Local Political Economy of Foreign Military Withdrawal

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April 22, 2026

Abstract

How do geopolitical shocks affect local politics? We examine foreign military base closures as discrete geopolitical events that simultaneously restore national sovereignty while disrupting local economies. We argue that base closures trigger political backlash through economic mechanisms: job losses and population decline mobilize economically vulnerable voters toward parties opposing geopolitical realignment. We test this claim with novel sub-national data on Soviet military withdrawal from Estonia, Latvia, and Lithuania after 1991. Across multiple estimation strategies and electoral cycles, Soviet base closures increased electoral support for pro-Russian parties. These effects were stronger in localities with larger military facilities, which had served as local economic anchors. Our analysis reveals that closures caused significant population decline and employment contraction, providing micro-founded evidence for economic voting. Local economic disruption from de-occupation can create political opportunities for forces aligned with the former occupying power.

How do geopolitical shocks affect local politics? We answer this question by examining foreign military base closures. Like industrial company towns, foreign military bases often dominate local economies, acting as primary employers and hubs for supporting services. At the height of the U.S. presence in Afghanistan, over 12,000 local civilians worked at Bagram airfield. Ramstein Air Base remains one of the largest employers in Germany's Kaiserslautern region, as does Camp Humphreys in Pyeongtaek, South Korea. Yet unlike factory closures or gradual industrial decline, foreign military withdrawals can carry profound political symbolism. Communities may associate bases with occupation, protection, or dependency (Allen et al., 2020; Yeo, 2017), shaping how voters respond to their closure.

This paper analyzes the political consequences of foreign military withdrawals, and shows that these geopolitical events produce substantial and persistent electoral backlash. We advance economic voting as a micro-founded mechanism linking base closures to political outcomes. When bases close, they eliminate jobs and trigger population decline. These economic shocks reshape local electorates through selective out-migration and mobilization of vulnerable voters. "Anti-realignment" parties — who oppose breaking ties with the former occupying power and integrating with new security partners — can gain electorally by offering voters an organized vehicle for economic grievance in post-occupation contexts.

Our scope conditions extend to post-occupation polities with meaningful electoral competition: settings where a foreign power had exercised sustained military and administrative control, and where voters retain the capacity to reward or punish parties at the ballot box.[1] In the Philippines, for example, the closure of Subic Bay U.S. Naval Base in 1992 eliminated tens of thousands of civilian jobs and reshaped electoral competi-

[1]We focus on "post-occupation" contexts to distinguish cases where a foreign power imposed military presence through conquest or coercion from voluntary basing arrangements between sovereign states. We focus on "meaningful electoral competition" because the operative scope condition is functional electoral accountability, not full democratic consolidation. Opposition parties must exist, compete, and plausibly gain from incumbent punishment, even if the broader polity falls short of canonical democratic standards.

tion between pro-American and nationalist parties. Syria's 29-year military occupation of Lebanon ended abruptly in 2005, leaving behind organized pro-Syrian parties competing against an anti-Syrian coalition in parliamentary elections months later. In Senegal and Côte d'Ivoire, France's ongoing military withdrawal has reorganized electoral competition around sovereignty and alignment with the former colonial power. This universe of cases may yet expand, should the U.S. reduce its military presence in South Korea, Japan, or Germany: all are polities with organized electoral forces on both sides of the U.S.-alignment question, with local communities deeply dependent on base economies.

We study the local political-economic fallout of Soviet (and Russian) military withdrawal from the Baltic states after 1991. Using novel sub-national data on Estonia, Latvia and Lithuania, we show that communities experiencing base closures saw increased turnout and vote shares for "pro-Russian" parties, exceeding generic anti-incumbent punishment.[2] We also confirm that closures caused significant population decline and employment contraction, providing granular evidence that economic distress drove political behavior.

Our theoretical framework combines retrospective economic voting and spatial models of electoral competition based on geopolitical orientation. Our theory makes no assumptions about which motivations (e.g., rational sanctioning, cognitive heuristics, affective responses) drive individual voter behavior (Healy and Malhotra, 2013). Instead, we show how economic shocks reshape the electorate through selective out-migration of low-propensity voters and mobilization of economically sensitive voters, regardless of their underlying psychological processes. We characterize voters by their geopolitical ideal points (on a pro-realignment to anti-realignment spectrum) and economic sensitivity, demonstrating how base closures create different pressures across voter types while generating consistent aggre-

[2] The "pro-Russian" label applies to political parties that either (a) oppose economic and security integration with Western institutions, (b) support expansion of Russian language rights, or (c) have financial or institutional ties to the Russian government or Kremlin-aligned entities. Parties that invoke Soviet nostalgia but meet none of these criteria (e.g., Lithuania's Social Democrats) fall outside our classification.

gate patterns: electoral shifts toward anti-realignment challengers. Crucially, our theory is flexible on blame attribution, acknowledging that voters may punish incumbents, sanction challengers for their associations with the former occupier, or both – allowing empirical patterns to inform which attribution mechanisms dominate.

To empirically test our argument, we exploit quasi-experimental variation in the location and timing of Soviet withdrawals: Moscow made base closure decisions in response to macro-level geopolitical changes, rather than local political-economic considerations inside Estonia, Latvia, and Lithuania.[3] The Baltic context works against finding the effects we document. Post-independence citizenship laws disenfranchised the Soviet-era settlers and Russian-speaking base workers whom closures harmed most directly, filtering our estimates toward those with weaker economic grievances. Baltic economies also reoriented rapidly toward EU and Nordic markets, offering affected communities faster recovery paths than most comparable post-occupation settings. That we nonetheless find substantial and persistent electoral backlash suggests our estimates may represent a lower bound on the political-economic consequences of military withdrawals.

We combine information on Soviet military base locations and closure timing with demographic data from Soviet censuses, firm-level economic indicators, electoral results from national election commissions, and population dynamics from satellite imagery. Researchers have not previously assembled data on this scale, due to the scarcity of geospatial data on historical sub-national administrative units, technical challenges associated with converting data between spatial units, and the fact that many raw sources exist only as scanned PDFs of administrative documents, requiring digitization and preprocessing.

We employ three complementary estimation strategies. First, we estimate a dose-response relationship measuring how the cumulative number of closures affects outcomes,

[3] Supplementary analyses find no evidence that pre-treatment characteristics like population size, ethnic composition, or geography predict closure probability.

exploiting within-community variation over time. Second, we implement difference-in-differences estimation comparing communities experiencing military withdrawals to ones that never experienced withdrawals, in the periods before and after closures. Third, we apply a staggered difference-in-differences design to account for variable closure timing across communities and heterogeneous treatment effects across cohorts. We consider multiple threats to inference and variation by ethnic composition and election type.

We find that foreign military withdrawals produce substantial and persistent political consequences. Soviet base closures increased voter turnout and pro-Russian party vote shares across multiple electoral cycles. These effects scaled with facility size, concentrating in communities with a larger Soviet military footprint. Closures also caused significant population decline and employment contraction. The electoral shift reflects both compositional change in the electorate and genuine preference change (or mobilization) among voters who stayed. The durability of these effects points to lasting changes in local political competition rather than transitory anti-incumbent punishment.

By documenting these local demographic, economic, and electoral effects — and particularly the concentration of political gains among anti-realignment parties rather than opposition parties generally — we advance several strands of research.

First, we extend international relations scholarship on foreign military installations into new temporal territory. While existing IR research examines how foreign military bases emerge and why host countries sometimes contest their presence (Allen et al., 2020; Cooley, 2008; Hikotani et al., 2023; Holmes, 2014; Yeo, 2011; Yeo, 2017), we examine what happens *after* bases close. The two phases follow different logics. During foreign presence, geopolitical and sovereignty concerns define base politics. After withdrawal, geopolitical stakes recede and economic costs come into focus. We show that concentrated economic disruption can override even widely celebrated geopolitical gains.

Second, we extend economic voting research (Healy and Malhotra, 2013; Lewis-Beck and Stegmaier, 2000; Margalit, 2019) by studying an undertheorized and understudied class of economic shock. Foreign military withdrawals share key features with trade shocks (Autor et al., 2020; Colantone and Stanig, 2018), manufacturing decline (Jensen et al., 2017; Margalit, 2011), and other localized disruptions (Baccini and Weymouth, 2021): they all impose sudden, concentrated costs on specific communities. Yet unlike most localized economic shocks, military withdrawals carry explicit geopolitical meaning: voters must weigh their economic grievances against the value they attach to an occupier's departure.

Our theoretical grounding in economic voting generates distinct empirical predictions. While IR theory on military basing would predict nationalist (anti-Russian) mobilization following Soviet withdrawal, celebrating restored sovereignty (Cooley, 2008), we find pro-Russian electoral gains, suggesting that economic harm from closure may exceed the relief from sovereignty restoration for local stakeholders. These findings align with recent evidence from other post-communist contexts, showing that communities economically dependent on Russia exhibit pro-Russian political outcomes following economic disruptions, whether through Soviet base closures fostering lasting pro-Russian attitudes in East Germany (Schulze, 2025) or through trade shocks driving political violence and territorial losses to Russian-backed separatists in Eastern Ukraine (Zhukov, 2016).

Third, our focus on *foreign* military withdrawal distinguishes our study from political economy research on base closures, which has centered on the U.S. Base Realignment and Closure (BRAC) process and generally found muted effects (Andersson et al., 2007; Bradshaw, 1999; Hooker and Knetter, 2001).[4] BRAC dampens economic shocks by relocating personnel to other domestic bases and compensating affected communities (Cowan, 2012; Dardia et al., 1996; Lee, 2018; Lockwood and Siehl, 2004). Neither of these conditions applies to foreign withdrawals, where local economic costs compete directly with national sovereignty gains. We show that these concentrated costs are politically consequential.

[4]See Paloyo et al. (2010) for an analysis of BRAC in Germany.

1 Theory

Foreign military base closures create distinctive political dynamics that simultaneously affect electoral participation and vote choice. We develop a hybrid theory combining retrospective economic voting (Fiorina, 1981; Healy and Malhotra, 2013; Lewis-Beck and Stegmaier, 2000) and spatial models of electoral competition (Adams et al., 2020; Enelow and Hinich, 1984) to explain how these dual effects operate. The theory applies to post-occupation polities, where competitive elections feature viable alternatives that differentiate on geopolitical orientation (Kopstein and Reilly, 2000; Pop-Eleches, 2010). We summarize our argument qualitatively here and formally in Appendix A1.

Our theoretical framework conceptualizes base closures as events that operate along two dimensions simultaneously: a geopolitical one and an economic one. By removing foreign military presence, closures represent geopolitical shifts. From a national perspective, the removal of foreign forces and (partial) restoration of sovereignty create an opportunity for geopolitical reorientation away from the occupier. In the Baltic states, for example, Soviet withdrawal a facilitated pro-Western reorientation through NATO and EU accession — a national-level geopolitical realignment with diffuse benefits. On the economic dimension, closures can generate severe material shocks. Military installations serve as major regional employers, and their closure triggers job losses, depopulation, and collapse of local economies that depended on base personnel and defense industry activity. These costs concentrate in communities hosting bases, creating a fundamental tension: geopolitical benefits apply nationally, but economic costs concentrate locally. Voters facing this hardship seek electoral vehicles to express economic grievances and demand policy responses.

Foreign military bases generate economic interactions with local communities in several ways. On-site, local civilians staff canteens, perform custodial and groundskeeping work, and handle certain clerical tasks. Off-site, they farm and distribute food, haul freight, provide fuel and building materials. Locals with specialized skills (e.g., electricians, plumbers, carpenters, mechanics) cover construction and repair needs. Local shops, barbers, and saloons cater to off-duty personnel. Where language barriers exist, locals also provide translation and interpretation services. When bases close, these economic activities stop.

Our theory builds on three assumptions about the post-occupation political environment. First, two distinct political party blocs compete along a geopolitical dimension. Pro-realignment parties favor strategic reorientation away from the former occupier, and integration with new security partners. Pursuing this integration requires supporting a bundle of domestic policy changes. In the case of NATO and EU accession, this might include market reforms, privatization, rule of law development, anti-corruption measures, and democratic institution building. Anti-realignment parties favor maintaining orientation toward the former occupier, and/or oppose the policy changes associated with realignment. Geopolitical positioning can create strange bedfellows, with left-wing redistributive parties (e.g., Communist successors) and right-wing anti-establishment populists (e.g., Euroskeptic nationalists) finding common cause against pro-realignment incumbents, despite divergent economic platforms.[5] In contexts where occupation entailed semi-permanent population transfer to occupied areas, anti-realignment parties might mobilize co-ethnics or co-linguals of the occupying power through nostalgic appeals. Economic shocks create opportunities to expand the anti-realignment coalition beyond its core support base.

Second, we assume governing coalitions generally exclude anti-realignment parties. This exclusion is crucial: anti-realignment parties can campaign as outsiders, with no need to defend state policy decisions. When bases close and economic conditions deteriorate, anti-realignment parties can oppose the status quo while bearing no responsibility for it.

Third, voters choose based on both geopolitical ideal point proximity and exposure

[5]In Appendix A4 we examine whether base closures affect incumbent vote shares generally or anti-realignment party vote shares specifically. We show that anti-realignment parties gain support beyond what generic anti-incumbent voting would predict.

to economic shocks. In normal economic times, voters select parties based primarily on geopolitical orientation (Stiers, 2022). Base closures disrupt this calculus by introducing retrospective economic considerations that compete with geopolitical preferences.

These competing pressures affect voters differently, based on their geopolitical preferences and economic sensitivity. Voters whose geopolitical ideal points align more closely with anti-realignment parties experience geopolitical dissatisfaction from the withdrawal and economic grievances from its consequences, creating multiple motivations to oppose pro-realignment incumbents. The economic shock validates these voters' geopolitical critique, strengthening their support for anti-realignment alternatives. Pro-realignment voters generally approve of the geopolitical shift but experience economic losses. For economically sensitive voters in this group, the retrospective punishment mechanism can overcome geopolitical preferences, weakening their support for pro-realignment forces. Geopolitically indifferent voters mobilize primarily in response to economic conditions. For them, base closures are purely negative economically, creating incentives to punish incumbents by supporting available challengers. All three forces point in the same direction: a reduction in support for realignment parties or an increase in support for anti-realignment alternatives.

A substantial literature documents that voters respond to economic shocks, but scholars debate the mechanisms underlying these responses (Healy and Malhotra, 2013). The traditional interpretation posits rational voters who sanction poorly-performing incumbents or select alternatives based on observed performance (Fearon, 1999; Fiorina, 1981). Other research emphasizes voters' reliance on cognitive heuristics when processing complex information about government performance, leading to biases like overweighting recent economic conditions or misattributing responsibility for outcomes beyond government control (Healy and Malhotra, 2013). Affective responses to economic pain may also drive voting behavior (Achen and Bartels, 2004). We make no assumptions about which mechanism dominates for any given voter.[6] Whether voters engage in rational sanctioning, use cognitive shortcuts, or react emotionally to hardship, the same aggregate patterns emerge.

A critical question concerns how voters attribute responsibility for base closures. The retrospective voting literature documents substantial variation in attribution patterns (Healy and Malhotra, 2013). In some cases, voters correctly identify which actors control specific decisions and apportion blame accordingly. In other cases, voters engage in "blind retrospection," mechanically punishing incumbents for outcomes beyond their control (Achen and Bartels, 2004; Healy and Malhotra, 2009).

Base closures present a particularly complex attribution problem, since decisions on force withdrawal often originate with the former occupier rather than local authorities. Consider three attribution scenarios. Under "nearsighted" attribution, voters predominantly punish local pro-realignment incumbents, either because they mechanically sanction whoever holds office or because economic distress erodes trust in establishment institutions. Under "farsighted" attribution, voters instead punish anti-realignment parties for their association with the external source of the shock. Under "equal blame" attribution, voters either hold all parties equally accountable or view the shock as beyond any party's control.

These scenarios generate distinct empirical predictions. Both nearsighted and farsighted attribution increase turnout by raising electoral stakes for marginal voters through differential blame. Equal blame attribution eliminates this mechanism, as the economic shock leaves the relative attractiveness of party blocs unchanged. The direction of vote share effects depends on which bloc voters hold more responsible: nearsighted attribution predicts increased anti-realignment support, farsighted attribution predicts the reverse. We expect voters to be more nearsighted, responding to closures by supporting anti-realignment parties and turning out in greater numbers.

[6] The formal model captures this heterogeneity through utility shocks that encompass both idiosyncratic preferences and systematic differences in how voters process information about economic conditions.

Five testable predictions follow from our theory:

H1: Communities experiencing base closures will exhibit population decline.

H2: Communities experiencing base closures will exhibit economic decline.

H3: Communities experiencing base closures will exhibit higher voter turnout.

H4: Communities experiencing base closures will exhibit higher anti-realignment support.

H5: Political effects of base closures will be stronger where the economic shock is more severe (e.g., larger bases, fewer alternative employment opportunities).

Derivation. Appendix A1 provides a formal model, with definitions of voter utilities, equilibrium conditions, proofs of the main theoretical results, comparative statics, and the heterogeneous attribution extension. Hypotheses 1 and 2 test the model's Assumption 1. Hypotheses 3 and 4 follow from Theorem 1. Hypothesis 5 follows from Proposition 1.

2 History

Occupation of the Baltics. Our study focuses on the three Baltic states within their current borders. During Soviet occupation, Estonia, Latvia, and Lithuania comprised the USSR's Baltic Military District. The Soviets first established the district in 1941 and finalized its borders after transferring Estonia from the Leningrad Military District in 1956.[7] Straddling the USSR's western frontier, the region underwent heavy Soviet militarization. Klaipeda, Liepaja, Ventspils, Tallinn, and Parnu became major naval bases, and the Soviets deployed large concentrations of personnel to all three states (CIA, 1955). The military footprint was vast: Estonian government estimates place military installations

[7] The district also included the current Russian exclave of Kaliningrad, which the Soviets added in 1946.

at 87,000 hectares, roughly 2 percent of the country's territory (Järv et al., 2013) — nearly six times the 0.35 percent of U.S. land area that the Department of Defense administers.

Moscow selected locations to serve military-strategic objectives, not to reward politically aligned communities or stimulate economically developed areas. The General Staff's considerations included geographic proximity to potential adversaries, access to ice-free ports for naval installations, positioning along strategic transportation corridors for rapid troop movement, suitability of terrain (e.g., flat areas for airfields, elevated positions for radar and early warning systems), and the availability of legacy Imperial Russian or German infrastructure. These criteria operated independently of local political loyalty, economic development, or demographic composition.[8]

Local civilian governments had no say over military base location, size, or logistics, and lacked jurisdictional authority over nearby military units. Unlike U.S. basing arrangements, which involve negotiations over employment and compensation, Moscow made all strategic decisions unilaterally and without input from local bureaucracies (Cooley, 2008). Locals also held few positions in the military hierarchy. The Soviet Union posted conscripts outside their home republics and entrusted decision-making to officers with no local ties (Rakowska-Harmstone, 1986). Neither local party officials nor military commanders pushed back against Moscow's policies on military land use (Bleiere, 2016).

Despite this exclusion from decision-making, Soviet bases generated substantial local economic activity. They directly employed civilian workers, like janitors, construction workers, and technical staff. They created demand for a local manufacturing base produc-

[8] If base placement rewarded pro-Soviet loyalty, we would expect concentration in industrial centers and working-class districts that supported Bolshevik movements during the Baltic Wars of Independence (1918-1920), like Riga's factory districts or ethnically Russian communities. If placement targeted hostile areas, we would expect heavy concentration in rural interior regions where post-war insurgent resistance ran deepest, like southern Lithuania and eastern Latvia (Vladimirtsev and Kokurin, 2008). Instead, bases clustered on coasts, near borders, and around logistical hubs. Remote coastal areas like the Estonian islands hosted major naval facilities despite limited economic activity, while economically developed areas like central Lithuania and Riga's industrial suburbs held relatively few installations.

ing reinforced concrete, textiles, electrical equipment, radio components, processed food, and timber. Personnel and their families patronized local establishments for goods and services. Bases required local labor and supplies. Soldiers spent wages in local economies.

Soviet industrial policy in the region prioritized military-political needs. Central planners imposed machine- and ship-building plants on towns lacking industrial infrastructure and housing, importing workers and components from across the union to make them operational (CIA, 1950). This strategy created lasting demographic divisions. Cities like Riga and Tallinn developed segregated neighborhoods that remain predominantly Russophone today (Pang et al., 2022), and Soviet housing policies favoring military officers concentrated ethnic minorities in specific areas (Marcińczak et al., 2015). In less urbanized locations, Moscow built dedicated military towns for army personnel and their families. Many of these eventually became ghost towns after withdrawal.

Geography shaped each Baltic state's distinct experience under Soviet occupation. Latvia's pre-war rail connections to Moscow and Leningrad led the Soviets to make it the Baltic Military District's logistical and industrial hub (Kasekamp, 2023). Latvia hosted the district's headquarters, and Riga became the primary administrative center for army officials and security services (H. F. Scott and W. F. Scott, 2019). Estonia's 1,200-kilometer coastline made it a focal point for naval and coast guard operations. Lithuania's shorter coastline reduced its naval importance. Moscow implemented less intensive industrial policies there, and transferred fewer workers from other Soviet republics.

Soviet occupation brought military installations, mass industrialization, and forced migration to all three Baltic states, but the demographic consequences differed substantially across them. Estonia and Latvia experienced transformational population shifts. Ethnic Estonians fell from 94 percent of Estonia's population in 1945 to 65 percent by 1989. Ethnic Latvians declined from 80 percent to 52 percent in Latvia over the same period (Kasekamp, 2010). Lithuania's ethnic composition was more stable (83.9 to 79.6 percent).

Base closures. When the Soviet Union collapsed, the Baltic states inherited dozens of military installations and thousands of Russian military personnel. The Baltic Military District dissolved in 1992, prompting each new state to open negotiations over troop withdrawals and base closures. Russia repeatedly obstructed and prolonged these talks (Upmalis et al., 2012). Its approach was to make withdrawal decisions unilaterally, leaving Baltic governments to respond only after the fact. The pace, sequence and manner of this process reflected Moscow's strategic calculations, not local electoral pressure or negotiating tactics. After multiple rounds and several abrupt halts, the three states signed withdrawal agreements with Russia in 1994 (Clinton, 1994), which transferred approximately 104,000 hectares to Latvia, 66,000 hectares to Lithuania, and 85,000 hectares to Estonia (Bonn International Center for Conversion, 1996).

In practice, the 1994 agreements could not tame the chaotic reality of a withdrawal that had already begun in 1991. Russian forces abandoned many bases without inventories or condition assessments, leaving facilities in disrepair and ignoring environmental protocols. Military-industrial facilities shut down, eliminating direct employment and demand for local suppliers. Departing personnel removed consumer spending from local economies. Some soldiers stole and sold movable assets (e.g., machinery, electronics, weapons, ammunition) for personal profit. The Soviet practice of dumping toxic materials left many sites unusable without significant cleanup. The combination of abandoned facilities, departed personnel, and contamination created severe economic shocks in base-hosting communities.

The withdrawal agreements provided no compensation to cushion economic disruptions from base closures. Russian opposition to financial assistance, combined with Baltic politicians' single-minded focus on rapid military withdrawal, eliminated any possibility of coordinated economic transition support. This approach contrasted sharply with organized closure programs elsewhere: in Germany, Denmark, and Sweden, governments provided targeted aid to affected communities (Kauppi, 2014), while U.S. BRAC commissions planned closures with Congressional oversight and dedicated conversion funding. In other post-Soviet states, Russia maintained military ties through the Collective Security Treaty Organization, preserving and in some cases expanding base access for counter-terrorism missions. The Baltic states experienced neither compensation nor continuity.

The closures took place as all three states were navigating political and economic transformations from communist command economies to market systems. State bureaucracies were nascent, regional administrations were undergoing wholesale reforms, leaving municipal governments to manage complex base conversion projects. Local authorities typically lacked the financial resources and administrative expertise necessary to attract private investment or prevent abandoned sites from deteriorating into environmental hazards.

Post-independence economic developments. The Baltic states are rare examples of post-Soviet republics in which the independence movements of the late 1980s managed to push through broad economic restructuring without suffering elite capture (Hellman, 1998). Nevertheless, central-planning and militarization left long-term impacts on economic development and a lasting Russian influence on energy and trade policy.

At the outset of the 1990s, large industrial enterprises dominated all three Baltic economies, producing energy-intensive intermediate goods for the Soviet market, with less than 5 percent of output reaching markets outside the USSR (Hanson, 1996). The concentration of monopolistic firms created vested interests against reform, and strong ties bound these enterprises to other Soviet republics, especially Russia. Important sectoral differences shaped how each state navigated this legacy. Estonia's lighter industry and greater private-sector employment eased its transition, while Lithuania maintained a smaller industrial base oriented toward agriculture and light industry. Latvia faced the steepest challenge, as the most industrialized of the three. Roughly 15 percent of Latvia's labor force worked in Soviet-era military production facilities (World Bank, 1993).

All three states pursued similar reform strategies, liberalizing currency exchange, limiting capital controls, and implementing mass privatization.[9] Given the higher proportion of Russian-dominated industrial enterprises, Latvia and Estonia opted for mass privatization. Lithuania took a more case-by-case approach that emphasized restructuring before privatization. Land privatization proceeded more slowly, as voucher schemes and competing claims over Soviet-nationalized plots tangled the process (OECD, 2000, pp. 28–38).

This context proved crucial for voters evaluating politicians. Regaining independence required citizens to judge leaders on complex economic reforms while simultaneously weighing long-term geopolitical goals, like EU and NATO membership, that delivered few immediate benefits. Communities navigating withdrawals had to attribute economic hardship across multiple potential sources, including legacy Soviet-era interests, reform-minded national governments, the Kremlin, and local management of base conversion. These conditions created fertile ground for retrospective economic voting to shape electoral outcomes, though the new states had yet to settle who could cast that vote.

Post-independence political developments. Determining who belonged to the reconstituted Baltic polities, and who could hold their governments accountable at the ballot box, proved as contentious as economic reform itself. Lithuania adopted the most inclusive approach, automatically granting citizenship to anyone who could prove their birth (or that of a parent or grandparent) within Lithuanian territory, and allowing other permanent residents to naturalize by oath with no language requirement (Barrington, 1995). Estonia and Latvia, facing much larger ethnic minority populations, implemented more restrictive policies, restoring citizenship only to those who held it before Soviet occupation on June

[9] Privatization preserved channels for Russian influence, as state companies like Gazprom acquired stakes in local enterprises and maintained leverage through energy dependence, trade, and tourism. Over time, geopolitical and technological developments (e.g., Russia's invasion of Georgia in 2008 and annexation of Crimea in 2014, liberalizing gas markets, U.S. shale revolution, emerging LNG infrastructure) prompted Baltic states to reduce energy dependence on Russia.

16, 1940, and their descendants. This framework effectively created two categories of residents, classifying approximately 740,000 Latvians and 500,000 Estonians as "non-citizens" or "aliens" and barring them from voting (Muiznieks et al., 2013). Retired Soviet military personnel, industrial migrants, their families and descendants faced three options: remain stateless, undergo naturalization, or leave.

Estonia and Latvia pursued different naturalization timelines and strategies. Estonia launched its process in 1992, with most applications succeeding by 1995 before the country tightened language requirements. Latvia delayed implementation until 1994, imposing strict language standards and a complex age-bracket system restricting eligibility by arrival date and age. Latvian voters eliminated these restrictions in a 1998 referendum, triggering a surge in applications. Both countries saw naturalization spikes after their 2004 EU accession, as non-citizens sought Schengen mobility and EU benefits (Muiznieks et al., 2013). A crucial difference persisted. Estonia extended municipal voting rights to all permanent residents, including non-citizens, until a 2025 constitutional amendment stripped non-EU nationals of that right. Latvia has always denied non-citizens electoral participation.[10]

Latvia, Estonia, and Lithuania each took a distinct approach to democratic representation. Latvia uses pure proportional representation with 100 parliamentary seats across five constituencies, alongside municipal elections with population-scaled councils. Estonia elects a 101-member parliament through 12 multi-mandate districts using vote quotas for seat allocation. Lithuania maintains a mixed system combining 71 single-seat majority constituencies with 70 nationwide proportional seats, and uniquely holds direct mayoral elections alongside proportional council elections. All three states use four-year parliamentary terms and 5% national thresholds (7% in Lithuania for multi-party lists) and offer voters preference-expression mechanisms like candidate ranking and plus/minus voting.

The primary axis of Baltic party competition has been geopolitical: pro-realignment

[10] Appendix A2 provides an overview of citizenship and electoral policies in the Baltic states.

parties favoring EU and NATO integration against anti-realignment parties maintaining ties with Moscow. This cleavage closely tracks party positions on citizenship and minority language rights. Latvia's Harmony Centre — which once had cooperation agreements with Putin's United Russia party — championed bilingual education, along with skepticism of NATO expansion and EU-driven austerity.[11] In Estonia, the Centre Party historically advocated for Russian-language education and closer economic ties with Russia, while opposing restrictive citizenship policies.[12] Lithuania presents a more complex pattern. The Electoral Action of Poles in Lithuania (EAPL-CFA) forms coalitions with ethnic Russian parties to advocate for expanded citizenship rights and language protections, while maintaining more ambivalent positions on EU and NATO. Following Russia's annexation of Crimea in 2014, most of these parties abandoned openly pro-Moscow positions.

While popular front parties (i.e., Sajudis in Lithuania, Tautas Fronte in Latvia, Rahvarinne in Estonia) dominated early coalition governments and implemented crucial market reforms, political dynamics shifted over time. Anti-realignment parties and populist movements gradually consolidated bases of support, and mounted increasingly effective electoral challenges (Kreuzer and Pettai, 2003). Despite their growing organizational strength, these parties have remained largely isolated from governing coalitions, due to mainstream parties' concerns about their geopolitical orientations and tacit loyalty to Moscow. How Soviet base closures have affected these parties' electoral fortunes is an open empirical question.

3 Data

To test our theoretical predictions about the political and economic effects of base closures, we employ a comprehensive sub-national dataset covering Estonia, Latvia, and Lithuania.

[11] In 2017, Harmony Centre joined the Party of European Socialists, adopting pro-EU sanctions policies.
[12] The party shifted toward mainstream European social democracy after 2014.

Using 1989 Soviet census enumeration units as the base geography, we combine Soviet archival records, post-independence electoral databases, commercial firm registries, and satellite-derived demographic indicators into a single dataset.[13]

Our spatial framework encompasses 1,224 census enumeration units across the three countries: 230 units in Estonia, 572 in Latvia, and 422 in Lithuania (Figure 1).[14] We constructed polygon geometries for these historical boundaries using Soviet census tables, contemporaneous administrative maps, and contemporaneous GIS datasets, implementing geoprocessing procedures to "roll back" modern boundaries to their 1989 configurations.

Our dependent variables capture three domains of outcomes. For demographic outcomes, we derive historical population counts and densities from satellite imagery at 1-kilometer resolution (Schiavina et al., 2023), providing consistent coverage across time and space independent of administrative boundary changes. For economic outcomes, we measure firm employment levels and revenue (converted to constant U.S. dollars), using historical data from the Orbis commercial database (Moody's Analytics, 2025).

For political outcomes, we measure voter turnout and party vote shares using precinct-level results from parliamentary and municipal elections. We obtained local vote tallies from the Estonian State Electoral Office, Latvian Central Election Commission, and Lithuanian Central Electoral Commission.[15] For Estonia, we have data on 8 municipal election cycles (1993 to 2017) and 7 parliamentary cycles (1995 to 2019). For Latvia, our dataset covers 7 municipal elections (1997 to 2021) and 9 parliamentary elections (1993 to

[13] We anchor our analysis on 1989 Soviet census enumeration boundaries for four reasons. First, they reveal local variation in base impacts that nationally aggregated data would obscure. Second, they avoid the endogeneity of post-independence boundary reforms, which responded to the same political and economic developments we study. Third, they ensure spatial units correspond to the governance structures and population distributions that existed when bases closed. Fourth, they enable standardized cross-national measurement during a transition period when lower-tier administrative units lacked clear definition.

[14] These are second-tier administrative level units. Most eventually became municipalities or parishes.

[15] We developed bespoke parsing procedures for each election, including automated web scraping for machine-readable data formats, and table extraction using optical character recognition for elections stored only as non-searchable scanned PDF documents.

2022). For Lithuania, we include 8 municipal elections (1995 to 2019) and 7 parliamentary elections (1992 to 2024).[16] We classify parties along the anti-realignment (pro-Russian) versus realignment (pro-EU/NATO) dimension based on their geopolitical orientations, positions on minority language rights, and coalition behaviors (see Appendix A3).

Our primary explanatory variables identify military base locations (Figure 1), closure timing (Figure 2), and base characteristics. We identified closure events from Soviet military archives, post-independence defense ministry records, and contemporary news reports, creating indicators for base presence, closure occurrence, and post-closure status (abandoned versus repurposed).[17] Base typology variables distinguish between naval, aviation, ground, strategic, educational, research, industrial support, and other facility types.

We classify each Soviet base as high, moderate, or low economic profile, based on size, personnel numbers, and integration with the local economy. High-profile bases (e.g., large garrisons, naval installations, military-industrial facilities) were economic anchors, employing local civilians in substantial numbers and generating demand for food, freight, construction, and professional services. Moderate- and low-profile bases were smaller and more specialized, and generated a more limited set of local economic interactions (e.g., basic provisioning and occasional day labor, shops catering to off-duty personnel and families).

To address potential confounders that might influence local outcomes independent of base closures, we include 1989 census measures of population size, ethnic composition (per-

[16]Our dataset covers Estonian municipal elections in 1993, 1996, 1999, 2002, 2005, 2009, 2013, 2017, and parliamentary elections in 1995, 1999, 2003, 2007, 2011, 2015, 2019. For Latvia, we include municipal elections in 1997, 2001, 2005, 2009, 2013, 2017, 2021, and parliamentary elections in 1993, 1998, 2002, 2006, 2010, 2011, 2014, 2018, 2022. For Lithuania, we have municipal election data for 1995, 1997, 2000, 2002, 2007, 2011, 2015, 2019, and parliamentary elections in 1992, 1996, 2008, 2012, 2016, 2020, 2024.

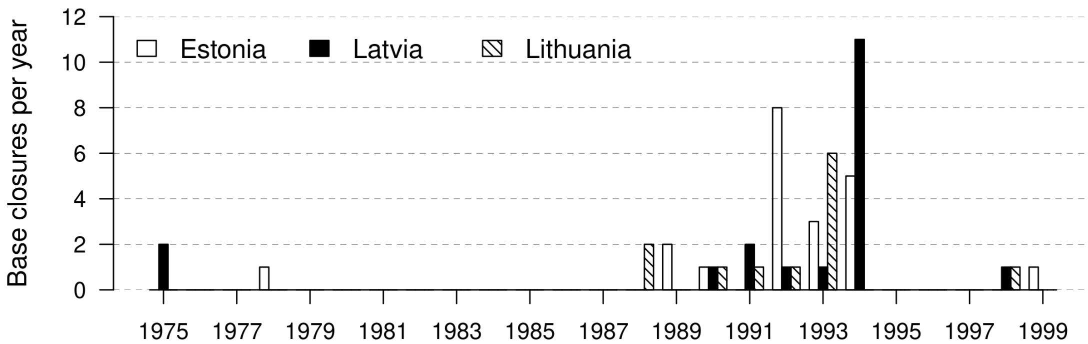
[17]Primary sources include Fes'kov, Golikov, et al. (2013), Fes'kov, Kalashnikov, et al. (2004), and Upmalis (2014); BIVIAP (2025). Repurposed bases include facilities that Baltic governments transferred to national militaries, converted to civilian uses (e.g., airports, industrial parks, housing), or allocated to other governmental functions (e.g., border guard stations, police training facilities). Abandoned bases, by contrast, sat vacant and unused. The distinction matters economically: repurposed facilities could partially offset job losses through new employment, while abandoned sites generate no replacement activity.

Figure 1: **Spatial units and Soviet base locations**. Grey lines represent 1989 administrative boundaries, at the level of republic (thick), rayon (medium), and census enumeration unit (thin). Circles denote locations with closed or abandoned Soviet bases (white), and locations with Soviet bases that were repurposed or transferred to host nation (black).

centage Russian, Latvian, Estonian, Lithuanian, others), pre-independence urbanization, economic activity, and geography (Goskomstat, 1989; Torchenov and Markov, 1983).

The panel structure extends from 1975 to 2025, providing substantial pre-treatment and post-treatment observation periods for most base closures, which occurred primarily between 1990 and 1995. This temporal coverage enables us to exploit both cross-sectional variation in base locations and temporal variation in closure timing.

Figure 2: **Timing of Soviet base closures**.



Note: Our main analyses exclude Soviet-era (pre-1991) base closures. Appendix A4.3 reports supplementary analyses with modified treatment variables that include these older events.

4 Analysis

We employ three complementary specifications to evaluate how military withdrawals affected local demographic, economic, and political outcomes. First, we estimate a dose-response relationship, capturing how the cumulative number of base closures affects outcomes, net of unobserved heterogeneity across communities and common temporal shocks:

$$y_{i,t} = \beta \text{ Closures}_{i,t} + \mathbf{X}'_{i,t}\boldsymbol{\gamma} + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{i,t} \quad (1)$$

where $y_{i,t}$ denotes an outcome for community i at time t, $\text{Closures}_{i,t}$ measures the cumulative number of base closures in community i by time t, $\mathbf{X}_{i,t}$ contains time-varying controls, α_i represents community fixed effects, $\lambda_t \times \text{Country}_i$ are country-specific year fixed effects, and $\epsilon_{i,t}$ is the error term.[18] We cluster standard errors at the community and year levels to account for spatial and temporal correlation in outcomes. The coefficient β captures the average effect of each additional base closure on local outcomes, under the assumption of strict exogeneity: that closure timing is uncorrelated with unobserved determinants of

[18] 52 communities (4.2%) experienced more than one closure.

outcomes after controlling for observables, and community and time fixed effects.

Our second specification uses a difference-in-differences design with a binary treatment, comparing communities that experienced any base closure to those that never did:

$$y_{i,t} = \delta\left(\text{Treated}_i \times \text{Post}_{i,t}\right) + \mathbf{X}'_{i,t}\boldsymbol{\gamma} + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{i,t} \tag{2}$$

where Treated_i equals one for communities that eventually experienced base closures and zero otherwise, $\text{Post}_{i,t}$ equals one for periods after the first closure occurs in that community. δ represents the average treatment effect on the treated.

For electoral outcomes like turnout and vote shares (Hypotheses 3 and 4), which are proportions bounded between zero and one, we estimate specifications (1) and (2) using generalized linear models with binomial family and logit links. Because GLM coefficients do not translate directly to the outcome scale, we report average marginal effects (AMEs): average percentage point changes in outcome associated with base closures.[19] For non-electoral outcomes (Hypotheses 1 and 2), we report linear regression coefficients.

The specifications in (1) and (2) rely on the parallel trends assumption that treated and control communities would have followed similar outcome trajectories absent base closures. Our third specification tests this assumption by implementing a heterogeneity-robust staggered difference-in-differences estimator (Sun and Abraham, 2021):

$$y_{i,t} = \sum_{g\in\mathcal{G}}\sum_{k\neq -1} \delta_{g,k} \cdot \mathbf{1}[\text{Cohort}_i = g] \cdot \mathbf{1}[t - G_i = k] + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{i,t} \tag{3}$$

[19]For GLMs with a logit link, the marginal effect of treatment at observation (i,t) is $\hat{\beta}\,\hat{p}_{it}(1-\hat{p}_{it})$, where $\hat{\beta}$ is the treatment coefficient (β in (1), δ in (2)), $\hat{p}_{it}$ is the model's predicted turnout or vote share at that observation, and $\hat{p}_{it}(1-\hat{p}_{it})$ is the derivative of the inverse logit function evaluated at observation (i,t). We average this quantity across all observations to obtain $\text{AME} = \frac{1}{NT}\sum_{i=1}^{N}\sum_{t=1}^{T}\hat{\beta}\,\hat{p}_{it}\,(1-\hat{p}_{it})$. We estimate standard errors for AMEs using the delta method, applying a first-order Taylor expansion to approximate AME variance as a function of estimated coefficients and their covariance matrix.

where G_i denotes the year of first base closure in community i, and $\mathcal{G}$ denotes the set of treatment cohorts (calendar years of first closure). k indexes years before or after closure, with $k = -1$ as the reference period. We aggregate the cohort-average treatment effects on the treated $\delta_{g,k}$ to period-average estimates using cohort shares as weights.[20] The parallel trends assumption implies that $\delta_{g,k} = 0$ for all $k < -1$. We test this assumption by reporting the maximum absolute t-statistic on $\widehat{\delta}_{g,k}$ across pre-treatment periods; values below 1.96 indicate that no pre-period estimate differs from zero at the 5 percent level.

4.1 Results

Tables 1–5 present our dose-response and difference-in-differences estimates, first pooling all three countries and then estimating separate models for Estonia, Latvia, and Lithuania. Figure 3 reports staggered difference-in-difference estimates.

Table 1: **Test of Hypothesis 1**. Base closures and population decline.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-6.3 (1.3)**	-4.6 (1.6)**	-5 (0.7)**	-4 (2.9)	-7 (2.3)**	-5.3 (2)*	-9.4 (4.9)$'$	-4 (3.2)
Location FE	N=1227	N=1227	N=231	N=231	N=574	N=574	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	41,718	41,718	7,854	7,854	19,516	19,516	14,348	14,348
R-squared	0.985	0.985	0.987	0.987	0.985	0.985	0.984	0.984

Dependent variable is **local population count (thousands)**. Reported values are coefficient estimates from dose-response function (DRF) and difference-in-differences (DiD) models, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$.

Table 1 tests Hypothesis 1 (withdrawals cause negative demographic shocks). In all three countries, local population size falls after base closures. In the pooled model, each additional base closure reduces community population size by approximately 4,600

[20]We restrict AME reporting to election outcomes in specifications (1) and (2), where the coefficient vector is low-dimensional and the variance-covariance matrix is well-conditioned.

(difference-in-differences, DiD) to 6,300 (dose-response function, DRF) people. Country-specific estimates are close in magnitude: Estonia experiences population losses of 4,000–5,000 per closure, Latvia 5,300–7,000, and Lithuania 4,000–9,400.

Table 2: **Test of Hypothesis 2**. Base closures and economic decline.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-0.3 (0.05)**	-0.4 (0.1)**	-0.2 (0.04)**	-0.3 (0.1)′	-0.5 (0.1)**	-0.6 (0.1)**	-0.5 (0.03)**	-0.6 (0.05)**
Location FE	N=1227	N=941	N=231	N=231	N=288	N=288	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	41,717	30,374	7,820	7,820	8,398	8,398	14,156	14,156
R-squared	0.909	0.832	0.723	0.723	0.834	0.834	0.751	0.751

Dependent variable is **average number of employees per local firm** (logged). See note in Table 1.

Table 2 tests Hypothesis 2 (withdrawals cause negative economic shocks). In the pooled models, a base closure produces an estimated $100 \times (e^{-0.3} - 1) = -26$ to $100 \times (e^{-0.4} - 1) = -36$ percent change in average firm employment.[21] In Estonia, the coefficient estimates are in line with the regional average. In Lithuania, the estimated percent decrease in employment is $100 \times (e^{-0.5} - 1) = -41$ in both specifications. Latvia's weaker results may reflect the greater economic diversification of its base-hosting communities. Facilities in Riga and other urban areas gave displaced workers access to alternative employers that workers in Estonia's and Lithuania's more peripheral base locations lacked.

Table 3 tests Hypothesis 3 (withdrawals increase political participation). Voter turnout is 0.7 percentage points (pp) higher overall after closures, with DRF and DiD estimates at 0.68 pp in Latvia and 0.93 pp in Lithuania. Turnout data are unavailable for Estonia.

Table 4 tests Hypothesis 4 (withdrawals increase anti-realignment support). In the pooled results, pro-Russian vote shares are 2.5–2.9 pp higher following base closures. Taking one country at a time, pro-Russian vote shares increased by 4 pp in Latvia, 2.5–3.9 pp in Lithuania, and 14.8 pp in Estonia (but with larger standard errors).

[21] We use the log of average firm employment as the outcome, and report percent change as $100 \times (e^{\hat{\beta}} - 1)$.

Table 3: **Test of Hypothesis 3**. Base closures and increased voter turnout.

	All		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	0.01 (0.002)**	0.01 (0.003)*	0.01 (0.002)**	0.01 (0.004)$'$	0.01 (0.003)**	0.01 (0.003)**
Location FE	N=996	N=996	N=572	N=574	N=422	N=422
Country-Year FE	T=28	T=28	T=16	T=16	T=15	T=15
Sample size	15,512	15,512	9,183	9,183	6,329	6,329
R-squared	0.196	0.196	0.265	0.265	0.083	0.083

Dependent variable is **local voter turnout (proportion of registered voters)**. Turnout data are not available for Estonia. Reported values are average marginal effect estimates $\left(\frac{1}{NT}\sum_i\sum_t \hat{\beta}\hat{p}_{it}(1-\hat{p}_{it})\right)$ from DRF and DiD models estimated via GLM Binomial family, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $'p < 0.1$.

Table 4: **Test of Hypothesis 4**. Base closures and increased pro-Russian support.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	0.03 (0.01)**	0.03 (0.01)*	0.1 (0.1)$'$	1.1 (4.1)	0.04 (0.01)**	0.04 (0.02)*	0.03 (0.01)*	0.04 (0.01)**
Location FE	N=1224	N=1224	N=228	N=228	N=574	N=574	N=422	N=422
Country-Year FE	T=45	T=30	T=14	T=14	T=16	T=16	T=15	T=15
Sample size	18,103	18,103	2,733	2,733	9,048	9,048	6,322	6,322
R-squared	0.569	0.566	0.56	0.56	0.546	0.546	0.591	0.591

Dependent variable is **pro-Russian vote share (proportion of valid votes)**. See note in Table 3.

Figure 3 presents staggered DiD estimates for H1–H4. These results support the parallel trends assumption behind our DRF and DiD specifications: there are no systematic pre-trends for any four outcomes, and all maximum pre-period $|t|$-statistics fall consistently below 1.96. The post-treatment dynamics illustrate how the patterns we encountered in Tables 1-4 unfold over time. For population (H1), we see slow but monotonically increasing population losses following closure. For employment (H2), the estimates show a sharp initial decline, followed by a partial but incomplete recovery. For voter turnout (H3) and pro-Russian vote share (H4), we see generally positive effects. The estimates vary in magnitude and precision over the post-treatment periods, but point in the same direction.

Figure 3: **Staggered difference-in-differences estimates**. Open circles denote pre-treatment periods; filled circles denote post-treatment periods. Maximum absolute t-statistic across pre-treatment periods reported as pre-trends diagnostic; values below 1.96 indicate no individual pre-period estimate is significant at the 5 percent level.

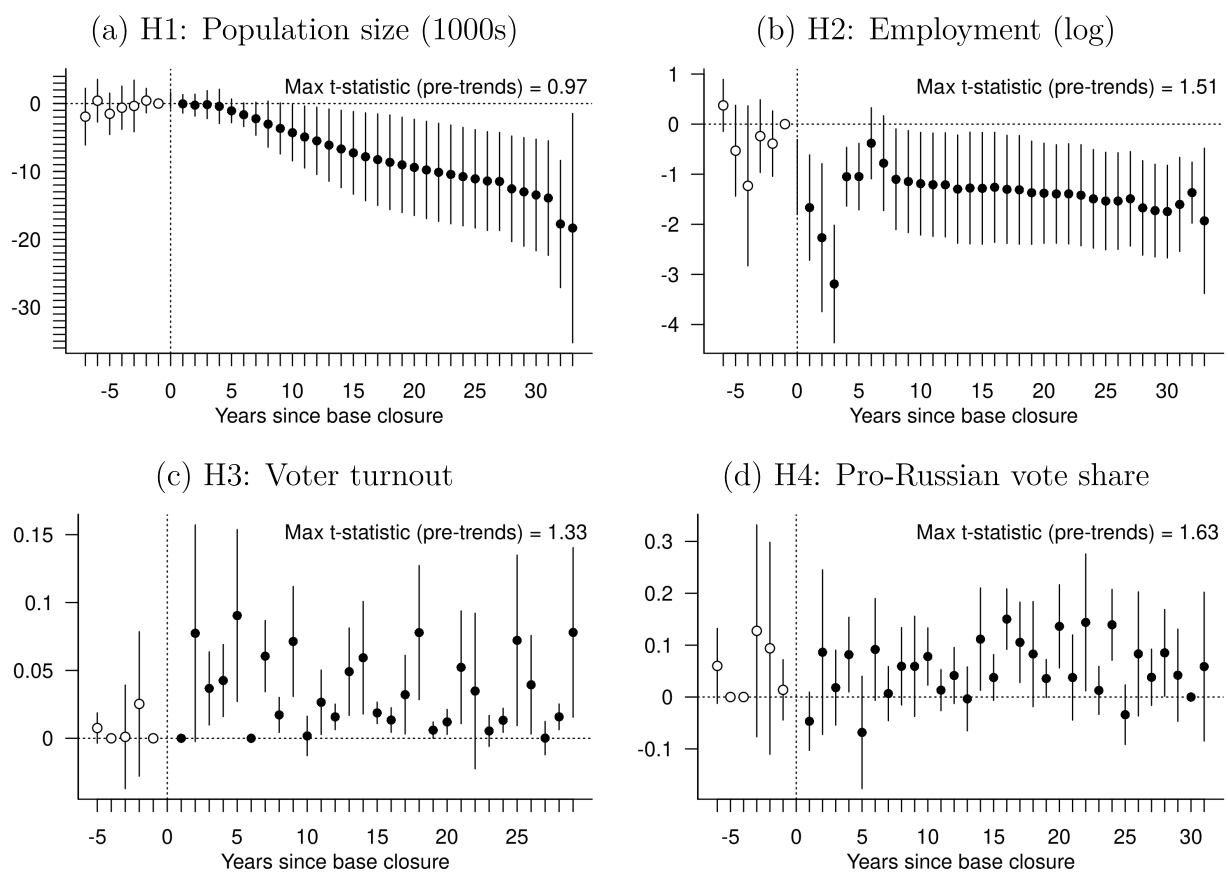


Table 5 tests Hypothesis 5 (political effects of withdrawals are stronger where the economic shock is more severe). The results show that base closures at high economic profile sites (e.g., large garrisons, military-industrial facilities) consistently produce larger increases in pro-Russian party vote share than closures at lower-profile sites. In the pooled sample, high-impact closures increase pro-Russian vote share by 4 pp (DRF and DiD, both significant at $p < 0.001$). Closures at moderate/low-impact bases yield smaller, more

Table 5: **Test of Hypothesis 5**. Base closures have larger political effects where the severity of the economic shock is greater.

Model	All DRF	All DiD	Estonia DRF	Estonia DiD	Latvia DRF	Latvia DiD	Lithuania DRF	Lithuania DiD
High impact	0.04 (0.01)**	0.04 (0.01)**	1.1 (0.1)**	1.1 (0.01)**	0.04 (0.003)**	0.1 (0.005)**	0.05 (0.01)**	0.05 (0.01)**
Low/Moderate	-0.001 (0.005)	0.01 (0.004)$'$	-0.03 (0.01)**	1.1 (0.01)**	0.02 (0.1)	0.02 (0.1)	0.001 (0.005)	0.01 (0.005)$'$
Location FE	N=1224	N=1224	N=228	N=228	N=574	N=574	N=422	N=422
Country-Year FE	T=45	T=45	T=14	T=14	T=16	T=16	T=15	T=15
Sample size	18,103	18,103	2,733	2,733	9,048	9,048	6,322	6,322
R-squared	0.569	0.569	0.56	0.56	0.546	0.546	0.591	0.591

Dependent variable is **pro-Russian party vote share (proportion of valid votes)**. Reported values are average marginal interaction effect estimates $\left(\text{High impact} = \frac{1}{NT}\sum_i \sum_t \hat{\beta}_1 \hat{p}_{it}(1-\hat{p}_{it})\right)$, $\left(\text{Low/Moderate impact} = \frac{1}{NT}\sum_i \sum_t (\hat{\beta}_1 + \hat{\beta}_2)\hat{p}_{it}(1-\hat{p}_{it})\right)$ from DRF and DiD models estimated via GLM Binomial family, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $'p < 0.1$.

uncertain effects, ranging from -0.14 to 0.78 pp. All three countries exhibit positive and significant increases in pro-Russian electoral support after high-profile closures. For lower-profile bases, effects are smaller, sometimes negative, and often not statistically significant.

These findings strongly support our theoretical framework. Soviet withdrawals created local demographic shocks (H1), economic shocks (H2), and political responses like increased turnout (H3) and pro-Russian vote shares (H4). We also find that electoral backlash to realignment is strongest in communities that lose their primary economic anchors (H5).

4.2 Robustness

While our main results generally support our theoretical predictions, several threats to inference warrant examination (see full analyses in Appendix A4).

First, community-level factors do not appear to have driven Soviet withdrawal decisions (Appendix A4.1). We find no evidence that observable pre-treatment local characteristics (e.g., population size, ethnicity, geography, base type) reliably predict closure timing and location. However, base re-openings do show systematic patterns: larger and more ethnically Russian communities were more likely to see bases re-open under a national or NATO flag. This divergence suggests that while Soviet withdrawals reflected external imperatives, subsequent facility conversion decisions incorporated localized considerations about economic viability and political constituencies.

Second, our findings withstand alternative measurement choices (Appendix A4.2). Robustness tests using population density and firm operating revenues mirror our main findings, showing substantial contractions on both indicators. These convergent results confirm that base closures created substantial material hardship.

Third, extending the analysis to include pre-1991 closures leaves demographic effects substantively unchanged (Appendix A4.3). Patterns of closure-driven out-migration appear consistent whether bases closed before or after 1991.[22]

Fourth, our findings survive corrections for spatial spillovers (Appendix A4.4). Conley standard errors leave nearly all results significant despite modestly larger uncertainty.

5 Mechanisms and Interpretation

We now examine the mechanisms and interpretations underlying our main findings, and consider how economic shocks from base closures might translate into electoral change.

Electorate composition or preference change? A fundamental interpretive question is whether increased pro-Russian vote shares reflect compositional change (i.e., disproportionately pro-realignment voters exiting the community) or preference change (i.e., remaining voters update their behavior in response to economic hardship). Both channels fit our framework but carry different implications for the generalizability of economic voting as

[22]Due to fundamental incomparabilities between Soviet and post-Soviet economic and electoral institutions, we limit this check to demographic outcomes.

a mechanism. A purely compositional result would suggest that elections aggregate pre-existing preferences rather than respond dynamically to economic shocks. A preference-shift result would imply that economic disruption actively reshapes political behavior.

We decompose these channels by estimating the effect of base closures on (logged) anti-realignment vote totals, with and without conditioning on (logged) electorate size. A purely compositional shift would cause anti-realignment totals to scale one-for-one with electorate size, and the treatment coefficient would vanish after conditioning. Departures from this benchmark indicate that something beyond mechanical composition is at work. The Baltic context adds a distinctive feature: post-independence citizenship laws in Estonia and Latvia denied automatic citizenship to Soviet-era settlers (i.e., disproportionately Russian-speaking workers employed near military installations), making the population most economically exposed to base closures largely ineligible to vote. Eligible voter counts should thus hold steady despite the demographic attrition we saw in Table 1.

We find evidence that closures changed both electorate composition and voter preferences (Appendix A5.1). Base closures have modest positive effects on log eligible voters, consistent with insulation of the enfranchised electorate from direct demographic attrition. Conditioning on eligible voters absorbs approximately 54 percent of the total effect on log anti-realignment vote totals. The remaining 46 percent persists as a direct effect, consistent with genuine preference or mobilization change among enfranchised residents who stayed. Under pure compositional change, this residual should be zero; we formally reject this null ($\chi^2(1) = 31.3$, $p < 0.001$).[23] Roughly half the electoral shift thus reflects the changing composition of the enfranchised population. The other half reflects genuine preference or mobilization change among those who stayed and could vote.

[23] Conditioning on log valid votes instead of log eligible voters yields virtually identical residual estimates.

Electoral arenas. Electoral institutions vary in ways that could shape how voters channel economic grievances. Voters may hold local governments more accountable for base conversion and local economic management, and hold national parliaments accountable on matters of foreign policy and geopolitical realignment. Yet base closures increased pro-Russian vote shares in both parliamentary and municipal elections, with effect estimates largely overlapping (Appendix A5.2). The consistently positive effects across both levels suggest that economic disruptions activated anti-realignment voting in multiple arenas.

Ethnic voting. In constituencies with higher shares of ethnic Russians, base closures may have compounded pre-existing economic and political marginalization, producing stronger electoral responses. The empirical evidence reveals country-specific rather than uniform heterogeneity (Appendix A5.3). Latvia shows the clearest ethnic gradient: closures produced significant effects only in above-median Russian communities. Estonia presents a more complex pattern, with large effects in low-Russian communities and more variable estimates in high-Russian ones. In the pooled sample, base closures increased pro-Russian vote shares similarly across low- and high-Russian communities. These findings highlight that ethnic heterogeneity in political responses depends not just on demographic composition, but on the citizenship and electoral rules that determine who can vote.

Anti-realignment vote or anti-incumbent protest? Do our findings on pro-Russian electoral support merely capture generic anti-incumbent sentiment? The retrospective voting literature documents that voters often engage in "blind retrospection," mechanically punishing incumbents for negative outcomes regardless of actual responsibility (Achen and Bartels, 2004; Healy and Malhotra, 2013). Under this interpretation, pro-Russian parties benefited simply because they have occupied challenger status in Baltic politics since independence. To test this possibility, we examine how base closures affected incumbent vote shares, where incumbent parties are those in the national governing coalition (Appendix A5.4). The results provide limited evidence for pure anti-incumbent punishment: effects on incumbent vote share are small, imprecise, and vary substantially across countries.

Pure blind retrospection predicts symmetric effects, with incumbents losing substantially and all opposition parties gaining in proportion. Instead, we find strong pro-Russian gains alongside weak incumbent losses, suggesting closures mobilized voters with affinities for pro-Russian parties specifically. This pattern aligns with our theoretical framework. Pro-Russian parties bridged left-wing redistributive and populist anti-establishment currents, attracting voters hit hardest by economic disruption (Margalit, 2019).

6 Conclusion

This paper examined how foreign military base closures shape local political participation and preferences. Base closures create competing pressures: geopolitical shifts that may satisfy nationalist or pro-realignment voters, and economic disruptions that activate retrospective voting. These cross-cutting forces ultimately benefit anti-realignment parties, which serve as vehicles for anti-establishment sentiment. We found robust evidence of these patterns in Estonia, Latvia, and Lithuania after the Soviet Union's collapse.

Our findings contribute to several research programs. First, we extend economic voting scholarship by showing that concentrated economic disruptions generate adverse political effects even when they coincide with celebrated geopolitical outcomes. The Baltic states represent a hard case. At the national level, citizens enthusiastically welcomed Soviet withdrawal (Cooley, 2008), yet concentrated economic costs shaped local political attitudes more powerfully than diffuse geopolitical benefits (Hikotani et al., 2023).

Second, pro-Russian electoral gains reflect both genuine preference change and compositional shifts. Pro-realignment residents disproportionately exited, while those who remained showed increased anti-realignment support. These effects appear in national and municipal elections, in communities with and without large ethnic Russian populations.

Third, our findings speak to debates about military installations and host-country politics. Recent research shows that economic benefits from consensual deployments can build local support (Allen et al., 2020). We show that even non-consensual occupation creates economic dependencies that can outlast geopolitical animosity after withdrawal.

From a policy perspective, the contrast between structured processes like U.S. BRAC and the chaotic Soviet withdrawal underscores the importance of institutional design. Where closures are unavoidable, advance planning and economic transition support may mitigate political fallout. Sudden military withdrawals carry national security risks beyond immediate strategic concerns, including long-term electoral shifts that benefit foreign-aligned parties. These dynamics are relevant wherever foreign military withdrawals intersect with competitive elections (e.g., potential U.S. drawdowns in Korea, Japan, or Germany; Russian withdrawals from post-Soviet states; France's retrenchment in West Africa) and underscore the stakes of economic transition planning for base-dependent communities.

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Online Appendix:
Local Political Economy of Foreign Military Withdrawal

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A1 Theoretical model

Table A1: **Model notation.**

Symbol	Description
c, t, i, j	Indices for community, time period, voter, and party group ($j \in \{A, B\}$).
$\mathcal{C}$	Set of communities; $c \in \mathcal{C}$.
$\mathcal{J}_{c,t}$	Set of party groups competing in community c at time t; $\mathcal{J}_{c,t} = \{A, B\}$, where A denotes the pro-realignment bloc and B the anti-realignment bloc.
$\omega_{c,t}$	Economic state of community c at time t; $\omega_{c,t} \in \mathbb{R}$.
$\mathcal{B}_{c,t}$	Base closure indicator for community c at time t; $\mathcal{B}_{c,t} \in \{0, 1\}$.
$N_{c,t}$	Number of eligible voters in community c at time t; $N_{c,t} \in \mathbb{N}$.
r_i	Voter i's geopolitical ideal point; $r_i \in [-1, 1]$, where 1 is fully pro-realignment and -1 fully anti-realignment.
ζ_i	Voter i's spatial utility loss from ideological distance; $\zeta_i > 0$.
ψ_i	Voter i's economic sensitivity; $\psi_i \in \mathbb{R}^+$ (scales retrospective punishment).
$d_{i,c,t}$	Voter i's participation decision; $d_{i,c,t} \in \{0, 1\}$.
$v_{i,c,t}$	Voter i's vote choice, conditional on participation; $v_{i,c,t} \in \mathcal{J}_{c,t}$.
q_j^r	Party group j's position on realignment; $q_j^r \in [-1, 1]$, with $q_B^r < q_A^r$.
I_j^{inc}	Incumbency indicator; $I_j^{inc} = 1$ if party group j is in the governing coalition.
$u_{i,c,t}(j)$	Voter i's utility from supporting j: $u_{i,c,t}(j) = -\zeta_i(r_i - q_j^r)^2 - \psi_i \cdot \phi \cdot I_j^{inc} + \varepsilon_{ij}$.
ϕ	Magnitude of economic disruption from base closure; $\phi \geq 0$.
ε_{ij}	Idiosyncratic utility shock; $\varepsilon_{ij} \sim \text{Gumbel}(0, \sigma)$.
κ	Fixed cost of electoral participation (e.g., travel time, information costs).
Γ_i	Voter i's pre-shock geopolitical preference for pro-realignment bloc; $\Gamma_i = \zeta_i[(r_i - q_A^r)^2 - (r_i - q_B^r)^2]$; $\Gamma_i > 0$ pro-realign., $\Gamma_i < 0$ anti-realign.
$\mathcal{Z}$	Set of voters switching pro- to anti-realignment; $\mathcal{Z} = \{i : 0 < \Gamma_i < \psi_i \phi\}$.
$T_{c,t}$	Aggregate turnout rate in community c at time t: $T_{c,t} = \frac{1}{N_{c,t}} \sum_{i=1}^{N_{c,t}} d_{i,c,t}$.
$s_{j,c,t}$	Vote share of party group j in community c at time t.
ν	Population decrease caused by base closure; $\nu > 0$.
$\mathcal{L}, \mathcal{S}$	Sets of out-migrants and stayers following base closure; $\mathcal{S} = \{1, \ldots, N_{c,t}\} \setminus \mathcal{L}$.
p_i	Individual participation probability of voter i.
ρ_j	Blame attribution parameter for j; $\rho_j \in \mathbb{R}$ (extended model only).

Let $\mathcal{C}$ denote a set of communities, indexed by $c \in \mathcal{C}$. We characterize each community c at time t by its economic state $\omega_{c,t} \in \mathbb{R}$, base closure indicator $\mathcal{B}_{c,t} \in 0, 1$, number of eligible voters $N_{c,t} \in \mathbb{N}$, and competing sets of parties $\mathcal{J}_{c,t}$.

Each voter i has geopolitical ideal point $r_i \in [-1, 1]$ (where 1 represents pro-realignment orientation and -1 represents anti-realignment orientation), economic sensitivity $\psi_i \in \mathbb{R}+$, participation decision $d_{i,c,t} \in 0, 1$, and vote choice $v_{i,c,t} \in \mathcal{J}_{c,t}$.

In each election, $J = 2$ groups of parties compete: $\mathcal{J}_{c,t} = A, B$. A denotes the pro-realignment set of parties, and B denotes the anti-realignment set. In the post-Soviet context, A might include EU/NATO-oriented reformists, liberal democrats, and nationalists. B might comprise both left-wing forces (e.g., communist successor parties seeking redistributive policies) and right-coded populist movements (e.g., ethnic Russian minority parties and Euroskeptic groups favoring closer Moscow ties), making them vehicles for multiple forms of anti-establishment sentiment following economic shocks (Margalit, 2019).

Each group of parties j takes a geopolitical position $q_j^r \in [-1, 1]$ and has incumbent status $I_j^{inc} \in 0, 1$ where $I_j^{inc} = 1$ if party group j is in the governing coalition. We assume that $q_B^r < q_A^r$. Crucially, we also assume that the anti-realignment bloc is generally excluded from governing coalitions ($I_B^{inc} = 0$). As outsiders, who are not responsible for state policy and are not defending past government decisions, anti-realignment parties can oppose the status quo without bearing accountability for the economic state of the community. This allows anti-realignment parties to position themselves as natural vehicles for retrospective punishment of pro-realignment incumbents (Healy and Malhotra, 2013).

Let $s_{j,c,t}$ be party group j's vote share in community c at time t.

Definition 1 (Hybrid spatial-retrospective voter utility)**.** Voter i's utility from supporting party group j under current conditions is:

$$u_{i,c,t}(j) = -\zeta_i(r_i - q_j^r)^2 - \psi_i \cdot \phi \cdot I_j^{inc} + \varepsilon_{ij} \tag{4}$$

where $\zeta_i > 0$ weights geopolitical salience (spatial utility loss from distance), $\phi \geq 0$ measures the magnitude of economic shock, and $\varepsilon_{ij} \sim \text{Gumbel}(0, \sigma)$ captures utility shocks.

The first term generates spatial voting based on geopolitical proximity. The second term creates retrospective economic voting where voters punish incumbent parties for poor economic performance. Economic shock intensity $\phi = 0$ represents normal economic conditions, while $\phi > 0$ represents the magnitude of economic disruption from base closure.

The stochastic component ε_{ij} encompasses idiosyncratic preferences and multiple sources of heterogeneity in voter decision-making (Healy and Malhotra, 2013). This includes not only idiosyncratic individual variation in party evaluations, but also systematic differences in how voters process information about economic conditions.[24] Electoral responses to these

[24]The Gumbel distribution naturally handles individual-level randomness in utility evaluation and bounded systematic biases, assuming misperceptions are distributed across voters with mean zero.

conditions may reflect rational updating about incumbent competence, cognitive heuristics, or affective responses to economic hardship. We are agnostic about which mechanism dominates for any given voter, allowing the model to accommodate diverse voter types.

Definition 2 (Voter types by geopolitical preferences)**.** Based on their pre-shock geopolitical preferences, we classify voters into three types using the parameter $\Gamma_i = \zeta_i[(r_i - q^r_A)^2 - (r_i - q^r_B)^2]$, which measures the geopolitical advantage of party group A for voter i:

1. *Anti-realignment voters* have ideal points closer to anti-realignment parties ($\Gamma_i < 0$).
2. *Pro-realignment voters* have ideal points closer to pro-realignment parties ($\Gamma_i > 0$).
3. *Geopolitically indifferent voters* (or *swing voters*) lack strong preferences between party groups based on geopolitical considerations alone ($\Gamma_i \approx 0$).

Voters without strong geopolitical commitments become pivotal in translating economic shocks into electoral outcomes.

Definition 3 (Voter's optimization problem)**.** The participation condition is

$$d_{i,c,t} = \begin{cases} 1 & \text{if } \mathbb{E}[\max_j u_{i,c,t}(j)] > \kappa \\ 0 & \text{otherwise} \end{cases} \tag{5}$$

where $\mathbb{E}[\max_j u_{i,c,t}(j)]$ is voter i's maximum expected utility from voting, and κ represents the fixed cost voters incur from participating in the election (e.g. time spent traveling to polling station, waiting in line, gathering information about candidates).

If participating, voter i chooses party group j^* such that $j^* \in \arg\max_{j \in \mathcal{J}_{c,t}} u_{i,c,t}(j)$.

Definition 4 (Community electoral equilibrium)**.** An electoral equilibrium in community c at time t comprises a participation rate:

$$T_{c,t} = \frac{1}{N_{c,t}} \sum_{i=1}^{N_{c,t}} d_{i,c,t} \tag{6}$$

and a distribution of vote shares by party group:

$$s_{j,c,t} = \frac{\sum_{i=1}^{N_{c,t}} d_{i,c,t} \cdot \mathbf{1}\{v_{i,c,t} = j\}}{\sum_{i=1}^{N_{c,t}} d_{i,c,t}} \quad \text{for all } j \in \mathcal{J}_{c,t} \tag{7}$$

where $d_{i,c,t} \in \{0, 1\}$ is voter i's participation decision and $v_{i,c,t} \in \mathcal{J}_{c,t}$ is voter i's vote choice, conditional on participation.

Assumption 1 (Base closure effects)**.** Foreign military base closures create simultaneous shifts on two dimensions:

$$N_{c,t+1} = N_{c,t} - \nu \tag{8}$$

$$\omega_{c,t+1} = \omega_{c,t} - \phi \tag{9}$$

where $\nu > 0$, $\phi > 0$ represent magnitudes of population decline and economic disruption.

Assumption 1 is falsifiable. If base closures instead created new economic opportunities, we should see an increase in population and improved economic conditions in these communities, invalidating eq. (8) and (9). We will test the empirical validity of this assumption as dedicated hypotheses (see below).

Base closures can increase voter turnout through two pathways: selective out-migration of lower-propensity voters (Lemma 1), and increased stakes of vote choice (Lemma 2).

Lemma 1 (Selective out-migration and voter turnout)**.** *Base closure-induced population decline increases aggregate turnout rates through selective out-migration of lower-propensity voters. For a community c experiencing base closure at time t, if out-migrants have below-average participation rates, then:*

$$\frac{Votes_{c,t+1}}{N_{c,t+1}} > \frac{Votes_{c,t}}{N_{c,t}} \tag{10}$$

Proof. Let $N_{c,t}$ denote the eligible voter population in community c at time t, and let p_i represent the participation probability of voter i.

Pre-closure, the aggregate turnout rate is:

$$T_{c,t} = \frac{1}{N_{c,t}} \sum_{i=1}^{N_{c,t}} p_i = \bar{p}_{c,t} \tag{11}$$

where $\bar{p}_{c,t}$ is the mean participation probability across all eligible voters.

Base closure causes a subset $\mathcal{L} \subset \{1, 2, \ldots, N_{c,t}\}$ of $\nu = |\mathcal{L}|$ voters to migrate, where out-migrants have below-average participation propensity:

$$\frac{1}{\nu} \sum_{i \in \mathcal{L}} p_i = \bar{p}_{\mathcal{L}} < \bar{p}_{c,t} \tag{12}$$

The remaining population includes $\mathcal{S} = \{1, 2, \ldots, N_{c,t}\} \setminus \mathcal{L}$ stayers, with $N_{c,t+1} = N_{c,t} - \nu$ (from Assumption 1). We can decompose the total population as:

$$N_{c,t} \cdot \bar{p}_{c,t} = \nu \cdot \bar{p}_{\mathcal{L}} + (N_{c,t} - \nu) \cdot \bar{p}_{\mathcal{S}} \tag{13}$$

where $\bar{p}_{\mathcal{S}} = \frac{1}{N_{c,t}-\nu} \sum_{i \in \mathcal{S}} p_i$ is the mean participation rate of stayers.

Rearranging for the stayers' participation rate:

$$\bar{p}_{\mathcal{S}} = \bar{p}_{c,t} + \frac{\nu}{N_{c,t} - \nu}(\bar{p}_{c,t} - \bar{p}_{\mathcal{L}}) > \bar{p}_{c,t} \tag{14}$$

Since out-migrants have below-average participation ($\bar{p}_{\mathcal{L}} < \bar{p}_{c,t}$), we have $(\bar{p}_{c,t} - \bar{p}_{\mathcal{L}}) > 0$.

The post-closure turnout rate equals the participation rate of stayers:

$$T_{c,t+1} = \frac{1}{N_{c,t+1}} \sum_{i \in \mathcal{S}} p_i = \bar{p}_{\mathcal{S}} \tag{15}$$

The turnout increase is proportional to migration rate $\frac{\nu}{N_{c,t}}$ and participation gap $(\bar{p}_{c,t} - \bar{p}_{\mathcal{L}})$:

$$T_{c,t+1} - T_{c,t} = \frac{\nu}{N_{c,t} - \nu}(\bar{p}_{c,t} - \bar{p}_{\mathcal{L}}) > 0 \tag{16}$$

□

Lemma 2 (Stakes-based participation and voter turnout)**.** *Base closures increase voter turnout by raising the stakes of electoral choice. For a community c experiencing base closure at time t, aggregate participation increases:*

$$\Pr(vote_{c,t+1}) > \Pr(vote_{c,t}) \tag{17}$$

Proof. Base closures create a negative economic shock $\phi > 0$ (from Assumption 1). Before base closure, with $\phi = 0$, the deterministic components of utility are:

$$V_{i,A}^{\text{pre}} = -\zeta_i(r_i - q_A^r)^2 \tag{18}$$

$$V_{i,B}^{\text{pre}} = -\zeta_i(r_i - q_B^r)^2 \tag{19}$$

After the closure, the economic shock $\phi > 0$ creates punishment opportunities against pro-realignment incumbents. In this baseline specification, we assume anti-realignment parties face no equivalent punishment mechanism due to non-incumbency ($I_B^{\text{inc}} = 0$):

$$V_{i,A}^{\text{post}} = -\zeta_i(r_i - q_A^r)^2 - \psi_i\phi \tag{20}$$

$$V_{i,B}^{\text{post}} = -\zeta_i(r_i - q_B^r)^2 \tag{21}$$

This asymmetry captures the immediate electoral environment but abstracts from potential attribution of blame to the former occupier (and, by extension, anti-realignment parties). We relax this assumption below, allowing voters to punish either group of parties.

Define $\Gamma_i = \zeta_i[(r_i - q_A^r)^2 - (r_i - q_B^r)^2]$ as the pre-shock geopolitical advantage of the pro-realignment party group for voter i.

For anti-realignment voters ($\Gamma_i < 0$), the post-shock utility gap becomes:

$$V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = -\Gamma_i + \psi_i \phi > -\Gamma_i \tag{22}$$

Since $\Gamma_i < 0$, the addition of $\psi_i \phi > 0$ increases the utility advantage of their preferred (anti-realignment) party group. This makes electoral participation more worthwhile for anti-realignment voters who were previously close to the participation margin. Whether they interpret this as rational sanctioning of incompetence, expression of economic grievance, or affective response to hardship, the mechanism increases their incentive to vote.

For geopolitically indifferent voters ($\Gamma_i \approx 0$), the economic shock creates:

$$V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = \psi_i \phi > 0 \tag{23}$$

Where previously there was near-indifference, the economic shock creates a meaningful incentive to vote against the incumbent. This transforms previously apathetic voters into motivated participants with clear anti-incumbent preferences, consistent with multiple mechanisms in the retrospective voting literature (Healy and Malhotra, 2013).

For pro-realignment voters ($\Gamma_i > 0$), the post-shock utility gap becomes:

$$V_{i,A}^{\text{post}} - V_{i,B}^{\text{post}} = \Gamma_i - \psi_i \phi \tag{24}$$

The effect here depends on the relative magnitudes. If $\psi_i \phi < \Gamma_i$, the pro-realignment party group remains preferred but with reduced margin, making the choice more competitive. If $\psi_i \phi > \Gamma_i$, the voter switches preference to anti-realignment parties, creating meaningful stakes where strong pro-realignment preference previously existed. In both cases, the choice becomes more consequential for voters near the participation margin.

For each voter type, base closures can strengthen existing preferences or create competitive choices where strong preferences previously existed. This makes electoral participation more worthwhile for marginal voters, regardless of whether their responses reflect rational calculation, cognitive shortcuts, or emotional reactions to economic distress.

Formally, let $\mathcal{M}_t = i : \kappa - \epsilon < \mathbb{E}[\max_j u_{i,c,t}(j)] < \kappa$ be the set of marginal voters at time t. Base closures push a substantial subset of $\mathcal{M}_t$ above the participation threshold, expanding the participating electorate. Therefore, $\Pr(\text{vote}_{c,t+1}) > \Pr(\text{vote}_{c,t})$. □

Lemma 3 (Anti-realignment vote share response)**.** *Base closures increase anti-realignment vote share when the economic punishment effect dominates geopolitical preferences. Specifically, for voters with moderate geopolitical preferences and high economic sensitivity, base* *closures create vote switching toward anti-realignment party groups:*

$$s_{B,c,t+1} > s_{B,c,t} \tag{25}$$

when the condition $0 < \Gamma_i < \psi_i\phi$ *holds for a sufficient mass of voters.*

Proof. We establish conditions for vote switching using the deterministic components of utility. Voter i switches from pro- to anti-realignment party groups when the deterministic utility difference changes sign due to base closure. Pre-shock deterministic utilities are:

$$V_{i,A}^{\text{pre}} = -\zeta_i(r_i - q_A^r)^2 \tag{26}$$
$$V_{i,B}^{\text{pre}} = -\zeta_i(r_i - q_B^r)^2 \tag{27}$$

and the post-shock deterministic utilities are:

$$V_{i,A}^{\text{post}} = -\zeta_i(r_i - q_A^r)^2 - \psi_i\phi \tag{28}$$
$$V_{i,B}^{\text{post}} = -\zeta_i(r_i - q_B^r)^2 \tag{29}$$

Vote switching occurs when both of the following are true:

$$V_{i,A}^{\text{pre}} - V_{i,B}^{\text{pre}} > 0 \quad \text{(preferred pro-realignment pre-shock)} \tag{30}$$
$$V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} > 0 \quad \text{(prefer anti-realignment post-shock)} \tag{31}$$

Using the voter type classification from Definition 2, where $\Gamma_i = \zeta_i[(r_i - q_A^r)^2 - (r_i - q_B^r)^2]$, we can express these conditions as $\Gamma_i > 0$ and $-\Gamma_i + \psi_i\phi > 0$. Voters switch when:

$$0 < \Gamma_i < \psi_i\phi \tag{32}$$

Voters satisfying condition (32) have two key properties. The first is a moderate pro-realignment preference, where $\Gamma_i > 0$ but small, meaning these voters initially prefer pro-realignment party groups but without strong conviction. The second is sufficient economic sensitivity, $\psi_i\phi > \Gamma_i$, meaning their retrospective response to economic conditions exceeds their geopolitical preferences. This response may reflect rational sanctioning of incumbent performance, selection of alternatives expected to provide better economic management, cognitive heuristics linking hardship to those in power, or affective reactions to deteriorating conditions (Healy and Malhotra, 2013). For geopolitically indifferent voters ($\Gamma_i \approx 0$), the switching condition reduces to $0 < \psi_i\phi$, which holds for all economically sensitive voters ($\psi_i > 0$), making them particularly responsive to economic shocks.

We now establish that switching flows in only one direction under the baseline asymmetric punishment structure. Let $\mathcal{Z}$ denote the set of voters who switch from pro-realignment to anti-realignment party groups:

$$\mathcal{Z} = i \in N : 0 < \Gamma_i < \psi_i \phi \tag{33}$$

Consider voters who initially preferred anti-realignment party groups ($\Gamma_i < 0$). Post-shock, they prefer anti-realignment groups even more strongly, since:

$$V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = -\Gamma_i + \psi_i \phi > -\Gamma_i > 0 \tag{34}$$

For strongly pro-realignment voters with $\Gamma_i > \psi_i \phi$, the geopolitical preference dominates and they continue supporting pro-realignment party groups. Therefore, switching occurs only from pro- to anti-realignment party groups in this baseline specification, where anti-realignment parties face no punishment mechanism.

The change in anti-realignment vote share equals:

$$s_{B,c,t+1} - s_{B,c,t} = \frac{\text{Net switchers to anti-realignment party groups}}{\text{Total participating voters}} = \frac{|\mathcal{Z}|}{\sum_{i=1}^{N_{c,t+1}} d_{i,c,t+1}} > 0 \tag{35}$$

Anti-realignment vote share increases significantly when $|\mathcal{Z}|$ is large, which occurs when there is either a large population of moderate voters (many voters have Γ_i small but positive), there is high economic sensitivity (many voters have large ψ_i), or there is a substantial economic shock (large ϕ makes $\psi_i \phi$ likely to exceed Γ_i).

Therefore, base closures increase anti-realignment vote share through unidirectional vote switching from pro-realignment to anti-realignment party groups. The magnitude depends on the prevalence of voters with moderate geopolitical preferences and high economic sensitivity. These voters prioritize retrospective responses to economic hardship over geopolitical alignment, whether as punishment of incumbents, search for better alternatives, or expression of economic grievance. □

Theorem 1 (Political effects of base closures)**.** *A community c experiencing base closure at time t (i.e., $\mathcal{B}_{c,t} = 1$) will experience increased voter participation, and increased electoral support for anti-realignment parties.*

Proof. The voter participation result follows directly from both Lemma 1 and Lemma 2. The vote share result follows directly from Lemma 3. □

Proposition 1 (Shock size and electoral response)**.** *Base closure effects on both turnout and anti-realignment vote share increase with the magnitude of economic shock:*

1. *Turnout response: Larger economic shocks activate more marginal voters*

2. *Vote share response:* $\frac{\partial|\mathcal{Z}|}{\partial\phi} > 0$

Proof. From Lemma 2, voters participate when $\mathbb{E}[\max_j u_{i,c,t}(j)] > \kappa$. For voters with $\psi_i > 0$, utility gaps increase with ϕ: anti-realignment voters experience gap $-\Gamma_i + \psi_i\phi$, geopolitically indifferent voters experience gap $\psi_i\phi$. Since expected maximum utility increases with utility gaps, larger ϕ pushes more voters above threshold κ.

From Lemma 3, switchers satisfy $0 < \Gamma_i < \psi_i\phi$. Taking the derivative:

$$\frac{\partial|\mathcal{Z}|}{\partial\phi} = \int \psi_i \cdot f(\Gamma_i = \psi_i\phi)\, dF > 0 \tag{36}$$

since $\psi_i > 0$. □

The model generates the following main empirical predictions:

H1: Communities experiencing base closures will exhibit population decline

H2: Communities experiencing base closures will exhibit employment decline

H3: Communities experiencing base closures will exhibit increased voter turnout

H4: Communities experiencing base closures will exhibit more anti-realignment support

Hypotheses 1-2 follow from Assumption 1. Hypotheses 3-4 follow from Theorem 1. The comparative statics in Proposition 1 generate an additional hypothesis about heterogeneity:

H5: Effects are stronger where the magnitude of the base closure is higher (e.g. larger bases, location with fewer alternative economic opportunities)

A1.1 Extension: Heterogeneous attribution of blame

The baseline model assumes asymmetric punishment opportunities, where only pro-realignment incumbents face electoral sanctions for base closures. This reflects a typical Baltic political configuration where anti-realignment parties serve as challengers. However, voters may differ in how they attribute responsibility for base closures across the party spectrum.

We extend the utility function to allow for party-specific punishment parameters:

Definition 5 (Extended Utility with Heterogeneous Blame Attribution)**.** Voter i's utility from supporting party group j under current conditions is:

$$u_{i,c,t}(j) = -\zeta_i(r_i - q_j^r)^2 - \psi_i \cdot \rho_j \cdot \phi \cdot \mathcal{B}_{c,t} + \varepsilon_{ij} \tag{37}$$

where $\rho_j \in \mathbb{R}$ captures the extent to which voters blame party group j for base closure-induced economic hardship. When $\rho_j > 0$, voters punish party group j; when $\rho_j < 0$, they reward j (perhaps viewing j as offering protection against such shocks); when $\rho_j = 0$, voters view j as irrelevant to the shock.

This specification nests the baseline model as a special case where $\rho_A = I_A^{\text{inc}}$ and $\rho_B = 0$. The extension accommodates multiple theoretically plausible scenarios:

1. Nearsighted attribution ($\rho_A > \rho_B$). Voters predominantly punish pro-realignment incumbents for base closure-induced economic hardship. This echoes the "blind retrospection" critique in the voting behavior literature, where voters fail to properly benchmark incumbent performance or attribute causality (Achen and Bartels, 2004; Healy and Malhotra, 2013). It is difficult to hold accountable a far-away former occupying power, but it is relatively easy to punish local or national authorities for economic pain that lingers on their watch. Our baseline model represents a special case of this scenario, where voters mechanically punish whoever holds office while completely exempting anti-realignment parties ($\rho_A > 0, \rho_B = 0$). More generally, voters may simultaneously blame both sides but hold incumbents more accountable ($\rho_A > \rho_B > 0$). Under this scenario, voters with moderate pro-realignment preferences ($0 < \Gamma_i < \psi_i(\rho_A - \rho_B)\phi$) switch to anti-realignment parties, increasing $s_{B,c,t}$.
2. Farsighted attribution ($\rho_B > \rho_A$). Voters predominantly punish anti-realignment parties for their association with the former occupying power responsible for base closures. In this case, anti-realignment parties face electoral sanctions despite not holding office, as voters engage in prospective evaluation of parties' geopolitical alignments and attribute responsibility for the closure to the former occupier. The switching condition from Lemma 3 reverses: voters with moderate anti-realignment preferences ($\psi_i(\rho_A - \rho_B)\phi < \Gamma_i < 0$) switch to pro-realignment parties, decreasing $s_{B,c,t}$.
3. Equal blame ($\rho_A = \rho_B$). Voters attribute responsibility equally across the political spectrum, either blaming all parties uniformly for not preventing or mitigating base closures ($\rho_A = \rho_B > 0$), or viewing the economic shock as beyond any party's control ($\rho_A = \rho_B = 0$). In the latter case, voters view base closures as exogenous events unrelated to electoral choices, consistent with models of voter rationality that benchmark incumbent performance against structural constraints (Achen and Bartels, 2004).

This extension has implications for vote share dynamics. Voter i switches from pro-realignment to anti-realignment parties when:

$$V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = -\Gamma_i + \psi_i(\rho_A - \rho_B)\phi > 0 \;\Rightarrow \Gamma_i < \psi_i(\rho_A - \rho_B)\phi \tag{38}$$

This generalizes the baseline switching condition. When $\rho_A > \rho_B$, the right-hand side remains positive, and voters with moderate pro-realignment preferences ($0 < \Gamma_i < \psi_i(\rho_A -$

$\rho_B)\phi$) switch to anti-realignment parties, as in the baseline. When $\rho_B > \rho_A$, the inequality reverses, and voters with moderate anti-realignment preferences switch to pro-realignment.

The change in anti-realignment vote share becomes:

$$\phi s_{B,c,t} = \frac{1}{\sum_{i=1}^{N_{c,t+1}} d_{i,c,t+1}} \left[|\mathcal{Z}^{A\to B}| - |\mathcal{Z}^{B\to A}| \right] \tag{39}$$

where $\mathcal{Z}^{A\to B} = i : 0 < \Gamma_i < \psi_i(\rho_A - \rho_B)\phi$ comprises voters switching from pro-realignment to anti-realignment parties, and $\mathcal{Z}^{B\to A} = i : \psi_i(\rho_A - \rho_B)\phi < \Gamma_i < 0$ comprises voters switching in the opposite direction.

Returning to our hypotheses, some of the extended model's predictions depend on the population distribution of blame attribution. For the effect on vote shares (H4), the sign and magnitude of anti-realignment electoral response depend on whether voters predominantly engage in nearsighted incumbent punishment ($\rho_A > \rho_B$) or farsighted punishment of the occupier and its fellow travelers ($\rho_B > \rho_A$). Anti-realignment parties gain when voters blame pro-realignment incumbents more than anti-realignment challengers. Under equal attribution ($\rho_A = \rho_B$), however, the post-shock utility gap becomes $V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = -\Gamma_i + \psi_i(\rho_A - \rho_B)\phi = -\Gamma_i$, identical to the pre-shock gap. No vote switching occurs, as the condition $\Gamma_i < \psi_i(\rho_A - \rho_B)\phi$ cannot hold when $\rho_A = \rho_B$.

The turnout increase result (H3) also remains unchanged, as long as $\rho_A \neq \rho_B$. Any attribution structure with differential blame raises stakes and mobilizes marginal voters:

$$\Pr(\text{vote}_{c,t+1}) > \Pr(\text{vote}_{c,t}) \quad \text{for all } \rho_A \neq \rho_B \tag{40}$$

This prediction survives the extension intact in scenarios 1 and 2 because base closures increase the utility gap between parties for marginal voters, regardless of which party faces punishment. The turnout increase result from Lemma 2 does not hold when $\rho_A = \rho_B$. When voters blame both party groups equally, the shock affects utilities symmetrically:

$$V_{i,A}^{\text{post}} = -\zeta_i(r_i - q_A^r)^2 - \psi_i\rho\phi \tag{41}$$

$$V_{i,B}^{\text{post}} = -\zeta_i(r_i - q_B^r)^2 - \psi_i\rho\phi \tag{42}$$

The utility gap between parties becomes $V_{i,B}^{\text{post}} - V_{i,A}^{\text{post}} = -\Gamma_i + \psi_i(\rho_A - \rho_B)\phi = -\Gamma_i$. This is identical to the pre-shock utility gap. The economic shock does not change the relative attractiveness of the parties.

Consider two cases. If $\rho_A = \rho_B = 0$ ("no blame"), base closures do not affect utility calculations at all. Turnout remains unchanged through the stakes mechanism, although selective migration from Lemma 1 still applies. If $\rho_A = \rho_B = \rho > 0$ ("equal positive blame"), both parties receive equal punishment, and the expected maximum utility from voting decreases relative to the pre-shock period, pushing voters below the participation threshold κ and causing turnout to fall.

An important observable implication follows: turnout increases only when differential blame exists ($\rho_A \neq \rho_B$). Finding increased turnout after base closures would constitute evidence against the equal-blame scenario and support asymmetric attribution.

Our baseline model expects empirical patterns to align most closely with the "near-sighted attribution" scenario ($\rho_A > 0, \rho_B = 0$), but the data will inform which attribution mechanisms dominate in the Baltic context.

A2 History

Table A2 summarizes the key citizenship and electoral legislation governing non-citizen voting rights in Estonia, Latvia, and Lithuania, documenting how post-independence legal frameworks shaped the enfranchised electorate over the period of our analysis.

A3 Data and measurement

We document our measurement and classification procedures for two variables central to our analysis: pro-Russian political parties and Soviet military installations.

A3.1 Pro-Russian parties

We classify political parties and electoral alliances as pro-Russian if they meet at least one of three criteria. First, we examine *geopolitical orientation*, identifying parties that advocate for closer political, economic, or security ties with Russia, oppose integration with Western institutions like the European Union and NATO, publicly support Russian foreign policy objectives, or explicitly criticize Western sanctions against Russia. Second, we assess positions on *Russian minority rights and language policy*, including promotion of Russian as a second state language, opposition to Estonian-, Latvian-, or Lithuanian-only language laws, and advocacy of special status or rights for Russian-speaking minorities. Third, we evaluate *political alliances and rhetoric*, documenting electoral or formal cooperation with the Russian government or Kremlin-aligned entities such as the United Russia party, public expressions of support by party leaders for Russian actions in neighboring countries, and/or participation in coalitions or electoral lists where a Russia-friendly orientation is explicit.

Tables A3, A4, and A5 present all parties and alliances meeting these criteria in Estonia, Latvia, and Lithuania.

Table A2: **Baltic citizenship and electoral policies affecting non-citizens.**

Country	**Year**	**Policy**	**Main impact on non-citizens**
Lithuania	1991	Citizenship law	Inclusive "zero-option": citizenship automatically granted to persons (and descendants) able to prove birth in Lithuania; other permanent residents could naturalize by oath of loyalty without language requirements.(Barrington, 1995)
Estonia	1992	Citizenship law	Restoration principle: citizenship restored only to pre–16 June 1940 citizens and descendants. (Muiznieks et al., 2013)
	1992	Local voting rights	Constitution granted all permanent residents (including stateless persons and third-country nationals) the right to vote in municipal elections.(Muiznieks et al., 2013)
	2025	Constitutional amendment	Article 156 of the constitution amended so that, after the 2025 local elections, only Estonian and EU citizens retain municipal voting rights.
Latvia	1994	Citizenship law and naturalization	Citizenship restored to pre–17 June 1940 citizens and descendants, strict language requirements and an age-bracketed, staggered naturalization schedule.(Muiznieks et al., 2013)
	1998	Naturalization reform (referendum)	Referendum removed age-bracket and some procedural restrictions, triggering a surge in naturalization applications and gradually reducing the size of the non-citizen population, without extending electoral rights to remaining non-citizens.(Muiznieks et al., 2013)
	2000s	Electoral policy for non-citizens	Non-citizens remain excluded from all elections (local, national, European) though there is a surge in naturalization around and after 2004.

Table A3: **Pro-Russian political parties and electoral alliances** (Estonia)

Party Name	**Geopolitical Orientation**	**Minority Rights & Language**	**Political Alliances & Rhetoric**
Eesti Keskerakond[1]	✓		✓
Eesti Konservatiivne Rahvaerakond[2]	✓		✓
Eestimaa Ühendatud Rahvapartei[3]	✓	✓	✓
Eestimaa Ühendatud Vasakpartei[4]			✓
EVL Eesti Keskerakond ning Eesti Pensionäride ja Perede Erakond[5]	✓	✓	✓
EVL Eesti Keskerakonna ja Eesti Maarahva Erakonna[5]	✓	✓	✓
EVL Keskerakond ja Maaliit[5]	✓	✓	✓
EVL Keskerakond-Maaliit[5]	✓	✓	✓
EVL Keskerakonna ja Koonderakonna Liit[5]	✓	✓	✓
EVL Kesktee[5]	✓	✓	✓
EVL Ühtsus ja Usaldus[6]	✓	✓	✓
Konstitutsioonierakond[6]	✓	✓	✓
KVL Keskerakonna Liit[5]	✓		✓
KVL Keskerakonna Toetajad[5]	✓		✓
KVL Kesktee[5]	✓		✓
MKOE[7]	✓	✓	✓
PEEK[8]	✓	✓	✓
Valimisliit Sinuga Koos[9]	✓	✓	✓
Valimisliit Tegutseme Koos[9]	✓	✓	✓
Vene Balti Erakond Eestis[10]	✓	✓	✓
Vene Erakond Eestis[11]	✓	✓	✓
VL Edasi Koos Meiega[9]	✓	✓	✓
VL Koos Edasi[9]	✓	✓	✓
VL Koos Rohelise Looduse Eest[9]	✓	✓	✓
VL Teeme Koos[9]	✓	✓	✓

[1] Historians and political analysts widely describe the Centre Party as the most Russia-friendly among Estonia's political parties. Source [2] While the party is eurosceptic, EKRE also exhibits xenophobic and anti-immigration positions, opposing minority rights rather than explicitly aligning with Russia. Source
[3] The party later became the Constitution Party (Konstitutsioonierakond). Source [4] We classify the party as pro-Russian before 2023, though it reaffirmed its support for Ukraine thereafter. Source [5] We classify this alliance as pro-Russian based on Eesti Keskerakond's participation. [6] We classify this as pro-Russian based on its alliance with Eestimaa Ühendatud Rahvapartei. [7] Political parties formed the Electoral Union "Our Home is Estonia" for the 1995 Estonian parliamentary elections. David James Smith, John Hiden (2012), *Ethnic Diversity and the Nation State: National Cultural Autonomy Revisited*. [8] The "Coalition Party" refers to an electoral alliance involving the Estonian Centre Party (Eesti Keskerakond). Source [9] This alliance associates with the Together (Koos) political party in Estonia. For VL Edasi Koos Meiega, see Source. [10] The Vene Balti Erakond Eestis (VBEE) operated as a political party in Estonia from around 2000 to 2004. [11] The Russian Party in Estonia (Vene Erakond Eestis) represents Russian-speaking minority interests.

Table A4: **Pro-Russian political parties and electoral alliances** (Latvia)

Party Name	**Geopolitical Orientation**	**Minority Rights & Language**	**Political Alliances & Rhetoric**
Jaunā Saskaņa[1]	✓	✓	✓
Krievu Nacionālais Demokrātiskais Saraksts Demokrātiskās Iniciatīvas Centrs Baltijas Konstitucionālā Partija[2]	✓	✓	✓
Krievu Partija[3]	✓	✓	✓
Latvijas Krievu Savienība[4]	✓	✓	✓
Latvijas Sociālistiskā Partija[5]	✓	✓	✓
Latvijas Sociālistiskā Partija un Kustība par Sociālo Taisnīgumu un Līdztiesību Latvijā[6]	✓	✓	✓
Līdztiesība[7]	✓	✓	✓
PCTVL Par Cilvēka Tiesībām Vienotā Latvijā[8]	✓	✓	✓
Politiskā Partija Stabilitātei[9]	✓	✓	✓
Politisko Organizāciju Apvienība Par Cilvēka Tiesībām Vienotā Latvijā[8]	✓	✓	✓
Politisko Partiju Apvienība Saskaņas Centrs[10]	✓	✓	✓
Politisko Partiju Apvienība Saskaņas Centrs Partija Gods Kalpot Rīgai[10]	✓	✓	✓
Saskaņa[1]	✓	✓	✓
Saskaņa Latvijai – Atdzimšana Tautsaimniecībai[1]	✓	✓	✓
Saskaņa Pašiem[1]	✓	✓	✓
Saskaņa Sociāldemokrātiskā Partija[1]	✓	✓	✓
Saskaņa Sociāldemokrātiskā Partija Partija Gods Kalpot Rīgai[1]	✓	✓	✓
Saskaņas Centrs[1]	✓	✓	✓
Tautas Saskaņas Partija[11]	✓		✓
Vēlētāju Apvienība Saskaņa[1]	✓	✓	✓

[1] This party represents the Saskaņa (Harmony) movement, which continues under various names including Jaunā Saskaņa and Saskaņas Centrs. Scholars widely consider Saskaņa the main pro-Russian political force in Latvia. Source 1, Source 2 [2] This alliance connects to the Latvijas Krievu Savienība (LKS). [3] The Krievu Partija operates as another name for the Latvian Union of Russians (LKS). [4] The Latvijas Krievu Savienība (LKS) later became the Latvian Union of Russians. Authorities banned the party in 2024 for threatening Latvia's sovereignty. Source [5] The party connects to Līdztiesība and later aligned with LKS alongside PCTVL. Source [6] This alliance includes Latvijas Sociālistiskā Partija as a member organization. [7] Līdztiesība later became part of PCTVL alongside Aleksandrs Mitrofanovs and Tatjana Ždanoka, both identified as FSB agents. Source [8] Par Cilvēka Tiesībām Vienotā Latvijā (For Human Rights in United Latvia) operates as a pro-Russian political organization. [9] Politiskā Partija Stabilitātei advocates for pro-Russian policies in Latvia. Source [10] These alliances center around Saskaņas Centrs, the predecessor organization to Saskaņa. [11] Tautas Saskaņas Partija (National Harmony Party) operated as a pro-Russian political party. Source

Table A5: **Pro-Russian political parties and electoral alliances** (Lithuania)

Party Name	**Geopolitical Orientation**	**Minority Rights & Language**	**Political Alliances & Rhetoric**
Darbo Partija[1]		✓	✓
Koalicija Darbo Partija – Jaunimas[1]		✓	✓
Koalicija Už Tikrąją Savivaldą Lietuvos Demokratinė Darbo Partija Naujoji Sąjunga[2]		✓	✓
Lenkų Rinkimų Akcijos ir Rusų Aljanso Koalicija Krikščionių Šeimų Sąjunga[3]	✓	✓	✓
Lietuvos Demokratinė Darbo Partija[4]			✓
Lietuvos Lenkų Rinkimų Akcija[3]	✓	✓	✓
Lietuvos Lenkų Rinkimų Akcija Krikščionių Šeimų Sąjunga[3]	✓	✓	✓
Lietuvos Liaudies Partija[5]	✓	✓	✓
Lietuvos Rusų Sąjunga[6]	✓	✓	✓
Lietuvos Socialistų Partija[7]	✓	✓	✓
Partija Tvarka ir Teisingumas[8]		✓	✓
Partija Tvarka ir Teisingumas Liberalai Demokratai[8]		✓	✓
Taikos Koalicija Darbo Partija Lietuvos Krikščioniškosios Demokratijos Partija[1]		✓	✓

[1] The Darbo Partija (Labour Party) and its various coalition formations advocate for minority rights and maintain Russia-tolerant positions. The party emerged in the early 2000s and has participated in multiple electoral coalitions. Source
[2] This coalition originated from Lithuania's post-Soviet political transformation and includes parties with roots in the communist era that maintain accommodating stances toward Russia. [3] The Electoral Action of Poles in Lithuania–Christian Families Alliance (EAPL-CFA) represents Polish and Russian minority interests in Lithuania. Various formations of this alliance have operated under different names, including coalitions with the Russian Alliance. The organization maintains close ties to both Polish and Russian minority communities. Source [4] The Lietuvos Demokratinė Darbo Partija (LDDP) originated from the Lithuanian Communist Party, which ruled during Soviet times. This historical connection influences its Russia-accommodating positions. Source [5] The Lietuvos Liaudies Partija (Lithuanian People's Party) adopts pro-Russian positions and explicitly states it does not fear being called a pro-Russian party. Source [6] The Lietuvos Rusų Sąjunga (Union of Russians of Lithuania) represents Russian minority interests in Lithuania and advocates for closer ties with Russia. Source
[7] The Lietuvos Socialistų Partija (Lithuanian Socialist Party) maintains pro-Russian positions and advocates for policies favorable to Russian interests. Source [8] Partija Tvarka ir Teisingumas (Order and Justice Party) exhibits cautious pragmatism and right-wing populism. Leader Rolandas Paksas maintained close ties to Russian criminal organizations. While not explicitly pro-Russian, the party adopts Russia-tolerant rhetoric that distinguishes it from mainstream Lithuanian politics. Source

A3.2 Soviet base locations and status

Tables A6, A7, and A8 document the locations of Soviet military bases across Estonia, Latvia, and Lithuania, organized by region and locality. We identified these installations and their closure events from Soviet military archives, post-independence defense ministry records, and contemporary news reports. Primary sources include Fes'kov, Golikov, et al. (2013), Fes'kov, Kalashnikov, et al. (2004), and Upmalis (2014), and BIVIAP (2025).

The tables indicate each base's post-closure status (abandoned, repurposed, or active) and economic profile. We classify each installation as high, moderate, or low economic profile by its size, personnel numbers, and integration with the local economy. High-profile bases include large garrisons or military-industrial facilities that served as economic anchors for nearby towns and generated significant local employment or substantial demand for goods and services. Moderate-profile bases are smaller or more specialized installations with medium personnel levels and limited but notable economic ties to local communities, supporting local transport, retail, or technical services. Low-profile facilities were small, remote, or minimally integrated, with few personnel and little direct influence on local economic activity beyond basic supply needs. This classification enables us to test H5.

Table A6: **Soviet military base locations** (Estonia)

Region	Locality	Base Status	Economic Profile
Harju	Harku	Closed (1)	High (1)
Harju	Joelahtme	Closed (1), Active (1)	High (2)
Harju	Loksa	Closed (1)	High (1)
Harju	Paldiski	Closed (1), Active (1)	High (2)
Harju	Saue	Closed (1)	High (1)
Harju	Tallinn	Closed (3), Repurposed (2)	High (2), Mid (2), Low (1)
Harju	Vasalemma	Active (1)	High (1)
Harju	Viimsi	Closed (2)	High (2)
Ida-Viru	Johvi	Active (1)	High (1)
Ida-Viru	Kohtla-Jarve	Closed (3)	High (3)
Ida-Viru	Sillamae	Closed (1)	High (1)
Laane	Haapsalu	Closed (1)	High (1)
Laane	Hanila	Closed (1)	High (1)
Laane-Viru	Tapa	Active (1)	High (1)
Laane-Viru	Vosu	Closed (1)	High (1)
Parnu	Parnu	Closed (1)	High (1)
Saare	Karla	Closed (1)	High (1)
Tartu	Tartu	Repurposed (2), Active (2)	High (1), Mid (3)
Valga	Puhajarve	Closed (1)	High (1)
Voru	Antsla	Closed (1)	Low (1)
Voru	Voru	Active (2)	High (2)

Values in parentheses indicate number of facilities in each category. Bases marked 'active' remained open after transfer to host nation. Bases marked 'repurposed' are decommissioned or closed facilities converted to civilian use. Sources: Fes'kov, Golikov, et al. (2013), Fes'kov, Kalashnikov, et al. (2004), and Upmalis (2014); BIVIAP (2025).

Table A7: **Soviet military base locations** (Latvia)

Region	Locality	Base Status	Economic Profile
Aizkraukles	Aizkraukle	Repurposed (1), Active (1)	High (1), Mid (1)
Aluksnes	Aluksne	Active (2)	High (1), Mid (1)
Aluksnes	Zeltinu	Closed (1)	High (1)
Cesu	Cesis	Active (1)	High (1)
Cesu	Ligatne	Closed (1)	Low (1)
Cesu	Vecpiebalgas	Active (1)	High (1)
Daugavpils	Daugavpils	Closed (1), Active (1)	High (2)
Daugavpils	Liksnas	Active (1)	Mid (1)
Dobeles	Dobele	Repurposed (1), Active (1)	High (2)
Gulbenes	Gulbene	Active (1)	High (1)
Jekabpils	Jekabpils	Closed (1), Repurposed (1), Active (1)	High (3)
Jekabpils	Selpils	Repurposed (1)	Mid (1)
Jekabpils	Zasas	Closed (1)	High (1)
Jelgavas	Jelgava	Closed (1), Active (1)	High (2)
Jurmala City	Jurmala	Closed (1), Repurposed (1)	High (1)
Kraslavas	Kraslava	Active (1)	High (1)
Kuldigas	Kuldiga	Active (1)	High (1)
Kuldigas	Ranku	Closed (1), Active (1)	Mid (1), Low (1)
Liepajas	Liepaja	Closed (1), Repurposed (1), Active (2)	High (4)
Liepajas	Nicas	Closed (1)	Low (1)
Liepajas	Rucavas	Closed (1)	High (1)
Liepajas	Vainode	Closed (1)	High (1)
Limbazu	Limbazi	Active (1)	High (1)
Limbazu	Salacgriva	Closed (1)	High (1)
Madonas	Madona	Active (1)	High (1)
Ogres	Lielvarde	Active (2)	High (2)
Preilu	Preili	Active (1)	High (1)
Rezeknes	Maltas	Active (1)	High (1)
Rezeknes	Rezekne	Active (2)	High (2)
Rigas	Adazu	Closed (1), Active (2)	High (3)
Rigas	Riga	Closed (1), Active (3)	High (1), Mid (1), Low (2)
Rigas	Sigulda	Closed (1)	Low (1)
Rigas	Stopinu	Repurposed (1)	High (1)
Saldus	Novadnieku	Closed (1)	Mid (1)
Saldus	Saldus	Active (1)	High (1)
Talsu	Talsi	Active (1)	High (1)
Tukuma	Tukums	Active (1)	High (1)
Valmieras	Valmiera	Active (1)	High (1)
Ventspils	Ances	Closed (1)	Low (1)
Ventspils	Targales	Closed (1)	Low (1)
Ventspils	Ventspils	Closed (1), Repurposed (1), Active (1)	High (1), Low (2)

See note under Table A6 for details and source information.

Table A8: **Soviet military base locations** (Lithuania)

Region	Locality	Base Status	Economic Profile
Ignalinos	Rimse	Closed (1), Repurposed (1)	High (1)
Jonavos	Dumsiai	Active (1)	High (1)
Jurbarko	Jurbarkas	Closed (1)	Mid (1)
Kauno	Karmelava	Closed (1), Repurposed (1)	Mid (1)
Kauno	Kaunas	Active (1)	High (1)
Kedainiu	Josvainiai	Closed (1)	High (1)
Kedainiu	Kedainiai	Closed (1)	High (1)
Klaipedos	Sendvaris	Closed (1), Active (1)	High (2)
Lazdiju	Sangruda	Repurposed (1), Active (1)	High (2)
Marijampoles	Kazlu Ruda	Active (1)	Mid (1)
Plunges	Plateliai	Repurposed (2)	High (2)
Plunges	Sateikiai	Closed (1)	Mid (1)
Prienu	Islauzas	Repurposed (1)	High (1)
Siauliu	Siauliai	Active (2)	High (2)
Silales	Pajuris	Active (1)	High (1)
Svencioniu	Pabrade	Active (1)	Mid (1)
Ukmerges	Pabaiskas	Closed (1)	High (1)
Ukmerges	Ukmerge	Closed (1)	High (1)
Ukmerges	Vepriai	Closed (1)	High (1)
Vilniaus	Grigaiciai	Active (1)	High (1)
Vilniaus	Juodsiliai	Repurposed (1)	Mid (1)
Vilniaus	Vilnius	Closed (2), Active (1)	Low (3)

See note under Table A6 for details and source information.

A4 Supplementary analyses: Robustness

To assess the robustness of our results and explore additional dimensions of heterogeneity in base closure effects, we now examine: (1) pre-treatment differences and determinants of base closures, (2) alternative outcome measures, (3) sensitivity to treatment definition including Soviet-era closures, and (4) spatial correlation in standard errors.

A4.1 Determinants of base closures

Our estimation strategy assumes that Moscow's decisions about where and when to close bases were orthogonal to local political-economic conditions. To test this assumption, we estimated fixed effects models regressing indicators of base closures and re-openings (e.g. transfer of base to host nation, re-opening of closed facility) on pre-treatment community characteristics from 1989 and earlier, including population size, ethnic composition, geography, and base type. These models incorporate spatial splines rather than community-level fixed effects, since the latter are completely collinear with time-invariant pre-treatment covariates like geographic area and base type. The spatial spline specification allows us to control for broad spatial patterns in closure probabilities while preserving estimates of the substantive effects of local characteristics that motivate this analysis.

The results in Table A9 reveal no systematic relationship between pre-treatment community characteristics and the likelihood of experiencing base closures. Population size, Russian ethnic share, gender ratios, cropland availability, and distance to manufacturing facilities show no significant associations with closure probability. Base type characteristics similarly fail to predict closures, with all coefficients small in magnitude and statistically insignificant. These null results support our assumption that Moscow made withdrawal decisions based on macro-level geopolitical considerations rather than local conditions.

Base re-openings follow a different pattern. Communities with larger populations, higher Russian ethnic shares, greater geographic area, and locations more distant from manufacturing centers experienced higher probabilities of base re-opening. Some types of facilities (e.g. professional military education) were less likely to reopen than others. These patterns suggest that, while initial closures occurred without regard to local characteristics, subsequent decisions about which facilities to repurpose or reactivate incorporated more strategic considerations about population size and local economic opportunities.

Table A9: **Supplementary Analysis**. Determinants of base closures and re-openings.

Outcome	Base closure		Base re-opening	
Model	FE	FE	FE	FE
Population (1989, log)	0.002 (0.002)	0.002 (0.002)	0.003 (0.001)**	0.003 (0.001)**
Female-male ratio (1989)	0.002 (0.01)	0.002 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Area (1989, sq.km)	0.02 (0.01)	0.02 (0.01)	0.03 (0.01)**	0.03 (0.01)**
Cropland (1983)	-0.004 (0.004)	-0.004 (0.004)	-5e-04 (0.003)	-5e-04 (0.003)
Distance to manufacturing (1983, km)	0.01 (0.2)	0.01 (0.2)	0.3 (0.1)**	0.3 (0.1)**
Type: Aviation	-0.001 (0.004)	-0.001 (0.004)	0.002 (0.002)	0.002 (0.002)
Type: Strategic	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.004)′	-0.01 (0.004)′
Type: Ground	0.003 (0.004)	0.003 (0.004)	0.003 (0.002)	0.003 (0.002)
Type: Education	0.003 (0.01)	0.003 (0.01)	-0.01 (0.004)**	-0.01 (0.004)**
Type: Support	-2e-04 (0.003)	-2e-04 (0.003)	-8e-04 (0.002)	-8e-04 (0.002)
Country FE	N_1=3	N_1=3	N_1=3	N_1=3
Rayon FE	N_2=66	N_2=66	N_2=66	N_2=66
Year FE	T=51	T=51	T=51	T=51
Sample size	9,843	9,843	9,843	9,843
R-squared	0.06	0.06	0.022	0.022

Dependent variables are indicators of **base closures** and **base re-openings** in communiry i in year t. Reported values are coefficient estimates from linear probability model with spatial spline; clustered robust standard errors in parentheses. Pooled analysis of all Baltic countries. Russian ethnicity data not available for Lithuania. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\prime}p < 0.1$.

A4.2 Alternative outcome measures

Our main analyses measured demographic change (H1) through population counts and economic change (H2) through firm employment. Here, we re-estimate these models using alternative measures: population density (persons per square kilometer) for H1 and firm operating revenues for H2. The revenue data come from Moody's Orbis database, which provides standardized firm-level financial information across countries. We use the operating revenue (turnover) variable, measured in thousands of USD for the last available year, log-transformed to account for skewness in the firm size distribution.

Table A10 shows that base closures reduced population density by approximately 53-72 persons per square kilometer in the pooled sample. Estonia experienced density reductions of 18-41 persons per square kilometer, Latvia 88-110, and Lithuania 84-22. Estimates remain statistically significant (with one exception) and directionally consistent.

Economic effects on firm operating revenues (Table A11) mirror the employment findings. In the pooled model, closures reduce firm revenues by $100 \times (e^{-0.5} - 1) = -37$ percent (DRF) to $100 \times (e^{-0.7} - 1) = -50$ percent (DiD). Estonia experienced revenue declines of

27-45 percent, Latvia 41-47 percent, and Lithuania 58-61 percent. Unlike the employment results where Latvia showed weaker effects, the revenue specifications reveal significant contractions across all three countries. This substantial economic disruption suggests that base closures affected both the number of workers and revenue per worker.

The Sun-Abraham staggered DiD estimates for both alternative measures (Figure A1) corroborate these patterns, while isolating cohort-specific effects more cleanly. For population density (Figure A1a), the pre-period maximum $|t|$-statistic of 1.68 falls below the conventional 1.96 threshold, suggesting that cohort heterogeneity the staggered estimator absorbs accounts for most of the pre-trend the pooled event study detects. Post-treatment estimates show a persistent, monotonically increasing decline in population density that closely mirrors the event study trajectory, though with somewhat wider confidence intervals in later periods as cohort-specific estimates grow sparse. For firm revenues (Figure A1b), the pre-period maximum $|t|$-statistic of 1.58 confirms clean pre-trends, and the post-treatment estimates show a sustained revenue decline that remains stable across periods, consistent with the employment results in Figure 3b.

Table A10: **Supplementary test of H1**. Alternative outcome measure.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-72.2 (23)**	-53.2 (20.9)*	-40.5 (22.5)$'$	-18.2 (29.4)	-110.3 (33.5)**	-88 (33.1)*	-84.1 (43.5)$'$	-22.3 (19)
Location FE	N=1227	N=1227	N=231	N=231	N=574	N=574	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	41,718	41,718	7,854	7,854	19,516	19,516	14,348	14,348
R-squared	0.971	0.971	0.936	0.935	0.983	0.983	0.981	0.981

Dependent variable is **local population density (population per square km.)**. Reported values are coefficient estimates from dose-response function (DRF) and difference-in-differences (DiD) models, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$.

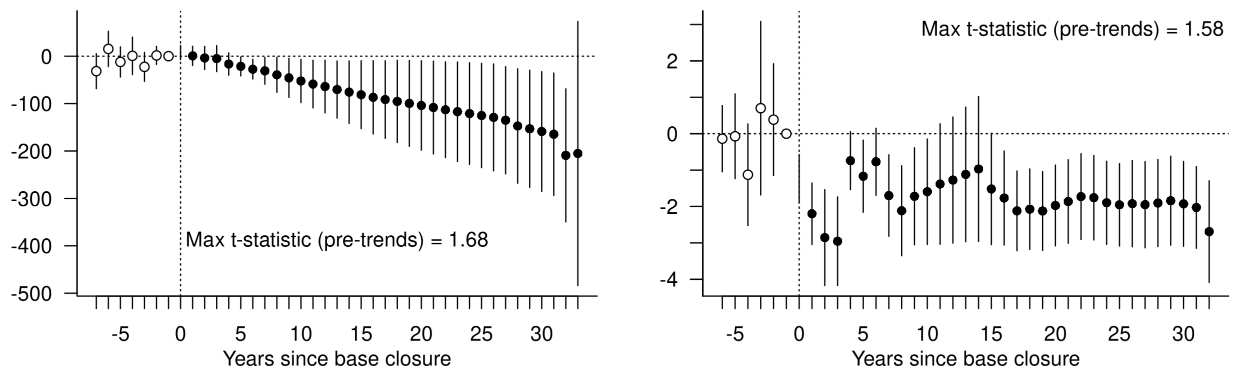
Table A11: **Supplementary Test of Hypothesis 2**. Alternative outcome measure.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-0.5 (0.1)**	-0.7 (0.1)**	-0.3 (0.1)*	-0.6 (0.2)*	-0.5 (0.1)**	-0.6 (0.2)**	-0.9 (0.2)**	-1 (0.2)**
Location FE	N=853	N=852	N=231	N=231	N=199	N=199	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	26,919	26,318	7,516	7,516	5,329	5,329	13,473	13,473
R-squared	0.803	0.793	0.734	0.734	0.85	0.85	0.783	0.783

Dependent variable is **local firm revenues**, USD (logged). See note in Table 1

Figure A1: **Staggered difference-in-differences estimates, alternative measures**.

(a) H1: Population density (sq.km) (b) H2: Firm Revenues (log)



A4.3 Soviet-era base closures

Our main analyses exclude base closures that occurred before 1991, in the final years of Soviet rule, because these early closures occurred under fundamentally different geopolitical conditions than post-independence withdrawals. However, the demographic consequences of withdrawals likely operated through similar mechanisms regardless of whether they occurred before or after independence. We therefore re-estimate our tests of Hypothesis 1 using an expanded treatment measure that includes pre-1991 closures.

We limit this analysis to demographic outcomes for two reasons. First, Soviet-era enterprises operated under central planning with non-market prices, soft budget constraints, and fixed production targets, making it impossible to meaningfully compare employment levels or revenues across the 1991 transition. The Orbis firm-level data also provide very sparse coverage before 1991, when most enterprises were state-owned and did not report financial information in formats comparable to market economies. Second, Soviet-era and post-independence elections differ fundamentally in their institutional structure, competitiveness, and openness. Late Soviet elections operated under single-party dominance with limited competition, featured different party organizations than post-independence democratic contests, and lacked the meaningful geopolitical cleavage between pro-Russian and pro-Western orientations that structures post-independence Baltic politics. These discontinuities make it analytically inappropriate to pool pre- and post-1991 electoral observations.

The results in Table A12 show that demographic effects remain substantively unchanged when including Soviet-era closures. Each additional closure reduces population by approximately 4,600-5,500 people in the pooled sample, close to our main estimates of 4,600-6,300 people. Country-specific results similarly replicate the main findings. All estimates except Estonia DiD remain statistically significant at conventional levels.

Table A12: **Supplementary test of H1**. Estimates with pre-1991 closures.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-5.5 (1.4)**	-4.6 (1.6)**	-5.7 (2.2)*	-4.1 (2.9)	-5 (2)*	-4.8 (2.2)*	-5.8 (1.9)**	-5 (2.5)′
Location FE	N=1227	N=1227	N=231	N=231	N=574	N=574	N=422	N=422
Country-Year FE	T=153	T=153	T=51	T=51	T=51	T=51	T=51	T=51
Sample size	62,576	62,576	11,780	11,780	29,274	29,274	21,522	21,522
R-squared	0.982	0.981	0.981	0.98	0.981	0.981	0.983	0.983

Dependent variable is **local population count (thousands)**. Reported values are coefficient estimates from dose-response function (DRF) and difference-in-differences (DiD) models, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\prime}p < 0.1$.

A4.4 Spatial correlation in errors

Our main analyses cluster standard errors at the community and year levels to account for within-unit correlation over time and common temporal shocks. However, base closures in neighboring communities might create spatial spillovers or correlated economic shocks that violate the assumption of independent errors. Here, we re-estimate all models using Conley standard errors, with a spatial threshold of 16.26 kilometers (the average nearest-neighbor distance between community centroids) to account for spatial correlation.

Tables A13–A17 suggest that standard errors increase modestly in most specifications, reflecting the additional uncertainty from spatial correlation. Despite larger standard errors, nearly all key results retain statistical significance at conventional levels.

Demographic effects (Table A13) remain strongly significant across all countries. Employment effects (Table A14) show similar robustness. Political effects also withstand spatial correlation adjustments. Turnout (Table A15) increases remain significant, although Lithuania shows larger standard errors. Pro-Russian vote share (Table A16) increases remain significant in most cases. Heterogeneous effects by economic impact (Table A17) similarly survive Conley correction, with high-impact closures producing significantly larger pro-Russian vote share increases than lower-impact closures.

These results demonstrate that our main findings do not depend on the assumption of spatially independent errors, and remain valid even when accounting for potential spillovers or correlated shocks across neighboring communities.

Table A13: **Supplementary Test of Hypothesis 1**. Conley standard errors.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-6.3 (1.4)**	-4.6 (1.6)**	-5 (1.2)**	-4 (3)	-7 (2.5)**	-5.3 (2.3)*	-9.4 (5.7)′	-4 (3.5)
Location FE	N=1227	N=1227	N=231	N=231	N=574	N=574	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	41,718	41,718	7,854	7,854	19,516	19,516	14,348	14,348
R-squared	0.985	0.985	0.987	0.987	0.985	0.985	0.984	0.984

Dependent variable is **local population count (thousands)**. Reported values are coefficient estimates from dose-response function (DRF) and difference-in-differences (DiD) models. Conley standard errors in parentheses, with spatial threshold of 16.26 km (average nearest-neighbor distance). Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$.

Table A14: **Supplementary Test of Hypothesis 2**. Conley standard errors.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-0.3 (0.1)**	-0.4 (0.1)**	-0.2 (0.1)**	-0.3 (0.2)	-0.5 (0.1)**	-0.6 (0.2)**	-0.5 (0.1)**	-0.6 (0.1)**
Location FE	N=1227	N=941	N=231	N=231	N=288	N=288	N=422	N=422
Country-Year FE	T=102	T=102	T=34	T=34	T=34	T=34	T=34	T=34
Sample size	41,717	30,374	7,820	7,820	8,398	8,398	14,156	14,156
R-squared	0.909	0.832	0.723	0.723	0.834	0.834	0.751	0.751

Dependent variable is **average number of employees per local firm (logged)**. See note under Table A13 for details.

Table A15: **Supplementary Test of Hypothesis 3**. Conley standard errors.

	All		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	0.01 (0.002)**	0.01 (0.003)*	0.01 (0.003)*	0.01 (0.004)′	0.01 (0.01)′	0.01 (0.01)′
Location FE	N=996	N=996	N=572	N=574	N=422	N=422
Country-Year FE	T=28	T=31	T=16	T=16	T=15	T=15
Sample size	15,512	15,512	9,183	9,183	6,329	6,329
R-squared	0.196	0.198	0.265	0.265	0.083	0.083

Dependent variable is **local voter turnout (proportion of registered voters)**. Turnout data are not available for Estonia. Reported values are average marginal effect estimates $\left(\frac{1}{NT}\sum_i \sum_t \hat{\beta}\hat{p}_{it}(1-\hat{p}_{it})\right)$ from DRF and DiD models estimated via GLM Binomial family. Conley standard errors in parentheses, with spatial threshold of 16.26 km (average nearest-neighbor distance). Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\prime}p < 0.1$.

Table A16: **Supplementary Test of Hypothesis 4**. Conley standard errors.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	0.03 (0.02)′	0.03 (0.02)′	0.1 (0.1)*	1.1 (4.1)	0.04 (0.02)*	0.04 (0.03)	0.03 (0.02)	0.04 (0.02)′
Location FE	N=1224	N=1224	N=228	N=228	N=574	N=574	N=422	N=422
Country-Year FE	T=45	T=45	T=14	T=14	T=16	T=16	T=15	T=15
Sample size	18,103	18,103	2,733	2,733	9,048	9,048	6,322	6,322
R-squared	0.569	0.569	0.56	0.56	0.546	0.546	0.591	0.591

Dependent variable is **pro-Russian party vote share (proportion of valid votes)**. See note under Table A15 for details.

Table A17: **Supplementary Test of Hypothesis 5**. Conley standard errors.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
High impact	0.04 (0.02)*	0.04 (0.02)*	1.1 (0.1)**	1.1 (0.1)**	0.04 (0.02)**	0.1 (0.03)′	0.05 (0.03)′	0.05 (0.03)′
Low/Moderate	-0.001 (0.004)	0.01 (0.01)	-0.03 (0.01)**	1.1 (0.1)**	0.02 (0.1)	0.02 (0.1)	0.001 (0.004)	0.01 (0.01)
Location FE	N=1224	N=1224	N=228	N=228	N=574	N=574	N=422	N=422
Country-Year FE	T=45	T=45	T=14	T=14	T=16	T=16	T=15	T=15
Sample size	18,103	18,103	2,733	2,733	9,048	9,048	6,322	6,322
R-squared	0.569	0.569	0.56	0.56	0.546	0.546	0.591	0.591

Dependent variable is **pro-Russian party vote share (proportion of valid votes)**. Reported values are average marginal interaction effect estimates $\left(\text{High impact} = \frac{1}{NT}\sum_i \sum_t \hat{\beta}_1 \hat{p}_{it}(1-\hat{p}_{it})\right)$, $\left(\text{Low/Moderate impact} = \frac{1}{NT}\sum_i \sum_t (\hat{\beta}_1 + \hat{\beta}_2)\hat{p}_{it}(1-\hat{p}_{it})\right)$ from DRF and DiD models estimated via GLM Binomial family. Conley standard errors in parentheses, with spatial threshold of 16.26 km (average nearest-neighbor distance). Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\prime}p < 0.1$.

A5 Supplementary analyses: Interpretation

The current section provides additional analyses into (1) whether the observed electoral shifts reflect genuine preference changes or changes in electorate composition, (2) heterogeneity by election type, (3) heterogeneity by ethnic composition, and (4) whether increases in pro-Russian support might reflect generic anti-incumbent punishment.

A5.1 Decomposing compositional and preference-shift effects

Let A_{it} denote the total anti-realignment (pro-Russian) vote count in community i at time t, $S_{it} = A_{it}/V_{it}$ denote the anti-realignment vote *share*, and N_{it} denote the number of eligible voters. The total anti-realignment vote count is:

$$A_{it} = S_{it} \cdot V_{it} = S_{it} \cdot \tau_{it} \cdot N_{it} \tag{43}$$

where $\tau_{it} = V_{it}/N_{it}$ is the turnout rate. Taking logs:

$$\log(A_{it}) = \log(S_{it}) + \log(\tau_{it}) + \log(N_{it}) \tag{44}$$

This identity decomposes log anti-realignment votes into three components: log vote share, log turnout rate, the log eligible electorate. A pure compositional effect (i.e., one operating entirely through changes in electorate size) would imply that base closures have no effect on $\log S_{it}$ or $\log \tau_{it}$, with $\log N_{it}$ alone transmitting the full effect of closures on $\log A_{it}$.

We operationalize this decomposition within the panel framework of Equation (1). Substituting $\log A_{it}$ as the dependent variable and progressively conditioning on $\log N_{it}$ (log eligible voters) yields the following sequence of estimating equations:

$$\log(A_{it}) = \beta_1 \text{Closures}_{it} + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{it} \tag{45}$$

$$\log(A_{it}) = \beta_2 \text{Closures}_{it} + \gamma \log(N_{it}) + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{it} \tag{46}$$

where β_1 captures the total effect of base closures on log anti-realignment votes, combining all channels. β_2 captures the direct effect net of changes in eligible voter composition. The share of the total effect attributable to the compositional channel is $(\beta_1 - \beta_2)/\beta_1$.

Under the pure compositional null, $\beta_2 = 0$ and $\gamma = 1$: base closures affect anti-realignment votes only through the size of the eligible electorate, and anti-realignment votes scale proportionally with electorate size. We test this restriction formally using a Wald test of $H_0 : \gamma = 1$ in (46). We also estimate first-stage equations with $\log(N_{it})$ (eligible voters) and $\log(V_{it})$ (valid votes) as dependent variables to confirm that the treatment variable is predictive of both electorate size and participation:

$$\log(N_{it}) = \pi, \text{Closures}_{it} + \alpha_i + \lambda_t \times \text{Country}_i + \epsilon_{it} \tag{47}$$

Table A18 reports estimates from the four specifications. Column (1) reports the baseline total effect. Column (2) conditions on log eligible voters. Columns (3) and (4) report first-stage effects of closures on log eligible voters and log valid votes, respectively.

Table A18: **Decomposition of Compositional and Preference-Shift Effects**.

Outcome	(1) Total Effect $\log A_{i,t}$	(2) $+\log N_{i,t}$ $\log A_{i,t}$	(3) FS: Elig. Voters $\log N_{i,t}$	(4) FS: Valid Votes $\log V_{i,t}$
Treatment				
Closures$_{i,t}$	1.269**	0.590*	0.824*	0.840**
	(0.415)	(0.255)	(0.299)	(0.299)
Mediator				
$\log N_{i,t}$		0.819***		
		(0.073)		
Fixed effects				
Community	✓	✓	✓	✓
Country × Year	✓	✓	✓	✓
Election type	✓	✓	✓	✓
R^2	0.745	0.809	0.717	0.674
Observations	15,092	15,092	15,514	15,514

Notes: Standard errors (clustered by community and year) in parentheses.
$\cdot p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

The baseline estimate indicates that each additional cumulative base closure is associated with a $(\exp(1.27) - 1) \approx 256$ percent increase in anti-realignment vote totals, a large effect consistent with the concentrated local economic impact of military withdrawal. The second column shows that conditioning on eligible voters reduces this coefficient by approximately 54 percent, from 1.27 to 0.59. The compositional channel thus accounts for roughly half the total electoral shift.

The first-stage estimates reveal a striking pattern: base closures modestly increase both log eligible voters (0.824, $p < 0.05$) and log valid votes (0.840, $p < 0.01$). Citizenship laws in Estonia and Latvia denied automatic citizenship to Soviet-era settlers (i.e., disproportionately Russian speakers employed on or near military installations) so the population most economically exposed to closures could not vote. Their departure reduced total population without proportionally reducing the registered electorate. The compositional channel therefore operates through the shifting *relative* composition of a stable eligible electorate, not through population exodus or differential turnout.

The residual direct effect in Column (2) remains statistically significant, and we formally reject the pure compositional null ($\chi^2(1) = 31.3$, $p < 0.001$). Anti-realignment vote totals grow by more than electorate size alone predicts, consistent with genuine preference change or mobilization among enfranchised stayers. Conditioning on log valid votes instead of, or in addition to, log eligible voters yields virtually identical residual estimates: once we account for who is eligible, variation in who turns out adds little explanatory power. Roughly half the observed electoral shift reflects the changing composition of a partially insulated enfranchised electorate; the other half reflects genuine shifts in political behavior among those who stayed and could vote.

A5.2 Election type heterogeneity

Our theoretical framework predicts that base closures increase pro-Russian support through retrospective economic voting, but we did not specify whether these effects should differ between parliamentary and municipal elections. National parliamentary elections involve broader geopolitical stakes and national economic management, while municipal elections focus more directly on local service delivery and community-level governance. We estimated interaction models to test whether closure effects vary by election type.

Table A19 reports that base closures increased pro-Russian vote shares in both parliamentary and municipal elections, with 95% confidence intervals overlapping in all but one country case: Estonia DiD, where the effect is even greater in parliamentary elections.

A5.3 Ethnic composition heterogeneity

Our theoretical model predicts that base closures may produce stronger electoral responses in communities with larger ethnic Russian populations, where residents faced compounding pressures: job losses from closures alongside broader post-Soviet political marginalization. We tested this by estimating interaction models comparing closure effects in above-median versus below-median Russian ethnic share communities, per the 1989 census.

The results in Table A20 reveal country-specific rather than uniform heterogeneity. In the pooled sample, base closures increased pro-Russian vote shares similarly in low- and high-Russian communities, suggesting ethnic composition did not systematically amplify the effect overall. Latvia shows the clearest ethnic gradient: closures produced significant effects only in above-median Russian communities, while low-Russian communities showed near-zero, insignificant effects. Estonia presents large significant effects in low-Russian communities and smaller or more variable estimates in high-Russian ones.

Table A19: **Supplementary Analysis**. Do base closures have stronger political effects in national or local elections?

Model	All DRF	All DiD	Estonia DRF	Estonia DiD	Latvia DRF	Latvia DiD	Lithuania DRF	Lithuania DiD
Parliament	0.02 (0.01)′	0.03 (0.01)**	0.2 (0.1)′	1.4 (0.02)**	0.04 (0.02)*	0.05 (0.02)*	0.02 (0.01)′	0.03 (0.005)**
Municipal	0.03 (0.01)**	0.03 (0.01)**	0.1 (0.1)′	0.9 (0.01)**	0.04 (0.01)**	0.04 (0.01)*	0.03 (0.01)*	0.04 (0.01)**
Location FE	N=1224	N=1224	N=228	N=228	N=574	N=574	N=422	N=422
Country-Year FE	T=45	T=45	T=14	T=14	T=16	T=16	T=15	T=15
Sample size	18,103	18,103	2,733	2,733	9,048	9,048	6,322	6,322
R-squared	0.569	0.569	0.56	0.56	0.546	0.546	0.591	0.591

Dependent variable is **pro-Russian party vote share (proportion of valid votes)**. Reported values are estimated average marginal effects of base closures on vote shares in parliamentary $\left(\frac{1}{NT}\sum_i\sum_t \hat{\beta}_1\hat{p}_{it}(1-\hat{p}_{it})\right)$ and municipal $\left(\frac{1}{NT}\sum_i\sum_t(\hat{\beta}_1+\hat{\beta}_2)\hat{p}_{it}(1-\hat{p}_{it})\right)$ elections, with clustered robust standard errors in parentheses. We estimate the interaction effects via DRF and DiD models with GLM Binomial family links. Significance levels (two-tailed): $^{**}p<0.01$, $^{*}p<0.05$, $^{\prime}p<0.1$.

Table A20: **Supplementary Analysis**. Do base closures have stronger political effects in communities with higher shares of ethnic Russians?

Model	All DRF	All DiD	Estonia DRF	Estonia DiD	Latvia DRF	Latvia DiD
Low Russian pop.	0.2 (0.03)**	0.1 (0.04)	1 (0.004)**	1.1 (0.005)**	0.01 (0.1)	0.01 (0.1)
High Russian pop.	0.2 (0.1)**	0.1 (0.01)**	0.2 (0.1)′	1.2 (0.01)**	0.1 (0.005)**	0.1 (0.01)**
Location FE	N=802	N=802	N=228	N=228	N=574	N=574
Country-Year FE	T=2	T=30	T=14	T=14	T=16	T=16
Sample size	11,781	11,781	2,733	2,733	9,048	9,048
R-squared	0.525	0.552	0.56	0.56	0.546	0.546

Dependent variable is **pro-Russian party vote share (proportion of valid votes)**. Reported values are estimated average marginal effects of base closures on vote shares in communities with below-median (low) $\left(\frac{1}{NT}\sum_i\sum_t \hat{\beta}_1\hat{p}_{it}(1-\hat{p}_{it})\right)$ and above-median (high) $\left(\frac{1}{NT}\sum_i\sum_t(\hat{\beta}_1+\hat{\beta}_2)\hat{p}_{it}(1-\hat{p}_{it})\right)$ shares of ethnic Russians (per 1989 census), with clustered robust standard errors in parentheses. Russian ethnicity data not available for Lithiania. We estimate the interaction effects via DRF and DiD models with GLM Binomial family links. Significance levels (two-tailed): $^{**}p<0.01$, $^{*}p<0.05$, $^{\prime}p<0.1$.

A5.4 Anti-incumbent punishment versus pro-Russian gains

To distinguish between generic anti-incumbent punishment and political support for pro-Russian parties, we re-estimate our main specifications using incumbent party vote share as the dependent variable. We define incumbent parties as those belonging to the governing coalition at the national level at the time of each election, coding vote shares for these parties at the local level. Table A21 reports results from dose-response and difference-in-differences specifications across all three countries.

Table A21: **Supplementary Test of Hypothesis 4**. Closures and incumbent support.

	All		Estonia		Latvia		Lithuania	
Model	DRF	DiD	DRF	DiD	DRF	DiD	DRF	DiD
Estimate	-0.04 (0.01)**	-0.02 (0.02)	-0.02 (0.02)	-0.1 (0.004)**	0.003 (0.005)	-0.1 (0.9)	-0.04 (0.01)**	-0.03 (0.02)*
Location FE	N=1224	N=1224	N=228	N=228	N=27	N=572	N=422	N=422
Country-Year FE	T=30	T=23	T=7	T=7	T=8	T=8	T=15	T=15
Sample size	12,068	12,068	1,153	1,153	4,592	4,592	6,323	6,323
R-squared	0.542	0.542	0.501	0.501	0.549	0.55	0.544	0.544

Dependent variable is **incumbent party vote share (proportion of valid votes)**. Reported values are average marginal effect estimates $\left(\frac{1}{NT}\sum_i \sum_t \hat{\beta}\hat{p}_{it}(1-\hat{p}_{it})\right)$ from DRF and DiD models estimated via GLM Binomial family, with clustered robust standard errors in parentheses. Significance levels (two-tailed): $^{**}p < 0.01$, $^{*}p < 0.05$, $^{\prime}p < 0.1$.

The pooled estimates show small negative effects on incumbent vote share. These aggregate effects mask substantial cross-national heterogeneity. Latvia exhibits essentially null effects across both specifications. Lithuania shows the most consistent anti-incumbent response, with significant negative effects in both specifications. Estonia falls between these extremes, with a near-zero DRF estimate but a larger, significant DiD estimate.

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