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How an Unexpected Asylum Seeker Influx Affects Host Residents' Mental Health: Quasi-Experimental Evidence from South Korea

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Abstract

The impact of sudden asylum seeker inflows on host residents' mental health is largely unexplored. The present study addresses this research gap and provides the first causal evidence from the non-Western context by exploiting the unexpected influx of Yemeni asylum seekers to Jeju Island, South Korea. The influx affected the island 'locally' due to its regionspecific visa-free entry policy and the host government's immediate restrictions on the asylum seekers' post-arrival cross-region movement off the island. Such a unique combination of entry policy, post-arrival containment, and geographic separation provides a well-defined quasi-experimental setting for causal investigation. Difference-in-differences estimates based on nationally representative, government-collected data suggest that the influx shock worsened host residents' mental health outcomes—with higher depression and anxiety and lower life satisfaction. Furthermore, this study provides the evidence on the possible mechanisms linking the influx to hosts' mental health, revealing heightened public safety worries and diminished trust in government.

JEL classification

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Keywords

asylum seekers, refugees, host residents, mental health, life satisfaction, difference-in-differences

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1 Introduction

In recent years, there has been a sharp increase in the global population of forcibly displaced individuals (Bharadwaj et al., 2025; Shin, 2025b). According to the United Nations High Commissioner for Refugees (UNHCR), the number of people forcibly displaced worldwide reached a record 123.2 million by the end of 2024 as a consequence of persecution, conflict, violence, human rights violations, or events seriously disturbing public order (UNHCR, 2025).[1] Put differently, roughly one in every sixty-seven people worldwide is now involuntarily living away from home. This figure marks the highest level ever recorded in the UNHCR's history and reflects more than a decade of continuous increase (UNHCR, 2024).

The influx of forcibly displaced populations has sparked debates about the impacts of such migratory flows on host populations (Bharadwaj et al., 2025). Above all, active discussions center on the economic consequences of their inflows, such as labor market impacts (Bharadwaj et al., 2025), and some studies have also examined how the arrival of forcibly displaced individuals influences host residents' outgroup attitudes (e.g., Hangartner et al. (2019); Shin (2025b)), political preferences (e.g., Bratti et al. (2020); Campo et al. (2024)), and other social outcomes (e.g., Freddi (2021)). In contrast, however, potential effects on outcomes such as host residents' mental health or life satisfaction remain largely understudied (Howley et al., 2020; Bharadwaj et al., 2025), despite health being a central dimension of individual and societal well-being (Keyes, 2002; Diener and Chan, 2011; Lamu and Olsen, 2016; Ngamaba et al., 2017). Furthermore, the limited body of empirical work on health impacts has been confined to Western contexts, with, to the best of the author's knowledge, no single study conducted in a non-Western setting. These two substantial gaps—the limited attention to health-related outcomes and the absence of evidence from a non-Western context—represent a critical shortcoming in the existing literature. This dual gap provides the central motivation for the present study.

The impact of such inflows on host residents' mental health warrant close attention for several interrelated reasons.[2] First, mental health responses (e.g., depression and anxiety) among host residents can feed back into their labor productivity and earnings, ultimately affecting local economic performance, as evidenced by many previous studies (Marcotte and Wilcox-Gök, 2001; Chatterji

[1] This total count encompasses internally displaced persons, refugees under UNHCR's mandate, Palestine refugees under UNRWA's mandate, asylum seekers, and other individuals in need of international protection.

[2] Globally, the burden of mental health is increasing; however, it is most likely underestimated (Nilsson and Biyong, 2025).

et al., 2011; Bubonya et al., 2017; Bryan et al., 2022; Wang et al., 2023).[3] Second, mental health consequences, if confirmed by evidence, represent a 'hidden cost' of hosting asylum seekers that is often overlooked in conventional policy assessments centered on fiscal or labor market impacts (Zimmermann and Stutzer, 2022). Third, adverse mental health reactions can be closely correlated with outgroup hostility and political backlash, thereby undermining public support for humanitarian commitments and inclusive policies (Gadarian and Albertson, 2014; Vasilopoulos et al., 2019; Erisen and Vasilopoulou, 2022; Reny and Barreto, 2022). Fourth, in this continuation, even short-term mental distress can persist, carrying long-term consequences that weaken social cohesion and the governance capacity to manage future migration episodes (Song, 2011; Ojeda, 2015). Finally, the mental burden imposed on hosts by sudden inflows is unlikely to be evenly distributed: certain precarious groups—such as low-income residents or individuals with limited access to social capital—may be disproportionately affected, as already evidenced in several studies (Ivlevs and Veliziotis, 2018; Howley et al., 2020; Ridley et al., 2020; Howley and Waqas, 2024). Most importantly, safeguarding the mental health and well-being of host populations should remain a central policy consideration, even as governments fulfill their humanitarian obligations toward forcibly displaced non-natives.

As discussed earlier, despite its importance, empirical research on the impact of inflows of forcibly displaced populations on the mental health of host residents remains scarce.[4] The primary reason lies in the methodological challenges posed by non-random relocation patterns: the selection of destinations and the administrative distribution of asylum seekers often follow systematic processes, resulting in endogeneity concerns that complicate causal inference (Gehrsitz and Ungerer, 2022). Consequently, much of the existing literature is correlational in nature. Among the smaller set of studies pursuing causal inference, common strategies include instrumental variable approaches (e.g., O'Connor (2020)) and the exploitation of quasi-random (i.e. quasi-experimental) placement mechanisms (e.g., Bharadwaj et al. (2025)). Furthermore, to date, there is a striking absence of empirical evidence from non-Western contexts—particularly from East Asia. This research gap stems largely from the region's limited involvement in global refugee dynamics. East Asian countries are not typically at the forefront of asylum-related discourse, in part due to their geographic dis-

[3] According to Layard (2017), curing depression and anxiety disorders alone would lead to a 4 percent increase in GDP (Layard, 2017; Nilsson and Biyong, 2025).

[4] It should be noted that voluntary migrants (e.g., economic migrants) differ from those who are forcibly displaced (e.g., asylum seekers and refugees); the latter group is demographically and socioeconomically distinct and should not be treated as part of a single, undifferentiated category (Borjas, 1987; Lazear, 2021; Shin, 2021; Shin, 2022b). Thus, previous studies such as Akay et al. (2014) and Escarce and Rocco (2021) cannot be considered directly relevant to the topic investigated in the current research.

tance from conflict-affected regions (Shin, 2025b). Additionally, these countries are not traditional destinations for forcibly displaced populations—due to both higher relocation costs (i.e., physical distance) and cultural or linguistic barriers (i.e., emotional distance) that complicate integration (Shin, 2025b). As a result, opportunities to exploit natural or quasi-experimental variation for causal investigation have been extremely limited in the region. This challenge is compounded by the lack of suitable data—specifically, mental-health related, micro-level, high-dimensional data that span multiple years and align with the timing of exogenous inflow events.

To tackle the aforementioned challenges, the present study leverages two key components: (i) an exogenous localized shock of inflows and (ii) pertinent micro-level data measured within an appropriate temporal window. First, the present paper exploits the sudden influx of Yemeni asylum seekers to Jeju Island in South Korea in 2018, which only impacted the island 'locally'—due to the region's unique visa-exemption policy and the South Korean government's immediate restrictions on the asylum seekers' post-arrival cross-region movement off the island. Furthermore, Jeju's geographic isolation—despite its substantial population size (i.e., approximately 660,000 as of 2018), the island (with no bridge connection) is separated from the mainland by a minimum ferry distance of 110 kilometers—made the enforcement of this restriction credible and binding. As a result, the inflow remained strictly confined to Jeju, creating a clear spatial contrast between treated and controlled regions. The unique combination of entry policy, post-entrance containment, and geographic separation enables the use of a difference-in-differences approach to identify the causal impact of the influx on host residents' mental health.

Second, as emphasized by Hangartner et al. (2019), credible measurement of effects requires individual-level data rather than aggregated statistics (Shin, 2025b). This study draws on the Korea Social Integration Survey, a government-collected, population-representative dataset that includes multi-year observations and detailed information on mental health outcomes and covariates. Crucially, the timing of the data collection—conducted annually between September 1 and October 31—offers a clean identification window. By the time of data collection, host residents had been exposed to the shock long enough for potential effects to manifest, as the influx had peaked by the end of May 2018.[5] Government restrictions on post-arrival cross-region movement ensured that the inflow remained strictly confined to Jeju throughout the remainder of the year. Although asylum seekers are permitted to relocate across regions once humanitarian stay permits are granted, such movement only became possible starting

[5]On the other hand, the interval was insufficient for substantial out-migration of Jeju inhabitants in response to the influx.

in 2019. This alignment of institutional policy, geographic isolation, and data collection timing presents an opportunity to credibly identify the causal impact of a sudden asylum seeker influx on host residents' mental health.

2 Data & Method

2.1 Quasi-experimental setup

In 2018, South Korea—historically with no prior experience of receiving substantial numbers of forcibly displaced persons—encountered an unanticipated influx of approximately 560 Yemeni nationals on Jeju Island. This arrival was precipitated by the protracted conflict and humanitarian emergency in Yemen. Before this influx, Jeju Island had virtually no prior experience accommodating forcibly displaced persons and was widely regarded, even within South Korea, as an 'asylum seeker-free' locality (Shin, 2025b,a).

Jeju, the largest island in South Korea, encompasses approximately 1,849 square kilometers and lies in the Korea Strait, southwest of the mainland. In 2018, when the influx event occurred, the island's registered population was 667,191. Jeju Island is not merely a small island but constitutes a metropolitan self-governing province in its own right; it is classified as one of South Korea's 17 metropolitan-level local administrative units. This substantial demographic base is advantageous for the present study, as it permits reasonable comparisons with other regions in South Korea. If Jeju's population were considerably smaller, such comparisons would be compromised by demographic and socioeconomic disparities (Shin, 2025b,a).

Why and how did Yemeni asylum seekers come to Jeju? As illustrated in Figure 5 in Online Appendix B, their journey began with displacement from Yemen, after which many initially relocated to Malaysia, attracted by its three-month visa-free entry and shared Islamic traditions. However, despite being a United Nations member state, Malaysia is not a signatory to the 1951 Refugee Convention and lacks domestic legislation to formally recognize or protect forcibly displaced persons. As a result, refugees and asylum seekers in Malaysia are systematically denied the right to work and access to public healthcare, severely limiting prospects for economic self-sufficiency and long-term settlement. Given these constraints, Malaysia served as a 'temporary' transit point. With Western countries increasingly tightening their borders during the relevant period, South Korea emerged as an alternative destination, offering both economic opportunities and relative geographic proximity, thereby reducing relocation costs from Malaysia (Shin, 2025b,a).

However, South Korea's entry policies are among the most restrictive, with

Jeju Island representing the sole exemption. The island's region-specific 30-day visa waiver program, implemented to promote local tourism, created a lawful entry channel for Yemeni asylum seekers. Crucially, this exemption was intended solely for tourism promotion and bore no relation to the dependent variables (i.e., mental health outcomes and the well-being of local residents) or to the underlying factors influencing them. In addition, the launch of a direct flight from Kuala Lumpur to Jeju by AirAsia, a Malaysia-based low-cost carrier, in December 2017 further facilitated this flow by enhancing accessibility and reducing relocation costs (Shin, 2025b,a).

In the present context, two features of the empirical setup are distinctive and analytically important: (i) the South Korean government's immediate imposition of restrictions on asylum seekers' post-arrival cross-region movement off the island, and (ii) Jeju Island's physical separation from the Korean peninsula.[6] The shortest ferry route from Jeju to the nearest mainland port is approximately 110 kilometers, and any travel from the unbridged island requires either a ferry or an airplane, both of which mandate identification checks. These conditions render the case a localized shock, uniquely with no potential for non-compliance or treatment spillover, thereby providing an appropriate setting for the application of the difference-in-differences method.[7] For a graphical comparison, see Figure 6 in Online Appendix B.

Within Jeju, on the other hand, asylum seekers were dispersed across the island, allowing host residents to directly observe the inflow and creating substantial conditions for potential effects to manifest. As shown in Figure 7 in Online Appendix B, the influx reached nearly all parts of Jeju, albeit with variation in the number of asylum seekers across different localities (Shin, 2025b,a). Importantly, Yemeni asylum seekers, upon arrival, were released directly into the community—rather than being placed in temporary shelters or housed in institutional facilities. This immediate release rendered their presence visible in the daily lives of local residents. For further evidence demonstrating that the event received substantial attention within South Korea, see Figures 8 and 9 in Online Appendix B. For evidence showing that residents of Jeju Island were markedly more responsive compared to those in other regions of South Korea, see Table 7 in Online Appendix A.

A potential counterargument is that the number of Yemeni asylum seekers was too small relative to Jeju's host population to generate any meaningful

[6] Jeju is not connected to the mainland by a bridge.

[7] Had the treatment event occurred in inland regions of the Korean peninsula, credible identification would have been more challenging. In such circumstances, treatment spillovers via cross-regional mobility could not be ruled out, blurring the distinction between treated and control areas. Moreover, residents in ostensibly non-treated regions might have been indirectly exposed through heightened concerns about potential relocation of asylum seekers to their communities, thereby compromising the validity of the control group.

impact. However, evidence from the National Multicultural Acceptability Survey (NMAS) contradicts this view. Before the influx, 5.91 percent and 0.42 percent of Jeju residents reported 'rarely' or 'never' encountering non-natives in daily life, respectively. After the influx, both figures dropped to zero. Simultaneously, the share reporting 'very frequent' encounters with non-natives increased markedly, from 9.55 percent to 21.31 percent (Shin, 2025b,a). No similar changes occurred in other regions over the same period. These patterns indicate a substantial and perceptible increase in local exposure.

Moreover, perceptions of the influx were shaped not only by direct encounters but also by media coverage, including newspaper reports, which heightened local awareness of the situation (Esses et al., 2013); see Figure 10 in Online Appendix B for detailed statistics on media attention. More crucially, it is not the absolute size of the influx that matters most, but rather the sudden and unexpected nature of the influx, the compressed time frame in which it occurred, and the spatial concentration of inflows (i.e., on an island entirely surrounded by maritime boundaries, limiting outward movement).

2.2 Data

The empirical analysis in the present study draws on data from the Korea Social Integration Survey (KSIS), a nationally representative, government-administered survey conducted annually by the Korea Institute of Public Administration under the authority of the South Korean government (National Statistics Act approval No. 417001). The Korea Social Integration Survey (KSIS) targets Korean nationals aged 19 to 69 living in private households registered in the Population and Housing Census conducted by Statistics Korea.[8] The sampling frame excludes atypical enumeration areas such as dormitories, tourist hotels, special residential institutions, and districts designated exclusively for foreigners. Non-conventional group households—defined as (1) households with six or more unrelated individuals, (2) institutional households (e.g., nursing homes, dormitories, childcare centers), and (3) foreigner-only households composed entirely of non-Korean nationals—are also excluded.

The KSIS questionnaire covers nine thematic domains relevant to social integration: (1) subjective well-being, including physical and mental health; (2) social participation; (3) political participation; (4) social communication; (5) generalized trust; (6) governance; (7) perceived fairness; (8) social tolerance; and (9) social security. These domains facilitate a multidimensional assessment of integration outcomes. Trained interviewers conduct computer-assisted personal

[8]Statistics Korea is the central government agency responsible for producing, managing, and disseminating official national statistics in South Korea, including census and survey data used as sampling frames for government-approved official data collection programs.

interviews (CAPI) with eligible respondents during field visits. This approach is beneficial in that it allows interviewers to clarify questions, ensure respondent understanding, and minimize missing or inconsistent responses, thereby enhancing data accuracy and quality compared to web-based surveys. Data collection is conducted annually from September 1 to October 31, with the reference date for household rosters and demographic status fixed as September 1.

The KSIS is particularly well-suited for examining the mental health consequences of a sudden influx of asylum seekers on host residents for the following reasons. First, because the outcome of interest is mental health, it is essential to use data that measure it systematically from multiple perspectives. The KSIS offers nationally representative information on a wide array of self-reported mental health indicators—including depression, anxiety, and subjective well-being—thereby capturing multiple dimensions of mental health. In South Korea, the Health Insurance Review and Assessment Service, a public institution, designates depression and anxiety as major mental disorders. In this regard, the KSIS is particularly valuable because it contains measures of depression and anxiety, enabling direct analysis of mental health outcomes officially recognized by the government as major disorders. Likewise, the World Health Organization (2022) emphasizes that depression and anxiety are among the most common mental health issues at the community level.

Second, the survey's repeated cross-sectional design facilitates a difference-in-differences design by providing multiple cross-sectional observations both before and after the influx. This temporal coverage enables credible estimation of causal effects and the assessment of pre-shock parallel trends. Third, the timing of the KSIS data collection—annually conducted between September 1 and October 31—offers a clean identification window. By that point in 2018, host residents in Jeju had been exposed to the asylum seeker shock for several months, as the influx had peaked in May and remained geographically confined due to government-imposed restrictions on post-arrival cross-region movement. Although asylum seekers were later permitted to relocate following the granting of humanitarian stay permits, such movement only began in 2019. Finally, the KSIS collects high-dimensional individual-level covariates—including gender, age, marital status, educational attainment, employment status, and income level—which allows for flexible regression adjustment. Together, these features make the KSIS a uniquely valuable source for the current study. Summary statistics for the key variables are presented in Table 5 in Additional tables A.

While the most recent cross-section of the KSIS is from 2024, the present study restricts its analysis to observations up to 2018, excluding those from 2019 onward. This decision is based on concerns about potential contamination of

the control group beginning in 2019 (Shin, 2025b,a). Specifically, although the 2018 asylum seeker influx was geographically confined to Jeju due to immediate government-imposed restrictions on cross-region movement, this restriction was lifted once humanitarian stay permits were granted. As such permits began to be issued in 2019, asylum seekers became eligible to relocate to other regions across South Korea. Consequently, from 2019 onward, other regions may have been also affected by the inflow, even if the impact was diluted through geographic dispersion (Shin, 2025b,a). To preserve the integrity of the difference-in-differences design and ensure a clear contrast between treated and control areas, the analysis excludes all years from 2019 onward.

2.3 Method

The current study exploits the quasi-experimental setup of the Yemeni asylum seeker crisis, which occurred in Jeju in 2018, for its causal analysis.[9] In the present setting, exposure to sudden asylum seeker inflows constitutes a treatment event, $D_i \in \{0, 1\}$, where the binary indicator is activated only in a specific region after a specific point in time (i.e., the year 2018). This represents a conventional setup in which the difference-in-differences estimator can be applied to estimate the impact of D_i. In short, the difference-in-differences method is an econometric technique used to assess the effect of a treatment by comparing the changes in outcomes, y_i, before and after the treatment between a group that is exposed to the treatment and a group that is not. This method attempts to control for unobservables that bias estimates of causal effects (McEwan, 2010), assuming that the trends in y_i would have been parallel for both groups in the absence of D_i.

In applying the difference-in-differences estimator, several assumptions must be satisfied. First, D_i must be exogenous and unanticipated. Individuals in both the treatment and control groups should not adjust their behavior in expectation of receiving D_i. This condition is plausibly met in the present study, since the influx of asylum seekers occurred suddenly, unfolded within a relatively short period, and was entirely unexpected by host residents. Moreover, the influx was driven by external forces, specifically the escalation of conflict and worsening humanitarian conditions in Yemen, together with the introduction of a non-stop flight from Kuala Lumpur to Jeju by a low-cost carrier.

Equally important is the stability of the composition of the groups under comparison. Apart from their exposure to the treatment, the characteristics of the treatment and control groups should remain consistent over the study pe-

[9] This section closely follows Shin (2025b) and Shin (2025a), which employs the same identification strategy and econometric approach but focuses on different outcomes.

riod. Such stability ensures that any observed differences in y_i can be attributed to D_i rather than to changes in group composition over time. In the present study, this condition appears to be met, as no major events occurred during the study period that could have altered the population composition of Jeju Island (Shin, 2025c).[10] Furthermore, in order to filter out the effects of any underlying compositional differences on y_i, the analysis includes a range of individual-level covariates.

Another fundamental requirement is strict adherence to the treatment assignment protocol. This condition ensures that the treatment group is exposed to the treatment, whereas the control group remains unaffected, thereby avoiding any unintended spillover. In the context of the current study, this requirement is plausibly satisfied owing to two factors: (i) the geographic isolation of Jeju Island—the shortest ferry route to the nearest mainland port is 109.3 kilometers, with no bridge connection—and (ii) the South Korean government's immediate restrictions on asylum seekers' post-arrival, cross-region movement off the island (Shin, 2025c). This combination of natural and policy-based barriers confined the treatment exclusively to the treatment region, effectively ruling out the possibility of spillovers to other regions. At the same time, as discussed above, Yemeni asylum seekers were widely dispersed across Jeju Island, ensuring exposure of local residents to the influx and thereby creating conditions for the materialization of treatment effects; see Figure 7 in Online Appendix B.

Also essential is the timing and adequacy of data collection, which are critical for ensuring the validity of difference-in-differences estimates. Data must cover both pre-treatment and post-treatment periods, with post-treatment data collected after sufficient time has elapsed for treatment effects to materialize, yet before diffusion or spillovers could complicate the results. In the present context, these conditions are plausibly satisfied, as data were collected by the South Korean government within an optimal window following the treatment event.[11]

For outcome y of individual i living in s at time t, the basic difference-in-differences specification is

$$y_{i,s,t} = \alpha_s + \gamma_t + \mathbf{x}'_{i,s,t}\boldsymbol{\beta} + D_{s,t}\delta + \varepsilon_{i,s,t}, \tag{1}$$

[10] One possible concern is that the treatment event might have triggered demographic shifts in the treatment region. However, the interval between the treatment and the survey spans only a few months, leaving insufficient time for large-scale residential mobility. Household relocation is generally gradual, particularly in the absence of strong financial incentives for native residents. While minor movements cannot be fully excluded, substantial demographic change within such a short window appears unlikely (Shin, 2025b).

[11] The influx peaked in May 2018, while the KSIS 2018 cross-section was collected between September 1 and October 31, 2018.

where the treatment indicator $D_{s,t} \in \{0, 1\}$ is defined as follows.

$$D_{s,t} = \mathbf{1}[t \geq 2018] \times \mathbf{1}[i \text{ lives in Jeju}] \in \{0, 1\} \tag{2}$$

As is conventional $\mathbf{1}[\cdot]$ denotes an indicator function. In (1), α_s refers to region fixed effects: α_s captures the intercept shift in y for those who live in region s. γ_t indicates time fixed effects (common across regions): if changes occur in year t that affect all $\{i_t \mid t = k\}$, γ_t picks up their effects (Shin, 2022a, 2025b). $\mathbf{x}_{i,s,t}$ are multi-dimensional, individual-level (observable) covariates, the inclusion of which aims at controlling for compositional changes. In choosing what to control for through $\mathbf{x}_{i,s,t}$, a general rule is to control for pre-treatment covariates, which matter for $y_{i,s,t}$ and $D_{s,t}$ but are not affected by $D_{s,t}$ (Lee, 2005). Thus, the baseline specification includes the following covariates: gender, age, a binary indicator for household headship, marital status, educational attainment, employment status, income, and socioeconomic class.As is conventional, $\varepsilon_{i,s,t}$ denotes an error term. Most importantly, δ, the key parameter of interest, captures the average treatment effect on the treated (ATET).

A key identification condition in (1) is that, conditional on α_s, γ_t, and $\mathbf{x}_{i,s,t}$, $D_{s,t}$ and $\varepsilon_{i,s,t}$ are mean independent for all t and s.

$$\mathbb{E}[\varepsilon_{i,s,t} \mid D_{s,t}, \mathbf{x}_{i,s,t}, \alpha_s, \gamma_t] = \mathbb{E}[\varepsilon_{i,s,t} \mid \mathbf{x}_{i,s,t}, \alpha_s, \gamma_t] \tag{3}$$

This condition has two implications. First, it rules out any systematic correlation between $D_{s,t}$ and unobserved determinants of the outcome.[12] Second, the condition (3) also requires that $D_{s,t}$ is not based on information about counterfactual outcomes. In the context of the present study, because the treatment event was not enacted in response to prior knowledge about $y_{i,s,t}$ (Hansen, 2022), this exogeneity requirement is plausibly satisfied.

3 Results

3.1 Depression

The Korea Social Integration Survey (KSIS) dataset includes three self-reported variables related to mental health—depression, anxiety, and life satisfaction—that together span the continuum from mental distress to psychological well-being (Headey et al., 1993; Keyes, 2002). In the present study, the primary outcome variable is depression, measured by respondents'

[12] Violations occur if, for instance, the treated region is simultaneously affected by other shocks that influence the outcome.

Table 1: Difference-in-differences estimates: Depression

	[1]	[2]	[3]	[4]
y	Depression		Depression	
Range of y	$y \in \{0, 1\}$		$y \in \{0, 1\}$	
Years included	$t \in \{2015, ..., 2018\}$		$t \in \{2017, 2018\}$	
Individual-level covariates	No	Yes	No	Yes
δ (Diff.-in-diffs.)	0.0685***	0.0660***	0.0722***	0.0677***
	[0.0108]	[0.0095]	[0.0147]	[0.0132]
Parallel trend check	Satisfied	Satisfied	– (a)	– (a)
Observations	31,699	31,699	15,999	15,999

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Robust standard errors are in brackets. (a) The parallel trends assumption cannot be tested in this specification due to the shorter window with only two time periods.

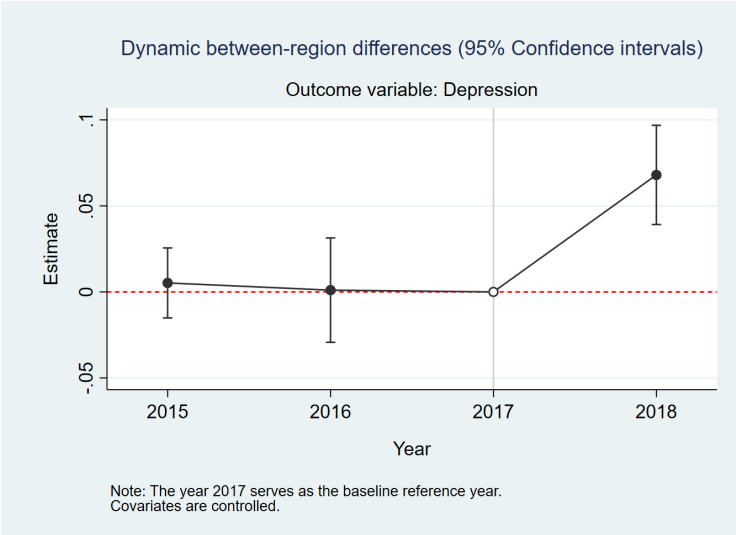
self-reports of recently experiencing depressive symptoms.[13] According to the World Health Organization (2023b), depression is one of the most common and fundamental indicators of mental health, as well as a leading cause of disability worldwide, with an estimated 5 percent of adults affected globally.

The difference-in-differences estimates for the depression outcome are presented in Table 1. For the first two model specifications—with and without individual-level covariates—the parallel trends assumption is satisfied, with p-values well above conventional thresholds. In the baseline model without covariates (Column 1), the effect estimate is 0.0685, statistically significant at the one percent significance level. When individual-level covariates are added (Column 2), the estimate decreases slightly to 0.0660 but remains statistically significant. Because the linear probability model (LPM) is used for the binary outcome variable, this implies that the asylum seeker influx increased the probability of hosts experiencing depression by approximately 6.6 percentage points. This magnitude is non-trivial: the covariate-adjusted estimate represents about 20 percent of the standard deviation of y in the pooled 2015–2018 sample ($\sigma_y = 0.3269$).

In an attempt to mitigate potential noise, two-period difference-in-differences estimations are implemented using data from 2017 and 2018. Focusing on this narrow window surrounding the treatment occurrence limits contamination from long-run secular trends that year dummies may not fully absorb. The results, shown in Columns 3 and 4 in Table 1, remain largely consistent with those in Columns 1 and 2, which is comforting.

[13]The World Health Organization (2019) defines depression as a common mental disorder characterized by a depressed mood (e.g., sad, irritable, empty) or loss of pleasure accompanied by other cognitive, behavioral, or neurovegetative symptoms that considerably affect the individual's ability to function.

Figure 1: Difference-in-differences estimates: Depression



A difference-in-differences model with year dummies interacted with the treatment group indicator shows that pre-treatment differences in depression are near zero, stable, and statistically insignificant, supporting the parallel trends assumption. In the post-treatment year, the estimate is positive, substantial, and statistically significant, indicating that the asylum seeker influx increased depression in the treated region relative to the control region.

In addition, the difference-in-differences estimation can be implemented with year dummies interacted with the treatment group dummy. Running this specification makes it possible to observe the dynamic pattern of between-group differences over time. The results are presented in Figure 1. The estimates show that the between-group differences in depression are close to zero in the pre-treatment years and statistically indistinguishable from zero, as the confidence intervals overlap with the horizontal zero line. It is reassuring that the pre-treatment estimates are very close to zero and stable around the horizontal axis. This suggests the pre-treatment parallel trend assumption is not violated, meaning the null hypothesis of no difference in depression between treatment and control groups before the influx cannot be rejected. In contrast, the post-treatment year shows a clear between-group difference relative to the 2017 baseline, with the estimate being both substantial in magnitude and statistically significant. The confidence interval lies entirely above zero, indicating that the influx led to a notable increase in depression in the treated region compared to the control region.

Table 2: Difference-in-differences estimates: Anxiety

	[1]	[2]	[3]	[4]
y	Anxiety		Anxiety	
Range of y	$y \in \mathbb{Z} \cap [0, 10]$		$y \in \mathbb{Z} \cap [0, 10]$	
Years included	$t \in \{2015, ..., 2018\}$		$t \in \{2017, 2018\}$	
Individual-level covariates	No	Yes	No	Yes
δ	0.6249***	0.5044***	0.5700***	0.4573***
	[0.0821]	[0.0693]	[0.1013]	[0.0939]
Parallel trend check	Satisfied	Satisfied	– $^{(a)}$	– $^{(a)}$
Observations	31,699	31,699	15,999	15,999

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Robust standard errors are in brackets. (a) The parallel trends assumption cannot be tested in this specification due to the shorter window with only two time periods.

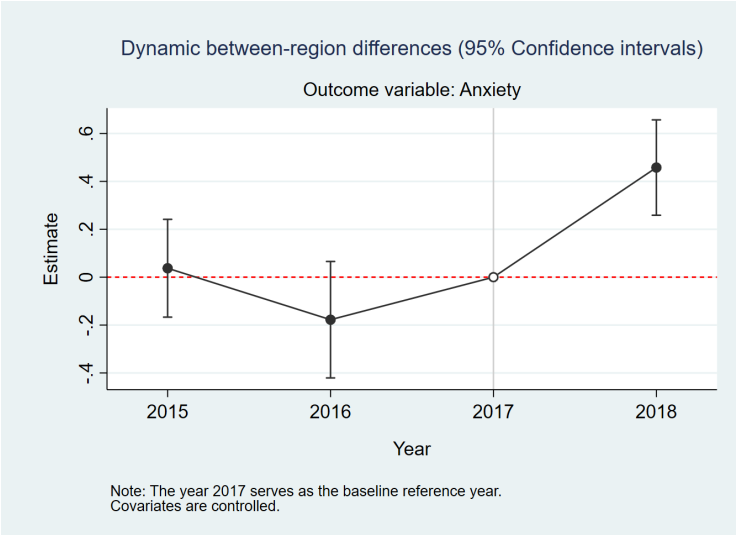
Taken together, the findings suggest that the sudden arrival of asylum seekers substantially increased the probability of depression among host residents. The consistency of the effect estimate across specifications and its robustness to the inclusion of additional controls and the length of the time window support the interpretation that the event exerted a genuine causal impact on residents' mental health. This result contrasts with the finding from Bharadwaj et al. (2025), who report no meaningful impact of asylum seeker inflows on host populations' mental health, but aligns with the result from Feddes et al. (2024), who document a decline in mental health. Given that the exploration of Feddes et al. (2024) was based on a small sample, the present study, drawing on a large number of observations, helps to address its limitations.

3.2 Anxiety

The second outcome variable related to mental health is anxiety. Anxiety, as a mental health disorder, is generally defined in clinical terms as an excessive and persistent state of apprehension, worry, or fear that substantially impairs daily functioning (American Psychiatric Association, 2022). In the public health context, the World Health Organization (2023a) notes that anxiety disorders are among the most common mental disorders globally, affecting roughly 4 percent of the population, and are a leading cause of disability worldwide.

Table 2 presents the difference-in-differences estimates for anxiety as an outcome variable. For the 2015–2018 sample, the parallel trends assumption holds in both the baseline model without covariates (Column 1) and the covariate-adjusted model (Column 2). In the baseline specification (Column 1), the es-

Figure 2: Difference-in-differences estimates: Anxiety



The difference-in-differences specification is extended by interacting year dummies with the treatment group indicator. Figure 2 shows that pre-treatment differences in anxiety levels are small and statistically insignificant, supporting the parallel trend assumption, whereas the post-treatment year displays a significant positive gap, indicating that the asylum seeker influx caused a marked rise in anxiety levels in the treated region.

timated treatment effect is 0.6249, statistically significant at the one percent level. Controlling for individual-level covariates reduces the estimate to 0.5044, which remains significant at the one percent level. This represents a substantial effect, amounting to about 22 percent of the pooled standard deviation for the 2015–2018 sample ($\sigma_y = 2.2582$).

To reduce potential noise, two-period difference-in-differences estimations are also conducted using data from 2017 and 2018. The results, presented in Columns 3 and 4 of Table 2, are broadly consistent with those in Columns 1 and 2, providing reassurance about the robustness of the findings.

The difference-in-differences specification can be extended by interacting year dummies with the treatment group indicator. The results, presented in Figure 2, show that in the pre-treatment years, between-group differences in anxiety are small and statistically indistinguishable from zero, suggesting that the null hypothesis of no difference in anxiety levels between treatment and control groups before the influx cannot be rejected. By contrast, the post-treatment year reveals a pronounced and statistically significant positive gap relative to the 2017 baseline, demonstrating that the influx caused a marked rise in anxiety

Table 3: Difference-in-differences estimates: Life satisfaction

	[1]	[2]	[3]	[4]
y	Life satisfaction		Life satisfaction	
Range of y	$y \in \mathbb{Z} \cap [0, 10]$		$y \in \mathbb{Z} \cap [0, 10]$	
Years included	$t \in \{2015, ..., 2018\}$		$t \in \{2017, 2018\}$	
Individual-level covariates	No	Yes	No	Yes
δ	-0.3796***	-0.2354***	-0.3134***	-0.1899**
	[0.0615]	[0.0532]	[0.0779]	[0.0733]
Parallel trend check	Satisfied	Satisfied	_ (a)	_ (a)
Observations	31,699	31,699	15,999	15,999

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Robust standard errors are in brackets. (a) The parallel trends assumption cannot be tested in this specification due to the shorter window with only two time periods.

in the treated region.

The concurrent rise in depression (Table 1) and anxiety (Table 2) following the sudden asylum seeker influx is unsurprising, given that the two disorders are known to be positively correlated (Mineka et al., 1998).[14]

3.3 Life satisfaction

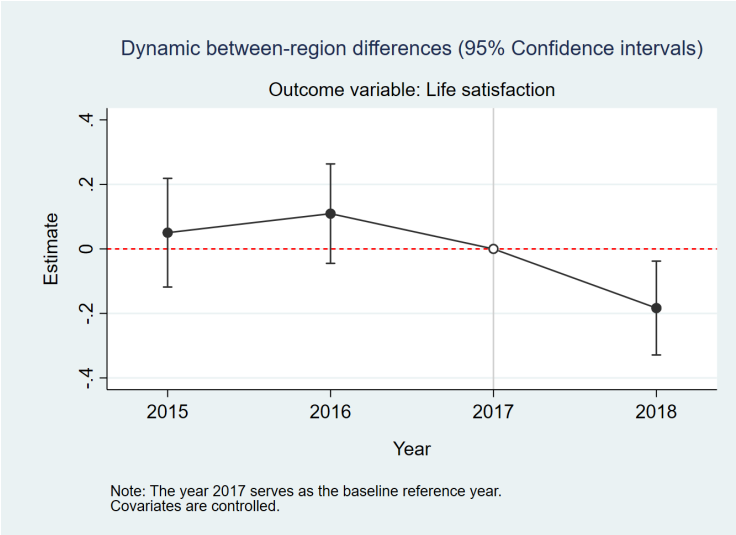
In addition to depression and anxiety, the present study also examines life satisfaction as another dependent variable. Drawing on the mental-health continuum framework (Keyes, 2002), these variables can be regarded as complementary indicators for measuring mental health: depression and anxiety capture negative symptoms, whereas life satisfaction reflects positive subjective well-being.[15] Other studies, such as Avdic et al. (2021), likewise employ life satisfaction as a measure of mental health. Using these complementary indicators reduces the risk of overlooking impacts that manifest differently across the mental-health spectrum and strengthens inference by showing whether results hold consistently across both negative and positive measures.

Table 3 presents the difference-in-differences estimates for life satisfaction as an outcome variable. For the 2015–2018 sample, the parallel trends assumption is satisfied in both the baseline model without covariates (Column 1) and the

[14]This comorbidity is largely driven by shared emotional characteristics—most notably heightened negative emotions (e.g., distress, nervousness, and irritability)—and common temperamental vulnerabilities (Mineka et al., 1998).

[15]In each academic discipline, life satisfaction is defined somewhat differently. From a psychology perspective, Diener et al. (1985) describe life satisfaction as the cognitive component of subjective well-being, distinguishing it from affective components such as positive or negative emotions. From an economics perspective, life satisfaction is widely employed as a proxy for subjective well-being and, in some studies, is also treated as an indicator of mental health (Akay et al., 2014).

Figure 3: Difference-in-differences estimates: Life satisfaction



The difference-in-differences specification can be extended by interacting year dummies with the treatment indicator. As shown in Figure 3, pre-treatment differences in life satisfaction between the treatment and control groups are small and statistically indistinguishable from zero, thereby supporting the validity of the parallel trends assumption. In contrast, the post-treatment year reveals a clear and statistically significant negative deviation relative to the 2017 baseline, indicating that exposure to the asylum seeker influx substantially reduced life satisfaction in Jeju, the treated region.

covariate-adjusted model (Column 2). In the baseline specification (Column 1), the estimated treatment effect is –0.3796, statistically significant at the one percent significance level. Controlling for individual-level covariates reduces the effect in absolute magnitude to –0.2354, but it remains statistically significant. This represents roughly 13 percent of the pooled standard deviation for the 2015–2018 sample ($\sigma_y = 1.7862$).

To reduce potential noise, two-period difference-in-differences estimations are also conducted using data from 2017 and 2018. The results, presented in Columns 3 and 4 of Table 3, are broadly consistent with those in Columns 1 and 2, providing reassurance about the robustness of the findings, although the estimated magnitudes are comparatively attenuated.

As in the previous sections, the difference-in-differences specification can be extended by interacting year dummies with the treatment indicator. As shown in Figure 3, pre-treatment differences in life satisfaction between the treatment and control groups are small and statistically indistinguishable from

zero, thereby supporting the validity of the parallel trends assumption. On the other hand, the post-treatment year reveals a clear and statistically significant negative deviation relative to the 2017 baseline.

The existing literature on the inflows of non-natives—extending beyond refugees and asylum seekers due to the scarcity of prior research on these groups—provides mixed evidence regarding their effects on hosts' life satisfaction. Some studies report positive effects, showing that the inflows of non-natives and ethnic diversity enhance life satisfaction among natives in European contexts (Betz and Simpson, 2013; Akay et al., 2014, 2017). Other work points to neutrality, finding no systematic effect of the inflows of non-natives on life satisfaction across European countries (O'Connor, 2020). By contrast, several studies identify negative outcomes (at least for certain subgroups), linking the inflows of non-natives to reductions in subjective well-being and life satisfaction among host residents (Ivlevs and Veliziotis, 2018; Howley et al., 2020; Howley and Waqas, 2024). Taken together, this body of evidence indicates that the effects of non-natives' inflows are far from uniform, varying across contexts. Within this landscape, the present study contributes new evidence from a non-Western setting, showing that a sudden and geographically concentrated influx of asylum seekers led to an immediate and substantial decline in life satisfaction among host residents, a finding that carries implications for host governments and policymakers.

3.4 Evidence from medical insurance data

To assess the robustness of the findings, an alternative administrative source—the national health insurance data of South Korea—is used to examine whether the negative impacts are also evident in administrative records. Specifically, health insurance claims for mental disorders per 1,000 residents, focusing on anxiety disorders (Korean disease classification codes F40 and F41) and depressive disorders (Korean disease classification codes F32 and F33), are calculated separately for the treatment and the control regions. The results are presented in Figure 4. Figure 4 shows that in the treatment region, the numbers remained low and stable between 2015 and 2017. In 2018, following the treatment event, however, the figure rose sharply to 0.2383—an increase of more than fourfold relative to the 2017 level. By contrast, the control regions exhibit no comparable change over the same period, with figures remaining in a narrow range around 0.03–0.04. This divergence indicates that the pronounced increase in 2018 is specific to the treatment region, consistent with the main findings discussed above. The number of patients per 1,000 population, omitted for brevity, likewise exhibits a pattern similar to that shown in Figure 4.

Figure 4: Health insurance claims for mental disorders per 1,000 residents

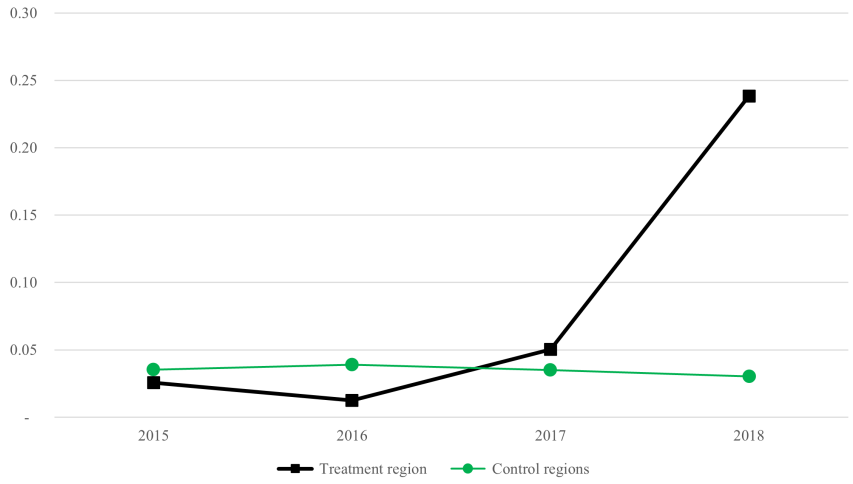


Figure 4 illustrates health insurance claims for mental disorders per 1,000 residents, focusing on anxiety disorders (Korean disease classification codes F40 and F41) and depressive disorders (Korean disease classification codes F32 and F33). The raw data are obtained from the Health Insurance Review & Assessment Service of South Korea, an authoritative national institution with statutory responsibility for comprehensively reviewing medical claims. Figure 4 shows that Jeju, represented by the black solid line with square markers, experienced a pronounced increase in 2018 relative to control regions, represented by the green solid line with circle markers.

Table 4: Difference-in-differences estimates: Possible mechanism variables

	[1]	[2]	[3]	[4]	[5]	[6]
y	Perceived public safety		Central government trust		Assembly trust	
Range of y	$y \in \mathbb{Z} \cap [0, 10]$		$y \in \mathbb{Z} \cap [1, 4]$		$y \in \mathbb{Z} \cap [1, 4]$	
Years included	$t \in \{2016, ..., 2018\}$		$t \in \{2015, ..., 2018\}$		$t \in \{2015, ..., 2018\}$	
Individual-level covariates	No	Yes	No	Yes	No	Yes
δ	-0.3748***	-0.2499**	-0.1910***	-0.1863***	-0.0796***	-0.0748***
	[0.0827]	[0.0862]	[0.0258]	[0.0272]	[0.0225]	[0.0235]
Parallel trend check	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
Observations	23,999	23,999	31,699	31,699	31,699	31,699

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Robust standard errors are in brackets. 'Perceived public safety' indicates how safe a respondent feels in his/her society, measured on an integer scale ranging from 0 to 10. Higher values correspond to a greater subjective sense of public safety. 'Central government trust' reflects the degree of confidence a respondent has in the central government and its affiliated institutions, assessed on a 4-point Likert-type scale from 1 to 4, with higher values denoting greater trust. 'Assembly trust' refers to the confidence a respondent has in the national assembly, measured on the same 4-point Likert-type scale from 1 to 4, where higher values indicate greater trust. Unlike the 'central government trust' and 'assembly trust' variables, the 'perceived public safety' variable is available only from 2016 onward, resulting in a shorter estimation window.

3.5 Mechanisms

The main findings of the present study suggest that the sudden influx of asylum seekers caused adverse mental health outcomes among host residents. In previous studies on similar topics, the question of what accounts for such changes has received little attention, and empirical evidence on the underlying mechanisms remains extremely limited.

While a variety of mechanisms may underlie the observed effects, the most plausible channel is safety concerns (Ahlin et al., 2024; Bharadwaj et al., 2025). A substantial body of prior research demonstrates that perceived public safety is closely associated with mental health and overall life satisfaction (Adams and Serpe, 2000; Stafford et al., 2007; Hanslmaier, 2013; Wilson-Genderson and Pruchno, 2013; Cheng and Smyth, 2015; Sulemana, 2015). If sudden inflows of asylum seekers heightened concerns about public safety among host residents, such perceptions could, in turn, adversely affect their mental health and overall life satisfaction through the safety-concern mechanism. In this context, what proves less consequential is actual victimization or the objective occurrence of crimes; rather, it is the perception of societal insecurity itself that more strongly harms life satisfaction (Hanslmaier, 2013).

To investigate this mechanism, additional difference-in-differences estimations are conducted with 'perceived public safety' as the outcome variable. In the data, 'perceived public safety' captures how safe respondents feel in their society, measured on an integer scale ranging from 0 to 10, with higher values indicating a greater sense of safety. The results, reported in Columns 1 and 2 of Table 4, show that the influx significantly reduced the level of perceived

public safety. The estimated effects are substantial, with coefficients ranging from –0.3748 to –0.2499, magnitudes that represent roughly 13 to 19 percent of a standard deviation in the outcome distribution. To the best of the author's knowledge, this represents the first empirical demonstration that the arrival of asylum seekers can erode perceptions of public safety among host residents.

Even when unexpected shocks occur, if residents believe that their government is capable of protecting them from these shocks and managing the resulting disruptions, the negative impacts may remain limited (Fukasawa et al., 2020; Wang et al., 2023). However, if residents perceive the asylum seeker influx itself as a manifestation of government failure, their trust in government is likely to deteriorate. Public discourse may then center on questions such as why a visa-free entry policy was maintained, why non-natives without official refugee status continued to arrive as asylum seekers, and why the authorities were unable to prevent their entry into the territory. Such perceptions can weaken confidence in the government's capacity and ultimately erode trust in the government system (Priest, 2023), which, in turn, through the erosion of institutional trust, can negatively affect host residents' mental health and well-being.[16]

In order to examine the institutional trust channel, additional difference-in-differences estimations are conducted with 'trust in the central government' as the outcome variable. In the dataset, this variable is measured on a four-point integer scale, with higher values indicating a greater sense of trust. The results, reported in Columns 3 and 4 of Table 4, show that the asylum seeker influx weakened residents' sense of trust in the central government. The estimated effects range from –0.1910 to –0.1863, magnitudes that represent roughly 26 percent of a standard deviation in the outcome distribution. This evidence supports the view that institutional trust is a key mechanism linking sudden asylum seeker arrivals to deteriorating host residents' mental health and well-being.

In addition, for the sake of comparison, another variable—trust in the national assembly—is also examined using the same difference-in-differences specification. The results, presented in Columns 5 and 6 of Table 4, indicate that the influx also reduced residents' sense of trust in the assembly, with coefficients between –0.0796 and –0.0748, corresponding to roughly 11 percent of a standard deviation in the outcome distribution. While still meaningful with statistical significance, this impact is weaker in magnitude than the effect observed for government trust. This is intuitively understandable, as the public typically holds the central government primarily responsible for migration management and

[16] As noted in Papademetriou (2016), it is not necessarily concrete instances of mismanagement but rather the pervasive perception that a situation is 'out of control' that most erodes institutional trust. Prominent episodes of disorder—such as sudden asylum seeker arrivals—can shape public discourse, heighten feelings of vulnerability, and weaken the perceived credibility of government institutions (Papademetriou, 2016).

border control, whereas the legislative body is perceived as more distant from the direct administration of asylum inflows. The mechanism evidence drawn from these two unique variables is noteworthy, as existing studies largely rely on electoral outcomes, such as shifts toward left- or right-wing parties (Dinas and Fouka, 2019; Dustmann et al., 2019; Rozo and Vargas, 2021; Steinmayr, 2021). The analysis in the present study offers the first empirical evidence directly documenting the erosion of institutional trust caused by asylum seeker inflows.Several studies report that natural disasters can erode people's trust in government and institutions; for example, see Nicholls and Picou (2013) and Thoresen et al. (2018).

4 Discussion

This study provides the first causal evidence from a non-Western context on how sudden asylum seeker inflows affect host residents' mental health. Difference-in-differences estimates indicate that the influx adversely affected host residents' mental health, increasing depression and anxiety whereas reducing overall life satisfaction. Administrative health insurance data also corroborate the effect.

This study provides the first empirical evidence on the possible underlying mechanisms, showing that the influx heightened hosts' public safety concerns and undermined their trust in government, which in turn worsened their mental health. Other potential mechanisms include economic insecurity and labor market concerns, as well as cultural threat and social identity stress. Regarding the former, asylum seeker inflows may trigger fears of wage depression, unemployment, or fiscal crowd-out, thereby worsening hosts' mental health (Howley et al., 2020). With respect to the latter, according to social identity theory (Tajfel, 1974; Tajfel and Turner, 1979), individuals derive self-esteem from national and cultural identities. Sudden inflows of asylum seekers, particularly when perceived as culturally distant, may challenge the dominant cultural identity and lead to feelings of depression, resentment, or anxiety (Howley and Waqas, 2024). While plausible, these channels cannot be tested with the present data and warrant future study.

The substantial effect estimates may stem from the fact that only one region was affected, combined with strict containment measures; this distinctive context, while useful for causal identification, may have amplified the consequences. The externally imposed, spatially concentrated nature of the shock, coupled with the lack of shared responsibility across regions, may have led residents to feel solely burdened with hosting, fostering unfairness and intensifying stress. These perceptions could have eroded trust in government, heightened

safety concerns, and increased anxiety over public resources, creating multiple pathways through which mental health outcomes were negatively affected.

The findings of the present study highlight a 'hidden cost' of hosting asylum seekers: adverse mental health impacts that are often overlooked, as attention has largely centered on economic and political consequences. Mental health outcomes are closely tied to economic performance and tend to persist once affected (Song, 2011; Ojeda, 2015). Moreover, repeated exposure to such threat cues can generate chronic stress (Boyer et al., 2015). Hence, the results underscore that host governments should carefully recognize the seriousness of these consequences when designing policies and responses to sudden inflows of those who are forcibly displaced.

The mechanism evidence provided in this study points to clear policy directions, suggesting that measures should target public safety and trust in government. Preemptive measures may include enhanced local policing, strengthened emergency preparedness, and rapid response systems to reassure residents about safety. To preserve and build trust in government, initiatives should involve transparent communication, regular community briefings, and participatory decision-making that keeps residents informed and engaged. Moreover, to avoid perceptions of disproportionate strain and uneven burdens on certain regions, it should be considered to disperse asylum seekers according to transparent, objective criteria, thereby promoting a fairer regional distribution of hosting responsibilities. Taken together, such measures can help alleviate the mental health risks imposed by hosting asylum seekers and promote the well-being of host communities.

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Online Appendix

A Additional tables

Table 5: Summary statistics

Variables	No. of observations	Mean (or %)	SD[(a)]	Min.	Max.
Age					
19–29	5,872	18.52%	0.3885	0	1
30s	6,079	19.18%	0.3937	0	1
40s	7,261	22.91%	0.4203	0	1
50s	7,416	23.40%	0.4234	0	1
60 and over	5,071	16.00%	0.3666	0	1
Dependent variables					
Depression	31,699	12.16%	0.3269	0	1
Anxiety	31,699	3.8388	2.2582	0	10
Life satisfaction	31,699	5.994	1.7862	0	10
Education					
No formal education	198	0.62%	0.0785	0	1
Elementary school	1,369	4.32%	0.2033	0	1
Middle school	2,349	7.41%	0.2619	0	1
High school	12,643	39.88%	0.4897	0	1
College (less than 4 years)	7,106	22.42%	0.4171	0	1
University (4 years or more)	7,551	23.82%	0.4260	0	1
Graduate school (master's)	409	1.29%	0.1128	0	1
Graduate school (doctoral)	74	0.23%	0.0479	0	1
Employment					
Wage worker: Regular employee	12,580	39.69%	0.4893	0	1
Wage worker: Temporary employee	2,284	7.21%	0.2587	0	1
Wage worker: Day laborer	1,029	3.25%	0.1773	0	1
Self-employed with employees	1,132	3.57%	0.1855	0	1
Self-employed without employees	4,527	14.28%	0.3499	0	1
Unpaid family worker	1,096	3.46%	0.1828	0	1
Non-employed	8,780	27.70%	0.4475	0	1
Job seeker	271	0.85%	0.0918	0	1
Gender					
Male	16,000	50.47%	0.5000	0	1
Female	15,699	49.53%	0.5000	0	1
Marital status					
Single	8,054	25.41%	0.4354	0	1
With spouse	21,292	67.17%	0.4696	0	1
Widowed	1,199	3.78%	0.1907	0	1
Divorced	1,154	3.64%	0.1873	0	1
Mechanism variables					
Public safety	23,999	4.8315	1.9594	0	10
Trust in central government	31,699	2.2124	0.7276	1	4
Trust in parliament	31,699	1.8217	0.6973	1	4
Monthly income					
No income	301	0.95%	0.0970	0	1
< 1,000,000	1,506	4.75%	0.2127	0	1
KRW 1 Mn KRW to less than 2 Mn	3,167	9.99%	0.2999	0	1
KRW 2 Mn KRW to less than 3 Mn	5,409	17.06%	0.3762	0	1
KRW 3 Mn KRW to less than 4 Mn	6,759	21.32%	0.4096	0	1
KRW 4 Mn KRW to less than 5 Mn	5,675	17.90%	0.3834	0	1
KRW 5 Mn KRW to less than 6 Mn	4,012	12.66%	0.3325	0	1
KRW 6 Mn KRW to less than 7 Mn	2,194	6.92%	0.2538	0	1
KRW 7 Mn KRW to less than 8 Mn	1,135	3.58%	0.1858	0	1
KRW 8 Mn KRW to less than 9 Mn	638	2.01%	0.1403	0	1
KRW 9 Mn KRW to less than 10 Mn	280	0.88%	0.0934	0	1
≥ 10,000,000	623	1.97%	0.1390	0	1
Socioeconomic class	31,699	5.2463	1.6249	0	10

Source: Korea Social Integration Survey (*a*) Standard deviation

Table 6: Summary of existing studies on immigration, host mental health, and well-being

No.	Study	Outcome var.	Key regressor	Country	Key finding
[1]	Betz and Simpson (2013)	Natives' well-being	Immigration flows	26 EU countries	Using European Social Survey data (2002–2010), the study finds that recent immigration flows have a nonlinear but overall positive impact on natives' well-being, especially from inflows in the previous year. However, the effects are small, with only large migration waves producing notable changes.
[2]	Akay et al. (2014)	Life satisfaction	Immigrants	Germany	This study finds that immigration positively affects native Germans' life satisfaction, independent of local labor market conditions. The effect is strongest in regions with moderate levels of immigrant assimilation and negligible in areas with low or full assimilation.
[3]	Akay et al. (2017)	Life satisfaction for natives	Local-level ethnic diversity	Germany	Using German panel data (1998–2012), the study finds that ethnic diversity—based on immigrants' nationalities—positively affects natives' well-being. The effect is stronger when immigrants are culturally and economically closer to Germany, driven by gains in productivity and social capital.

No.	Study	Outcome var.	Key regressor	Country	Key finding
[4]	Ivlevs and Veliziotis (2018)	Life satisfaction for natives	Migrant inflow	England and Wales	This study finds that the 2004 EU enlargement and resulting local immigration inflows had divergent effects on native life satisfaction in England and Wales: older, unemployed, and lower-income individuals experienced declines, while younger, employed, and higher-income individuals saw improvements. These effects were strongest during the initial migration shock and align with demographic patterns in the Brexit vote.
[5]	Howley et al. (2020)	Natives' well-being	Foreign-born individuals across local areas	United Kingdom	Using the General Health Questionnaire data and local immigration patterns in England, the study finds that immigration has small overall negative effects on natives' well-being, with larger losses among older, low-income, unemployed, and less-educated individuals. These effects align with Brexit voting patterns and are likely driven by perceived labor market threat and social identity concerns, rather than actual competition.
[6]	O'Connor (2020)	Life satisfaction	Immigrants from the EU, those not from the EU, and refugees	28 EU countries	Using Eurobarometer data from 28 European countries (1990–2017), this study finds that immigration—regardless of origin or native characteristics—has no statistically significant effect on natives' life satisfaction. Results are robust across methods, including IV estimation.

No.	Study	Outcome var.	Key regressor	Country	Key finding
[7]	Escarce and Rocco (2021)	Depression among natives	Immigrants	15 Western-European countries	This study uses the Study of Health, Ageing and Retirement in Europe (SHARE) data and a shift-share IV to show that immigration reduces depression symptoms among natives aged 65–80 in Europe. The likely channel is increased access to personal and household services, though evidence on mechanisms is suggestive rather than conclusive.
[8]	Li et al. (2021)	Subjective well-being	Ethnic diversity	England	This study uses large-scale English panel data and multilevel mixed-effects models to show that rising neighborhood ethnic diversity initially reduces subjective well-being but has no lasting impact on health or chronic stress. Short-term negative effects dissipate over time, with no long-term consequences detected.
[9]	Schubert et al. (2023)	Psychological health	Refugees	Germany	This study uses a nationally representative German survey and structural equation modeling to show that perceiving refugees as threatening is associated with greater psychological distress among host residents. High social identification as German increases perceived threat and distress, while high-quality intercultural contact reduces both.

No.	Study	Outcome var.	Key regressor	Country	Key finding
[10]	Feddes et al. (2024)	Mental health	Refugees	The Netherlands	This longitudinal study of Dutch residents (N = 280) finds that higher pre-existing perceptions of symbolic and realistic threat predict poorer mental health following refugee settlement in the neighborhood. While average threat levels did not increase post-settlement, mental health declined, suggesting that perceived threat is a key driver of host distress.
[11]	Howley and Waqas (2024)	Subjective (self-reported) mental well-being and life-satisfaction	Immigrants	United Kingdom	This study finds that immigration lowers well-being for natives with an ethnic national identity but may improve it for those with a civic identity. Identity type also strongly predicts Brexit voting, suggesting identity-based utility plays a key role in immigration attitudes.
[12]	Bharadwaj et al. (2025)	Mental health (self-reported distress, antidepressant prescriptions)	Asylum seekers	Germany, Switzerland	This study examines how asylum seeker inflows to Germany and Switzerland affect residents' mental health. Using quasi-random placement and health data, it finds no economically meaningful impact on host populations' mental health.

No.	Study	Outcome var.	Key regressor	Country	Key finding
[13]	Kruse et al. (2025)	Students' well-being	Classroom ethnic similarity	Denmark	This study finds that ethnic similarity in classrooms improves well-being for both majority and minority students in Denmark, though for different reasons. Majority students benefit from being in the dominant group, while minority students gain well-being simply from not being alone. The findings highlight the nuanced effects of local ethnic composition on well-being.

Studies are organized chronologically and then alphabetically by author name.

Table 7: Geographic popularity distribution of the search term 'Refugee(s)'

Region	Year 2016	Region	Year 2017	Region	Year 2018
Chungcheongnam-do	100	Daegu	100	Jeju-do (The treatment region)	100
Jeollanam-do	95	Daejeon	92	Incheon	68
Seoul	93	Seoul	87	Daejeon	66
Gyeonggi-do	89	Jeollabuk-do	86	Seoul	63
Incheon	80	Incheon	76	Chungcheongnam-do	63
Gangwon-do	79	Gyeonggi-do	76	Chungcheongbuk-do	61
Daegu	72	Gyeongsangbuk-do	74	Jeollabuk-do	60
Gyeongsangbuk-do	69	Gwangju	73	Ulsan	58
Chungcheongbuk-do	69	Gangwon-do	71	Gyeonggi-do	57
Ulsan	63	Busan	66	Gwangju	56
Busan	54	Chungcheongbuk-do	62	Busan	56
Jeollabuk-do	53	Gyeongsangnam-do	59	Gyeongsangnam-do	54
Gyeongsangnam-do	53	Ulsan	58	Gyeongsangbuk-do	51
Daejeon	41	Chungcheongnam-do	52	Daegu	48
Gwangju	33	Jeju-do (The treatment region)	47	Jeollanam-do	47
Jeju-do (The treatment region)	-	Jeollanam-do	36	Gangwon-do	43

Source: `https://trends.google.com/` (Accessed on 2023-August-01), Shin (2025b), Shin (2025a) * The table shows in which location the term 'Refugee' was popular during the specified time frame. Values are calculated on a scale from 0 to 100, where 100 is the location with the most popularity as a fraction of total searches in that location, a value of 50 indicates a location which is half as popular. Jeju, the treatment region, exhibited the lowest and the second lowest levels of activity in web searches for 'refugee' in the years 2016 and 2017, respectively, prior to the occurrence of the treatment event. However, in stark contrast, Jeju emerged as the most active region for web searches for 'refugee' in 2018, the year marked by the sudden and substantial influx of Yemeni asylum seekers. This underscores that Jeju residents paid unprecedented attention to the arrival of these asylum seekers within their local community.

B Additional figures

Figure 5: Pathway of Yemeni asylum seekers' arrival to Jeju Island, South Korea

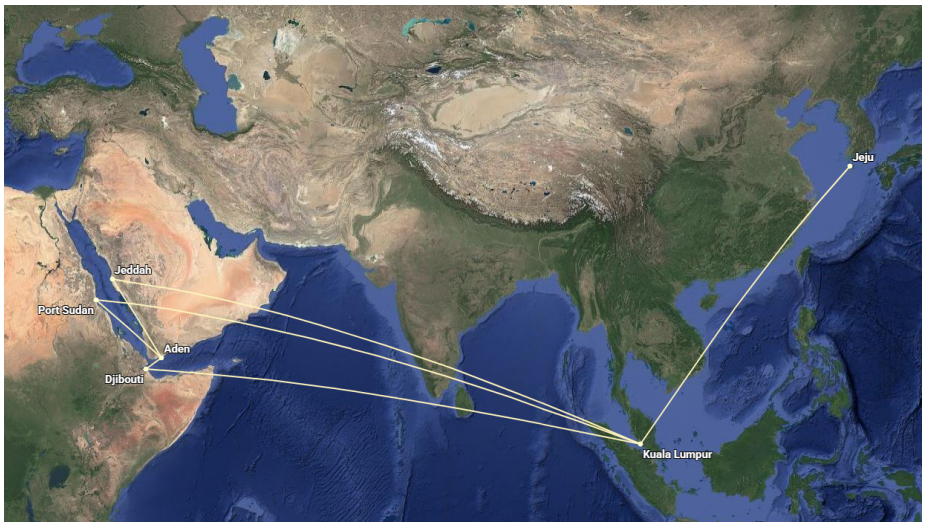
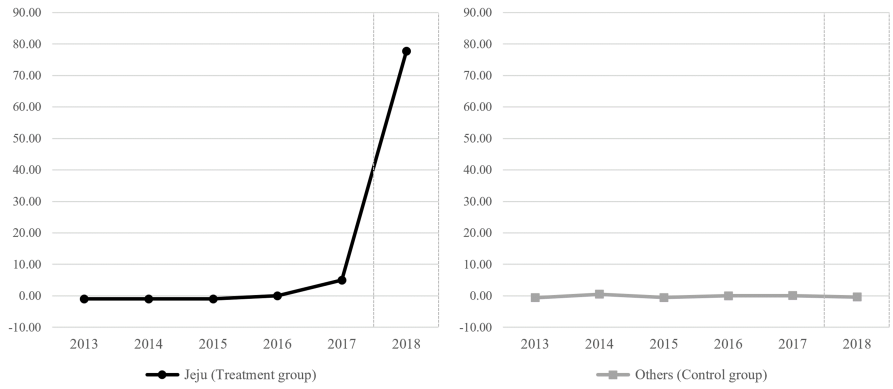
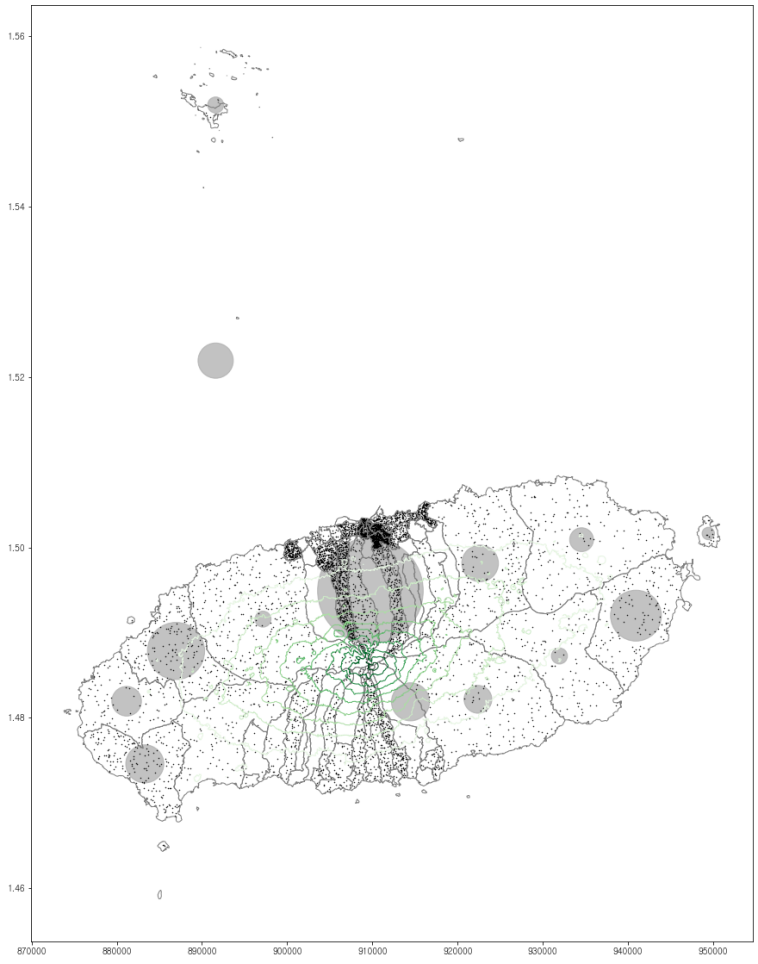


Figure 6: Relative changes in the number of refugee applications



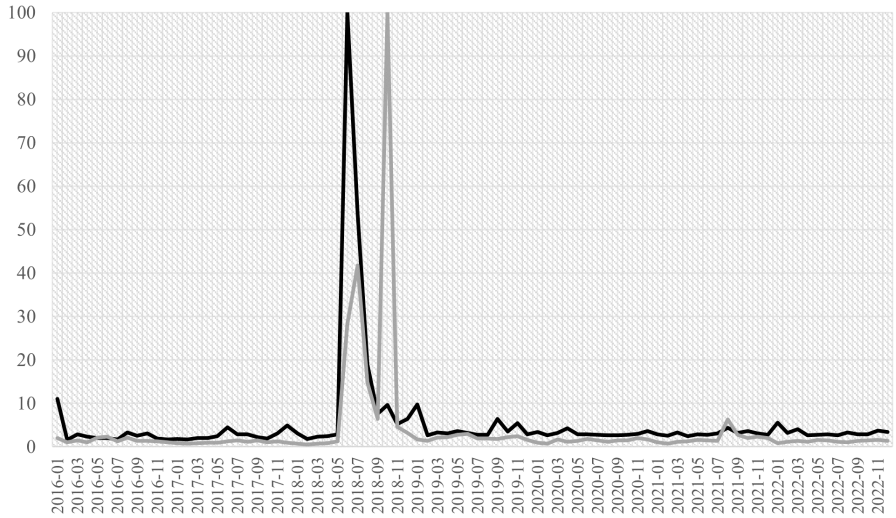
Data source: Ministry of Justice (Accessed on 2024-January-30), Shin (2025b), Shin (2025a) * The year 2016 is used as the baseline reference year. In 2018, Jeju experienced nearly an 80-fold increase in the number of refugee applications compared to 2016, a situation that differs from other regions in South Korea (Shin, 2025c).

Figure 7: Population density (dots) and asylum seeker distribution (bubbles) on Jeju Island



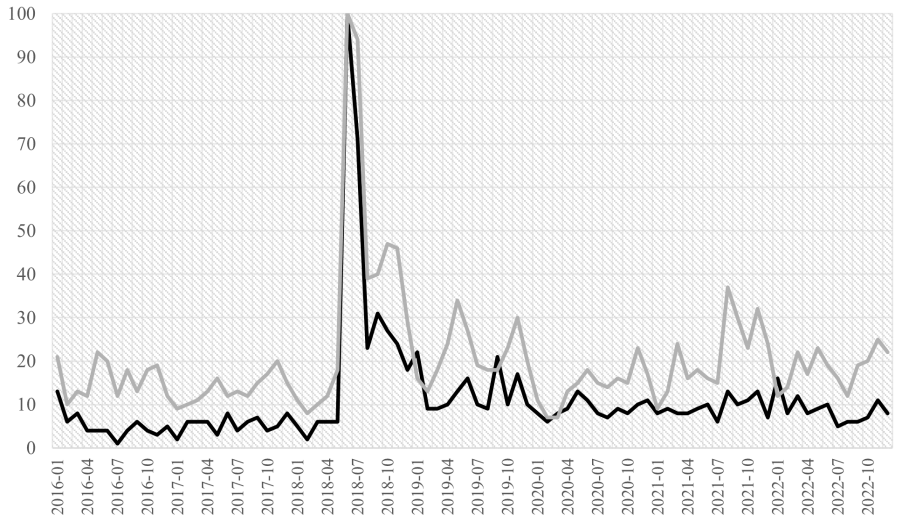
Raw data source: Ministry of Justice, Statistics Korea (Accessed on 2023-March-01), Shin (2025b), Shin (2025a) * The dots represent the native host population density, while the bubbles indicate the relative size of asylum seekers in each region of Jeju Island. Figure 7 shows that almost all regions were affected by the influx of asylum seekers, despite variations in the number of asylum seekers across different regions.

Figure 8: Relative changes in online search frequency in South Korea (2016–2022) on `naver.com`: 'Yemen' and 'Refugee(s)'



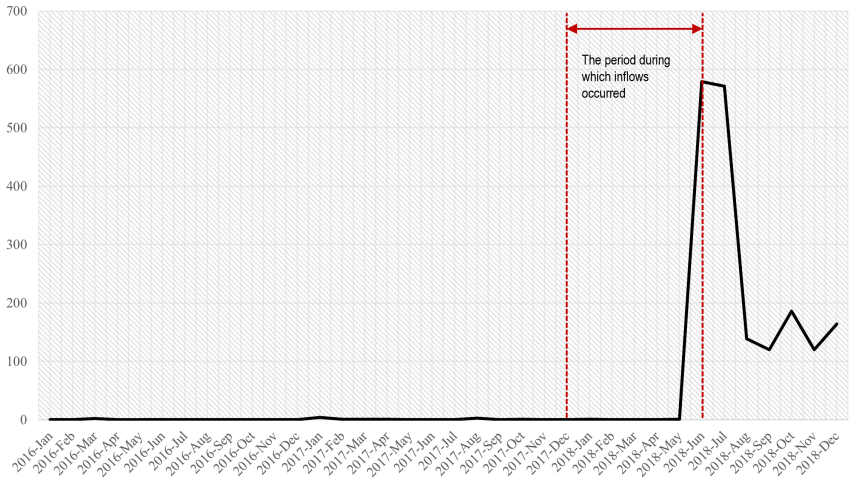
Data source: `https://datalab.naver.com/` (Accessed on 2023-July-28), Shin (2025b), (Shin, 2025a) * 'Naver' is the most widely-used online platform in South Korea, functioning as a major search engine, web portal, and service provider. It offers various features, including search functionality, news, and blogs. Figure 8 illustrates the relative change in search frequency by summing up the number of times the search terms were queried on `naver.com` each month—with the highest search volume within the specified period (i.e., 2016–2022) set to 100. The black solid line represents the search trend for the term 'Yemen', while the light solid line represents the search trend for the term 'Refugee(s)'. The peaks in 2018 align with the influx of Yemeni asylum seekers to Jeju Island and the resulting controversies surrounding the handling of their refugee applications. This suggests that the event received substantial attention within South Korea.

Figure 9: Relative changes in online search frequency in South Korea (2016–2022) on `google.com`: 'Yemen' and 'Refugee(s)'



Data source: `https://trends.google.com/` (Accessed on 2023-August-01), Shin (2025b), (Shin, 2025a) * Figure 9 illustrates the relative changes in search frequency by summing up the number of times the search terms were queried on `google.co.kr` each month—with the highest search volume within the specified period (i.e., 2016–2022) set to 100. The black solid line represents the search trend for the term 'Yemen' (in Korean), while the light solid line represents the search trend for the term 'Refugee(s)' (in Korean). According to `https://trends.google.com/`, the figure represents search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data. The above-marked peaks in the year 2018 coincide with the timing of the sudden, substantial influx of Yemeni asylum seekers to Jeju Island in South Korea, indicating that this event garnered considerable attention within South Korea.

Figure 10: Monthly frequency of news articles explicitly referencing 'Yemeni refugees' in South Korea



Data source: `https://www.bigkinds.or.kr/` (Accessed on 2025-May-29), Shin (2025a) * According to data retrieved from BigKinds, a comprehensive news database maintained by the Korea Press Foundation, media coverage in South Korea explicitly referencing 'Yemeni refugees' remained minimal from January 2016 to May 2018. However, coverage escalated abruptly in June 2018, with 579 articles published within that single month alone, remaining elevated in July with 571 articles. Subsequent months through December 2018 continued to exhibit substantial media attention. This marked increase in coverage provides empirical support for classifying the Yemeni refugee influx as a highly salient and politically charged issue in South Korea during this period.