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ABSTRACT

A spatial analysis of the geography of insurgency in the North Caucasus of Russia from 1999 through the end of 2016, focused on the period since 2010, corroborates other work on the incidence of violence in the region. A sharp drop in the absolute number of conflict events over the past half-decade occurred as violence diffused from Chechnya in the mid-2000s and is attributable to a range of domestic and international factors. Domestically, the decline is broadly linked to the securitization of the region around the 2014 Winter Olympics in Sochi, the return to the use of the Kremlin power vertical as a system of political management after an interlude focused on economic development as a mitigation strategy, and the wider adoption of harsh management tactics at the regional and republic scales. Internationally, potential insurgents have left Russia to fight in the Middle East and Ukraine. Using a conflict-event data-set ($N = 18,960$) from August 1999 through the end of 2016 and focusing on the period since the creation of the North Caucasus Federal District in January 2010, the paper identifies a set of notable trends within the decline and shift in violence. Key findings include a percentage increase in arrests carried out by Russian security services, a decline in retaliation across conflict actors, and the failure of federal subsidies to contribute to declines in violence in the region. The long-term prospects for continued insurgency in the North Caucasus, specifically in light of the collapse of the Islamic State and Russia's domestic challenges, remain uncertain and should acknowledge the recent decline in violence in the region.

A mountainous region populated by a diversity of peoples mostly practicing Islam rather than Orthodoxy, the North Caucasus has long presented a challenge to the Russian state (Jersild 2002). This challenge has been particularly acute since 1991. The first war in Chechnya – one of "the wars of Soviet succession" that pitted autonomous regions against union republics – was followed by a period of de

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facto independence for the republic and the renewal of conflict in 1999. This second decade of violence in post-Soviet Russia's North Caucasus was characterized by the rise of an Islamist insurgency, the adoption of extrajudicial tactics by the Russian state, the outsourcing of conflict suppression to the Kremlin's local allies in Chechnya, and the diffusion of violence away from that republic.

Since 2010 political violence in Russia's North Caucasus has both declined and shifted geographically. Previous explanations for this decrease and shift have pointed to a host of factors both international and domestic (Aliyev 2015; Souleimanov and Petrtylova 2015; Souleimanov 2017a). Internationally, the further globalization of Islamist movements through the rise of ISIS has led to the internal fracturing of the North Caucasus Islamist insurgency and provided an alternate venue for these fighters (Ratelle 2016). Domestically, the securitization of the region around the 2014 Winter Olympics in Sochi deflected any discontent associated with ongoing economic stagnation, the continued use of the Kremlin's power vertical as a system of political management, and the broader adoption of harsh tactics of violence suppression and management at the regional and republic scales (Klimenko and Melvin 2016; Youngman 2016). On the surface, it appears that at the end of his third term as Russia's president, Vladimir Putin has finally achieved his "historic mission" of bringing a semblance of peace to the North Caucasus (Taylor 2007).

This paper uses a large-N data-set of conflict events (*N* = 18,960) from August 1999 through the end of 2016 to test explanations for these conflict dynamics. Corroborating other work on the incidence of violence in the region carried out by the *Kavkazskii Uzel* (Caucasian Knot) news service (http://www.kavkaz-uzel.eu/) and the human rights group Memorial (https://www.memo.ru/en-us/), we document a sharp drop in the absolute number of conflict events and a marked shift in their geographical distribution since the start of the decade. The ebb and flow of the conflict – with a high number and concentration of events in Chechnya until the mid-2000s followed by a diffusion of violence first to Ingushetia and then Dagestan and Kabardino-Balkaria – is now characterized geographically by a region-wide decrease in conflict events, extending trends noted in O'Loughlin, Holland, and Witmer (2011). In further exploration of the reasons behind this, we present a series of summary statistics from the data-set, generate surface event maps for the region as a whole, explore tit-for-tat violence between state actors and rebels, and test the effects of shifting monetary subsidy regimes by the federal center to the *rayoni* (the Russian equivalent of counties) and cities of the North Caucasus.

In considering the reasons behind the decline in political violence and the changes in its spatial character in the region, this paper builds on work in geography on the contextual nature of such violence as occurring in space and time. The compilation of large-N data-sets with geolocated conflict events – most notably the Armed Conflict Location Event Data-set (ACLED; Raleigh et al. 2010) – has facilitated the evaluation of insurgent and government action-reaction (O'Loughlin

and Witmer 2011, 2012; Linke, Witmer, and O'Loughlin 2012). The disaggregation of event data from the country scale to the local scale also allows for in-depth regional analysis of conflict processes. This approach is particularly informative in the North Caucasus, where the fracturing of the Islamist insurgency has meant that it has been generally difficult to construct a unified narrative of insurgent strengthening or weakening. As violence waned in Chechnya during the middle of the last decade, violence increased first in Ingushetia and then in Dagestan and Kabardino-Balkaria (O'Loughlin, Holland, and Witmer 2011). The aim of the present study is to go beyond absolute event counts at both the regional and republic scales in the North Caucasus to develop a comprehensive picture of why violence declined and shifted, the dynamics of this process (tit-for-tat reactive violence), and the causes of the changes in the violence distributions.

The paper proceeds as follows. We first offer a brief history of Russia's long war, summarizing the evolution of the conflict in the North Caucasus since 1999. Our particular focus in this section is on the period since 2010 – following the creation of the North Caucasus Federal District (NCFD) as a separate region in Russia's territorial organization – and the subsequent decline in violence in the North Caucasus more broadly. We examine the pattern of violence as an action-re-action between rebels and military/police forces before we offer an empirical test of political violence in the North Caucasus, focusing on subsidies as a predictor of such violence. More financial subsidies from Moscow are expected to reduce the incentive to engage in violence. The concluding section offers a reevaluation of Russia's position in the North Caucasus and speculates about the success of the state in conflict management as domestic and international circumstances that condition violence endure.

Russia's long war in the North Caucasus

From its beginnings as a nationalist conflict pitting a Soviet-era third-tier auton-omous republic (Chechnya) against a second-order union republic (Russia), the conflict in the North Caucasus has evolved in the past two decades into an Islamist insurgency against the central state and its associated institutions.[1] The first war, from December 1994 until August 1996, exposed the weakness of the Russian state; Lieven (1999, 1) described it as a harbinger of "the end of Russia as a great military and imperial power." In fact, the North Caucasus served as a proving ground for Russian counterinsurgency tactics, the evolution of state policy, and the organ-ization of the power vertical (Kramer 2005; Melvin 2007; Taylor 2007; Lyall 2009; Sakwa 2010; Ware 2011).

Conflict in Chechnya resumed following two key events in August 1999, the incursion by Chechen rebels led by Shamil Basayev and Ibn-al-Khattab into south-western areas of neighboring Dagestan and the elevation of Vladimir Putin to the position of prime minister of the Russian Federation. "For Putin, the North Caucasus was reflective of the larger problems facing post-Soviet Russia," including

the potential for disintegration, the increased influence of foreign actors, and the overall weakness of the state (Dannreuther and March 2008, 99). The September 1999 apartment bombings that occurred in Moscow and the southern cities of Buinaksk (in Dagestan) and Volgodonsk (in Rostov oblast) further galvanized public opinion against the Chechen insurgency and in support of Putin's leadership, though the perpetrators of the bombings have never been positively identified.

The active phase of renewed fighting in Chechnya began in October 1999. In the period from the start of the second war through March 2000, the rebels lost control of the republic's main urban areas including the capital of Grozny (Zürcher 2007; Lyall 2010). The insurgency's tactics shifted in response to a guerrilla campaign targeting Russian military forces. The Islamist faction, led by Basayev, endorsed suicide bombing and carried out hostage takings both in the region and in Moscow. Russian forces used sweep operations – known as *zachistki* – in Chechnya and Ingushetia to detain suspected insurgents, their affiliates, and civilians (Gilligan 2009); the military also targeted the leadership of various factions within the insurgency, killing the president of the separatist Chechen Republic of Ichkeria, Aslan Maskhadov, in 2005 and Basayev the next year.

Violence spread from Chechnya proper to the republics of Dagestan, Ingushetia, and Kabardino-Balkaria beginning in 2007, linked to economic weakness, high unemployment among young men, and the lack of appropriate channels for voicing political concerns (Sagramoso 2007; O'Loughlin, Holland, and Witmer 2011). Ingushetia saw a consistent rise in violence during the tenure of Murat Zyazikov as the republic's president from 2002 to 2008. Violence in Dagestan increased notably beginning in 2009, and the republic has been the site of the highest absolute number of violent events in the North Caucasus since 2010. In Kabardino-Balkaria, militancy is often attributed to the heavy-handed tactics by state forces used against conservative Muslims beginning in 1999; the October 2005 attack on the capital of Nalchik ushered in a more active phase in the republic's insurgency (Souleimanov 2011).

In addition to the diffusion of conflict at the region scale, the awarding of the 2014 Winter Olympics to the resort town of Sochi in the western Caucasus spurred further concern over regional stability. Moscow's securitization of the North Caucasus in the lead-up to the 2014 Winter Olympics in Sochi demonstrated a firm commitment to preventing any sort of terrorist attack against targets associated with the Games. Early planning for the Sochi Olympic Games starting in 2007 endorsed the premise that the region was generally safe and security could be handled by regional agencies until 2012. This approach was revised following the proclamation of the Caucasus Emirate (CE) by Dokku Umarov in October 2007 and terrorist acts in the region and beyond in 2009, 2010, and 2011 (Zhemukhov and Orttung 2014).[2]

In response to the increase in violence in the North Caucasus, Russia's then-president Dmitry Medvedev established the North Caucasus Federal District in January 2010. It was carved out of the existing Southern Federal District and included the

national republics of Dagestan, Chechnya, Ingushetia, North Ossetia, Kabardino-Balkaria, and Karachay-Cherkessia, along with Stavropol *krai*. Upon its creation, Alexander Khloponin, formerly the governor of Krasnoyarsk *krai* and Chairman of Norilsk Nickel, was appointed presidential envoy to the district. During his tenure as governor of Krasnoyarsk, Khloponin secured substantial outside investment in the region, thanks to its wealth of natural resources and the presence of Norilsk Nickel (Ware 2011). At the time of his appointment to the envoy post, Medvedev endorsed Khloponin's record in terms of socioeconomic development, which was viewed as "absolutely necessary (*kraine neobkhodimo*) in the North Caucasus" (Medvedev 2010). Appointments made at the republic level also emphasized the economy over security. Arsen Kanokov had been Kabardino-Balkaria's head since 2005, in part on the basis of prior business successes; he led a holding company established in 1991 with interests in banking, investments, and construction. Kanokov was able to continue this success as head of Kabardino-Balkaria; gross domestic product there increased threefold between 2005 and 2012. But his tenure was also marred by infighting among the republic's elites, a series of high-profile corruption cases, and the spike in violence noted previously (RFE/RL 2013).

The decline in violence in the North Caucasus

Russia's strategy in the North Caucasus has further evolved since 2010. The tactic of endorsing economic development has evolved into a carrot-and-stick approach that incorporates revisions to force structures and changes in political leadership in tandem with continued subsidization. Moscow has recognized that force necessarily complements economic growth and support as the key to securing stability in the region; that is, the "carrot" alone does not work. The "hard security" regime that marks this revised approach by the Russian government was enacted prior to and continued after the Olympics. It relies on the close coordination between local and regional authorities and counterinsurgent techniques that target both insurgents and their support networks (Klimenko and Melvin 2016). For example, Moscow responded with decisiveness to a series of attacks in Russia's south (in the city of Volgograd) in the months leading up to the Games, in October and December 2013.

Souleimanov (2016) identifies three strategic implementations by the Russian state with respect to security in the North Caucasus since the start of Putin's third term: the application of tactics – including the targeting of insurgents' families and the destruction of homes – designed to weaken popular support for the insurgency; the increased use of specially trained counterinsurgency forces; and the successful infiltration of insurgent cells by pro-Russian actors. For example, individuals who provide support for the insurgency – such as food and medication – have been pursued and arrested in increasing numbers across the region (Fuller 2015). The upshot, according to Souleimanov (2016), is that these tactics in combination with the exodus of potential fighters to Syria (see discussion below)

"have led to a dramatic weakening of the North Caucasus insurgency" (see also Souleimanov 2017a).

Through the use of special forces and the placement of moles in insurgent groups, pro-Russian actors in the North Caucasus have successfully eliminated key figures in the insurgency at both the regional level and in republic-scale *jamaats* (Islamist communities that draw together like-minded believers in opposition to the Russian state; on the Kabardino-Balkaria *jamaat*, see Shterin and Yarlykapov 2011). Russian security services have had success in eliminating key leaders in the Caucasus Emirate; for example, Dokku Umarov, who suggested that insurgents target the Olympics with "maximum force" in a June 2013 video, died in September of that same year from a reported poisoning (Arnold and Foxall 2014, 8). His death was first leaked in January 2014 and subsequently confirmed by the Caucasus Emirate in March 2014 – notably, after the Games had closed. Umarov was replaced by Aliaskhab Kebekov, who himself was killed in an April 2015 operation by Russian security forces near Buinaksk, Dagestan. His replacement, Magomed Suleymanov, was killed in turn in August 2015, further contributing to the leadership vacuum for the Caucasus Emirate that is a sign of the insurgency's weakening (Fuller 2015; Youngman 2016).

This strategy of eliminating the insurgency's leadership has been complemented by the targeting of support networks, a practice long endorsed by Ramzan Kadyrov in Chechnya (Souleimanov and Jasutis 2016).[3] Repressive measures employed by the Russian state in the North Caucasus are increasingly selective in targeting rebels and their support networks (Zhirukhina, forthcoming). A report by Williams and Lokshina (2015) for Human Rights Watch documented the destruction of homes in the village of Gimry, Dagestan during a 2013 counterterrorism operation as evidence of the wider adoption of policies of collective responsibility and collective punishment as endorsed in Chechnya. Ramazan Abdulatipov, Dagestan's head from 2013 until October 2017, ended dialogue with more moderate elements in the Salafist community in the republic, an approach that had been endorsed by his predecessor, Magomedsalam Magomedov. During the second half of 2013, Dagestani authorities stepped up their raids of mosques and cafes where Salafists met; this practice continued during the holy month of Ramadan in 2014 (Williams and Lokshina 2015). Drawing on information from *Kavkazskii Uzel*, Williams and Lokshina's (2015) report also indicates that Salafists have been the target of extrajudicial killings that have been insufficiently investigated by Russian authorities. Islamists in Dagestan have been managed through a so-called "prophylactic list" that includes the names of individuals with suspected ties to Islamist networks – although many are placed on the list without clear justification (Mayetnaya 2017).

This evolution in tactics has been complemented by leadership changes at the regional and republic levels. Sergey Melikov, a general in the Russian military and previously deputy chief of staff in the Russian Interior Ministry, replaced Khloponin as presidential envoy to the NCFD in May 2014. Melikov is from the North Caucasus – he is an ethnic Tabasaran, one of Dagestan's 14 principal ethnic

groups – and spent his military career in the region (Vatchagaev 2014). Melikov was subsequently reassigned in July 2016 to the newly created National Guard and replaced as presidential envoy by Oleg Belaventsev, a career naval officer who previously held the plenipotentiary position for the Crimean Federal District (Fuller 2016b). Belaventsev is an outsider to the North Caucasus, with an uneven record in working with local elites in Crimea. The emphasis on security rather than economy is also evident in some republic-level appointments, such as the replacement of Kanakov by Yuri Kokov in Kabardino-Balkaria in December 2013; Kokov has a pedigree from the security services, serving as a Colonel-General in the Interior Ministry.

The renewed emphasis on security experience in the power vertical from the Kremlin underscores the general ineffectiveness of the top-down approach to economic management previously endorsed by the Russian state. The "Strategy for the Socioeconomic Development of the North Caucasus Federal District Until 2025," a development program that aims to improve the region's economy, reduce unemployment, and integrate the region's economy into national and international networks, has thus far been a failure (Holland 2016). Budgetary transfers from Moscow to the North Caucasus republics remain high and have increased over the past half decade (see Figure 7 below); as an example, in 2015 subsidies from the federal center accounted for 81% of Chechnya's budget (Fuller 2016c).

The Russian government has two categories for grants (*dotatsii*) to the federation's regions. The first category includes federal transfers determined at a fixed rate dependent on expenditures and tax revenues. Chechnya has received significant financial support under a second, more nebulous category that is intended to address any shortfalls in regional budgets not sufficiently covered by the first set of transfers. Two other types of federal transfers supplement these grants; subsidies (*subsidii*) and subventions (*subventsii*). *Subsidii* can be understood as matching grants from the federal center to the regions, while *subventsii* are provided to cover expenses at the regional level that are federal responsibility (see Alexeev and Chernyavskiy 2017). The outlay of subsidies under Putin complements political centralization in the Russian state, while transfers to the North Caucasus and Chechnya specifically have allowed for the reconstruction of infrastructure destroyed during the wars and a relative equalization of economic capacity across regions to minimize outmigration. The long-term viability of this support is questionable, as promised outlays to the North Caucasus's development program for 2017 were reduced substantially in 2016 from RUB 30 billion (about USD 500 million) to RUB 12 billion (about USD 200 million) (Dzutsati 2016).

The region's economic problems remain significant, and leaders with business experience have done little to address key structural issues. The republic economies have been unsuccessful at diversifying into potential growth sectors such as agriculture, tourism, and oil and natural gas (Holland 2016). Corruption further contributes to the misuse of funds and the failure of the "Strategy" to gain traction in terms of economic development. The republics' combined debt is approximately

RUB 67 billion (about USD 1.2 billion), while corruption cases rose approximately 12% in 2015 from the previous year (Fuller 2016a). Corruption in the political system has other tangible consequences; it leads, for example, to alternative forms of governance, most prominently the endorsement of Sharia law and the adoption of Islamic education in parts of the North Caucasus (Klimenko and Melvin 2016). More succinctly, Dzutsati (2016) writes that "higher poverty is likely to push some people toward greater radicalism."

International conditions also serve to explain the decline in violence in the North Caucasus over the past half-decade. Souleimanov and Petrtylova (2015) argue that participation by North Caucasians in Syria and Iraq has diverted the focus of potential jihadists away from the region, itself a boon for Russia's anti-Islamist efforts. However, internal divisions among the region's jihadists likely curtailed the outflow of fighters from the North Caucasus to the Middle East beginning in 2014 (Souleimanov 2017a). Russian citizens fighting with ISIS include individuals from Chechnya and Kabardino-Balkaria in addition to Dagestan, although the estimates of the total number of Russian citizens who have traveled to the Middle East vary widely and the precise number is difficult to determine. Recent estimates put this figure at approximately 2,000 (other figures range from a low of 800 to a high of 5,000; see International Crisis Group 2016; Sokolov 2016). In November 2017 remarks to members of the Russian Defense Ministry, Valery Gerasimov, Chief of the General Staff, put the number of Islamic State fighters originating from Russia and killed in the Middle East at 2,800; a further 1,400 from other members of the Commonwealth of Independent States have been killed (Ministry of Defence of the Russian Federation 2017). Combatants from the region can also be found on both sides of the conflict in Ukraine – supporting Russian proxies fighting for the people's republics of Donetsk and Luhansk and on the Kyiv government's side fighting to reintegrate the eastern territories. Walker (2015) quotes a pro-Ukraine Chechen fighter: "That [the war in Syria and Iraq] is not a Chechen war. This, here in Ukraine, is a war for Chechens. If we defeat Russia here, we are closer to freeing our homeland."

Regardless of its precise impact on the number of fighters in the North Caucasus, the rise of the Islamic State resulted in the internal fracturing of the region's Islamist movement at a structural level. Key defections from the core leadership of the CE to the Islamic State include Rustam Asilderov and Aslan Byutukavev, who led the Emirate's Dagestan and Chechnya branches, respectively (Youngman 2016). The Islamic State further weakened the position of the CE in July 2015 when it announced the establishment of an official branch in the North Caucasus. Youngman (2016, 2) summarizes the situation in the region as follows: "by early 2016 it [the Islamic State's Caucasus branch] was clearly the stronger party, with the IK [Imirat Kavkaza, aka CE] leaderless and struggling to survive, at least within the North Caucasus itself."

The endgame in Syria and Iraq matters to the future trajectory of the Russian state, and the collapse of the Islamic State in late 2017 has the potential to

destabilize the North Caucasus, thanks to a flood of returning fighters (Ratelle 2016). The effect on domestic conflict of returning fighters is case-specific; many of the foreign fighters who joined the war in Afghanistan during the 1980s stayed on after the conflict ended, in turn limiting the return migration of experienced fighters to their countries of origin. The consequences of involvement by fighters from the North Caucasus in the Syrian civil war remains uncertain; "If allowed to return to their homeland, North Caucasian Jihadists – a committed and experienced force of hundreds of fighters with extensive contacts with jihadists worldwide – may pose an enormous threat to Russia's internal security" (Souleimanov 2014; 154). Ratelle (2016) argues that two waves of fighters from the North Caucasus have joined the war in Syria: a first group who left for Syria from 2011 to 2013 because the opportunities for fighters in the North Caucasus were foreclosed, and a second set who preferred to join the international jihadist networks established in the Middle East. Writing at a time before the fracturing of ISIS, Ratelle suggested that the former group was more likely to return to the North Caucasus. Though precise numbers are difficult to determine, Wright (2017) suggests that about 10% of Russian citizens fighting in the Middle East had returned home by October 2017.

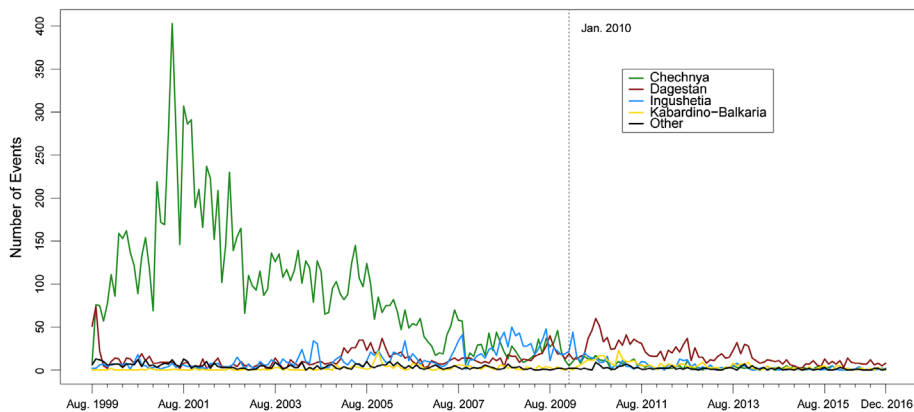## Conflict events in the North Caucasus

A number of organizations track political violence in the North Caucasus. *Kavkazskii Uzel* has compiled statistics on casualties resulting from armed conflict and terrorism-related violence in the North Caucasus Federal District since 2010. According to these data, in 2010 roughly 1,700 people in the North Caucasus were killed or injured. By 2016, the total number of casualties had declined to 287 (*Kavkazskii Uzel* 2016, 2017).[4] Over the past seven years, Dagestan has been the site of the highest number of casualties, although this absolute total is trending downward like the region as a whole, from 659 casualties in 2010 to 204 in 2016.[5] The International Crisis Group (2016, 1) draws on *Kavkazskii Uzel*'s data in their March 2016 report on the region and concludes that the year 2014 "saw a remarkable reduction in violence," a trend that continued in 2015.

Memorial, a leading Russian human rights organization, aggregates news reports to track the number of security personnel killed or injured in combat with insurgents or terrorist attacks occurring in the region (see Toft and Zhukov 2012 for a prior use of these data in conflict analysis). Likewise, this figure has trended down since 2006, although an uptick in Ingushetia in 2008–2009 and Dagestan and Kabardino-Balkaria in 2010–2011 is noted (Memorial 2016). Parallel to the data from *Kavkazskii Uzel*, Memorial's June 2016 report unambiguously states, "beginning in 2012, militant activity has been steadily declining" across the North Caucasus (2016, 6).

The data-set analyzed here is similar in its general aims of documenting violence over time and across the region to those collected by *Kavkazskii Uzel* and Memorial, but ours is more comprehensive in its time frame and geographic detail.

Conflict events are coded in the data-set since the beginning of August 1999, which coincides with the invasion of southwestern Dagestan by forces affiliated with Shamil Basaev and the de facto start of the second Chechen War. There are 18,960 unique events in the data-set, with each entry detailing the date of the event, its best geographic location (the nearest settlement, district, or republic), information about actors, casualties, and a brief textual synopsis. Events were gathered from wire reports and news stories available through Lexis-Nexis's academic search service. The data-set has been used previously for regional analysis (i.e. O'Loughlin and Witmer 2011, 2012; Linke and O'Loughlin 2015) and for cross-national examination of violence in relation to terrain in the wider Caucasus region (Linke et al. 2017). For this article, we updated the data-set to include events from August 2011 through December 2016, inclusive of the seven federal territories of the NCFD. While the data-set corroborates other sources that aggregate violent events in the North Caucasus, the analysis presented here goes beyond absolute event counts to consider how interactions between the state and the rebels have evolved over the past half-decade by focusing on geography, actors and re-actors, and the causal explanation of violence in small geographic areas.

Figure 1 summarizes the absolute event counts by month over the entirety of the data-set, with the creation of the North Caucasus Federal District noted (January 2010). In analyzing the conflict dynamics in the region, prior work using this data-set and other micro-scale data has identified three important trends. First, as discussed above, the diffusion of violence from Chechnya to neighboring republics began in 2007 (O'Loughlin, Holland, and Witmer 2011). Second, violence has been characterized by action-reaction on the part of the Russian military and insurgents (O'Loughlin and Witmer 2012); linking public opinion polling to the incidence of violence, Linke and O'Loughlin (2015, 122) report that violence in the North Caucasus "is associated with lack of trust and a preference for ethno-territorial separation" among survey respondents. While motivations to conflict


Figure 1. Monthly conflict event totals by republic/*krai*, 1999-2016. January 2010 marks the creation of the North Caucasus Federal District (NCFD).

remain difficult to pin down precisely, the ideas of retribution, the absence of trust associated with corruption, and the continued salience of ethnic identity all contribute as explanatory factors. We formally examine below the pattern of tit-for-tat violence in the region. Third, selective counterinsurgency tactics (e.g. arrests) used by the Russian state have been more successful than indiscriminate tactics (e.g. *zachistki*) in suppressing acts of violence carried out by nationalists affiliated with Aslan Maskhadov and the more secular Chechen Republic of Ichkeria; this distinction does not hold for Islamist violence, however (Toft and Zhukov 2015; see also Lyall 2009).

Shifting aims and narratives: arrests and civilians as targets

Our data-set codes arrests as conflict events when detention is clearly indicated in the news reports. There are 2,613 unique arrests coded in the data-set – 13.8% of the total number of events. This count almost certainly underreports the number of arrests that have been carried out in the North Caucasus region over the past decade and a half, and a pair of caveats should be noted. First, when rebel actors are injured but not killed in engagements with police and military forces, they are detained and subject to criminal prosecution. This outcome is not reported at the time of the event; rather, criminal proceedings occur months or even years after the initial incident and thus were not coded in the data-set. Second, while the data include unique events for *zachistki*, the scale of these operations means that more individuals were detained than a single coded event accurately represents. Despite these caveats, we posit arrests as a proxy for the shifting practices of the Russian state in managing the insurgency (Souleimanov 2017a; Zhirukhina, forthcoming).

As a proportion of total events, arrests have increased markedly over the past seven years (see Figure 2 for arrests as a percentage of total events by key republic for each year, 1999–2016). In Chechnya, for example, more than half of the events recorded in 2015 were arrests (51.8%; 14 out of 27 total events); more generally, Chechnya under Ramzan Kadyrov has had a higher percentage of arrests in
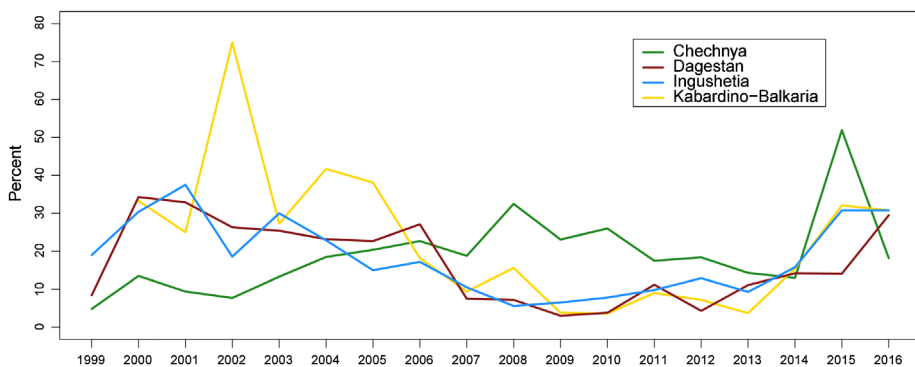
Figure 2. Arrests as percentage of all events by republic by year, 1999–2016.

comparison to the other regions of the North Caucasus. Dagestan, as previously noted, is adopting this securitization model, and 2016 witnessed a sharp increase in the proportion of arrests to the total number of conflict events, although this model is also being applied in Ingushetia and Kabardino-Balkaria – arrests as a percentage of total events top 30% in both of these republics in 2016. As expected, the shift began in 2014 with the securitization of the region at the time of the Sochi Olympics, and these tactics have continued to be applied in the management of the conflict. This active management of potential threats has carried over into day-to-day life in the region. On multiple occasions over the past three years, police detained Muslim worshippers at Salafist mosques in Dagestan's capital, Makhachkala, and other cities; those held were fingerprinted, had their documents photocopied, and were required to complete a questionnaire (see also Mayetnaya 2017).

Both *Kavkazskii Uzel* and Memorial previously indicated that the number of those killed or injured by violence in the region has fallen – either in aggregate or for security personnel as a proxy measure. Figure 3 further explores the decline in violence through the measure of civilian casualties, presenting the aggregate number of civilians killed or injured in comparison to total casualties for the entire region. We note three periods when civilian casualties were notably high: August– December 1999, the early stages of the second Chechen war, when Russian forces entered Chechnya from the north and proceeded toward Grozny and the mountains; 2003–2004, inclusive of the hostage crisis at Beslan, North Ossetia; and 2010– 2013, during which period violence was highest in Dagestan and rebels targeted police and military actors in congested urban spaces such as Makhachkala (e.g. see Reuters 2012). During more active phases of fighting (i.e. 2000–2002, when violence peaked in Chechnya), civilian casualties were notably lower, with most fighting occurring between government forces and rebels. Since the recent high point in 2010–2013, the proportion of civilian casualties has declined; inclusive
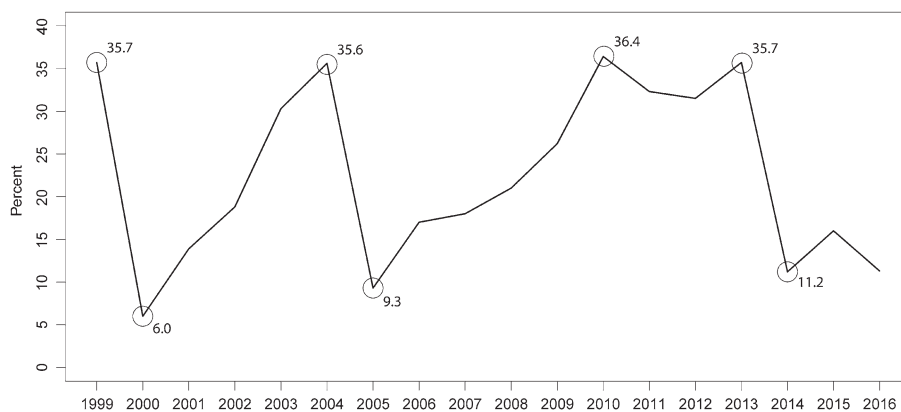
Figure 3. Civilian casualties as percentage of all casualties by year, 1999–2016.

of 2014, the percentage of civilian casualties has been at or below the 15% mark each of the last three years.

In part, the decline in civilian casualties is attributable to the shifting rhetoric of the CE's leadership on the targeting of civilians. Souleimanov (2011, 164–165) distinguishes between the CE's aims within the region and beyond: while attacks within the region "are usually implemented so as to avoid the loss of civilian lives" (though collateral casualties do occur), in Moscow and elsewhere indiscriminate violence is carried out with "the goal of as many civilian deaths as possible." However, since the January 2011 Domodedovo airport attack, such violence has been rare and includes the series of bombings in Volgograd in late 2013 and the April 2017 bombing of the St. Petersburg metro, which was carried out by a Russian citizen of Uzbek descent born in Kyrgyzstan. Russian authorities have also been successful at killing rebels or individuals identified as such; according to our data, nearly 60% of the reported casualties in the North Caucasus in 2016 were comprised of rebels who were killed in fighting with state forces (141 out of 240 total casualties).

The geography of the decline in violence

Following the decline in the absolute number of conflict events at both the regional and republic scales, actions carried out by rebels and military actors in the region have also experienced a corresponding drop in the past half-decade. Presenting the data for selected years, Figure 4(a) and (b) display potential surface maps for conflict events carried out by rebel and military/police actors, respectively, across the region. Potential surface maps show spatial distributions by considering both the distance between points and the magnitude of the observation (Warntz 1964; Frolov 1977). For violence, these maps show the influence of conflict across space as a function of distance between locations. The aim of these maps is to show how violence in one location influences violence in a neighboring location, as well as to show overall distributions (see O'Loughlin, Holland, and Witmer 2011 for a prior application of potential surface maps). The left column shows the annual potential surface for rebel events and the right column shows military/police events at five-year intervals.[6] Military/police violence was initially more intense and widespread than rebel violence. The diffusion in violence from Chechnya and Grozny to neighboring republics is especially clear when comparing the 2000 maps to 2010.

The decline in violence is further displayed by mapping the absolute change in event counts per 1000 people at the *rayon* level across the two selected periods, August 1999–December 2009 and January 2010 to December 2016 (Figure 5). This map clearly shows steep declines in violence for Chechnya and Ingushetia, small changes for Stavropol' *krai*, and notable increases in violence for Kabardino-Balkaria and Dagestan. We examine potential drivers of these changes in our *rayon*-scale statistical models below.
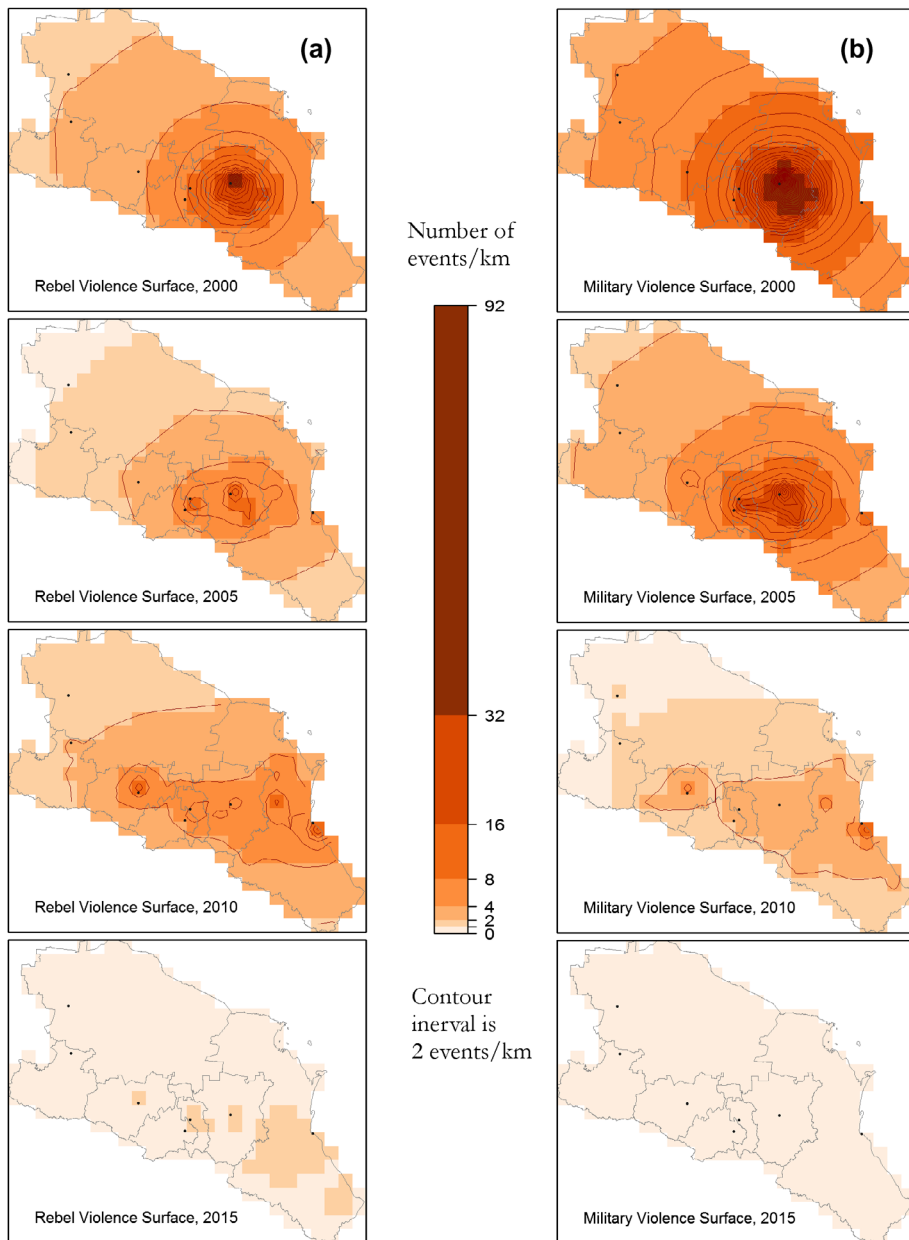
Figure 4. Violence potential surfaces for select years; (a) rebel events on the left, (b) military/police events on the right.

Modeling violence in the region: action-reaction and the role of subsidies

In this section, we present results from two sets of statistical models. The first tests action-reaction behavior between rebels and government forces to see if the tit-for-tat violence intensity has declined after the creation of the NCFD. Our second set of models examines the role of subsidies in predicting the decline in violence
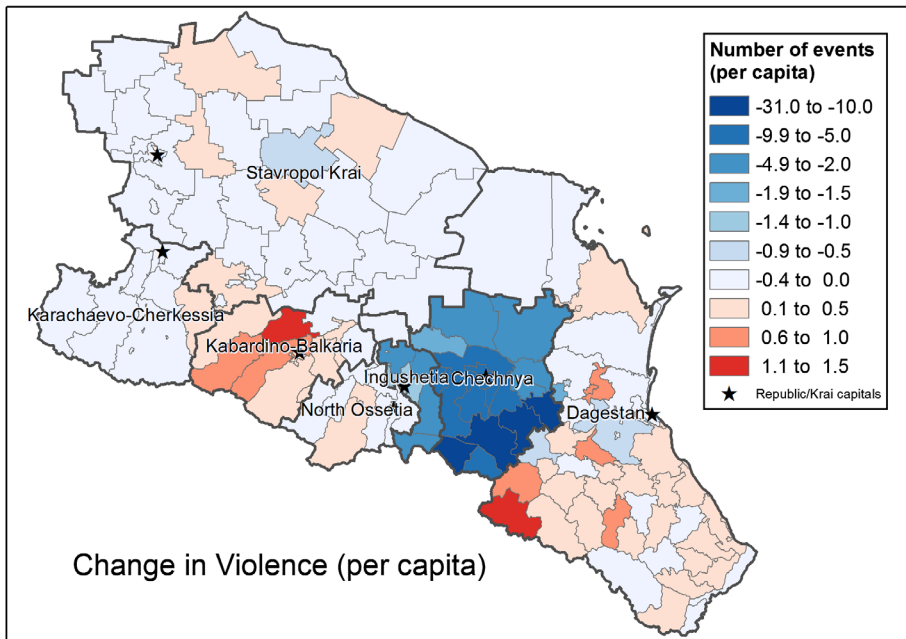
Figure 5. Change in the number of violent events per 1000 people from the first period, August 1999–December 2009, to the second period, January 2010–December 2016. Source: Authors.

while controlling for spatial autocorrelation and other known factors connected to the geographic distribution of violence.

Action–reaction models

For the action–reaction models, we create a spatio-temporal data-set of violence by overlaying a 10 × 10 km set of grid cells (1,787 in total) on our violent events data-set and aggregating violence by event type (rebel, military/police, arrest) to each grid-week. To test the tit-for-tat relationship over multiple spatial and temporal periods, we calculate the first- and second-order spatial lags (queen contiguity) for each grid cell and then temporally lag them for one through five time periods. This allows us to test the possible effects of violence that occurred in the prior month in surrounding territory. This type of spatial Granger analysis has been used to study reciprocity in Iraq (Linke, Witmer, and O'Loughlin 2012) and builds upon the simpler temporal Granger causality analysis (Granger 1969; Freeman 1983).

The simplest form of the model estimates the direction and strength of the relationship between action and subsequent reaction as follows:

$$Y_t = \beta_1 Y_{t-1} + \beta_2 X_{t-1} + \epsilon$$

where the influence of actor X at the prior time period, $t{-}1$, against actor Y at time t is determined by the coefficient β_2 after controlling for prior actions by Y at $t{-}1$ and allowing for an error term of unspecified influences, ϵ. Our spatial version of

this model extends the temporal lags from one to five and also includes first- and second-order neighboring violence. We estimate violent event counts using a negative binomial generalized linear model available from the R "MASS" package.

The plots of the β coefficients for just the reciprocity terms in our regression models, with control terms omitted for clarity, are shown in Figure 6. The darker circles (filled or open) in each plot are for models where rebel violence is the dependent variable, Y. Lighter circles in Figures 6(a) and 6(c) show results from models where military/police violence is being predicted, while lighter circles in Figures 6(b) and 6(c) are for arrest models. We estimate and present results for all republics/*krai*, for Chechnya, and for Dagestan for both the early period, August 1999–December 2009 (Figures 6(a) and 6(b)), and later period, January 2010–December 2016 (Figures 6(c) and 6(d)).
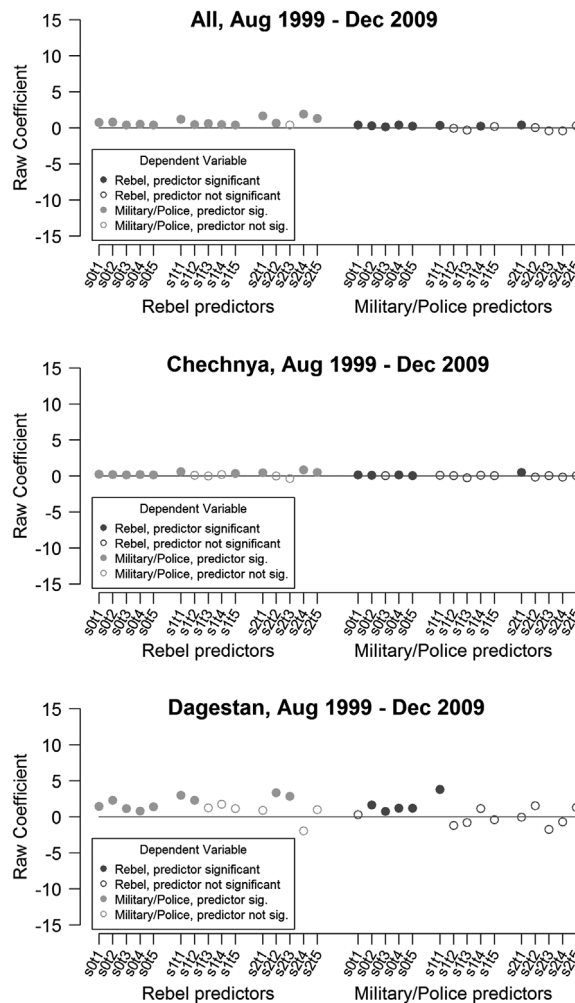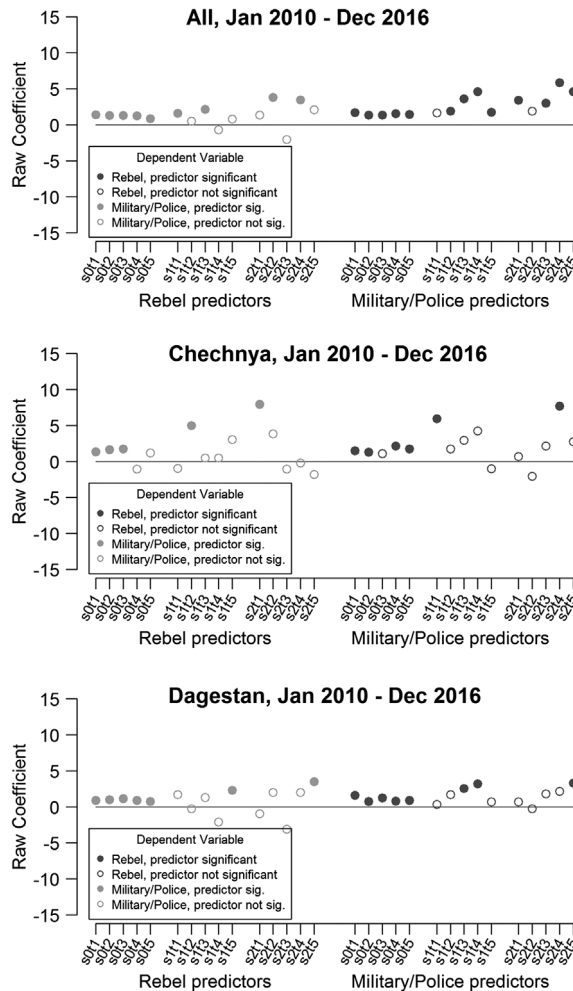

Figure 6a. Action–reaction models (controls omitted) for military/police violence during the first period, August 1999–December 2009 for all grid cells, and Chechnya and Dagestan subsets.
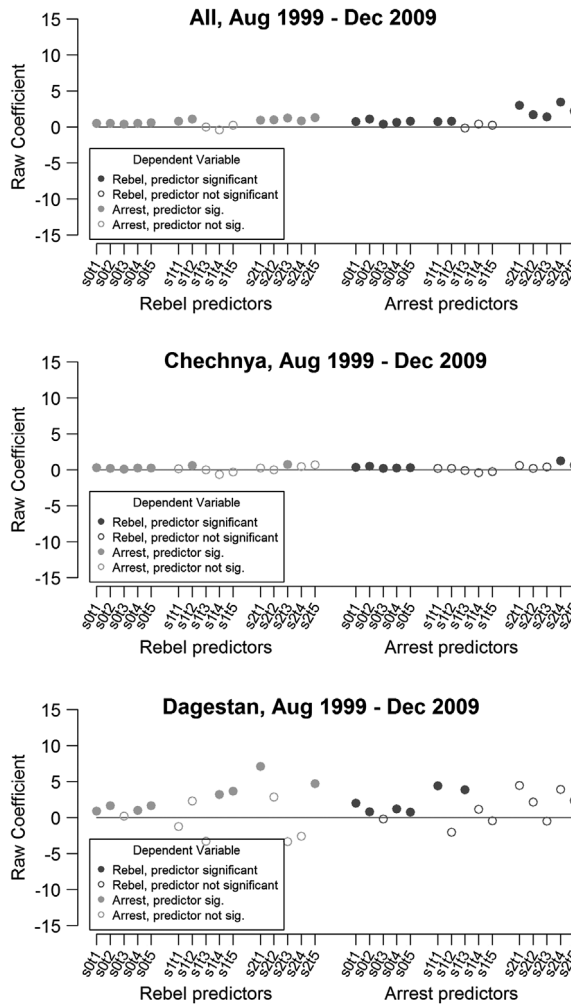
Figure 6b. Action–reaction models (controls omitted) for arrests during the first period, August 1999–December 2009 for all grid cells, and Chechnya and Dagestan subsets.

Overall, the reciprocity relationships are stronger for the early period and weaken for the second period with fewer coefficients significant. This suggests that the retaliatory nature of the violence has declined along with the overall intensity of the violence. Presumably, this shift corresponds to the change in tactics pursued by the Russian state and the fracturing of the insurgency noted previously. Comparing rebel vis-à-vis arrest violence to rebel vis-à-vis military/police violence indicates a somewhat stronger action-reaction relationship for the military/police events than the arrest events. These differences are greater for the second time period.

The tit-for-tat pattern of violence found in the North Caucasus is generally weaker than that shown for violence in Iraq (Linke, Witmer, and O'Loughlin 2012). This is likely due in part to differences in the intensity and scale of the violence. In

Figure 6c. Action-reaction models (controls omitted) for military/police violence during the second period, January 2010–December 2016 for all grid cells, and Chechnya and Dagestan subsets.

Iraq, the data-set consisted of nearly 400,000 events precisely geocoded by the U.S. military, whereas our North Caucasus data-set has 16,928 events with sufficient locational precision to be used in this kind of action-reaction analysis. For instance, the Iraq data-set is geocoded to street-level precision, enabling city-scale reciprocity relationships to emerge. The North Caucasus data-set is geocoded at the village level, which may explain why the second-order spatial lag reaction relationship is sometimes stronger than for nearby violence in some of the all-republic models (Figures 6b–6d). This distance of about 25 km may also reflect a natural spacing of villages along connecting roadways.
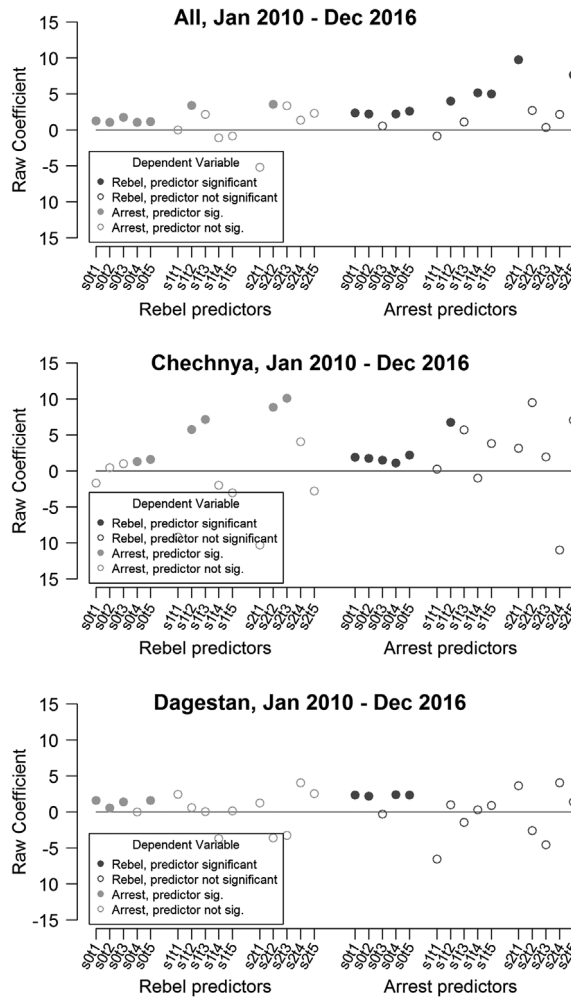
Figure 6d. Action-reaction models (controls omitted) for arrests during the second period, January 2010–December 2016 for all grid cells, and Chechnya and Dagestan subsets.

Change in violence models

In our predictive model of the change in violence across the North Caucasus, we focus on the role of federal subsidies. In particular, we test the hypothesis that federal subsidies reduce the level of violence as more government assistance may raise the opportunity costs of engaging in violence. This expectation draws on Fearon's (2008) argument about the economic inducements for rebels, while Child (2017) extends the argument to consideration of licit (often government-sponsored) and illicit (shadow economy and militant activities to raise money) undertakings. If those who would potentially engage in violence against the state and its forces in the region believe that state services are improving due to more subsidies from Moscow, their motivations for attacking the state would be lowered. In the wider realm of COIN (counterinsurgency) studies, mostly about U.S. military operations

in Iraq and Afghanistan, the evidence for this argument is mixed. A review of the literature by Chou (2012) indicates that governmental (including U.S. aid) spending in Afghanistan does not statistically reduce the level of violence. Small targeted projects, such as village-level infrastructural projects, however, seem to be more effective in persuading potential fighters to avoid taking up arms (Berman, Shapiro, and Felter 2011). More general funds on a larger scale do not seem to have any impact (Berman et al. 2011).

We formally test the effect of subsidies on violence by estimating a set of statistical regression models. The outcome variable is change in the number of violent events per 1000 people (Figure 5) as measured at the *rayon* administrative unit between the first period, August 1999–December 2009, and second period, January 2010–December 2016. Our key predictor variable is change in subsidies per capita from 2010 to 2016 (Figure 7) as reported at the *rayon* and city scale in the North Caucasus region by the Russian Federal State Statistics Service, Goskomstat (http://www.gks.ru).[7]

We also include several control variables for factors that have been shown to influence violent conflict distributions. Metrics such as titular percentage (proportion of the nominal ethnic group), employed percentage, and urban percentage are included from census data published by Goskomstat. Additionally, we include the mean forest cover percentage calculated for each *rayon* for the year 2000. Forest cover is sometimes associated with violent conflict, typically under the
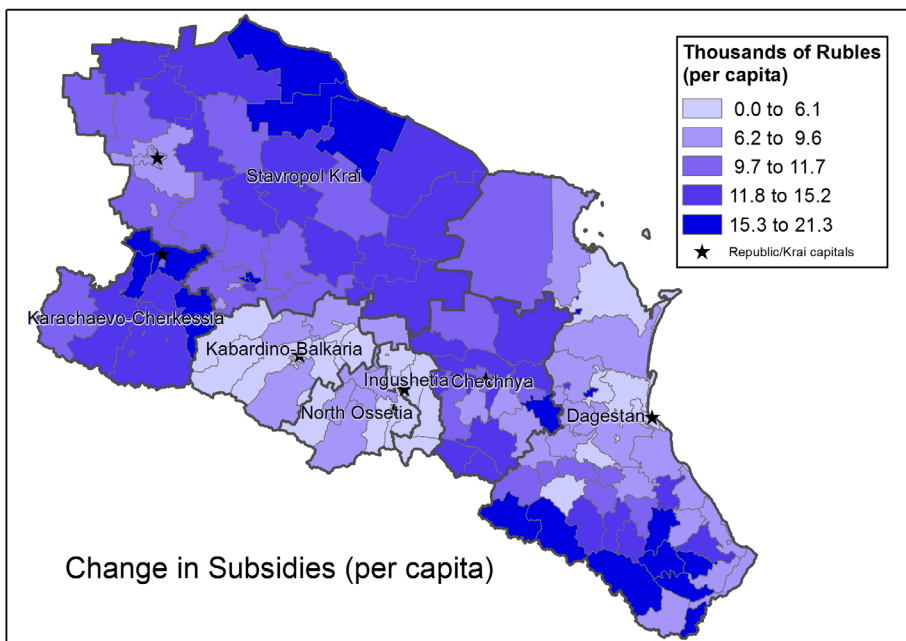
Figure 7. Change in federal subsidies (measured in thousands of Rubles per capita) from 2010 to 2016. [8] Source: Goskomstat, http://www.gks.ru/

theory that rebels use forests as hideouts from which to strike (Linke et al. 2017). These data are derived from Landsat imagery where forest is defined as closed canopy vegetation of at least 5 m in height (Hansen et al. 2013). Lastly, a distance to road measure is included based on the Global Roads Open Access Data Set (CIESIN 2013). To calculate the mean distance to road for each *rayon*, a 1 × 1 km raster layer was created where each pixel represents the distance to the nearest road. From this grid, the mean distance to road was generated for each administrative unit.

The first model we estimate is the simple linear model (Table 1). In this model, only our control variable, forest cover, is statistically significant and its negative sign indicates that areas with higher percentages of forest cover saw greater declines in violence; for instance, many of the districts in Chechnya are heavily forested and experience large declines in violence. Our variable of interest, change in subsidies, is not statistically significant, though it does have the correct sign, with increases in subsidies associated with decreases in violence (for similarly ambiguous results on the efficacy of subsidies in the region, see Alexseev 2013). This model should not be given too much weight, however, since it violates one of the assumptions of linear

Table 1. Models for change in violence per 1000 people.

	Linear model			Spatial lag model			Multilevel model		
	Estimate	SE	*p*-val.	Estimate	SE	*p*-val.	Estimate	SE	*p*-val.
Fixed part									
Constant	0.103	1.483	0.94	1.328	1.117	0.24	1.638	1.557	0.29
Change in subsidies (per cap)	−0.105	0.084	0.21	−0.079	0.063	0.22	0.002	0.073	0.98
Titular percentage	1.136	1.198	0.35	−0.082	0.906	0.93	−2.644	1.715	0.13
Employed percentage	2.640	6.132	0.67	1.227	4.617	0.79	−0.479	4.290	0.91
Urban percentage	0.444	1.332	0.74	−0.121	1.003	0.90	−0.486	0.923	0.60
Forest cover percentage	−0.111	0.027	0.00	−0.056	0.021	0.01	−0.035	0.021	0.09
Distance to road (km)	0.167	0.380	0.66	−0.081	0.286	0.78	−0.411	0.268	0.13
Spatial lag of violence				0.694	0.068	0.00	0.502	0.134	0.00
Random part									
Chechnya							−5.456	0.697	0.00
Dagestan							0.512	0.420	0.22
Ingushetia							−0.201	0.980	0.84
Kabardino-Balkaria							1.125	0.851	0.19
Karachaevo-Cherkessia							1.123	0.888	0.21
North Ossetia							0.935	0.931	0.32
Stavropol *krai*							1.961	0.501	0.00
Model diagnostics									
Log-likelihood	−395.69			−368.69			−352.48		
AIC	807.39			755.39			724.95		
Residuals (s.d.)	4.27			3.30			2.84		

Notes: Number of districts = 138. SE = Standard error.

regression in that the errors are not independent (Anselin 1988). In particular, they exhibit spatial dependence with a statistically significant Moran's I for the regression residuals, meaning we must reject the null hypothesis of uncorrelated error terms. In evaluating a spatial error versus spatial lag model to address the problem, we use the robust Lagrange multiplier diagnostics for spatial dependence (Anselin et al. 1996) that indicate a preference for the spatial lag model (*p*-value = 0.00014) over the spatial error model (*p*-value = 0.037).

The second model in Table 1 shows the results for this properly specified spatial lag model (using R package "spdep"). Note that the signs for several of the non-significant variables change when this spatial lag term is introduced, although the subsidies metric remains stable. For this model, the Lagrange multiplier test for residual autocorrelation is not statistically significant, indicating the spatial dependence in the model has been sufficiently addressed.

Lastly, we estimate a multilevel model (R package "lme4") using republic/*krai* level random effects (Table 1). This enables us to explicitly model the nested structure of the administrative units and capture any unexplained factors within each republic/*krai*, such as changes in leadership and republic-level policy toward combatants and their affiliates. Often, these random effects are not reported and viewed simply as controls in the model (Witmer et al. 2017), but here, we are interested in evaluating the effects substantively since our other variables generally perform poorly. For instance, the fixed part of the model did not capture the steep decline of violence in Chechnya clearly visible in Figure 5, but this effect is captured by the large and statistically significant random effect coefficient for Chechnya. Each subsequent model reduces the magnitude and significance of the forest cover factor, indicating it is not as influential as the initial linear model suggested. The model diagnostics, log-likelihood, AIC, and residuals standard deviation all indicate the multilevel spatial model performs best in modeling the change in violence. In the final model, the change in subsidies remains non-significant and confirms the relationship that has been seen in other studies for Afghanistan and the North Caucasus. As the "carrot" of economic development and "winning hearts and minds" programs failed to have the desired effects of violence reduction, by the time of the Sochi Olympics, the Russian government was committed to the "stick" approach of police and military operations.

Why would the results of research on the relationship between subsidies and violence be inconsistent? One possibility is that rebels are motivated by ideological motivations rather than economic ones. Nationalist and religious movements would appear to be more likely to reject the possibility of the loyalty of their members being bought by the state. A second possibility is the ineffectiveness of the largess from the government due to its capture by local political leaders who implement the distribution of funds. Corruption is an endemic problem in many conflict zones and the North Caucasus is no exception. Foxall (2014, 49) notes that

> While the Russian government has, since 2000, allocated significant federal subsidies to the [North Caucasian] republics, these have had no tangible impact on the economic

situation in the region, where economic dislocation is widespread. Rather, they appear to have created a culture of dependency among regional leaders.

Republic presidents can distribute the Moscow subsidies according to their personal and local preferences so that the expected positive effect on the level of violence is weakened.

Conclusion

The key finding in this paper is that violence in the North Caucasus has declined substantially since the beginning of the decade in 2010. But violence still occurs. August and September of 2016 saw the initiation of four counter-terrorist operations by the Russian government, three in Dagestan and one in Kabardino-Balkaria. In the last of these operations, six locally based Islamists were killed in a firefight with security forces in Makhachkala (Aliyev 2016). Dzutsati (2016) also identifies a spike in violence in the region in the fall of 2016, writing that, "recent trends in the North Caucasus indicate that low-level insurgency-related violence is likely to continue to plague the region despite regular triumphant statements of Russian officials." Souleimanov (2017b) reaches a similar conclusion for Chechnya, as "sporadic attacks against the Kadyrov regime, and local law enforcement associated with it, will likely recur in the years to come."

Has Russia at last established a strategy for the North Caucasus that works to reduce violence in the region? The proportional rise in arrests reported in our analysis, complemented by the "hard security" tactics that targeted networks of support and placed military personnel in leadership positions at the republic and regional scales have corresponded to a shift in violence away from Chechnya and an overall decline. Also influencing the decline in violence in the region is the rise of the Islamic State and the simmering conflict in eastern Ukraine. Both conflicts have served as alternate venues for fighters from the region, although their precise impact is difficult to evaluate using our data-set. Questions remain about the effectiveness of Russian policy in the North Caucasus if Islamists with fighting experience return to the North Caucasus from abroad or the center's capacity for subsidizing the region remains curtailed (Souleimanov 2014; Dzutsati 2016; Ratelle 2016). For now, the alliance of the Kremlin and the Kadyrov regime in Chechnya is tamping down militant attacks from the heartland of Caucasian rebellions. It is unclear how long this arrangement will remain *in situ*.

In turn, whether the decrease in political violence seen over the past seven years becomes the new normal is contingent on dynamics both internal and external – the very same dynamics that led to the decrease in the first place: the continued success of the power vertical; securitization; economic policy as a counter to corruption and slow growth; and the outcome of events in the Middle East and, to a lesser extent, Ukraine. Although subsidy regimes are not a significant predictor in explaining the decline in violence across the two time periods considered, they remain important to regional economies and have increased across the region

during the period under consideration (from 2010–2016; see Figure 7 above). With Russia's continued dependence on oil and natural gas for its federal budget and potential uncertainty in these markets, it is possible that the ability of Moscow to support the North Caucasus will be drawn into question in the near term (though popular discontent with this policy has been more muted recently). And the alternative strategies for economic development in the region – including tourism and agriculture – have not led to real improvement in the region's economic fortunes (Holland 2016). Russia's protracted war in the North Caucasus will continue so long as it is unable to resolve these outstanding issues of management, economic development, and regional integration.

Notes

1. In the nested hierarchy of the Soviet Union's political geography – often likened to a set of *matrioshka* dolls – the Union of Soviet Socialist Republics is the first tier, the 15 constitutive Soviet Socialist Republics the second tier (the countries that gained independence with the Union's collapse in 1991), and the variously named autonomous regions (including the Chechen-Ingush Autonomous Soviet Socialist Republic) the third tier (Bremmer and Taras 1997).
2. The Caucasus Emirate is the self-declared Islamic theocracy that replaced the more nationalist oriented Chechen Republic of Ichkeria following the death of Maskhadov with the aim of consolidating Islamist groups across the North Caucasus into a single organization.
3. Kadyrov has been de facto head of the republic since the assassination of his father, Akhmad, in May 2004 and remains as the key actor in Putin's Chechenization policy (Russell 2008).
4. This number was up slightly from 2015, when *Kavkazskii Uzel* recorded 258 casualties across the district. For academic work similar in aim, see Zhirukhina (forthcoming); the data-set reported in this article extends from 2007 to 2014 and collects information on types of state repression – special operations, arrests, and seizures, among others – from media and official sources.
5. In terms of casualties per capita, Dagestan's casualty rate was 52.6 per million residents in 2015, a figure slightly below that of Kabardino-Balkaria (55.8 per million residents). Both rates are calculated using total population figures from the 2010 Russian census (Dagestan's 2010 population was 2.91 million; Kabardino-Balkaria's was 860,000).
6. Animated gif files showing potential surfaces for every year are available at https://www.colorado.edu/ibs/waroutcomes/caucasus/.
7. See discussion above on the variety of forms, including grants (*dotatsii*), subsidies, and subventions, which transfers to the region take. The data presented here are calculated by summing these three categories and other interbudgetary transfers for the *rayoni* and cities of the federal subunits of the NCFD.
8. Data from 2010 are used for all republics with the exception of Chechnya (the earliest available data for that republic is 2013); 2016 data are used for all republics except Kabardino-Balkaria (2012) and Ingushetia (2014), as 2016 or more recent data are not reported at the subregional scale for either republic.

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