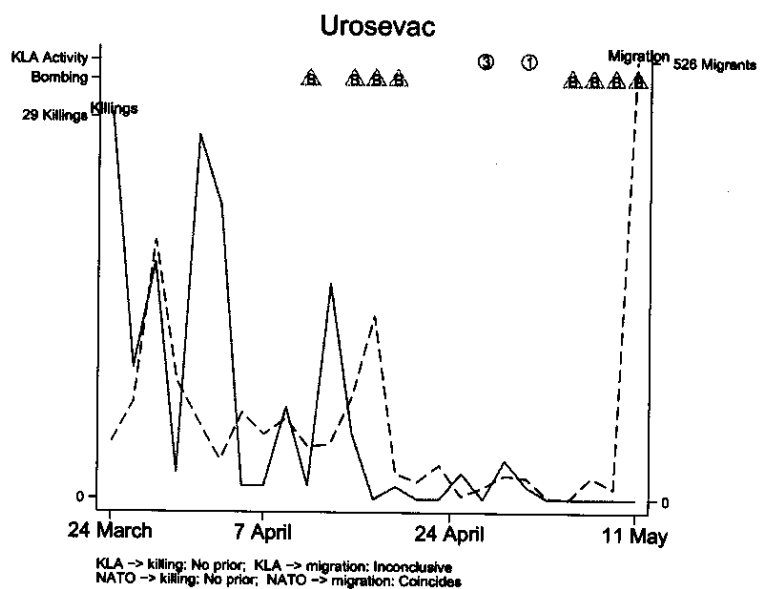


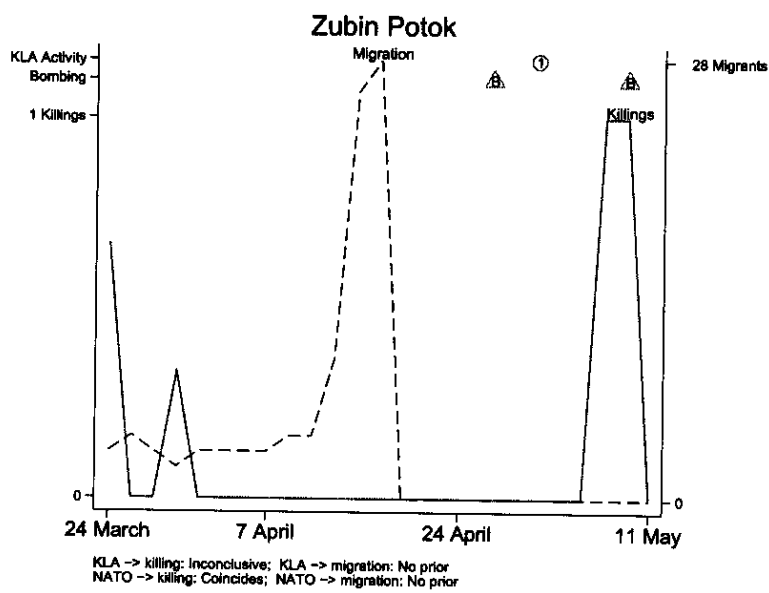
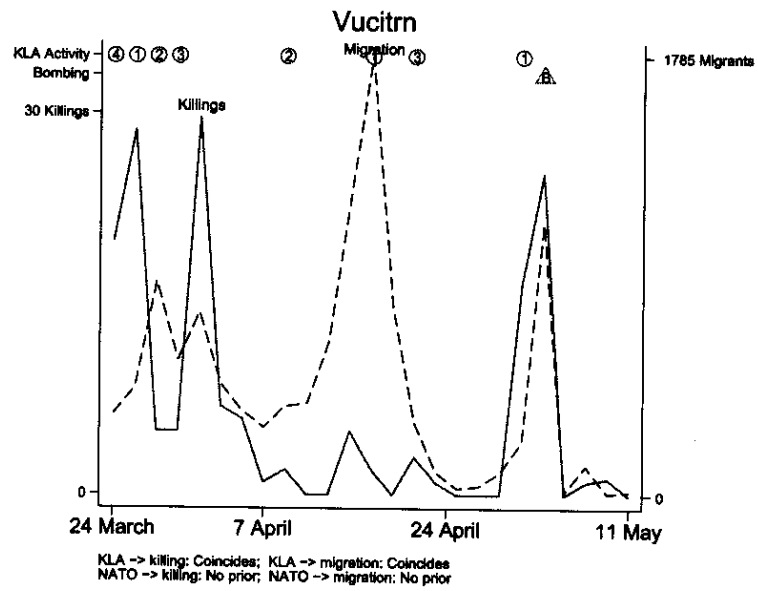


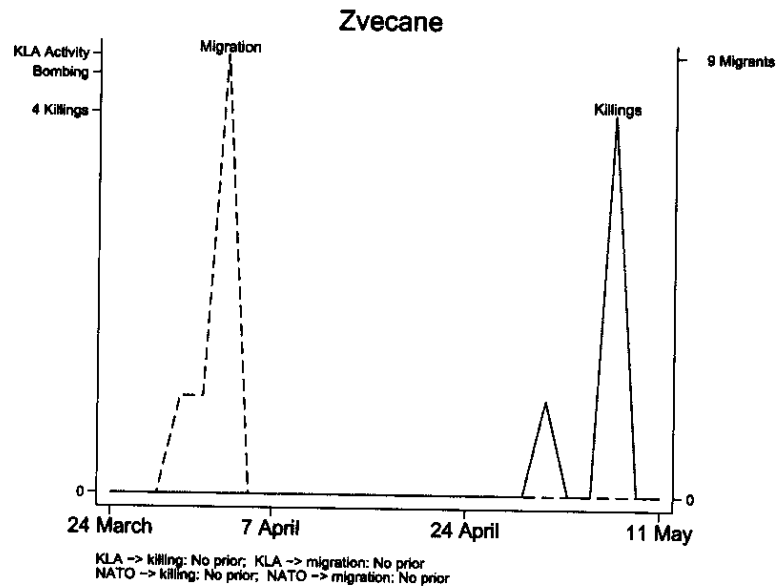












About the report

Patrick Ball, Meghan Lynch, and Amelia Hoover designed and conducted the statistical analysis and wrote this report. Benetech Field Statistician Romesh Silva and Professor Todd Landman of the University of Essex reviewed the material before submission to the ICTY.

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