

Relocate, Merge or Stay: Institutional Responses to Combat Exposure and Academic Staff Retention in Ukrainian Universities, 2019–2026

Svitlana Bondarenko

`bondarenko.svitlana@kneu.edu.ua`

Kyiv National Economic University named after Vadym Hetman <https://orcid.org/0000-0002-1687-1172>

Mariia Telovata

National Academy of Educational Sciences of Ukraine <https://orcid.org/0000-0001-9514-1663>

Viktoriiia Nekhai

Dmytro Motorny Tavriya State Agrotechnological University <https://orcid.org/0000-0003-1184-6776>

Oksana Dmytriieva

V. N. Karazin Kharkiv National University <https://orcid.org/0000-0001-9314-350X>

Volodymyr Osmiatchenko

State University of Information and Communication Technologies <https://orcid.org/0000-0002-4174-2188>

Tetyana Tabler

Bogdan Khmelnytsky Melitopol State Pedagogical University <https://orcid.org/0000-0002-5489-3874>

Research Article

Keywords: war, Ukraine, academic staff, institutional response, relocation, university mergers

Posted Date: September 28th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11162887/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Additional Declarations: The authors declare no competing interests.

Abstract

When Russia launched its full-scale invasion in February 2022, Ukraine's state universities could stay where they were, relocate or be absorbed into another institution. This article asks whether the response an institution took, and not only the combat exposure it suffered, is associated with what happened to its staff. We assemble an annual panel of all 179 state higher education institutions under the Ministry of Education and Science for 2019–2025 from open data, reconstructing each institution's payroll fund from its tax and social-contribution payments recorded by the State Treasury. Exposure is coded from dated official lists of territories of hostilities, and responses from the orders that enacted them. Relocated institutions kept paying wages but lost payroll gradually, by about a third by the third year after the move. Absorption wound down the absorbed legal entity within a year, while the combined payroll of merged pairs kept pace with institutions that were not merged, which indicates transfer rather than dismissal. The choice of response followed pre-war size, and in a coded subsample of 20 institutions the wartime third mission was documented most where payroll recovered and least in relocated institutions. Read alongside individual-level panels, the results suggest that institutional retention and staff well-being are related but distinct outcomes of the same shock.

1 Introduction

The full-scale invasion of February 2022 confronted Ukraine's state universities with a choice: to keep working where they were, to move, or to become part of another institution. By 2025, 100 of the 179 state higher education institutions (HEIs) under the Ministry of Education and Science (MoES) were located in communities on the official list of territories of hostilities or occupation. Fifteen had relocated, five for the second time since 2014; Government orders since 2021 absorbed eleven institutions and closed eleven more, and the ministry intends to bring the number of universities under its management to about 100 by 2030 (interview with the Deputy Minister of Education and Science, RBC-Ukraine, 24 May 2025, <https://www.rbc.ua/rus/news/mami-vivozyat-17-richnih-siniv-kordon-ale-1747913120.html>). Each outcome was a decision, taken by an institution or imposed on it, with consequences for the people who worked there.

What happened to academic staff is known from two bodies of research that rarely meet. Survey panels of Ukrainian academics record rising burnout and find that staff of relocated institutions fared better than individual migrants (Tsybuliak et al., 2023a, 2025), but they measure institutional support as respondents perceive it, not as anything the institution did. Institution-level studies compare regions by exposure (Brintseva, 2026), classify the priorities institutions report (Semerikov et al., 2026a, b) or describe single displaced universities (Lopatina et al., 2023; Orzhel et al., 2023; Finikov et al., 2026). None compares what institutions actually did, staying, relocating or being absorbed, across the whole national system with an outcome that is observed, not reported. The gap matters for policy because the responses are administrative acts that can be evaluated and revised, and because the peacetime literature on mergers warns that the staff costs of consolidation appear with a lag and at the level of the

combined institution, not in the headcount on the day of the decision (Harman and Harman, 2003; Kyvik and Stensaker, 2016).

This article asks whether the response an institution chose, and not only the exposure it suffered, is associated with what happened to its academic staff. We assemble an annual panel of all 179 state HEIs under the MoES for 2019–2025 from open administrative sources. Because staff headcounts by institution are not published, we reconstruct each institution's payroll fund from its tax and social-contribution payments recorded by the State Treasury; exposure is coded annually from the official list, and responses from the acts that enacted them. Four questions guide the analysis. How were responses distributed across the system, and does the choice track pre-war characteristics (RQ1)? Does payroll evolve differently across responses under comparable exposure (RQ2)? Is absorption a point of staff loss for the absorbed institution, for the merged pair, or for both (RQ3)? Does an institution's wartime third mission moderate these patterns (RQ4, exploratory)?

The answers can be stated briefly. The response chosen follows pre-war size. Relocation is associated with a payroll loss that deepens over three years and works through lower wage bills, not through the closure of the payroll. Absorption winds down the absorbed legal entity within a year, yet the payroll of the merged pair keeps pace with unmerged institutions, which indicates transfer rather than dismissal. A year under active hostilities is associated with a payroll lower by a fifth to a third. The third mission, coded for 20 institutions, is most visible where payroll recovered and least visible among the relocated.

The article makes three contributions. For theory, it adds a spatial dimension to the repertoire of organizational responses to institutional pressure (Oliver, 1991) and to organizational resilience (Williams et al., 2017): under a threat to existence an institution can stay, move or be absorbed, and which it does is set by its resources more than by legitimacy, and institutional retention and individual well-being can move in opposite directions under the same shock. For method, it recovers an institution's payroll from open Treasury payments where staffing statistics are not published, an approach transferable to other budget-funded organizations and open-treasury countries that answers the call of the Organisation for Economic Co-operation and Development (OECD) for administrative data on the research workforce (OECD, 2026). For policy, it proposes judging wartime network decisions by the completion of staff transfer and by retention, not by the date of the order. Section 2 develops the conceptual model, Section 3 the data and design, Section 4 the results, and Section 5 discusses their meaning and limits.

2 Literature and conceptual model

2.1 Academic staff under war: what individual-level research shows

Research on Ukrainian academics since 2022 is dominated by surveys of well-being. After a near-universal deterioration of psycho-emotional status in the first months of the invasion (Kurapov et al.,

2023), the three-wave panel of the Berdiansk team found that exhaustion and depersonalization kept intensifying (Tsybuliak et al., 2023a, 2025). Forced migration, internal or external, was associated with higher exhaustion (Tsybuliak et al., 2024), and a wish to leave was associated with anxiety and with low confidence in institutional support (Suchikova et al., 2024). The most recent study in the series relates burnout to the institutional support that staff perceive (Tsybuliak et al., 2026).

Conservation of resources theory offers a common frame for these findings (Hobfoll, 1989). People strive to retain resources and experience stress when resources are lost or threatened; initial losses make further losses more likely. Although the theory began at the individual level, its organizational reading treats the institution as a holder and transmitter of resources whose losses cascade to its members (Hobfoll et al., 2018). For an academic, the institution is a bundle of resources: a post, a salary, colleagues, students, a place to work. Relocation preserves most of the bundle even when the building is lost, whereas individual migration or absorption removes parts of it. The theory thus predicts that the response of the institution conditions the losses its staff experience. Surveys cannot test the institutional side of this prediction: they observe those who remained reachable, not how many staff an institution kept.

2.2 Institutions under decline and threat

Research on how organizations respond to adversity runs in two streams that rarely meet: crisis management, which studies the response to a discrete event, and resilience, which studies the capabilities that let an organization absorb a shock and continue (Williams et al., 2017). In its capability-based reading, resilience rests on anticipation, coping and adaptation, and on the resources an organization can draw on when the shock arrives (Duchek, 2020). In higher education the literature has been applied mostly to financial retrenchment; conflict settings are rare, although higher education is increasingly seen as a catalyst of recovery in conflict-affected societies (Milton and Barakat, 2016). What neither stream supplies is an account of what an institution does when the shock removes the place in which it operates.

The literature on organizational decline asks the complementary question of what institutions do when their resource base contracts. In higher education, Cameron (1983) showed that colleges facing decline differed in whether they responded conservatively or innovatively, and Cameron et al. (1987) documented the dysfunctions that decline tends to produce, among them loss of morale and turnover; in a later study declining resources did not by themselves reduce effectiveness, whereas the practices adopted under decline did (Cameron and Smart, 1998). Outside higher education, the choice between exit, downsizing and relocation reflects an organization's prior resources and scale (Coucke et al., 2007), and the mode chosen carries different costs for those who stay (Maertz et al., 2010).

Oliver's (1991) typology of strategic responses, from acquiescence to manipulation, is the vocabulary most often used for university responses to external pressure; it was built for pressures on legitimacy and assumes that the organization persists in its place. War adds a spatial and existential dimension that the typology does not contain: the organization may persist in another place, or cease to exist as a

separate entity while its staff and activities continue elsewhere. We treat staying, relocating and being absorbed as three responses in this extended repertoire and ask what each is associated with for staff.

2.3 Mergers: transfer or loss

The literature on higher education mergers mostly concerns peacetime consolidation. It finds that mergers seldom reduce staff numbers in the short run, that their costs lie in integration, identity and workload, and that these costs emerge over several years (Harman and Harman, 2003; Kyvik, 2002; Kyvik and Stensaker, 2016; Pinheiro et al., 2016). Efficiency gains, where they appear, follow a period of lower performance (Johnes and Tsionas, 2019). A merger is thus to be evaluated at two levels: the absorbed institution, which disappears as a legal entity, and the combined institution, where its staff may or may not remain. Ukrainian consolidation since 2021 has been carried out during war and alongside relocation. The Accounting Chamber's 2024 performance audit found that none of the eleven reorganizations decided after 2022 had been completed by 30 September 2024, that staff had rarely been consulted, and that most staff surveyed in absorbed institutions did not support the reorganization (Accounting Chamber of Ukraine, report approved by Decision No. 54 – 1 of 26 November 2024, <https://rp.gov.ua/FinControl/FinReports/?id=1800>).

2.4 Ukrainian universities at war: institutional evidence

Institution-level evidence on Ukrainian universities in wartime comes in three forms. Case studies describe relocation, the move to distributed operation and the third mission of supporting staff, students and host communities (Lopatina et al., 2023; Orzhel et al., 2023; Tsybuliak et al., 2023b). Survey-based classifications identify clusters of strategic priorities among institutions and show that they differ by proximity to the front (Semerikov et al., 2026a, b). The only system-wide quasi-experimental study compares universities in affected and unaffected regions before and after 2022 and finds losses of funding, enrolment, staff and output in the former (Brintseva, 2026).

These studies establish that institutions responded differently and that exposure mattered, but not whether the response itself is linked to staff outcomes: Brintseva (2026) contrasts regions, not responses; the survey classifications describe priorities, not outcomes; and case studies cannot compare.

The third mission, an institution's engagement with society beyond teaching and research, has been studied mostly as knowledge transfer and community engagement in peacetime, with attention to the resources and incentives that constrain it (Compagnucci and Spigarelli, 2020). In wartime the same mission turns to shelter, volunteering and services for the community, and the case studies above present it as a source of attachment; whether it also helps an institution keep its own staff is the question behind E4.

2.5 Conceptual model and expectations

The conceptual model links exposure and response to the institution's payroll, with pre-war size as a selection variable and the wartime third mission as a possible moderator (Fig. 1). E1–E3 are examined

with the designs of Section 3; E4 is examined descriptively on a coded subsample (Sections 3.3 and 4.6).

[Figure 1 about here]

E1 (exposure). The longer an institution's community spends under active hostilities, the lower its payroll relative to its own pre-war level. Disruption of teaching, loss of students and departure of staff accumulate with the duration of exposure (Hobfoll, 1989; Brintseva, 2026).

E2 (relocation). A relocated institution retains its legal existence and pays wages throughout, but at a lower level than comparable institutions that stayed, and the gap widens over time. Relocation preserves the institutional bundle of resources for those who move with it or work remotely (Tsybuliak et al., 2025), but staff who cannot or do not follow drift away as temporary arrangements end; the loss should appear on the intensive margin and with a lag, not at once.

E3 (absorption). The payroll of an absorbed institution falls sharply after the order, while the combined payroll of the absorbing and absorbed institutions does not fall relative to institutions that were not merged. The expectation follows from the merger literature, which finds transfer of staff rather than immediate dismissal and costs that emerge in integration (Harman and Harman, 2003; Kyvik and Stensaker, 2016).

E4 (third mission, exploratory). Institutions with a more intensive wartime third mission, measured by documented support for staff, students and communities, retain more of their payroll under comparable exposure and response. Case evidence suggests that such activity sustains attachment to the institution (Lopatina et al., 2023; Orzhel et al., 2023), but the direction may run the other way, since institutions that kept their staff have more people to carry out such activity.

Because the choice of response follows pre-war size (Section 4.1), none of these expectations is framed as a causal effect of an exogenous event. The design is a structured comparison of institutions exposed to a common shock, and the results are read as associations conditional on institution and year fixed effects and on time-varying exposure.

Together these arguments form the theoretical claim of the article. Under an existential threat, the repertoire of institutional responses is spatial before it is strategic: an institution can stay, move or cease to exist as a separate entity, and which of these it does is set by the resources it holds when the shock arrives rather than by the legitimacy pressures that Oliver's typology assumes. The consequences of a response then run through the resource bundle the institution carries for its members, so that the same response can protect the institution and still cost the people it could not carry with it. Institutional retention and individual well-being are two outcomes of one shock, and evidence on one does not establish the other.

3 Data and methods

3.1 Sample and unit of analysis

The sample comprises all 179 state HEIs under the MoES that were legal entities in the Unified State Electronic Database on Education (EDEBO) at any time between 2019 and 2026, including institutions that ceased to exist during the period. Separate structural units are consolidated to their parent entity. The unit of observation is the institution-year, and the period runs from 2019 to 2025, giving three pre-invasion years. Institution identifiers in EDEBO were matched to legal-entity codes of the Unified State Register of Enterprises and Organizations of Ukraine (EDRPOU) through the Treasury register of budget spending units and the Treasury transaction database; ten fuzzy name matches that pointed to another institution were rejected after manual review. Where a university was re-registered under a successor code, as the Kyiv Aviation Institute (2024) and Drahomanov University (2022) were, the codes are chained into one series. The resulting payroll panel covers 143 institutions and 147 legal-entity codes with 907 institution-years of positive payroll; the remaining institutions are colleges that ceased before 2019 or that never paid wages under a code of their own. Table 1 lists the sources of every variable, the unit at which each is observed and its coverage.

Table 1
Data layers and sources

Layer	Source	Coverage and construction
Institutions	EDEBO register of education providers (API), September 2026; State Treasury register of budget spending units	179 state HEIs of MoES as legal entities; 143 institutions with Treasury payments (147 legal-entity codes; successor codes chained for KAI and Drahomanov University) after rejecting 10 fuzzy name matches that pointed to another institution
Outcome	State Treasury transactions (E-Data API), payer = HEI, 2019–2025	Payroll fund $\approx$ PIT on wages/0.18 (primary) and USC/0.22 (check), payments classified by purpose text (military levy and PIT on stipends excluded); educational programme 2201160 (2201280 for KNU) as secondary
Validation	NAQA annual report (2026), table of teachers in relocated HEIs	Teachers in relocated HEIs on 1 January 2026; 14 matched institutions; $r = 0.83$ with educational-programme payroll, 0.75 with total payroll
Exposure	List of territories of hostilities, Order No. 376 (28.02.2025) as amended by No. 1151 (15.07.2025)	3,021 community entries with start and end dates; matched on hromada code; annual indicators and share of year under active hostilities
Relocation	MoES orders of April–May 2022 (16); MoES compendium on education under martial law (2022, pp. 165–167) for the 2014 wave; IEA (2025); NAQA (2026)	Three states: relocated 2014, 2022, twice; 15 HEIs of MoES in the sample
Reorganization	23 Government orders 2021–2026 (Accounting Chamber, 2024, Annex 2; Cabinet portal)	Absorbed, absorbing and ceased institutions with order dates and legal-entity codes
Policy context	Cabinet Resolutions No. 1146 (2019) and No. 221 (2022); Accounting Chamber audit (2024)	Suspension (2022–2023) and restoration (2024) of the funding formula; pay of idle staff under martial law; World Bank-financed investment packages for absorbing HEIs
Notes: All sources are open; no information requests were submitted to public authorities. MoES – Ministry of Education and Science; EDEBO – Unified State Electronic Database on Education; PIT – personal income tax; USC – unified social contribution; NAQA – National Agency for Higher Education Quality Assurance; IEA – Institute of Educational Analytics; KNU – Taras Shevchenko National University of Kyiv; KAI – Kyiv Aviation Institute.		
Source: compiled by the authors.		
<i>Bondarenko et al. – Relocate, Merge or Stay</i>		

[Table 1 about here]

3.2 Outcome: the payroll fund

Staff headcounts by institution are not published in Ukraine's open data, and the ministry's institutional statistics stop at the regional level. We therefore reconstruct each institution's payroll fund from its own payments recorded in the State Treasury transaction database (E-Data), downloaded as 3,976 quarterly files. Two statutory payments leave a trace of the wage bill: personal income tax (PIT), withheld at 18 per cent of gross pay, and the unified social contribution (USC), paid at 22 per cent on top of it. Both are identified in the free-text purpose of each payment. Because accountants describe the same payment in many ways, a rule-based classifier tolerant of these variants identifies both and separates PIT on wages from the military levy and from PIT withheld on student stipends, which are excluded. After classification, statutory payments to tax authorities that remain unrecognized amount to 13–79 million hryvnias (UAH) a year, under 2 per cent of the recognized total.

The payroll fund of institution i in year t is approximated as $\text{PIT}/0.18$, with $\text{USC}/0.22$ as an independent check. Where both channels are recorded (901 institution-years), the two estimates correlate at 0.95 on the log scale with a median ratio of 1.01, and they disagree by more than a factor of 1.7 in only eight institution-years; in those cases the larger estimate is used, since a missing channel understates and never overstates payroll. The primary outcome is the total payroll fund; the payroll paid under the educational budget programme (2201160, or 2201280 for the University of Kyiv) is a secondary outcome with narrower coverage. Year fixed effects absorb nation-wide wage indexation and inflation, so the estimates concern differences between groups; descriptive series are also shown deflated by the December-to-December consumer price index.

The measure was validated against the only published institution-level headcounts, the number of teachers in relocated HEIs reported by the National Agency for Higher Education Quality Assurance for 1 January 2026. For the 14 state HEIs of the MoES with a payroll record among them, the 2025 total payroll correlates with headcount at 0.75 and the educational-programme payroll at 0.83, and the median payroll per teacher is UAH 399 thousand a year.

3.3 Exposure and responses

Combat exposure is coded from the official list of territories where hostilities are or were conducted or which are temporarily occupied (Order of the Ministry for Communities and Territories Development No. 376 of 28 February 2025, as amended by No. 1151). The list records for each territorial community the category, possible hostilities, active hostilities or temporary occupation, together with the dates on which each category began and ended. Matching on the community segment of each institution's registered address in the Codifier of Administrative-Territorial Units and Territories of Territorial Communities (KATOTTG), we construct for every year an indicator of possible hostilities and the share of the year during which the community was under active hostilities. In 2022, 67 institutions were in communities under active hostilities, most of them only until 30 April 2022; in 2023–2025 the number is seven to eight. Relocated institutions are coded by their new registered address; their origin is retained as a separate attribute.

Responses are coded from the acts that enacted them. Relocation follows the ministerial orders of April–May 2022 and, for the 2014 wave, the ministry’s information-analytical compendium on education under martial law (Ministry of Education and Science of Ukraine, 2022, pp. 165–167), distinguishing institutions relocated in 2014 only, in 2022, and twice. Absorption and cessation follow the Government reorganization orders of 2021–2026, with the year of the order as the date of treatment; the absorbing (“base”) institution is identified separately. A division of one legal entity into its successors, as in the case of the National Aviation University in 2024, and a re-registration with full succession, as in the case of Drahomanov University in 2022, are not coded as absorption.

The wartime third mission is coded for a subsample of 20 institutions in 2023 and 2025, stratified by response: five relocated in 2022, two relocated twice, five in place under the exposure of 2022, three in Kyiv and five in the rear. Under a written protocol fixed before coding, eight binary indicators record documented institutional activity for communities, the defence forces or displaced people in a given year, from shelter for displaced people to partnership in recovery with military administrations (the notes to Table 8 list them). Individual volunteering, paid services and services restricted to an institution’s own students are excluded. The source is the annual rector’s report; the index is the sum of the eight indicators. The language model named in Section 3.5 coded the documents under the protocol, with six rules for borderline cases fixed by the authors after a first pass; every code carries a page reference, and the authors reviewed the codes. No report was available for two institutions and one institution-year, leaving 35 institution-years.

3.4 Estimation

The baseline specification is a two-way fixed-effects regression of the logarithm of the payroll fund:

$$\ln Y_{it} = \alpha_i + \lambda_t + \beta_1 A_{it} + \beta_2 B_{it} + \beta_3 R_{22it} + \beta_4 R_{14it} + \beta_5 Abs_{it} + \beta_6 Base_{it} + \beta_7 K_{it} + \epsilon_{it} \quad (1)$$

where Y is the payroll fund of institution i in year t ; α and λ are institution and year fixed effects; A is the share of the year the community spent under active hostilities; B indicates possible hostilities; R_{22} and R_{14} equal one from 2022 for institutions relocated in 2022 and in 2014 only; Abs and $Base$ equal one from the year of the order for absorbed and absorbing institutions; K equals one from 2022 for institutions in Kyiv and captures conditions specific to the capital after the invasion. Standard errors are clustered by institution. An indicator-exposure variant replaces A with an annual indicator of active hostilities.

Absorption requires particular care with the logarithm. An absorbed legal entity that has transferred its staff to the base institution often keeps paying small residual amounts under its own code for a year or two, and the logarithm of such residuals lies several points below the pre-order level. We therefore separate two margins. The extensive margin is estimated as a linear probability model,

$$\Pr(Z_{it} = 1) = \alpha_i + \lambda_t + X_{it}'\gamma + u_{it} \quad (2)$$

where Z equals one if payroll is zero or below 10 per cent of the institution's own 2021 level, and X contains the regressors of Eq. (1). The intensive margin re-estimates Eq. (1) on the observations with $Z = 0$. An inverse-hyperbolic-sine transformation that keeps post-exit zeros is reported for completeness. The baseline estimate combines both margins and describes the winding-down of the legal entity; the intensive-margin estimate describes the payroll of an institution that still operates.

Because absorption is adopted in staggered cohorts (2021, 2023, 2024 and 2025), two-way fixed effects may weight already-treated units as controls. We re-estimate its effect with the difference-in-differences estimator of Callaway and Sant'Anna (2021) for staggered adoption, using not-yet-treated institutions as controls and excluding absorbing institutions; dynamic aggregation yields event-time coefficients with simultaneous confidence bands. Relocation in 2022 is adopted by a single cohort and is examined through an event study with 2021 as the base year. A placebo assigns relocation to the same institutions in 2020 and is estimated on pre-invasion data. Robustness checks vary the outcome, the sample and the controls (Section 4.5).

We describe the design as a structured comparison under a common shock rather than as a natural experiment: institutions selected into relocation and absorption by size and situation (Section 4.1), and the estimates are read as associations conditional on fixed effects and time-varying exposure.

3.5 Transparency

All data derive from open sources; no information requests were made to public authorities. Raw Treasury transactions, the registers of relocation and reorganization, the exposure file, the payment classifier and the code that builds the panel and every table and figure are deposited in a replication bundle (see Declarations). The large language model Claude Opus 5.5 (Anthropic) was used throughout the project: to write and run the code for data collection, payment classification, panel construction, estimation and figures to the authors' specifications; to search for errors in the data; to code the third-mission indicators from institutional documents under the authors' protocol (Section 3.3); to locate and check references and official documents; and to draft sections of the manuscript in English and edit its language. The research questions, the design, the choice among specifications and the interpretation are the authors'. Every reported number can be reproduced from the deposited code, every reference was checked against Crossref or the original document, and the authors have reviewed the full text and take responsibility for it.

4 Results

4.1 The repertoire of responses

Most institutions never changed status or place. Of the 179 state HEIs, 129 stayed where they were and remained separate legal entities throughout: 75 in communities that never entered the list of active hostilities, 50 in communities under active hostilities only in spring 2022, when most of Kyiv, Chernihiv and Sumy regions were briefly on the list, and 4 under prolonged exposure in Kharkiv and Zaporizhzhia. Fifteen relocated: 7 in 2022, 5 for the second time after a first relocation from Donetsk and Luhansk in

2014, and 3 in 2014 only. Eleven were absorbed into another HEI, 11 absorbed others, and 11 ceased without absorption (Table 2).

Table 2
The repertoire of institutional responses, 2022–2026, and its correlates

Response	Variant	HEIs	With payroll record	Median payroll 2021, UAH m	Median payroll index 2025 (2021 = 100)
Stay in place	no active hostilities	75	55	113	126
	active hostilities in 2022 only	50	36	146	106
	prolonged active hostilities	4	2	69	93
Relocate	2022	7	7	104	89
	2022, second relocation	5	5	78	73
	2014 only	3	2	83	93
Merger	absorbing institution	11	11	171	131
	absorbed institution	11	11	66	14
Cease	without absorption	11	5	37	0
	after two relocations	2	2	26	21
Total		179	136		
Notes: Responses coded from MoES relocation orders, the MoES 2022 compendium (2014 wave) and 23 Government reorganization orders (2021–2026). “In place” variants follow the community’s category in the official list of territories of hostilities. Payroll: total payroll fund from Treasury payments; medians over institutions with a payroll record. Index for absorbed and ceased institutions reflects residual payroll of a legal entity in liquidation. The group with active hostilities in 2022 only includes the institutions of Kyiv, which were on the list in spring 2022; this explains its larger median size.					
Source: authors’ calculations from EDEBO, Government and ministerial orders and State Treasury transactions (E-Data).					
<i>Bondarenko et al. – Relocate, Merge or Stay</i>					

[Table 2 about here]

The response chosen tracks pre-war size. Table 2 reports the median total payroll fund of 2021, the last full year before the invasion, for each response: UAH 171 m for absorbing institutions, 113 m for those that stayed without active hostilities, 104 m for institutions relocated in 2022 and 78 m for those relocated twice, 66 m for absorbed institutions and 37 m for those that ceased. Size, not exposure alone, separates the absorbing from the absorbed: within the same regional reorganization orders the larger institution became the base. This ordering rules out reading absorption or relocation as if they had been assigned at random (Section 3.4).

The same table shows the outcome in its simplest form, the median payroll index of 2025 on 2021. Absorbing institutions stand at 131 and those that stayed without hostilities at 126; institutions under prolonged hostilities at 93; relocated institutions at 93 (2014 only), 89 (2022) and 73 (twice); absorbed institutions at 14, and institutions that ceased at zero. Institutions relocated in 2022, once or twice, sit below every group that stayed in place; those relocated in 2014 only are level with institutions under prolonged hostilities, and each of these two groups has only two institutions with a payroll record.

4.2 Trajectories by group

Figure 2 plots the payroll index (2021 = 100), nominal and deflated by the consumer price index (CPI), for five groups defined by the situation of the registered address in the 2025 list and by relocation, with all institutions holding a payroll record (Table 3). Pre-war trajectories are parallel: between 2019 and 2021 the five groups rose from 69–77 to 100 within a band of eight points. The divergence begins in 2022 and widens in 2023.

Table 3
Payroll fund by exposure group, index 2021 = 100

Group	2019	2020	2021	2022	2023	2024	2025	2025, real
Kyiv (n = 17)	73	80	100	101	98	110	102	63
In place, active hostilities (n = 29)	77	83	100	89	85	102	99	61
In place, possible hostilities (n = 17)	70	75	100	92	93	121	109	68
Relocated (n = 17)	69	85	100	86	77	85	80	50
Rear (n = 60)	75	83	100	99	104	125	130	81
Notes: Nominal sums of the total payroll fund by group; last column deflated by the December-to-December consumer price index (2022: 26.6%; 2023: 5.1%; 2024: 12.0%; 2025: 8.0%). Groups by the community category of the registered address in the 2025 list; relocated institutions include both waves; n counts legal entities with a payroll record.								
Source: authors’ calculations from State Treasury transactions (E-Data) and the official list of territories of hostilities.								
<i>Bondarenko et al. – Relocate, Merge or Stay</i>								

[Figure 2 about here]

[Table 3 about here]

In nominal terms only the relocated group failed to recover. By 2025 the rear, institutions in communities that never entered the list, stood at 130, institutions in place under possible hostilities at 109, Kyiv at 102, institutions in place under active hostilities at 99, and the relocated at 80. For Kyiv, for institutions under active hostilities and for the relocated, the trough falls in 2023, not in 2022; institutions under possible hostilities were lowest in 2022 and barely higher in 2023. In 2022 budget-funded institutions could keep staff whose work had stopped on the payroll at no less than two thirds of salary (Cabinet Resolution No. 221 of 7 March 2022), and payroll of the exposed groups fell by 8–14 points only; the sharper contraction came in 2023, the second year in which the funding formula was suspended. In real terms no group recovered: deflated by the consumer price index, payroll in 2025 ranged from 81 per cent of the 2021 level in the rear to 50 per cent among the relocated (Table 3).

The rebound of 2024 is visible for every group but the relocated. It coincides with the restoration of the funding formula and the first merger packages, which took effect together in 2024 (Section 5.4).

4.3 Fixed-effects estimates

Table 4 reports two-way fixed-effects estimates of Eq. (1) with the logarithm of the total payroll fund as the outcome, 907 institution-years and 140 institutions. Column (2), which enters exposure as the share of the year the community spent under active hostilities, is the main specification; column (1) replaces it by an annual indicator. Columns (3)–(5) separate the two margins described in Section 3.4. Column (3) drops the seven institution-years in which payroll fell below 10 per cent of the institution’s own 2021 level and so reports the change in the payroll of an institution that still operates; column (4) keeps 54 post-exit zero years under the inverse hyperbolic sine; column (5) is a linear probability model for the outcome “residual or zero payroll” on the same sample as (4).

Table 4
Institutional responses, exposure and the payroll fund: two-way fixed-effects estimates

Variable	(1) Indicator exposure, log	(2) Exposure intensity, log	(3) As (2), intensive margin	(4) As (2), IHS with zeros	(5) Extensive margin, LPM
Active hostilities, share of year	–	–0.397** (0.163)	–0.226*** (0.066)	–0.302* (0.166)	0.028 (0.040)
Active hostilities (indicator)	–0.280* (0.152)	–	–	–	–
Possible hostilities (indicator)	–0.131** (0.053)	–0.137*** (0.051)	–0.115*** (0.043)	–0.305* (0.182)	0.038 (0.038)
Relocated in 2022 × post	–0.144** (0.069)	–0.142** (0.062)	–0.208*** (0.033)	–0.082 (0.161)	–0.018 (0.042)
Relocated in 2014 only × post	–0.178 (0.117)	–0.177 (0.115)	–0.178 (0.126)	0.080 (0.147)	–0.046** (0.023)
Absorbed × post-order	–1.097*** (0.205)	–1.119*** (0.209)	–0.502*** (0.096)	–2.344*** (0.281)	0.456*** (0.069)
Absorbing × post-order	0.126 (0.081)	0.118 (0.080)	0.170** (0.075)	0.289*** (0.091)	–0.021* (0.012)
Kyiv × post-2022	0.041 (0.077)	–0.007 (0.071)	–0.054 (0.054)	–0.056 (0.241)	–0.008 (0.048)
Institution and year fixed effects	yes	yes	yes	yes	yes
Observations (HEI-years)	907	907	900	961	961
Institutions	140	140	140	140	140

Notes: Dependent variable in (1)–(3): log of the total payroll fund by HEI-year, 2019–2025 (PIT and USC channels); column (2) is the main estimate. Column (3) drops 7 residual HEI-years in which payroll fell below 10% of the institution's own 2021 level (legal entities winding down after absorption or occupation), so it reports the change in the payroll of an operating institution. Column (4) uses the inverse hyperbolic sine and keeps 54 post-exit zero years; column (5) is a linear probability model for the outcome “residual or zero payroll” on the same sample. Read together, (3) and (5) decompose the absorption effect: absorption raises the probability that a legal entity stops paying wages under its own code by 46 percentage points, and lowers payroll by about 40% ($e^{-0.50} - 1$) while it still operates; relocation has no extensive-margin effect and acts only through the intensive margin. Exposure coded annually from the official list of territories with start and end dates; “share of year” is the fraction of the calendar year the community spent under active hostilities. Standard errors clustered by institution in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: authors' calculations.

Bondarenko et al. – Relocate, Merge or Stay

[Table 4 about here]

Absorption has the largest coefficient and needs both of its numbers. In column (2) the absorbed-by-post-order interaction is -1.12 ($p < 0.001$), which on the log scale describes the winding-down of the absorbed legal entity. Column (5) shows where that number comes from: absorption raises the probability that the entity stops paying wages under its own code by 46 percentage points ($p < 0.001$), and no other response does so. Column (3) shows what remains once those years are set aside: the payroll of an absorbed institution that still operates is about 40 per cent lower than its own pre-order level relative to untreated institutions (-0.50 , $p < 0.001$). The two numbers answer two different questions: what happens to the legal entity, and what happens to an operating institution. The absorbing institutions gain: their coefficient is positive in every column and significant in (3) and (4), consistent with the transfer of staff shown at the level of the pair in Section 4.4.

Relocation acts through the intensive margin only. The relocated-in-2022 interaction is -0.14 in the main specification ($p = 0.022$) and -0.21 on the intensive-margin sample ($p < 0.001$); the extensive-margin coefficient is -0.02 and indistinguishable from zero, and the inverse hyperbolic sine gives -0.08 (n.s.). A relocated institution keeps paying wages, at a lower level. Institutions relocated in 2014 only carry a coefficient of the same sign and size (-0.18) with a wider interval, as the two institutions with a payroll record allow.

Exposure enters with the expected sign in every column. A full year under active hostilities is associated with a payroll fund lower by 33 per cent in the main specification (-0.40 , $p = 0.015$) and by 20 per cent on the intensive-margin sample (-0.23 , $p = 0.001$); the difference again reflects the three Kharkiv institutions absorbed in 2021 whose residual years coincide with active exposure in 2022. Being in a community of possible hostilities costs 11–13 per cent (-0.14 , $p = 0.008$). The Kyiv-specific post-2022 indicator is zero in every column.

Figure 3 and Table 5 examine timing. For relocation, the event study with 2021 as the base year shows pre-period coefficients of -0.18 (standard error, SE, 0.14) and $+0.04$ (SE 0.12) for 2019 and 2020, nothing in the year of relocation ($+0.09$, SE 0.13), and a loss that deepens afterwards: -0.19 ($p = 0.038$) in 2023, -0.31 ($p = 0.001$) in 2024 and -0.40 ($p < 0.001$) in 2025. Relocation in April–May 2022 did not remove staff at once, which is consistent with the possibility of keeping idle staff on the payroll that year. The placebo of Section 3.4 returns $+0.16$ ($p = 0.18$).

Table 5
Dynamics around the event: absorption (staggered adoption) and relocation (single cohort)

Event time	Absorption: ATT (SE), CS-DiD	Relocation 2022: coefficient (SE), TWFE
-5	-0.030 (0.142)	–
-4	-0.088 (0.103)	–
-3	-0.076 (0.064)	-0.180 (0.143)
-2	-0.080 (0.043)	0.040 (0.122)
-1	-0.040 (0.072)	0 (base)
0	-0.147 (0.066)	0.087 (0.129)
1	-2.764 (0.578)	-0.185** (0.089)
2	–	-0.309*** (0.093)
3	–	-0.398*** (0.111)
Aggregate ATT (dynamic)	-1.455 (0.309)	–
Pre-period	all five pre-coefficients inside the simultaneous 95% band; $\tau = -2$ closest to it (-0.080, band [-0.163; 0.004])	$\tau = -3$: -0.180 (0.143); $\tau = -2$: 0.040 (0.122)
Notes: Absorption: Callaway and Sant’Anna (2021) difference-in-differences estimator (CS-DiD), log total payroll, cohorts by year of Government order (2021: 10 legal entities; 2023: 2; 2024: 8; 2025: 2), not-yet-treated control group, absorbing institutions excluded; standard errors and simultaneous 95% bands from a multiplier bootstrap with 1,000 draws and a fixed seed. Relocation: event-study coefficients from the two-way fixed-effects model with 2021 as base year; $\tau \geq 2$ for absorption not identified because of small late cohorts. The $\tau = 1$ estimate combines the intensive and extensive margins: absorbed entities stop paying wages under their own code once staff are transferred.		
Source: authors’ calculations.		
<i>Bondarenko et al. – Relocate, Merge or Stay</i>		

[Figure 3 about here]

[Table 5 about here]

For absorption, adopted in cohorts of 2021 (10 legal entities), 2023 (2), 2024 (8) and 2025 (2), the Callaway–Sant’Anna estimator with not-yet-treated institutions as controls and absorbing institutions excluded gives an aggregate dynamic average treatment effect on the treated (ATT) of -1.46 (SE 0.31). All five pre-period coefficients lie inside the simultaneous 95 per cent band, the coefficient at $\tau = -2$ (-0.08) closest to its edge. The effect is -0.15 in the order year and -2.76 one year after the order (band [-3.90; -1.63]). The estimator discards no observations and describes the same winding-down of the absorbed legal entity as column (2) of Table 4; its size indicates that one year after the order most

absorbed entities no longer pay wages under their own code. Later event times are not identified because the 2024 and 2025 cohorts have one and zero post-order years.

4.4 What happens to the merged pair

The payroll of the absorbed institution does not disappear; it moves. Table 6 sums the payroll of the absorbing institution and of every institution absorbed by the same order, for the 12 merger chains of 2021–2024 with a payroll record. The median index of the pair in 2025 on the year before the order is 117, the same level as the regional groups without mergers in Table 3 (99–130). Eleven of twelve chains are at or above 100; the one that contracted (84) is the pair formed by two relocated institutions from Donetsk region, whose loss is the relocation loss of Section 4.3, not a merger loss.

Table 6
Payroll of merged pairs (absorbing plus absorbed institutions), UAH million, total payroll

Order (No.)	Year	HEIs in pair	Payroll 2021	2023	2025	Share of absorbed in pre-order year, %	Index 2025 to pre-order year
1	2021	6	1865.7	1610.7	1918.4	8	133
5	2021	2	96.9	63.5	64.2	27	84
7	2021	2	168.9	132.4	143.0	19	105
9	2021	2	641.0	657.5	840.2	9	166
11 + 17	2021; 2023; 2024	5	384.0	415.8	464.3	100	142
13	2024	2	243.7	204.1	237.9	20	117
14	2024	3	273.7	231.1	236.5	16	102
15	2024	2	788.3	572.5	664.8	12	116
16	2024	2	993.9	999.6	1393.4	6	139
18	2024	2	127.0	111.7	124.4	13	111
19	2024	2	282.2	254.2	298.0	43	117
20	2024	2	195.5	223.9	289.7	48	129
Notes: Pairs defined by Government reorganization orders, numbered as in Annex 2 of the Accounting Chamber audit (2024); sums over all legal entities in the order with a payroll record. Orders 11 and 17 share the absorbing institution (the Ukrainian State University of Science and Technologies, USUST, itself created in 2021) and are reported as one merger chain indexed to 2020. Median index across pairs: 117. Pair 5 (two relocated institutions) is the only pair that contracted.							
Source: authors' calculations from State Treasury transactions (E-Data) and Government reorganization orders.							
<i>Bondarenko et al. – Relocate, Merge or Stay</i>							

[Table 6 about here]

Transfer, not dismissal, is thus the reading the payroll data support for absorption. The lag matters: the absorbed entity ceases to pay wages under its own code one to two years after the order, which accords with the Accounting Chamber's finding that none of the post-2022 reorganizations was complete by September 2024 (Section 2.3). What the payroll cannot see is the staff opposition recorded in the same audit and the share of transferred staff who left the absorbing institution within a year, which the annual payroll of the pair averages away.

4.5 Robustness

Table 7 and Fig. 4 report the three coefficients of interest across nine specifications, the baseline and eight alternatives: the educational-programme payroll as outcome; each payment channel alone; the occupied-in-place indicator added, identified from five institution-years and therefore kept out of Table 4; the sample without Kyiv, without absorbing institutions and without 2019; and the intensive-margin sample. Absorption is negative and significant at the 1 per cent level in every specification, between -0.50 and -1.18 . Exposure keeps its sign and size, -0.23 to -0.52 , with $p < 0.10$ in all nine and $p < 0.05$ in eight; the exception is the educational-programme outcome ($p = 0.061$), whose narrower coverage loses the small institutions under prolonged exposure. Relocation keeps its sign and size, -0.13 to -0.27 , with $p < 0.10$ in all nine and $p < 0.05$ in seven; the two exceptions are the samples without Kyiv ($p = 0.057$) and without absorbing institutions ($p = 0.084$), which remove the two largest groups of rear comparators. Read with the event study of Fig. 3, whose pre-period coefficients are indistinguishable from zero, the relocation estimate is stable in sign and magnitude, not fragile; what varies across specifications is precision, as a treated group of twelve institutions allows.

Table 7
Robustness of the three main coefficients

Specification	Exposure intensity	Relocated 2022	Absorbed	N
Baseline: total payroll, exposure intensity (Table 4, col. 2)	-0.397 (0.015)	-0.142 (0.022)	-1.119 (0.000)	907
Educational programme payroll	-0.320 (0.061)	-0.268 (0.004)	-0.879 (0.000)	887
Total payroll, PIT channel only	-0.396 (0.015)	-0.151 (0.019)	-1.118 (0.000)	907
Total payroll, USC channel only	-0.315 (0.044)	-0.128 (0.027)	-0.832 (0.000)	900
With occupied-in-place indicator (5 HEI-years)	-0.520 (0.003)	-0.175 (0.002)	-0.955 (0.000)	907
Excluding Kyiv	-0.464 (0.008)	-0.143 (0.057)	-1.179 (0.000)	775
Excluding absorbing institutions	-0.416 (0.020)	-0.140 (0.084)	-1.124 (0.000)	792
2020–2025 only	-0.363 (0.037)	-0.198 (0.013)	-1.025 (0.000)	775
Excluding residual years (Table 4, col. 3)	-0.226 (0.001)	-0.208 (0.000)	-0.502 (0.000)	900
Placebo: relocation assigned to 2020, 2019–2021 data	–	0.162 (0.176)	–	400
Notes: Cells report coefficient (p-value) from two-way fixed-effects models with the full set of controls of Table 4, column (2); baseline dependent variable is log total payroll. The occupied-in-place indicator is identified from five HEI-years, three of them residual years of absorbed institutions, and is therefore reported here rather than in Table 4. The placebo assigns a fictitious relocation to the same institutions in 2020 on 2019–2021 data.				
Source: authors' calculations.				
<i>Bondarenko et al. – Relocate, Merge or Stay</i>				

[Table 7 about here]

[Figure 4 about here]

The coefficients estimated from each payment channel alone (rows 3 and 4 of Table 7) have the same sign and similar size, – 0.40 and – 0.32 for exposure and – 0.15 and – 0.13 for relocation; Section 3.2 reports the agreement between the channels and the validation against published headcounts.

4.6 The third mission: a descriptive layer

Table 8 reports the third-mission index for the 35 coded institution-years. Veterans' programmes, volunteer support of the defence forces and shelter for displaced people are the most common dimensions; applied work for the security sector and infrastructure open to residents are rare. The index is highest in the rear, with medians of 3.5 in 2023 and 3.0 in 2025, and in the two absorbing institutions

(2.5 and 3.0); institutions in Kyiv and under the exposure of 2022 stand at 1.0 and 2.0, and the relocated at 0.5 and 1.0. Across the 18 institutions with both an index and a payroll record, the index and the payroll index of 2025 are weakly and not significantly related (Spearman $\rho = 0.32$, $p = 0.20$), and within response groups no association is visible.

Table 8: The wartime third-mission index by response group, coded subsample

Response group	Institutions	Index 2023, median	Index 2025, median	Payroll index 2025 (2021 = 100), median
Rear: in place, no active hostilities	6	3.5	3.0	132.5
Kyiv and in place under active hostilities in 2022	5	1.0	2.0	107.8
Absorbing	2	2.5	3.0	101.8
Relocated (2022 or twice)	5	0.5	1.0	92.5
All coded institutions	18	1.0	2.5	107.9

Notes: Index = number of the eight indicators of Section 3.3 documented in the year (0–8); 35 institution-years coded from rectors’ reports for 2023 and 2025; two institutions and one institution-year without an available report are excluded. Share of institution-years with the indicator: shelter and humanitarian hub 0.34; volunteer support of the defence forces 0.40; veterans’ programmes 0.46; applied work for the security sector 0.06; psychological support open to the community 0.20; infrastructure open to residents 0.11; free courses and services 0.23; recovery partnerships 0.29. Spearman correlation between the mean index and the payroll index across 18 institutions: 0.32 ($p = 0.20$). Absorbing institutions are shown separately; one of them is in Kharkiv.

Source: authors’ coding of rectors’ reports; State Treasury transactions (E-Data).

[Table 8 about here]

Read against E4, the pattern is consistent with a third mission that follows an institution’s resources rather than protecting them: the institutions that document most activity are those whose payroll recovered, and the relocated institutions, which lost most payroll, document least. Two cautions apply: the reports of relocated institutions are shorter and one is only partly machine-readable, so a low index may reflect the document, not the activity, and case evidence for the same institutions records humanitarian and psychological support in 2022 (Lopatina et al., 2023); and 20 institutions describe moderation; they do not test it.

5 Discussion

5.1 Response, not exposure alone

The results support the argument that what an institution did is associated with what happened to its staff, over and above the exposure it suffered. Figure 5 brings the three paths together. Exposure matters: a year under active hostilities costs a fifth to a third of payroll. Yet the three responses leave distinct traces that exposure does not explain. Relocated institutions kept paying wages and lost staff gradually; absorbed institutions disappeared as employers within a year while their staff moved to the base institution; institutions that stayed, even under prolonged exposure, recovered in nominal terms by 2025. The finding bears on the theoretical claim of Section 2.5. The choice among staying, moving and being absorbed followed pre-war size more closely than any consideration of legitimacy: larger institutions absorbed, smaller ones were absorbed or closed, and middle-sized ones relocated. Under a threat to existence, the repertoire is constrained by resources before it is shaped by institutional pressure, and resilience in the capability sense (Duchek, 2020) is a property that larger institutions could afford and smaller ones could not.

[Figure 5 about here]

5.2 Transfer, not dismissal: what mergers cost

Mergers did not shed staff in the aggregate. The payroll of merged pairs kept pace with institutions that were not merged, and the loss recorded for the absorbed institution is a transfer between legal entities. The ministry describes the process in the same terms: the staff and students of a shrinking institution are moved to a larger one (interview with the Deputy Minister of Education and Science, RBC-Ukraine, 24 May 2025, <https://www.rbc.ua/rus/news/mami-vivozyat-17-richnih-siniv-kordon-ale-1747913120.html>). This accords with the peacetime literature, which locates the costs of consolidation in integration rather than in immediate dismissals (Harman and Harman, 2003; Kyvik and Stensaker, 2016). It does not mean that mergers were costless for staff. The Accounting Chamber found that staff had rarely been consulted, that in two of the four absorbed institutions it surveyed 83 and 84 per cent of staff did not support the reorganization, and that none of the reorganizations decided after 2022 was complete by September 2024 (<https://rp.gov.ua/FinControl/FinReports/?id=1800>); and the annual payroll of a pair cannot show how many transferred staff left the base institution in the following year or how the work of those who stayed changed. The measurable cost of a merger is therefore delay and opposition; its unmeasured cost is the attachment of people who were not asked.

5.3 Divergence of levels

The institution-level results sit uneasily beside the individual-level evidence, and the tension is informative. The three-wave panel of Ukrainian academics finds lower burnout among staff of relocated institutions (Tsybuliak et al., 2025); our data show that relocated institutions lost the most payroll. Both can hold if relocation selects: staff who could not or would not follow the institution left it, and those who remained, often working remotely, were in a better position than colleagues who migrated as individuals. Qualitative evaluations of relocated universities describe exactly this dispersion of staff across Ukraine and abroad and a pervasive sense that the move is temporary, and some report the loss of an initiative core of staff (International Foundation for Educational Policy Research, 2025,

<https://pzvo.edupolicy.org.ua/vysnovky/>). Our coding points the same way: the relocated institutions in the subsample document the least third-mission activity, which is what a dispersed staff would produce. For conservation of resources theory (Hobfoll, 1989), the implication is that the institution preserves the bundle of resources for those it keeps, while the loss falls on those it does not.

5.4 Boundary conditions

Three conditions limit how far the results travel. The period is one of simultaneous policy change: the formula for allocating state funds among universities was suspended in 2022–2023 and restored in March 2024 (Ministry of Education and Science of Ukraine, 12 April 2024, <https://www.kmu.gov.ua/news/mon-vidnovylo-formulnyi-pidkhid-do-rozpodilu-biudzhethnykh-koshtiv-mizh-zakladamy-vyshchoi-osvity>), the same year in which World Bank-financed investment packages for absorbing institutions were approved, and in which payroll rebounded in every group except the relocated. The design cannot separate these instruments, and the rebound should not be attributed to either. The treated groups are small, twelve relocated and ten to twelve absorbed institutions in any specification, so precision varies across specifications even where sign and size do not. And payroll is a stock in money: it reflects pay as well as people, and a relocated institution that kept its staff on lower rates would look, in our data, like one that lost part of them. It is also an allocation outcome: once the formula that ties state funding to enrolment was restored in 2024, an institution that had lost students lost funded positions, so part of the relocation loss may run through funding rather than through departures. The ministry itself expects relocated institutions to weaken the longer the war lasts and to be consolidated in time (interview cited above). Finally, every institution relocated in 2022 came from a city that was subsequently occupied, so the loss attributed to relocation cannot be separated from the loss of the city in which its students and staff lived; host-region conditions, by contrast, are controlled, since exposure is coded by the new address.

5.5 Implications

For those who decide on the university network, the results suggest judging a decision by what happens to staff rather than by the date of the order. A merger order that names the date of staff transfer, a relocation supported by the means to keep remote staff attached, and funding that arrives in the year of the decision are proposals that follow from these results rather than conditions the study tests directly. For donors and evaluators, programmes launched together in 2024 need designs that separate their effects.

5.6 Limitations

Beyond the boundary conditions, four limitations apply. The outcome is a proxy validated on fourteen institutions; it is consistent across two payment channels but cannot observe headcount directly. Payment descriptions are institution-specific, and some residual misclassification remains. The Kyiv Aviation Institute's 2025 payroll is excluded because the institution moved part of its payments outside the Treasury on becoming a state non-commercial enterprise. The third-mission index covers 20

institutions and rests on documents that institutions write about themselves, so E4 is described, not tested, and the moderating role of the third mission remains open.

6 Conclusion

This study asked whether the response a Ukrainian university chose under the full-scale invasion, rather than its combat exposure alone, is reflected in what happened to its academic staff. Using the payroll fund reconstructed from open Treasury payments for all 179 state universities of the ministry, we find that the three responses left different traces. Relocated institutions kept paying wages but lost payroll gradually, by about a third by the third year after the move. Absorbed institutions stopped paying wages as separate entities within a year, while the payroll of the merged pair did not fall behind that of unmerged institutions, which indicates transfer rather than dismissal. Exposure to active hostilities was costly in its own right, and the choice of response followed pre-war size.

Two implications follow. For research, institutional retention and individual well-being should be treated as related but separate outcomes; evidence on one does not establish the other. For policy, wartime network decisions should be judged by the completion of staff transfer and by retention, measured at the level of the institution and of the people it keeps, and not by the date on which an order was signed. The measure used here can be rebuilt every quarter from open data, which makes such monitoring possible without new reporting burdens.

Declarations

Funding. The authors received no specific funding for this work.

Competing interests. The authors declare no competing interests.

Ethics. The study uses institution-level open administrative data only; it involves no human participants, and no information requests were made to public authorities.

Data availability. The replication bundle is deposited in Zenodo (doi:10.5281/zenodo.22954038). It contains the raw State Treasury (E-Data) transactions of every institution for 2019–2025 as downloaded, including the successor codes; the institution frame with the matching of EDEBO and EDRPOU codes and the rejected matches; the registers of relocation and reorganization with the dates and numbers of the orders; the annual exposure file built from the official list of territories of hostilities; the payment classifier; and the scripts that build the payroll panel and reproduce every table and figure. All inputs are open data; no confidential or personal data are included.

Author contributions. Svitlana Bondarenko: Conceptualization, Methodology, Software, Data curation, Formal analysis, Visualization, Writing – original draft, Writing – review and editing, Project administration. Mariia Telovata: Investigation, Writing – review and editing. Viktoriia Nekhai: Investigation, Validation, Writing – review and editing. Oksana Dmytriieva: Investigation, Validation,

Writing – review and editing. Volodymyr Osmiatchenko: Investigation, Writing – review and editing.
Tetyana Tabler: Investigation, Validation, Writing – review and editing.

Use of AI tools. Claude Opus 5.5 (Anthropic) was used for writing code (data collection, payment classification, estimation and figures), data checking, coding of the third-mission indicators under the authors' protocol, reference verification, drafting and language editing, as described in Sections 3.3 and 3.5. The model is not an author; the authors take full responsibility for the content.

References

1. Brintseva, O. (2026) 'The impact of war on Ukrainian universities: A difference-in-differences analysis and post-war recovery strategies', *Higher Education Quarterly* 80(2): e70113, doi:10.1111/hequ.70113.
2. Callaway, B. and Sant'Anna, P.H.C. (2021) 'Difference-in-differences with multiple time periods', *Journal of Econometrics* 225(2): 200–230, doi:10.1016/j.jeconom.2020.12.001.
3. Cameron, K.S. (1983) 'Strategic responses to conditions of decline: Higher education and the private sector', *The Journal of Higher Education* 54(4): 359–380, doi:10.1080/00221546.1983.11778210.
4. Cameron, K.S. and Smart, J. (1998) 'Maintaining effectiveness amid downsizing and decline in institutions of higher education', *Research in Higher Education* 39(1): 65–86, doi:10.1023/A:1018704428790.
5. Cameron, K.S., Kim, M.U. and Whetten, D.A. (1987) 'Organizational effects of decline and turbulence', *Administrative Science Quarterly* 32(2): 222–240, doi:10.2307/2393127.
6. Compagnucci, L. and Spigarelli, F. (2020) 'The Third Mission of the university: A systematic literature review on potentials and constraints', *Technological Forecasting and Social Change* 161: 120284, doi:10.1016/j.techfore.2020.120284.
7. Coucke, K., Pennings, E. and Sleuwaegen, L. (2007) 'Employee layoff under different modes of restructuring: Exit, downsizing or relocation', *Industrial and Corporate Change* 16(2): 161–182, doi:10.1093/icc/dtm002.
8. Duchek, S. (2020) 'Organizational resilience: a capability-based conceptualization', *Business Research* 13(1): 215–246, doi:10.1007/s40685-019-0085-7.
9. Finikov, T., Lyman, I. and Suchikova, Y. (2026) 'When roots cling to the soil: Intra-regional relocation of universities as a strategy for educational resilience in wartime', *Regional Science Policy and Practice* 18(3): 100282, doi:10.1016/j.rspp.2026.100282.
10. Harman, G. and Harman, K. (2003) 'Institutional mergers in higher education: Lessons from international experience', *Tertiary Education and Management* 9(1): 29–44, doi:10.1080/13583883.2003.9967091.
11. Hobfoll, S.E. (1989) 'Conservation of resources: A new attempt at conceptualizing stress', *American Psychologist* 44(3): 513–524, doi:10.1037/0003-066X.44.3.513.

12. Hobfoll, S.E., Halbesleben, J., Neveu, J.-P. and Westman, M. (2018) 'Conservation of resources in the organizational context: The reality of resources and their consequences', *Annual Review of Organizational Psychology and Organizational Behavior* 5: 103–128, doi:10.1146/annurev-orgpsych-032117-104640.
13. Johnes, J. and Tsionas, M.G. (2019) 'Dynamics of inefficiency and merger in English higher education from 1996/97 to 2008/9: A comparison of pre-merging, post-merging and non-merging universities using Bayesian methods', *The Manchester School* 87(3): 297–323, doi:10.1111/manc.12262.
14. Kurapov, A., Pavlenko, V., Drozdov, A., Bezliudna, V., Reznik, A. and Isralowitz, R. (2023) 'Toward an understanding of the Russian-Ukrainian war impact on university students and personnel', *Journal of Loss and Trauma* 28(2): 167–174, doi:10.1080/15325024.2022.2084838.
15. Kyvik, S. (2002) 'The merger of non-university colleges in Norway', *Higher Education* 44(1): 53–72, doi:10.1023/A:1015561027230.
16. Kyvik, S. and Stensaker, B. (2016) 'Mergers in Norwegian higher education', in R. Pinheiro, L. Geschwind and T. Aarrevaara (eds.) *Mergers in Higher Education: The Experience from Northern Europe*, Cham: Springer, pp. 29–42, doi:10.1007/978-3-319-21918-9_2.
17. Lopatina, H., Tsybuliak, N., Popova, A., Bohdanov, I. and Suchikova, Y. (2023) 'University without walls: Experience of Berdyansk State Pedagogical University during the war', *Problems and Perspectives in Management* 21(2-si): 4–14, doi:10.21511/ppm.21(2-si).2023.02.
18. Maertz, C.P., Wiley, J.W., LeRouge, C. and Campion, M.A. (2010) 'Downsizing effects on survivors: Layoffs, offshoring, and outsourcing', *Industrial Relations* 49(2): 275–285, doi:10.1111/j.1468-232X.2009.00599.x.
19. Milton, S. and Barakat, S. (2016) 'Higher education as the catalyst of recovery in conflict-affected societies', *Globalisation, Societies and Education* 14(3): 403–421, doi:10.1080/14767724.2015.1127749.
20. Ministry of Education and Science of Ukraine (2022) *Osvita Ukrainy v umovakh voiennoho stanu: Informatsiino-analitychnyi zbirnyk [Education of Ukraine under Martial Law: Information and Analytical Compendium]*, S. Shkarlet (ed.), Kyiv: Ministry of Education and Science of Ukraine, <https://mon.gov.ua/storage/app/media/zagalna%20serednya/serpneva-konferencia/2022/Mizhn.serp.n.ped.nauk-prakt.konferentsiya/Inform-analytc.zbirn-Osvita.Ukrayiny.v.umovakh.voyennoho.stanu.22.08.2022.pdf>, accessed 24 September 2026.
21. OECD (2026) *Research and Innovation Careers Observatory 2026: Key Indicators on Talent, Mobility and Working Conditions*, Paris: OECD Publishing, doi:10.1787/138ed294-en.
22. Oliver, C. (1991) 'Strategic responses to institutional processes', *Academy of Management Review* 16(1): 145–179, doi:10.5465/amr.1991.4279002.
23. Orzhel, O., Trofymenko, M., Porkuian, O., Drach, I., Halhash, R. and Stoyka, A. (2023) 'Displaced universities in Ukraine: Challenges and optimal development models', *European Journal of Education* 58(4): 629–646, doi:10.1111/ejed.12581.

24. Pinheiro, R., Geschwind, L. and Aarrevaara, T. (eds) (2016) *Mergers in Higher Education: The Experience from Northern Europe*, Cham: Springer, doi:10.1007/978-3-319-21918-9.
25. Semerikov, S.O., Mintii, I.S., Bondarenko, O.V. and Nechypurenko, P.P. (2026a) 'Institutional heterogeneity in crisis response: A mixed-methods analysis of Ukrainian higher education strategic adaptation during war', *International Journal of Educational Research Open* 11: 100580, doi:10.1016/j.ijedro.2026.100580.
26. Semerikov, S.O., Mintii, I.S., Bondarenko, O.V. and Nechypurenko, P.P. (2026b) 'Spatial heterogeneity in crisis response: Regional differentiation of Ukrainian higher education strategic adaptation during armed conflict', *Regional Science Policy and Practice* 18(11): 100348, doi:10.1016/j.rspp.2026.100348.
27. Suchikova, Y., Kolomiiets, U., Popova, A., Lopatina, H. and Tsybuliak, N. (2024) 'Calm me down, or I'll leave: Anxiety and institutional support among Ukrainian academic staff during wartime', *BMC Public Health* 24(1): 3483, doi:10.1186/s12889-024-21040-4.
28. Tsybuliak, N., Suchikova, Y., Shevchenko, L., Popova, A., Kovachev, S. and Hurenko, O. (2023a) 'Burnout dynamic among Ukrainian academic staff during the war', *Scientific Reports* 13(1): 17975, doi:10.1038/s41598-023-45229-6.
29. Tsybuliak, N., Suchikova, Y., Hurenko, O., Lopatina, H., Kovachov, S. and Bohdanov, I. (2023b) 'Ukrainian universities at the time of war: From occupation to temporary relocation', *Torture Journal* 33(3): 39–64, doi:10.7146/torture.v33i3.136256.
30. Tsybuliak, N., Lopatina, H., Shevchenko, L., Popova, A. and Suchikova, Y. (2024) 'Burnout and migration of Ukrainian university academic staff during the war', *SAGE Open* 14(3), doi:10.1177/21582440241279137.
31. Tsybuliak, N., Kolomiiets, U., Popova, A., Lopatina, H., Petrushenko, Y. and Suchikova, Y. (2025) 'Progressive intensification of burnout among academic staff during the war', *Humanities and Social Sciences Communications* 12(1): 1994, doi:10.1057/s41599-025-06322-5.
32. Tsybuliak, N., Kolomiiets, U., Mytsyk, H., Popova, A., Lopatina, H., Polulyakhov, A. and Suchikova, Y. (2026) 'Burnout and institutional support among Ukrainian academic staff during wartime', *Higher Education Research & Development* advance online publication, doi:10.1080/07294360.2026.2657950.
33. Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Shepherd, D.A. and Zhao, E.Y. (2017) 'Organizational response to adversity: Fusing crisis management and resilience research streams', *Academy of Management Annals* 11(2): 733–769, doi:10.5465/annals.2015.0134.

Figures

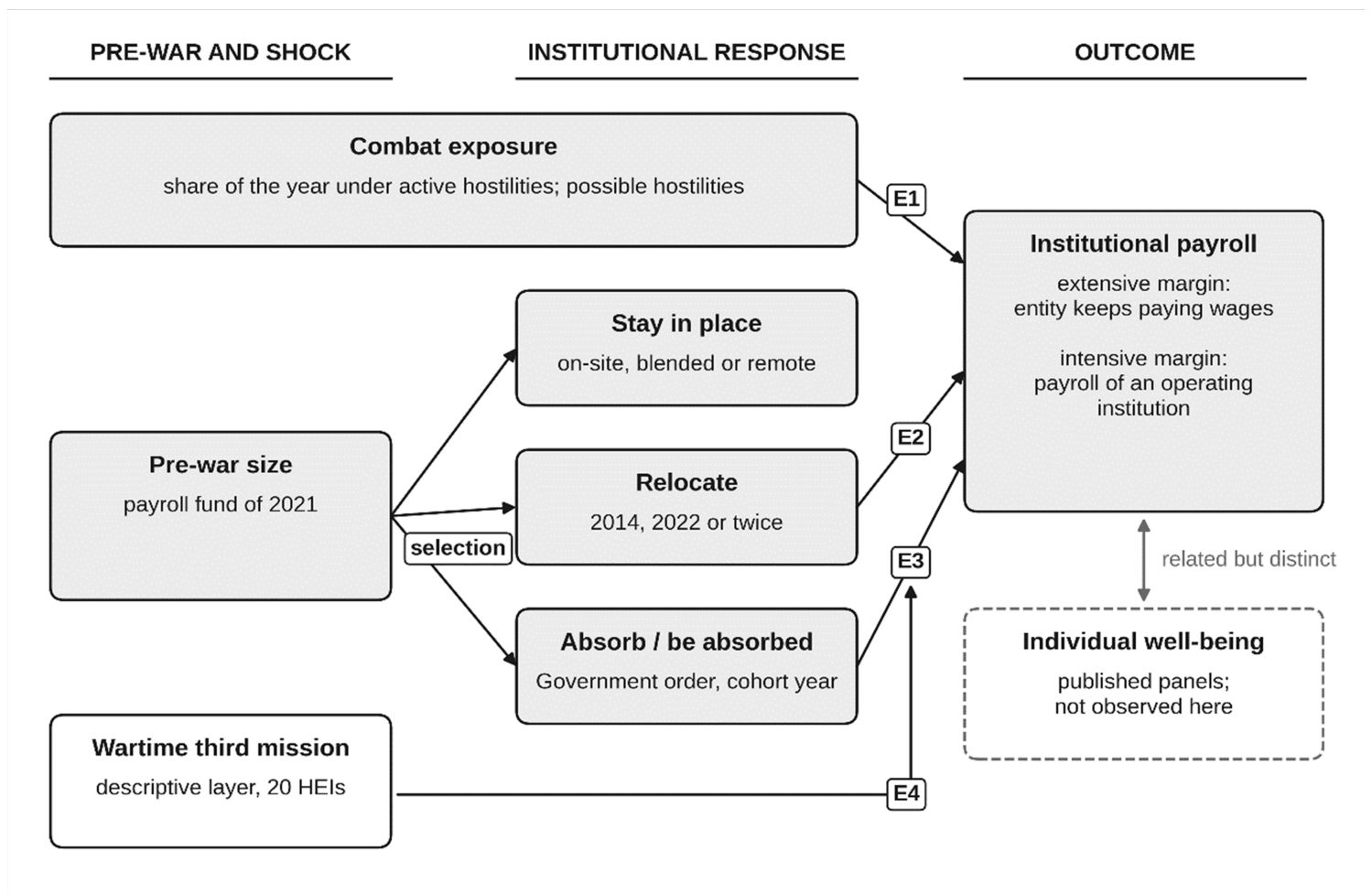


Figure 1

Conceptual model: combat exposure and institutional response in relation to institutional payroll

Notes: E1–E4 refer to the expectations in Section 2.5. The dashed element is not estimated in this article: individual well-being is known from published panels. The third-mission moderator (E4) is examined descriptively on a coded subsample (Section 4.6). Source: authors.

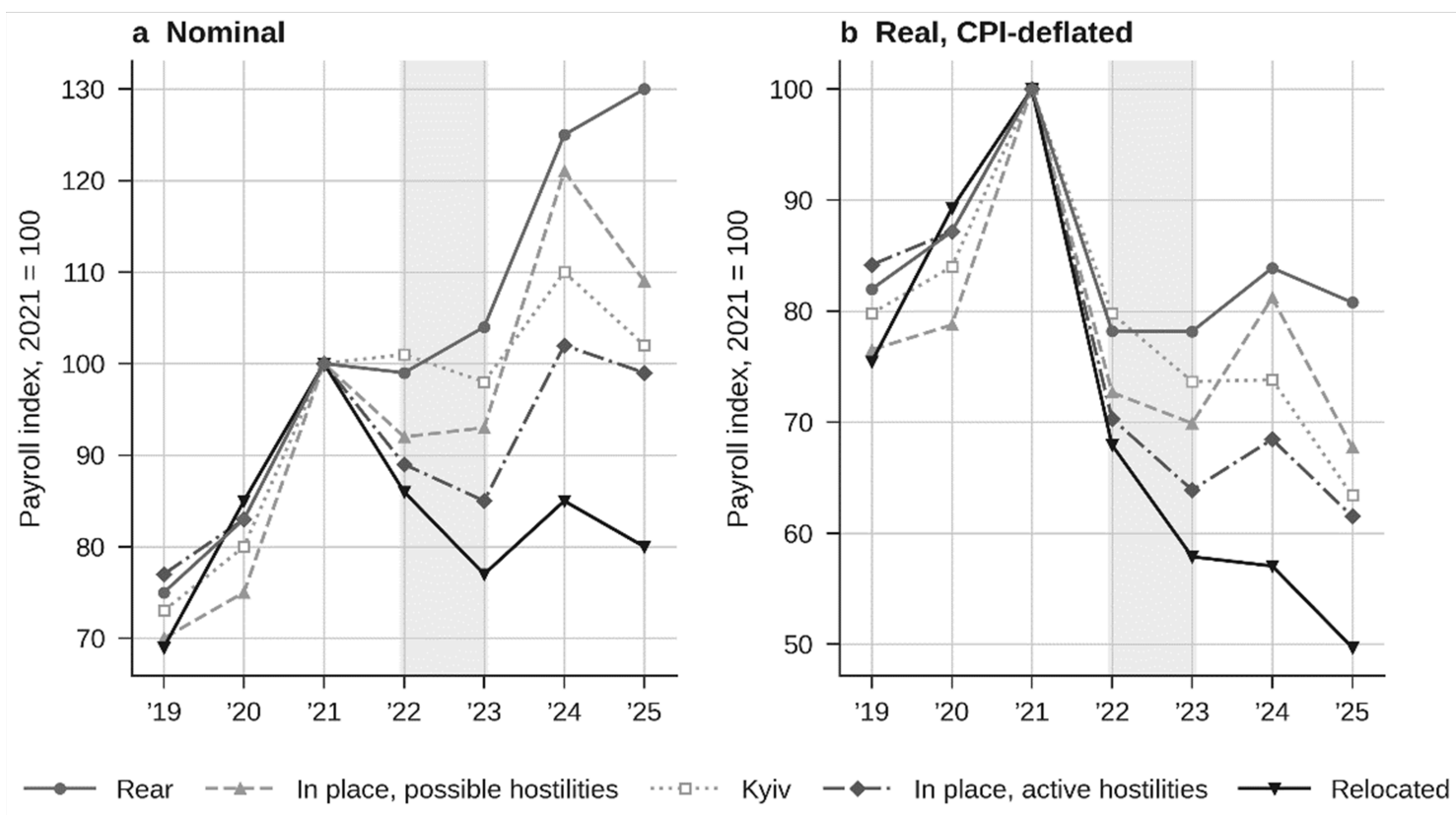


Figure 2

Payroll fund by exposure group, 2019–2025, index 2021 = 100: a nominal; b deflated by the consumer price index

Notes: Group sums over institutions with a payroll record (rear n = 60; in place under possible hostilities n = 17; Kyiv n = 17; in place under active hostilities n = 29; relocated n = 17). The shaded band marks 2022–2023. Values are given in Table 3. Source: authors' calculations from State Treasury transactions (E-Data).

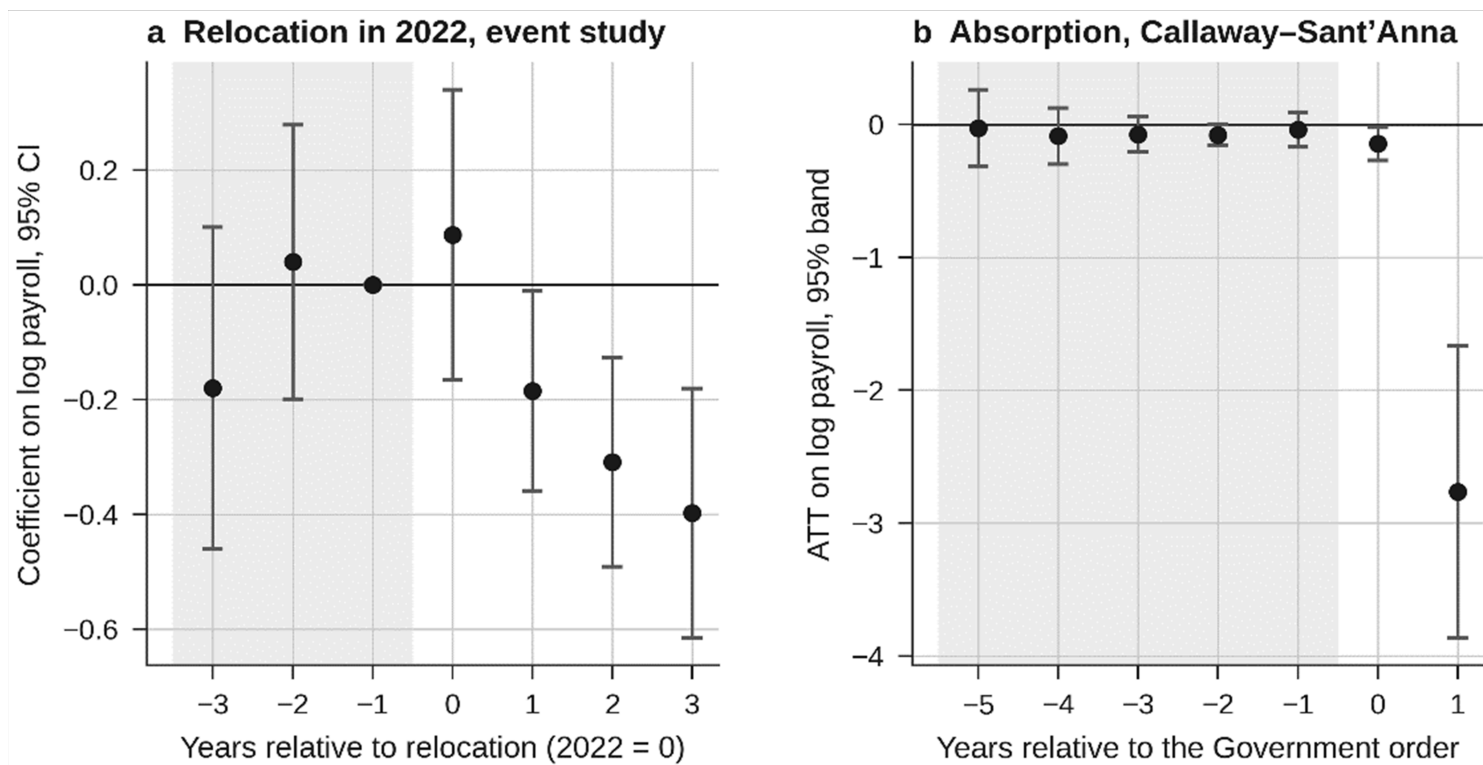


Figure 3

Payroll around the event: a relocation in 2022, two-way fixed-effects event study with 2021 as the base year; b absorption, Callaway-Sant'Anna estimator by year relative to the Government order

Notes: Shaded areas mark the years before the event. Bars show 95% confidence intervals in panel a and simultaneous 95% bands in panel b. Values are given in Table 5. Source: authors' calculations.

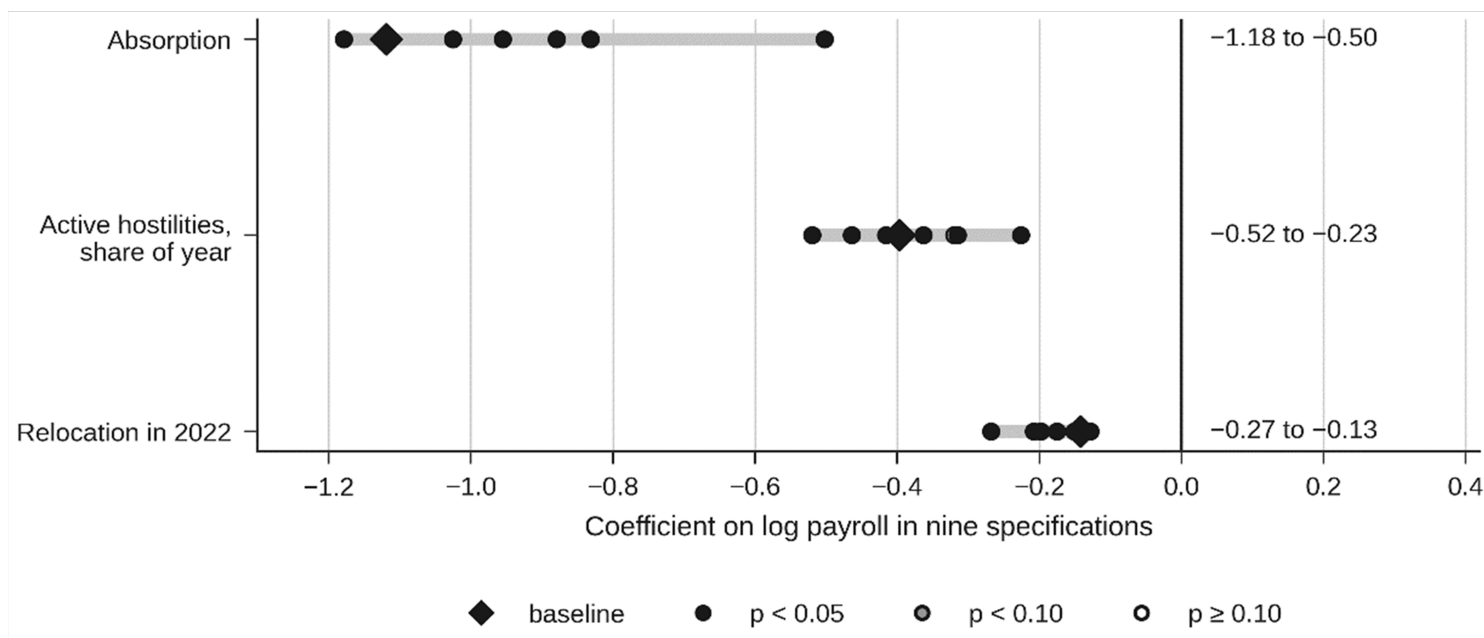


Figure 4

Coefficients for absorption, exposure and relocation across nine specifications

Notes: Each marker is one specification in Table 7; the diamond is the baseline (Table 4, column 2); grey bars span the range of estimates. Marker fill shows the p-value. Source: authors’ calculations.

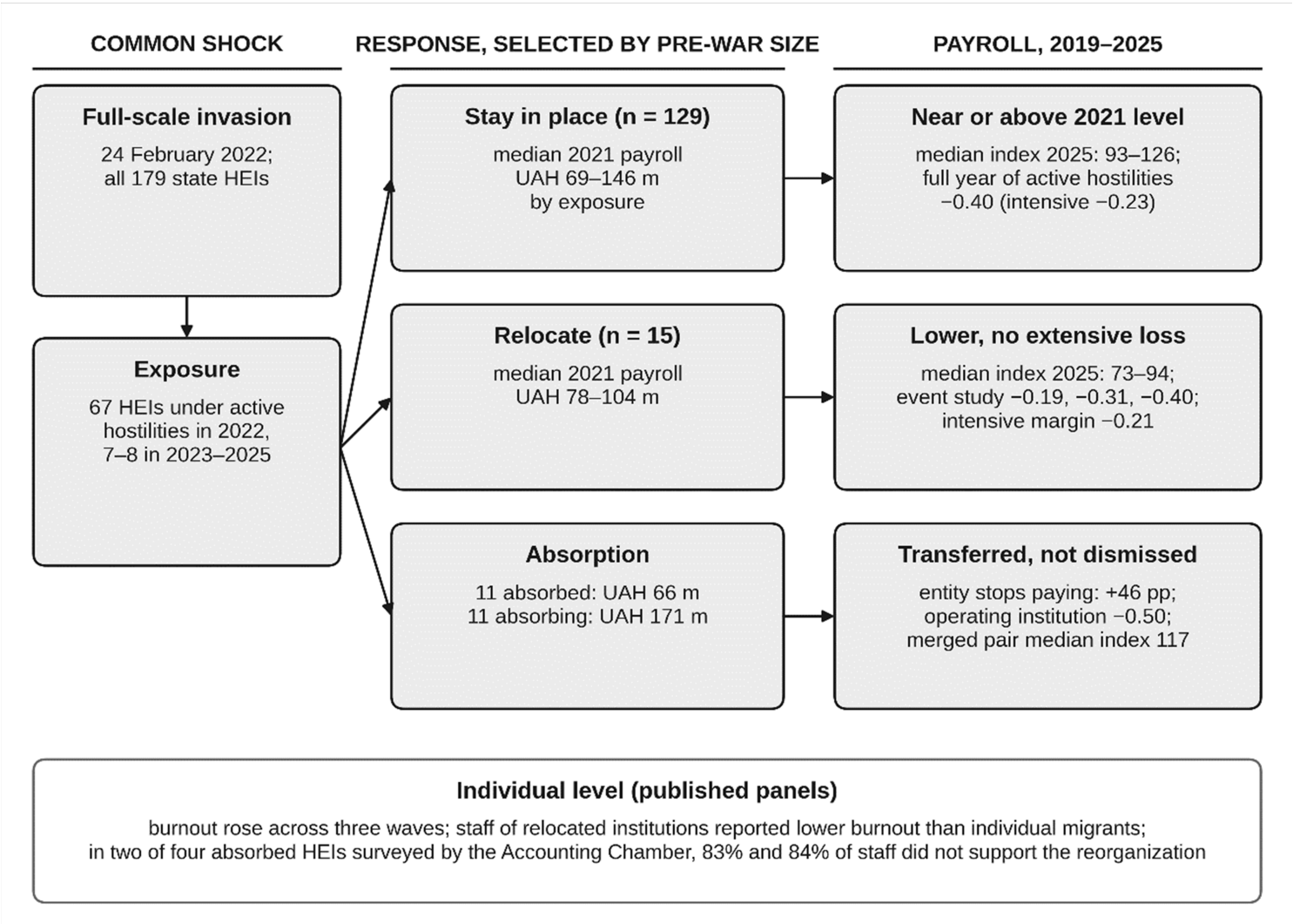


Figure 5

Common shock, institutional response and payroll, 2019–2025

Notes: Medians and estimates from Tables 2, 4, 5 and 6. Individual-level evidence from Tsybuliak et al. (2023a, 2025) and from the Accounting Chamber audit approved by Decision No. 54-1 of 26 November 2024. Source: authors.