Supplementary Materials

"The Causes and Consequences of Refugee Flows"

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A Supplementary Materials

A.1 "Forced Displacement Flow Dataset" Description and Comparisons

A.1.1 Data Description

For much of its history, the United Nations Refugee Agency (UNHCR) has tracked both refugee stocks in and refugee inflows to a subset of countries around the world. The number of countries from which the UNHCR collects information has grown substantially over time, with a particularly large increase in country coverage occurring in 2000. Pursuant to the 1951 Refugee Convention Article 35.2, states have since 1951 supplied the UNHCR with end-of-year population totals (stocks) for refugee communities residing within their territories, which the UNHCR subsequently published. These refugee stock data have formed the basis of much published quantitative research on refugee issues.[31]

Beginning in 1962, the UNHCR began also capturing flow data (and would go on to track additional types of movement). However, these records were not centralized and were used primarily for UNHCR's internal operational purposes. Although the UNHCR has maintained this historical flow data, they did not release them in a comprehensive format until 2019.

In 2019, the UNHCR first released a draft flow dataset to Fearon and Shaver (2020). Fearon and Shaver (2020) and members of this research team subsequently engaged in extensive discussions with UNHCR staff about the nature of the data; possible additions/modifications intended to capture first-time movements (including in cases where individuals were not formally designated as refugees but for all intents and purposes met the definition – e.g. individuals fleeing the Nagorno-Karabakh conflict); and apparent inconsistencies across cases as different versions of the data were developed/shared.

The UNHCR team ultimately released a version of the dataset (the "Forced Displacement Flow Dataset") intended specifically to track new international displacements (directed dyadic flows) between countries during a given year. That release took place on World Refugee Day

[31] This data is presently available through the UNHCR Population Statistics Dataset UNHCR Refugee Data Finder and is the source for all papers (except one) reevaluated in our study, which range from the seminal work of Davenport, Moore and Poe (2003) and Moore and Shellman (2004) to recently published scholarship from Polo and Wucherpfennig (2022) and Schon and Leblang (2021).

of 2022.[32] Details below are based on the most recent version of the data, which the UNHCR will continue to periodically update and adjust.

To protect the identities of individual asylum seekers in cases in which very small numbers of individuals (e.g. < 5) fled to a given country, the UNHCR released a redacted version of the flow dataset that introduces noise to these cases to obscure the true values. As part of our collaboration with the UNHCR, we generated results using both redacted and unredacted versions to demonstrate that the redactions have effectively no bearing on their use, justifying the UNHCR's choice to release only the redacted data. Scholars with more focused research/empirical questions (e.g. on specific country cases) where the redactions might meaningfully affect results are encouraged to contact the UNHCR directly.

The resulting dataset consists of three distinct populations:

1. Newly arrived refugees, including individuals granted *prima facie* (group) recognition, who received temporary protection or who were considered "refugee-like".
2. New asylum applicants (excludes individuals with repeat or appeal applications).[33]
3. Other people in need of international protection.[34]

Newly Arrived Refugees: Individuals included in this category include those who received *prima facie* (group) recognition; were afforded temporary protection; or were considered "refugee-like. Under *prima facie* recognition, individuals fleeing "readily apparent, objective circumstances in the country of origin..." are granted refugee status and directly registered as such. This type of recognition "is commonly associated with situations of large-scale influx, although it may also be applied to other examples of group departure... for example, where the refugee character of a similarly situated group of persons is apparent" (UNHCR, 2014).[35]

[32]For additional details, see: https://www.politicalviolencelab.com/refugeeflows

[33]To avoid duplication, individuals afforded individual refugee protection status through Refugee Status Determination (RSD) processing are excluded from the set of individuals tracked in [1], as they are counted in this category.

[34]Although the data include new movements of both stateless individuals and Palestinian refugees, data on these two communities is limited. With respect to stateless individuals, in some instances, former habitual countries of residence are unknown, complicating assessments of international displacements. With respect to Palestinian refugees, cases of flows under The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) are also not tracked by the UNHCR. Scholars specifically interested in either of these communities should exercise caution if using the new flow data.

[35]In contrast, individual refugee protection status involves individuals first registering as asylum seekers before later being registered as refugees. For this reason, and because of potentially significant processing timelines

Temporary protection, as Schwartz (2022) explains, "allows designated migrants to remain in the host country for a pre-determined period due to unsafe conditions in their country of origin, including conditions that would qualify migrants for refugee status as well as other humanitarian or political emergencies that would not. This was the European Union's approach, for example, at the outset of the Ukrainian displacement crisis." Together, individuals in the first two categories of this group — those with *prima facie* recognition or temporary protection — constitute 51,967,086 new displacements between 1962 through 2022.

The third set of individuals in this category includes those identified as being in "refugee-like" situations. These are individuals for "whom refugee status has, for practical or other reasons, not been ascertained" (UNHCR, 2021*b*). This is a particularly noteworthy category, as it captures the new movements of individuals across international borders who have not yet been formally designated as refugees (owing, for instance, to political sensitivities associated with the designation and the countries involved) but who for all intents and purposes are refugees. For academic purposes, these are people who clearly fit the broad definitions of international forcibly displaced persons in the academic literature. To establish this category, the UNHCR did a case-by-case evaluation to separate the new arrivals who were not officially defined as refugees from other non-flow increases.

To give examples, this set of internationally displaced persons includes many tens of thousands who have fled the Nagorno-Karabakh conflict. It includes more than one million Ukrainians who have been displaced to Russia following Moscow's full-scale invasion of Ukraine. And it includes the recent outflows of Afghans to Iran and Pakistan that have followed the Taliban's 2021 seizure of power.[36] Overall, these observations capture 2,560,730 new displacements in the dataset.

New Asylum Applicants: The data capture first-time asylum applications that are registered by asylum seekers in a given host country in a given year. In addition to applicants, these

associated with this process, cases of individual recognition are not counted in this first category as they are captured in the new asylum applications described below.

[36]According to the UNHCR's most recent updates to the flow dataset (at the time of this writing), which were released after our analyses were completed, this category now also includes approximately one million cases of Afghans fleeing to Iran identified under Iran's recent "Headcount Exercise" See: https://help.unhcr.org/iran/en/how-can-i-seek-asylum-in-iran/headcount-exercise/.

numbers include individuals for whom *individual* refugee protection status (not group *prima facie* status, as in the category above) has been granted. The overwhelming majority of countries in the Global North process refugees using the individual refugee status determination process. A significant advantage to classifying individuals via new applications rather than final asylum approvals is that the data capture the movements of these individuals on the year on which they occur: individuals first apply for asylum when they arrive, but processing times are often long, and they may not be officially registered as refugees until long after they have applied for asylum. When asylum approval date is used, their entry as refugees in the stock data lags their actual arrival. The UNHCR have adopted the application-tracking method as the most direct way of capturing true year-to-year flows.

To refine these counts, the UNHCR has removed individuals with repeat or appeal applications. Furthermore, in some regions of the world (e.g. Europe), asylum systems cover multiple countries. Where possible, the UNHCR staff has removed instances of new applications where applications have also been filed in other countries. However, the flow data does capture some number of arrivals that governments ultimately did not or will not approve. This in not necessarily a limitation of the data; for various reasons, governments will sometimes deny the asylum applications of individuals who are in fact clearly fleeing violence/persecution. (For instance, rates of asylum application approvals have varied significantly between the current and former U.S. presidential administrations (TRAC, 2021).) In these cases, the flow data pick up legitimate cases of forcible displacement. In cases of truly spurious asylum applications, however, the data does overcount inflows. First-time asylum applicants constitute 33,172,903 new displacements between 1970 and 2022.

Other People in Need of International Protection: Finally, the flow data includes the movement of individuals designated as "Other people in need of international protection" (OIP). Currently, this category is devoted entirely to Venezuelans who have fled social unrest, economic collapse, etc. in the country. This category captures 5,365,510 new displacements throughout this crisis across twenty-four destination countries in the Americas.

Data Collection Timelines

The quality and scope of the directed dyadic flow data continues to increase over time. (See Figure 3) *Prima facie* (group) recognition data began to be collected in 1962, and in 1970, asylum seeker data became available. However, this data was initially limited to several dozen high-income countries. The data quality improves sharply in 2000, when UNHCR adopted standardized approaches to refugee and asylum seeker data collection. Around the same time, many asylum states adopted information and communication technologies that significantly improved their reporting and collection processes. As a result, by 2000, the number of countries from which the UNHCR collected asylum seeker data had risen to 137, and it continues to grow over time. In 2007, the UNHCR also began to track refugee-like situations, and in 2018, they began to track "Other people in need of international protection" displacements.

A.1.2 Comparisons with Stock-Based Flow Estimates

The new flow data diverge from stock-based estimates for a variety of important reasons. As described in the paper, stock-based estimates of flows have historically been calculated directly from stocks using a first-differences method where the difference between yearly values of a given origin country population in a given asylum country is used to estimate flows. In cases of a positive increase, that value is used as the flow estimate. In cases of negative changes (i.e. where the population decreases over time), a value of 0 is instead adopted. Below, we describe key differences in the new flow and stock-based estimates.

First, the yearly stock values from which flow estimates have historically been generated vary for reasons other than flows into the receiving country. For instance, naturalizations, resettlements, returns, births, and deaths within refugee communities can cause changes in stock levels, and thus in flow-based measures derived from them. Of particular significance are simultaneous inflows and naturalizations, resettlements, and returns (which we group together as "stock departures"). Stock-based estimates undercount inflows because they do not account for these stock departures (or any other variable affecting the stock in the host-country). Pairing stock departure data (supplied by the UNHCR) with the new flow data, we find that there are a substantial number of cases involving simultaneous (same-year) flows between pairs of countries that are offset by stock departures. (See Figure 2, in which we plot inflows against the sum of

stock departures.) The results reveal significant simultaneous increases and decrease to refugee stocks. In ≈45.40% of asylum country-year observations, inflows and stock departures co-occur, and in ≈20.81% of cases, stock departures are greater than or equal to inflows.

Second, under this approach, years of "negative" flows are set to 0; we calculate that just shy of one third of all first-differenced stock observations (≈ 29.68%) result in negative values that are converted to 0s by authors adopting this strategy.[37] In just under half of these (directed-dyad-year) cases in which stock-based flows are set to 0 (≈48.56%), the new flow data report positive values. This is a significant difference, and in some cases, these differences are very large. In 1999, while the stock-based estimates show no movement from Serbia to Albania, the new flow data report 435,000 flows. Similarly, in 1983, the stock-based data reports 0 flows from Rwanda to Burundi, while the new flow data show just under 200,000.

Third, stock-based flow estimates suffer from a major left-censoring issue. Under the first-differences approach, treating the stock on the year prior to reporting for that specific country as a 0 estimates a flow on the first year of reporting that may not capture new inflows but rather pre-existing populations. For instance, in the year 1994, the first year in which Bosnian refugees are reported in Germany, the population (stock) total is 350,000. In contrast, the flow data estimate new arrivals that year of 7,298. Thus, in this case, the stock-based estimation procedure generates a spurious inflow of 342,702 individuals for that year.

To put in perspective how large this potential issue is, we calculate the sum of the refugee stock for all directed-dyad-year observations corresponding to the first year of UNHCR reporting. We then compare this to a) the sum of flows in that dyad for those same years and b) the sum of global flows per year using the new flow data. (By construction, the summed stock value would also be the sum of stock-based flows across the first year of reporting.) As displayed in Figure 2, the stock-based flow sum for all first years of reporting greatly exceeds the sum of flows for any/all years. This is a clear indication that much of the stock-based flow estimate for all first years of reporting captures pre-existing refugee populations rather than new flows — a source of significant potential error in statistical estimates. In contrast, because the new data are based only on new flows, no such pre-existing population values erroneously enter into the

[37] To calculate this percentage, we simply take the full set of directed-dyad-year cases between 1961 and 2022; calculate year-to-year changes; then divide the total number of cases by those with negative values.

new data.

Fourth, until the year 2007, the stock data include population values corresponding to 3rd country resettlements (that is, values corresponding to the refugee population size in countries within which refugees were eventually resettled after fleeing from their country). Thus, stock-based flows will show "inflows" into countries that refugees/asylum seekers did not actually flee to but eventually resettled in, potentially years after initially fleeing their home countries.

One example where this practice results in significant disagreement between the new data and the stock-based estimates is the case of Bosnians in the United States. Stock-based flow estimates from 1962 through 2022 show a total of 201,298 Bosnians "fleeing" to the United States. The flow data shows a value that is less than 1% of this figure: 1,942. The UNHCR confirm for us that the difference comes from resettlements to the United States. Such excess values should not be counted as flows, but in the stock-based flow approach they are. The UNHCR has removed such movements from the new data so that only actual first-time flows are captured.

Fifth, the stock data include a number of what the UNHCR calls "non-flow increases". These are cases where adjustments to a stock value in various years are made not because the stock actually increased from the year before but because some methodological revision, legislative change, or other host-country change to defining/calculating refugees/asylum seekers resulted in a re-counting or re-estimate of the number of these individuals in the country. (For instance, stateless refugee populations may vary in size following acquisition or loss of citizenship, but this change does not indicate new flows/international movements.) In these cases, when the re-count/re-estimation is positive, the stock-based inflows estimates will show increases in the number of individuals arriving to the country that do not actually reflect new arrivals. In the new data, such changes have been removed to ensure that such non-flow increases are not reflected.[38]

[38]There is one caveat of note here: In some cases, (e.g. refugee counts from censuses), stock values represent cumulative flows over multiple previous years during which they were not recorded. In such cases, both the new flow and stock-based data are incorrect. The flows do not appear in the new flow data, and they are wrongly displayed in the stock data years after they occurred. Through continued communication with the UNHCR, we have sought to identify and correct significant cases in which this occurs, ensuring that these missing flows appear in the new flow data. In A.1.5 "Imputation of Missing Flow Values in Major Cases", we describe the specifics of this effort in more depth.

Sixth and finally, as described above, the new data prioritize asylum seeker applications in an effort to capture movements during the years in which they occurred. For countries that use their asylum systems to grant refugee status, the new data reflect asylum seeker increases on their year of their actual arrival to the country. In contrast, these individuals enter into the stock data only after their asylum applications have been processed and approved. Given lengthy application processing times, many refugee counts in the stock data appear potentially years later once cases are finally approved. Stock-based inflows thus lag actual inflows.[39]

A.1.3 Additional Empirical Comparisons with Stock-Based Estimates

For each asylum country, we use ordinary least squares regression to generate vectors of slope coefficients ($\hat{\boldsymbol{\beta}}$) and coefficients of determination $\boldsymbol{r^2}$ from the basic linear models: $\forall$ directed-dyad $d \in D$ for a given asylum country c for each year t, $f^c_{t,d} = \zeta \hat{f^c_{t,d}} + \epsilon^c_{t,d}$. Density plots for both variables are displayed in Figure A1. These results allow us to assess the correlation between inflows to each asylum country and stock-based estimates of inflows to that country. If the latter are a close approximation of the former, we should expect resulting coefficient values to cluster around a value of 1, which would indicate that each stock-based inflow is associated with roughly the same number of actual inflows. Furthermore, if the latter are a close approximation of the former, we should also expect stock-based estimates to explain most of the variance in inflows. (The more precise the estimates, the closer the resulting vector of r^2 values should be to 1.)

However, results diverge significantly. The mean of $\hat{\boldsymbol{\beta}}$ ($\approx$0.58) is significantly below 1, indicating that stock-based estimates of inflows tend to significantly underestimate inflows. In fact, $> 10\%$ of $\hat{\beta} \in \hat{\boldsymbol{\beta}} \leq 0$, indicating that for some countries, the two variables are either not correlated or, worse still, are actually negatively correlated. The mean of $\boldsymbol{r^2}$ ($\approx$0.50) indicates that a great deal of the yearly variance in actual inflows is unexplained by the stock-based estimates.

[39] Again, as noted above, an important caveat is that the flow data capture some number of arrivals that governments ultimately did not approve as asylum seekers/refugees. While this approach is imperfect, the UNHCR have adopted it as the most direct way of capturing true year-to-year flows.

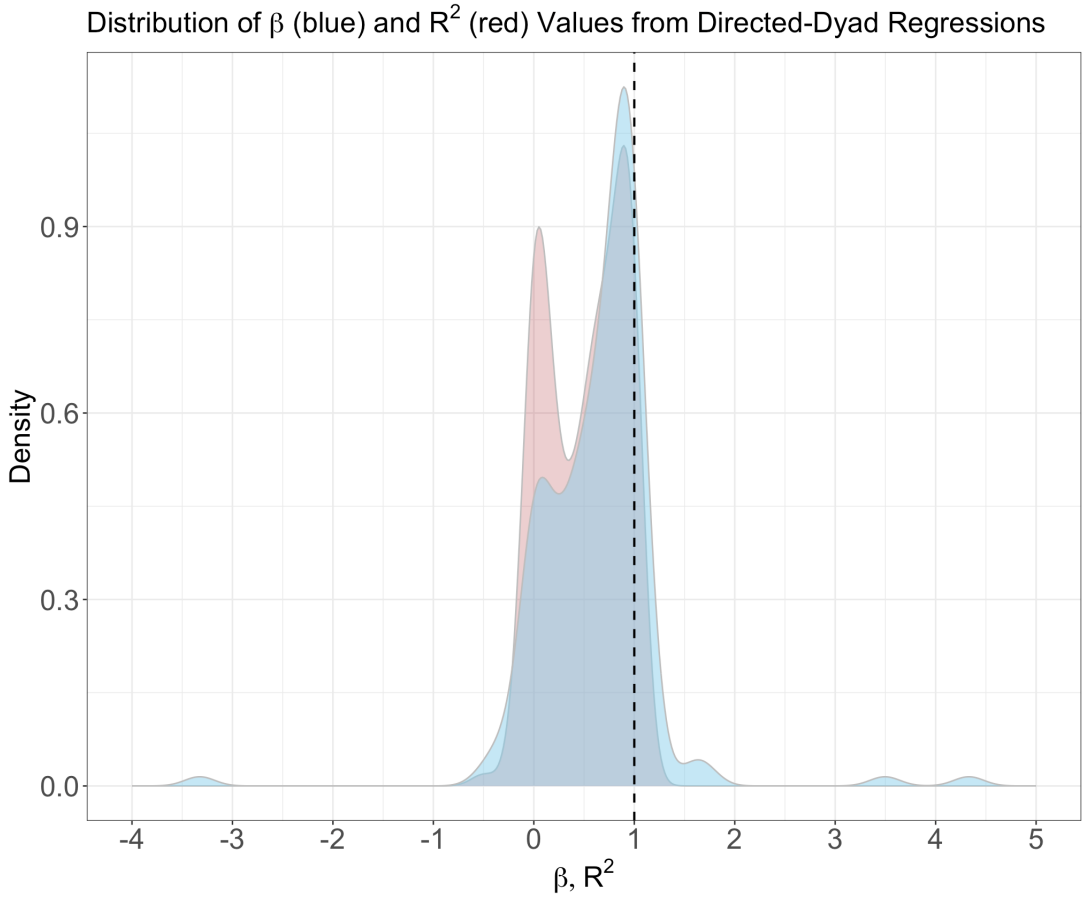

Figure A1: This figure plots the distributions of $\hat{\beta}$ and r^2 values derived from comparison of refugee inflow data (UNHCR, 2021*c*) and refugee stock-based estimates of inflows (UNHCR, 2021*d*).

A.1.4 Broader Concerns about Pre-2000 UNHCR Data

As summarized in the paper, we identify three major empirical issues associated with the data generation and reporting patterns of the UNHCR's stock and flow data before the year 2000.[40]

Imputed 0s

The first empirical issue that poses a threat to the replicated articles' internal validity involves the inappropriate treatment of missing data. Until recently, there was no available centralized

[40]While these issues are not technically limited to the period before the year 2000, that year is a clear turning point for the quality of data. This is because in 2000, the UNHCR adopted a standardized approach to refugee and asylum seeker data collection, and around the same time, asylum countries adopted information and communication technologies that improved data collection and reporting processes. The issues that we describe below persist beyond the year 2000 but at significantly reduced levels/rates. We adopt the pre-/post-2000 framing as a constructive heuristic that parsimoniously captures the phenomena we describe below.

data on the year on which the UNHCR began tracking refugees and asylum seekers by country. Many scholars constructed panel datasets and set country- or dyad-year observations to 0 in the absence of positive displacement values.[41] While missing positive refugee values for some observations may be true 0s, some were positive values that were not collected by/shared with the UNHCR. The practice of setting country/dyad-year observations that precede country-specific data collection timelines to 0 affects nearly every study we replicate.

We supplement our analysis with UNHCR-supplied data on centralized collection efforts by country from 1970 on.[42] Patterns in data collection are depicted in Figure 3. The UNHCR did not began to centrally collect data on asylum seekers globally until the year 2000, producing a substantial increase in data from several dozen industrialized countries to 137 countries, with additional countries entering every year thereafter. However, many countries do not enter into centralized records until many years after statistics began to be collected.

How widespread is the issue of coding NAs as 0s? In asylum-country-year panel datasets, for the period 1962–1999, $\approx 49.82\%$ of observations (3730 of 7486) preceding country reporting timelines would be set to 0. When we look at the period 2000–2022, that number drops to $\approx 11.54\%$ (500 of 4334). For directed-dyad-year panel datasets, these numbers are $\approx 50.75\%$ (738,436 of 1,455,183) and $\approx 13.03\%$ (102,334 of 785,483), respectively.[43]

Unknown Missingness Within Origin-Country Datasets

A related but separate issue of missingness emerges from the temporally staggered asylum-country reporting patterns. This issue concerns the construction of origin-country and origin-country-year datasets. UNHCR records come mostly from asylum state records, significantly complicating efforts to calculate origin-country or origin-country-year observations. This is because so many asylum countries were not reporting; it is unknown whether some number of refugees left a given origin country for non-reporting hosts during the pre-2000 period.

[41] Typically, authors have constructed balanced panels, setting country/dyad-year observations to the same starting year and assigning 0s to observations without refugee values.

[42] The exception is 37 countries that supplied data to the UNHCR on asylum flows between 1970 and 1999. For these countries, initial reporting years are unknown – only that these 37 countries reported asylum figures during some or all years during this period. We discuss this in more detail later.

[43] At the much reduced post-2000 levels of missingness, scholars might implement imputation procedures to estimate values for these missing values.

This issue is especially relevant for our replications, because 11/19 (≈68%) of the "causes" studies we replicate (≈40% of all of the studies we replicate) use origin-country panel datasets in their analyses. These studies are therefore missing some unknown (and potentially very substantial) number of refugees and asylum seekers fleeing from those countries, because the asylum countries to which they fled were not then reporting data to the UNHCR.

In Figure 3, we display the annual number of asylum countries that reported inflows from each origin country, with each inflow corresponding to outflows for that origin country. As indicated by UNHCR country-specific reporting timelines, there is a significant increase in the number of asylum countries reporting data in 2000. Between 1962 and 1999, the rate of change in the number of reporting asylum countries per origin country is ≈1019.91%[44]; between 2000 and 2022, that number is ≈19.75%. This indicates that origin-country focused studies using pre-2000 data are very likely missing many outflows from those countries, because many of the countries to which the refugees fled did not report them. For research designs in which the national origin of refugee and asylum seeking populations is relevant, missingness on this variable is certain to introduce some degree of noise to results, potentially also introducing bias. We display this pattern in Figure 3.

Refugees/Asylum Seekers of Unknown Origin

Another change in data reporting patterns that took place around 2000 is a rise in the number of asylum countries reporting national origin data on refugees, thereby reducing missingness in outflows from sending countries. Before 2000, a significant number of countries that were reporting data did not track the origin of refugees/asylum seekers. (In these cases, the *number* of refugees/asylum seekers was tracked but their origins were unknown – a different issue to the one we raise above, where the the number of refugees/asylum seekers is not known in the first place.) For research designs in which the national origin of refugee and asylum seeking populations is relevant, missingness on this variable introduces some degree of noise to results, potentially also introducing bias. We display this pattern in Figure 3.

[44]Readers may wonder if this extreme percentage is driven by particularly low numbers of reporting countries in 1962. Even if we recalculate this percentage from 1970 through 1999, it is ≈777.26%.

A.1.5 Imputation of Missing Flow Values in Major Cases

As described in the paper, one improvement of the new flow data over the stock data for the purposes of studying flows concerns the treatment of "non-flow increases". The stock data include a number of cases where adjustments to a stock value in various years were made not because the stock actually increased from the year prior but because some methodological revision, legislative change, or other host-country change to defining/calculating refugees/asylum seekers resulted in a re-counting or re-estimate of the number of refugees/asylum seekers in the country. In these cases, when the re-count/re-estimation is positive, the stock-based inflow estimates show increases in the number of individuals arriving to the country that do not actually reflect new arrivals. In the new data, such changes have been removed to ensure that such non-flow increases are not reflected.

There is one important caveat: In some cases, (e.g. refugee counts from censuses), stock values represent cumulative inflows over multiple previous years during which they were not recorded. In such cases, both the new flow and stock-based data are incorrect. Such inflows do not appear in the new data, and they are wrongly displayed in the stock data years after they occurred. Through continued communication with the UNHCR, we have sought to identify and correct significant cases in which this occurs, ensuring that these missing inflows appear in the new data. These efforts are surely incomplete, and we do not carry out the analyses in this paper using the imputed dataset. Though, we offer it in the hopes of advancing continued efforts to refine/expand these and/or future versions of the UNHCR flow data. Below, we detail the specific set of cases in which we have applied corrections and our method for doing so.

We refer readers who are interested in the precise calculations to the R code accompanying this project.

Flow of Afghans to Pakistan: In 2007, the UNHCR registered an increase in the population of Afghan refugees in Pakistan of nearly one million individuals. Before 2007, Pakistan had included in its count of refugees only those living in camps. Through the census, Pakistan identified refugees residing in urban areas. The UNHCR has not included these additional recognized refugees in the flow data as they were unable to ascertain when these individuals had left Afghanistan. We approximate their arrival by distributing the 2007 stock increase of

refugees (minus flows that were actually captured) across the preceding war years at a rate reflecting inflows that were captured by the UNHCR during this period.

Flow of Iraqi to Jordan and Syria: In 2006 and 2007, the UNHCR registered increases in the population of Iraqi refugees in Jordan and Syria, with Jordan showing an increase of approximately half a million in 2006 and Syria showing an increase of approximately 1.5 million between 2006 and 2007. These populations were updated as Iraqis were registered and verified by the UNHCR, but as with the case above, the UNHCR has not entered them into flow data, because they lack data on these refugees' actual departure years from Iraq. We approximate their arrival to Jordan and Syria by distributing the three stock increases (minus inflows that were captured) across the preceding war years (starting in 2003 with the United States invasion of Iraq) at a rate reflecting inflows that were captured by the UNHCR during this period.

Flow of Burundi to Rwanda and Tanzania: In 1993, following the murder of its president, Burundi experienced significant refugee outflows (Stearns, 1994). Nevertheless, in the new data, for Burundi to Rwanda and to Tanzania in 1993, no outflows are reported. According to the UNHCR, this is because of verification issues associated with arrival years. Since there is evidence that these outflows occurred in 1993, we assign the stock-based estimate to that year's inflow values for both receiving countries.

Flow of Sahrawi to Algeria: Starting near the end of 1975, Fiddan-Qasmiyeh (2011) describe the "mass exodus of Sahrawi firstly being displaced to other parts of the territory... and later... to the nascent Algerian-based refugee camps near the territory's border with that country." The new data show no international displacement during this period. We rely on historical references to displacement beginning at the end of 1975 and then increasing thereafter. The stock data show staggered increases in the Sahrawi stock in Algeria between the years of 1975 and 1977, then no other change until 1981, when the population increases by 165,000. We estimate flows based off these year-to-year changes, linearly interpolating the estimated flows from 1977 through 1981.

Flow of Colombians to Venezuela and Ecuador: In 2005, the UNHCR registered increases in the population of Colombian refugees ("others of concern") in Ecuador and Venezuela of approximately 250,000 and 175,000, respectively. In these case, despite requiring international protection, many such individuals did not apply for asylum for reasons that included security concerns. As before, verifications and re-assesssments by the UNHCR allowed for adjustments to the stock figures but not to the flows, because of uncertainty over arrival years. Attributing these "others of concern" to specific years is especially difficult because of the long-running nature of the conflict in Colombia. However, we again use the flow data to guide us in estimating the temporal distribution of the refugees who were missed. The first recorded year of flows in the new flow data is 1991 for Colombians arriving to Ecuador; for Venezuela, the first recorded year is 1996. Thus, we use the pre-existing flow rates over the periods 1991 through 2005 for Ecuador and 1996 through 2005 for Venezuela, distributing the extra flows across those years.

A.1.6 Additional Reflections on the Observation that Refugee/Asylum Seeker Outflows Are At an All-Time High

We observe that forcible displacement has reached historical highs over the past decade. This observation is based on available UNHCR data, and a few caveats are required. First, because the UNHCR data does not extend beyond the end of the second world war, the observation is limited to this contemporary history. Second, as detailed throughout this letter, the UNHCR's data collection process has improved over time, and part of the rise in numbers reflects more thorough documentation/record keeping; current reported increases should be interpreted with caution, as previous spikes in displacement may be under-counted. Finally, while levels have recently reached all-time highs, this does not take into account increases in the global population. The consequences of refugee flows, for instance, may be influenced less by overall refugee and asylum seeker numbers than they are the size of those populations relative to the populations receiving them. When we standardize global yearly outflows by global yearly population patterns change somewhat substantially. While the recent spike in outflows is undoubtedly substantial relative to overall population levels, it is less substantial than outflows that occurred in 1980 and again in the early 1990s as the Soviet Union collapsed.

A.2 Replication Details

A.2.1 List of Academic Publishers and Formal Search Query

Academic Publishers: American Association for the Advancement of Science; Cambridge University Press & Assessment; Elsevier; National Academy of Sciences; Nature Portfolio; Oxford University Press; PLOS; Royal Society Publishing; Sage Publishing; Springer; Taylor & Francis Online; University of Chicago Press Journals; and Wiley.

Formal Search Query: "refugee flows" | "refugee inflows" | "refugee outflows" & "UNHCR" & "data" & site:pnas.org | site:science.org | site:nature.org | site:plos.org | site:royalsocietypublishing.org | site:tandfonline.com | site:cambridge.org | site:oup.com | site:sagepub.com | site:wiley.com | site:journals.uchicago.edu | site:elsevier.com | site:springer.com | site:jstor.org

A.2.2 Detailed List of Included Studies

Article Details (Causes of Refugee Flows)

Causes								
No.	**Article Name**	**Journal (Year)**	**Authors**	**Citation Count**	**Study Period**	**Outcome Variable**	**Explanatory Variable**	**Identification**
1	Sometimes You Just Have to Leave: Domestic Threats and Forced Migration, 1964 – 1989	*International Interactions* (2003)	Christina, Will Moore, Steven Poe	492	1964–1989	Net Migration	Violent Threat (Repression, Dissent violence, and Civil War)	regression w/ fixed effects†
2	The Effects of Foreign Aid on Refugee Flows	*European Economic Review* (2019)	Axel Dreher, Andreas Fuchs, Sarah Langlotz	83	1976-2013	Refugee Flow by Stock	Foreign Aid	instrumental variable†
3	Refugee Gravitation	*Public Choice* (2016)	Jon Echevarria-Coco, Javier Gardeazabal	25	1990–2013	Refugees Stocks*	Conflict, Civil Liberties, Language, etc.	regression w/ fixed effects†
4	A Spatial Model of Internal Displacement and Forced Migration	*Journal of Conflict Resolution* (2021)	Jon Echevarria-Coco, Javier Gardeazabal	6	1990–2016	Refugees & IDPs Stocks*	Spatial & Geographical Factors	regression w/ fixed effects†
5	Judicial independence and refugee flights	*Conflict Management and Peace Science* (2022)	Saadet Ulasoglu Imamoglu	0	1976–2015	Stock-Based Refugee Flow	Judicial Independence	regression w/ fixed effects†
6	The Refugee of My Enemy Is My Friend: Rivalry Type and Refugee Admission	*Political Research Quarterly* (2019)	Joshua L. Jackson, Douglas B. Atkinson	10	1960–2006	Stock-Based Refugee Flow	Interstate rivalry	regression w/ controls
7	The Threat of Violence and Forced Migration: Geographical Scope Trumps Intensity of Fighting	*Civil Wars* (2007)	Erik Melander, Mangus Oberg	126	1981–1999	Stock-Based Refugee Flow + New IDP's	Geographical Scope and Intensity of Fighting	regression w/ controls
8	Fear of Persecution: Forced Migration, 1952-1995	*Journal of Conflict Resolution* (2004)	Will H. Moore, Stephen M. Shellman	461	1952-1995	Refugee Flow by Stock	Dissent, Genocide, Civil War, Polity	regression w/ fixed effects†
9	Refugee or Internally Displaced Person? To Where Should One Flee?	*Comparative Political Studies* (2006)	Will H. Moore, Stephen M. Shellman	231	1990–2011	Stock-Based Refugee Flow / New IDP's	Push of Genocide Civil war; Pull of Democracy GDP	regression w/ controls

*Theory-based extension

†Plausibly Causally Identified

Article Details (Causes of Refugee Flows)

Causes								
No.	**Article Name**	**Journal (Year)**	**Authors**	**Citation Count**	**Study Period**	**Outcome Variable**	**Explanatory Variable**	**Identification**
10	Whither Will They Go? A Global Study of Refugees' Destinations, 1965-1995	*International Studies Quarterly* (2007)	Will H. Moore, Stephen M. Shellman	292	1965–1995	Stock-Based Refugee Flow	Various (Violence, Economics, Etc)	regression w/ controls
11	Risk Factors for Forced Migrant Flight	*Conflict Management and Peace Science* (2007)	Will H. Moore, Jacqueline H. Rubin	49	1965–1994	Binary Indicator of Flow	Migration Risks (genocide, civil war,etc.)	regression w/ fixed effects†
12	Refugees and Rivals: The International Dynamics of Refugee Flows	*Conflict Management and Peace Science* (2019)	Shweta Moorthy, Robert Brathwaite	29	1952–2011	Stock-Based Refugee Flow	International Rivarly	regression w/ controls
13	The Asylum Hump: Why Country Income Level Predicts New Asylum Seekers, But Not New Refugees	*Journal of Refugee Studies* (2021)	Constantin Ruhe, Charles Martin-Shields, Lisa M. Grob	5	2000–2014	Stock-Based Refugee Flow, New Asylum Applications	GDP	regression w/ fixed effects†
14	How Inter-State Amity and Animosity Complement Migration Networks to Drive Refugee Flows: A Multi-Layer Network Analysis,1991–2016	*PLOS ONE* (2021)	Justin Schon, Jeffrey C. Johnson	6	1991-2016	Refugee Flow by Stock	Networks of interstate amity and animosity	network model
15	Why Physical Barriers Backfire: How Immigration Enforcement Deters Return and Increases Asylum Applications	*Comparative Political Studies* (2021)	Justin Schon, David Leblang	10	1990–2016	Stock-Based Refugee Flow	Borders	instrumental variable†
16	Supporting Rebels and Hosting Refugees: Explaining the Variation in Refugee Flows in Civil Conflicts	*Journal of Peace Research* (2021)	Oguzhan Turkoglu	4	1968–2011	Stock-Based Refugee Flow	State Support of Rebel Groups	regression w/ controls; matching†
17	Nowhere to go? Why do Some Civil Wars Generate More Refugees Than Others?	*International Interactions* (2019)	Oguzhan Turkoglu, Thomas Chadefaux	17	1951–2008	Stocks*	Neighborhood Polity GDP	regression w/ fixed effects†
18	Unpacking the Effects of Genocide and Politicide on Forced Migration	*Conflict Management and Peace Science* (2014)	Gary Uzonyi	34	1975–2010	Stock-Based Refugee Flow + IDP	Politicide Geonocide	regression w/controls
19	The Effects of Water Scarcity and Natural Resources on Refugee Migration	*Society and Natural Resources* (2013)	Travis Warziniack	20	2008	Refugee Stocks*	Water Scarcity	regression w/controls

*Theory-based extension

†Plausibly Causally Identified

Article Details (Consequences of Refugee Flows)

Consequences								
No.	**Article Name**	**Journal (Year)**	**Authors**	**Citation Count**	**Study Period**	**Outcome Variable**	**Explanatory Variable**	**Identification**
20	Blame the Victims? Refugees, State Capacity,and Non-State Actor Violence	*Journal of Peace Research* (2019)	Tobias Bohmelt, Vincenzo Bove, Kristian Gleditsch	60	1989 – 2015	Non-state Actor Violence	Refugee Stock*	regression w/ controls
21	No Good Deed Goes Unpunished:Refugees, Humanitarian Aid, and Terrorism	*Conflict Management and Peace Science* (2013)	Seung-Whan Choi, Idean Salehyan	196	1970–2007	Domestic International Terrorist Attacks	USCRI Refugee Flow	regression w/ controls
22	Hosting Your Enemy: Accepting Refugees from a Rival State and Respect for Human Rights	*Journal of Global Security Studies* (2020)	Tiffany Chu	10	1990-2010	Human Rights Score	Refugee Stock* from Rival Countries	regression w/ controls
23	Radicalism of the Hopeless: Refugee Flows and Transnational Terrorism	*International Interactions* (2013)	Daniel Milton, Megan Spencer, Michael Findley	135	1969–2001	ITERATE Transnational Terrorism	Stock-Based Refugee Flow	regression w/ controls
24	Trojan Horse, Copycat, or Scapegoat? Unpacking the Refugees-Terrorism Nexus	*Journal of Politics* (2021)	Sara M.T. Polo, Julian Wucherpfennig	11	1970–2016	Terrorism (GTD)	Refugee Stock*	fixed effects; instrumental variable†
25	Refugees and the Spread of Civil War	*International Organization* (2006)	Idean Salehyan, Kristian S. Gleditsch	1346	1951–2001	Spread of Intrastate Conflict	Refugee Stock*	regression w/ controls
26	The Externalities of Civil Strife: Refugees as a Source of International Conflict	*American Journal of Political Science* (2008)	Idean Salehyan	360	1955–2000	Militarized Interstate Disputes	Refugee Stock*	regression w/ controls
27	Refugee Flows and State Contributions to Post-Cold War UN Peacekeeping Missions	*Journal of Peace Research* (2015)	Gary Uzonyi	63	1990–2011	Peacekeeping Mission	Stock-Based Refugee Flow	regression w/ fixed effects†
28	Refugees, Economic Capacity, and Host State Repression	*International Interactions* (2018)	Thorin M. Wright, Shweta Moorthy	23	1952–2011	Repression	Refugee stock*	regression w/ fixed effects†

*Theory-based extension

†Plausibly Causally Identified

A.2.3 Replication Categories

In this subsection, we provide additional details relating to the replications. Below we describe the three types of replications we engage in.

Replications

Most of our replications are direct reproductions of statistical tests carried out by authors who use flow estimates to directly study the causes or consequences of refugee flows. We first identify articles in which authors derive empirical results using estimates of refugee flows. We then replicate their approaches, substituting the new UNHCR flow measures in place of their previous estimates and maintaining the original values of all other variables. In these cases, our replicated results using flows should be seen as substitutes for results originally reported by authors.

Theory-Based Extension

In another set of articles, authors use some non-flow measure of refugees and/or asylum seekers (e.g. stocks), but we assess the work to be related theoretically to flows. To identify these cases, we first look for direct language by authors indicating a specific focus on refugee flows. When there are no direct references, we turn to the logic guiding the research for indications of an implicit theoretical focus on flows. In such cases, our replicated results using flows should *not* necessarily be viewed as substitutes for results originally reported by authors but as supplements to existing research. Several examples below highlight differences across articles and further explicate this process.

In some cases, authors chose not to use flows simply because flow data were previously unavailable. As Devictor, Do and Levchenko (2021) write:

> "[W]e cannot reliably calculate refugee flows. Thus, the main variable used in the analysis is the refugee stocks... To better approximate flows, we restrict the sample to large refugee events."

Similarly, even as Salehyan (2008, p. 795) includes flow estimates in their analysis as a robustness check, they note that flow estimates are "not a true flow measure and [...] refugee repatriation and third-country resettlement can affect totals." Because this author did choose to use flows, the decision to replicate their work with the new flow data is straightforward.

In addition, their arguments confirm our choice to replicate the study, with many relating directly to considerations of short-term inflows (as opposed to the potentially protracted presence captured by stock measures). For instance, they argue that:

> "In countries where ethnic cleavages are deeply entrenched, **large, unexpected migrant inflows** may tilt the delicate ethnic balance in the host society and spark intergroup conflict... As Brown (1996) [(1996)]writes, 'The **sudden influx of refugees** can aggravate ethnic problems and further complicate the picture by changing the domestic balance of power' (1996, 576)."[45]

Clearly, this type of dynamic is much better captured by flow than stock numbers. Yet the stock measures that Salehyan (2008) uses align nicely with other arguments they make, including potential strain on public services and the spread of disease, which might persist or even increase in intensity as refugees remain stranded within a given host country.

In this case, stock and flow measures capture separate, complementary dynamics. While our results speak to the effects of refugee inflows on the risk of militarized disputes between states, Salehyan (2008)'s stock-based results capture the effect of a given number of refugees hosted (however long those refugees remain in the country) on that risk. Because many refugees live in protracted displacement,[46] it is also critical to understand the effects of longer-term residence in asylum countries.

Other examples come from Salehyan and Gleditsch (2006), who focus explicitly on refugee flows (e.g. "the role of **refugee flows**", the "experience [of] an **influx of refugees**"[47]) throughout their research, and Polo and Wucherpfennig (2022). In these articles, some mechanisms relate clearly to the refugee stock measures they use in their studies. Yet, others (e.g. "transnational or domestic terrorist outcomes [based on] host countries' presumed inabilities to screen, vet, or integrate large numbers of refugees due to administrative overload" (Polo and Wucherpfennig, 2022, p. 16)) occur with the *arrival* of refugees (flows), not their persistent presence (stocks). Again, in reviewing the logic undergirding both studies, we conclude that the authors' use of stocks and our use of flows produce distinct, complementary inferences.

[45] Bolded text applied by the authors.

[46] According to (UNHCR, 2020, p. 24), "...the vast majority (77%) of the world's refugees are living in protracted displacement... cases in which '25,000 or more refugees from the same nationality have been in exile for at least five consecutive years')."

[47] Bolded text applied by the authors.

Contemporary Replications

We also engage in a separate set of empirical exercises in which we use the new data to extend existing research beyond their original study periods, setting the base year to 2000, to determine whether and how results change. Many of the most influential studies on the causes or consequences of refugee flows are based on data that correspond largely to the Cold War period. For example, Salehyan and Gleditsch (2006)'s highly cited work on refugees and the spread of civil war and Moore and Shellman (2004, 2006, 2007)'s pioneering work on the determinants of displacement cover the periods 1951-2001, 1952-1995, 1976-1995, and 1965–1995, respectively.

Because reporting by countries of refugees and asylum seekers increases significantly in the year 2000, in these contemporary replications we restrict our re-analysis to the period beginning in the the year 2000 and ending in the most recent year for which we are able to obtain data for all variables included in the original studies.[48] Because many datasets used in studies (e.g. to generate controls) are not updated frequently, we arbitrarily restrict our set of contemporary replications to those for which the the original study periods include no data after 2013.

The results generated through these contemporary replications represent our best estimates of the actual relationships relating to the causes and consequences of refugees examined in this project. The results from these extensions are both contemporary and based on the highest quality, most (geographically) comprehensive data available.

A.2.4 Detailed Replication Procedures

Although we provide below many (and the most important) details associated with the replications and contemporary analyses, for succinctness, we do not include all details of coding decisions; these are included in the notes contained in our replication materials, within the relevant R scripts.

[48] For these contemporary replications, data included in the original studies (whether as independent variables, primary explanatory variables, or as controls) are sometimes no longer available from their original source. In such cases, we identify alternative sources to construct the variables used in the studies. In other cases where a specific variable is widely used across studies (e.g. country GDP), for sake of efficiency, we use data from a single source rather than constructing GDP measures from all possible sources. In some cases, as we describe in the Appendix, our reconstructions of variables also represent improvements on data previously used for that variable.

UNHCR Political Boundaries: Contemporary vs. Historical

The UNHCR data is based on contemporary country boundaries. This has two implications. First, some now-defunct states were subsumed under a single, geographically larger state (e.g. East Germany was dissolved into contemporary Germany when it unified with West Germany). In these cases, it is impossible to match flows to the historical state.[49] However, this should not affect our replications, as the UNHCR stock data undergirding most existing work also uses contemporary boundaries. Thus, such cases *should* have already been removed from the analyses we replicate.[50] Thus, while the lack of historical boundaries does not affect our ability to replicate studies, it does mean that certain cases are unavoidably excluded from analysis; this has only modest implications for the generalizability of our work (and previous work), for these cases are relatively rare[51].

Some now-defunct states have fractured into smaller contemporary states (e.g. Sudan). These cases are much easier to deal with, as we are able to recover the values for the historical state by aggregating refugee values for the current states to the previous state for all relevant years that the previous state existed. In the case of Sudan, for all years prior to 2011, values for modern-day Sudan would equal the summation of values for South Sudan and contemporary Sudan.

Because refugee movements cannot always be tied to historical states, this also has implications for the construction of origin-country flow data, which we discuss below.

UNHCR Political Boundaries: Partially Recognized States

A second issue concerns cases in which state independence is only partially recognized internationally (e.g. Kosovo, Northern Cyprus, Palestine, the Sahrawi Arab Democratic Republic, and Taiwan). UNHCR flow data reflects only countries the United Nations recognizes. This issue is, of course, not specific to the UNHCR data, and all country-year datasets must adopt some

[49] We discuss this further in the conclusion of the paper and highlight the value such data might have should the UNHCR ever attempt to construct such a dataset.

[50] We say *should* here because we did encounter at least one case in which scholars included values (all 0s) for such states in their analysis; this is incorrect and is likely a data preparation oversight. For such case(s), we first re-run their analysis without these countries (to confirm that their previous results hold) before running our replication(s) without these countries.

[51] Other cases include North and South Vietnam, North and South Yemen, and West Germany.

set of boundaries that include or exclude such cases.

We note this here only because the set of states in the UNHCR data does not always match the set included in the other datasets that we replicate with the flow data. This mismatch results in particular coding decisions. For instance, the UNHCR does not include Kosovo, which instead falls under the broader single designation of "Serbia and Kosovo: S/RES/1244 (1999)", referencing United Nations Security Council resolution 1244. For datasets that treat Kosovo and Serbia as separate states, we modify these data (rather than the UNHCR data, which we are unable to disaggregate), merging Serbia and Kosovo into a single entity. For instance, for population values, we would sum population values for both territories for both years.[52][53][54]

Overseas Territories

In some cases the UNHCR tracks flows in and out of territories (e.g. the British overseas territories of Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Gibraltar, and Montserrat). Because such territories are formally part of other countries, and because many datasets used in the replications and extensions exclude these territories, we aggregate their numbers to the appropriate subsuming state.

Micro-states

A number of micro-states are deleted from the panels used in the replications and extensions because data is generally unavailable for these countries.[55] The UNHCR tracks refugee flows to and from these states, but their numbers are small: total inflows and outflows to these states

[52]None of our coding decisions should be interpreted as normative political judgments about any of these disputed cases. For practical reasons associated with data construction, we follow United Nations coding decisions. As scholars, we remain neutral on this point, even if we personally hold particular views.

[53]We note East Timor independently, given its transition to independence. Although the UN Transitional Administration in East Timor (UNTAET) was established in 1999, the state was not formally independent until 2002 (BBC News, 2018), so data from many sources for East Timor is often unavailable before 2002. The violence that led to outflows from the East Timor region pre-independence were perpetrated by and/or with the support of the Indonesian state. Therefore, we match refugee outflows between 1999 and 2001, associated with East Timor by the UNHCR, to Indonesia.

[54]A second example includes the modern-day countries Slovakia and Czechia, formally united and known as Czechoslovakia pre-1993. Thus, for 1991 and 1992 we aggregate the UNHCR values to create Czechoslovakia.

[55]These include Andorra, Antigua & Barbuda, Dominica, Grenada, Kiribati, Liechtenstein, Marshall Islands, Micronesia (Federated States of), Monaco, Nauru, Niue, Palau, Samoa, San Marino, São Tomé & Príncipe, Seychelles, St. Kitts & Nevis, St. Lucia, St. Vincent & Grenadines, Tonga, Tuvalu, Vanuatu, Vatican City.

between 1991 and 2020 are 4672 (0.007726093% of total inflows) and 17,660 (0.02920437% of total outflows), respectively.

Stateless and Unidentified Refugees and Receiving States

The UNHCR data includes flows of refugees officially designated as stateless as well as flows in which sending or receiving states are simply unknown. States of origin may be unknown for refugees whose arrival in asylum countries is recorded, and asylum destinations may be unknown for individuals whose flight from particular countries is recorded. Where possible, we include these populations in our analyses. For instance, in studies conducted using the (asylum) country-year level of analysis, details on origin are often not used, and individuals in UNHCR's "Stateless" and "Unknown/Various" categories can therefore be included in our replications. However, for all replications and extensions in which statistical testing is performed using (country) dyadic or directed dyadic panel datasets, these groups of individuals are necessarily excluded; no other variables can be associated with them. For context, total inflows and outflows of unknown origin from 1991-2020 are 8,366 (0.01383487% of all inflows) and 737,637 (1.219831% of all outflows), respectively. Total outflows of stateless origin 1991-2020 are 149,599 (0.2473921% of all outflows).

Data on Internally Displaced Persons

Some articles that we replicate and/or extend combine two sets of data — estimates of refugee flows and data on internally displaced persons — to create more general measures of forcible displacement. For these, we complete replications and extensions with available IDP data. However, we have general concerns about the nature of existing IDP data: as the former Internal Displacement Monitoring Centre (IDMC) director notes, "for most countries affected by internal displacement only rough estimates are available. These often only cover parts of a country, or specific groups of IDP" (Rasmusson, 2006).[56] Although various efforts are underway to develop better data on IDPs (see, for instance, Taia, Mehraa and Blumenstocka (2021)), we use the existing IDP data with the caveat that results derived from them should should be interpreted

[56]See also World Bank Group (2019). These problems of data collection extend not only to those IDPs who are directly displaced by violence but also to refugee returnees who end up as part of the existing IDP population (Fagen, 2009)

with caution.[57] Nevertheless, the studies we replicate/extend were published using such data, and we accordingly follow their approach. Our approach to using IDP data is as follows: for replications, we follow previous scholars in using data from USCRI (2008). For extensions, USCRI (2008) cannot be used as it ends in 2008. Instead, we combine data from two separate sources (IDMC, 2020*b*; UNHCR, 2021*a*) to construct IDP flow estimates from 2008 through 2020.[58]

The Issue of Constructing Origin-Country Panel Datasets

For the pre-2000 period, substantial numbers of countries did not consistently report data to the UNHCR. That UNHCR records are mostly constructed from asylum state records significantly complicates efforts to calculate origin-country/origin-country-year observations, for in the pre-2000 period, it is unknown whether some number of refugees left a given origin for a non-reporting host. The most conservative approach would assume potential missingness for ALL refugee-sending countries in the pre-2000 period as there is some non-zero probability that they sent refugees to one or more of the non-reporting countries during the period. However, that would effectively require assuming missingness for all countries before 2000.

As an alternative, since refugees often do not travel beyond contiguous neighbor states, we use reporting or lack thereof by refugee-sending countries' contiguous neighbors to determine whether or not to treat a given historical values of 0 as potentially false 0s. Indeed, for refugee/asylum seeker-producing countries, for the 2000-2021 period, we calculate that refugees traveled to *all* contiguous neighbors of the sending state in approximately 20 to 50% of cases. For refugee/asylum seeker-producing countries for this same period, refugees travel to at least one contiguous state in between roughly 50 to 90% of cases.

Specifically, for each year between 1962 and 1999, whether greater than 50% of the countries contiguous to a given origin were reporting in that year. If they were not, then we treat observations for that sending country as suspect and set them to NA. If a potential sending

[57]For instance, of the three existing datasets on IDP stocks or flows with which we are familiar, the first, USCRI (2008), is missing observations for 12.32 % of observations (375 of 3,045) in our country-year panel dataset; the second (UNHCR, 2021*a*) and third (IDMC, 2020*a*) are missing 51.92 % and 59.47 %, respectively.

[58]Specifically, for all years of overlap (2008 through 2017), we calculate the average of the two time series for each country.

country's contiguous neighbors were all reporting, we treat missing countries' 0s as true 0s and generate outflow counts for that country. This admittedly imperfect approach strikes a balance between taking the lack of reporting seriously and imposing strict criteria that would effectively eliminate all pre-2000 variables.[59]

Replications Matching Caveats

In some replications and extensions, issues with data and/or statistical models prevent us from carrying out direct comparisons; we denote these original models/data in the results with a "corrected" label. These data and/or model problems fall into three general groups.

The first issue affects replications only. In a number of cases, the study periods began before 1962, the first year for which the United Nations' flow data is available.[60] In these cases, we drop the years of non-overlapping coverage and reestimate results using the *original* data to determine whether or not the original findings are robust to dropping these early post-World War II years. We report these robustness test results in our results section, along with the replication results. In most cases, results using the abridged version of the original data are (effectively) unchanged. However, as we note above, this is not always the case. Most notably, Salehyan and Gleditsch (2006)'s results are not robust to dropping observations from the 1950s. We refer to these cases as temporally-restricted replications.

Second is an issue related to the issues with state boundaries and micro-states described above. Some authors who used the UNHCR stock data (which, like the flow data, is based on contemporary country boundaries only) did not, in their original work, always correct their

[59]As indicated previously, lack of historical country boundaries further complicates this effort. Consider the case of Czechoslovakia during the Cold War. Assume that the UNHCR reports no asylum data from Ukraine/Russia (where one of these two cases is presumed to have captured arrivals from Czechoslovakia into the Soviet Union had reporting occurred) nor from Hungary. Say, further that it does report arrivals to Germany and Austria. In this case, because we are unable to disaggregate the asylum records for Germany into those coming from West Germany and those from East Germany (likely none), we cannot determine whether the percentage of reporting states in this case would have been 60% (with East Germany reporting) or 40% (no East German reporting). Thus, as a general approach to this calculation, we adopt current boundaries but note that our calculations of percentages are therefore approximate and prone to error in cases of territorial change (either at the level of the origin state and/or the level of its contiguous neighbors). This serves as further warning to scholars seeking to use historical origin-country data. They are suspect not only because of the significant number of asylum countries that historically were not reporting but because efforts to match to asylum countries outside of the contemporary period introduce additional uncertainty and potential mismeasurement.

[60]Specifically these include: Moorthy and Brathwaite (2019) (1952-2011); Jackson and Atkinson (2019) (1960–2006); [3] Moore and Shellman (2004) (1952-1995); Turkoglu and Chadefaux (2019)(1951-2008); Salehyan and Gleditsch (2006) (1951-2001); Salehyan (2008) (1955-2000); and Wright and Moorthy (2018) (1952-2011).

variables to account for changes in countries and/boundaries. In such cases, we adjust the original dataset to correctly account for such changes. We then retest the authors' models, confirming that they are consistent with the original results, before moving on to the replication. We refer to these cases as geographically-corrected replications.

Third, some (typically generalized linear) models no longer produce estimates (e.g. they fail to converge) when either the new flows data is used (replications) or when the newly extended datasets are introduced. Given variation across studies, our approaches to this issue vary. However, broadly speaking, our process follows these steps: First, in some cases, the change in the nature of the data indicates that an alternative model should be used. The most notable instance of this arises in cases in which authors had originally used zero-inflated negative binomial models because of the preponderance of observations with values of 0 (usually country-year or dyad-year observations). For various reasons (e.g. any cases in which returns, resettlements, births/deaths, or any combination of these variables) equalled or exceeded outflows in a given year), the distribution of first-differenced flow estimates are skewed toward 0. In the actual flow data, however, observations of 0 are much rarer, and the choice of a zero-inflated model is no longer appropriate (nor practical to implement). Where such models produce estimation issues, we simply replace them with an alternative count model (e.g. negative binomial). In other cases, where co-linearity between variables produces convergence issues, we eliminate the minimum number of controls required to achieve estimation. For instance, some authors include squared and cubic terms of variables that are highly correlated. In such cases, if we can achieve convergence by dropping only the cubic term, we do that. Most importantly, in all such cases we first confirm that results using the *original* data produce results consistent with those originally reported by the author(s) to confirm that the omitted variables do not influence them. Only then do we proceed to replicate using the truncated set of variables.

Contemporary Replications Specifics

This final sub-section provides details specific to the contemporary replications. We carry out contemporary replications of all studies. However, we extend only those with few if any observations corresponding to years in the 2000s. Specifically, we select for extensions all articles

with study periods that do not extend past 2012.[61] The set of articles that we extend comprises Davenport, Moore and Poe (2003); Jackson and Atkinson (2019); Melander and Oberg (2007); Moore and Shellman (2004, 2006, 2007); Moorthy and Brathwaite (2019); Turkoglu and Chadefaux (2019); Uzonyi (2014); Choi and Salehyan (2013); Chu (2020); Milton, Spencer and Findley (2013); Salehyan (2008); Salehyan and Gleditsch (2006).

For each contemporary replication, we begin the new study period at 2000, when the UNHCR's near complete global coverage began; end dates vary according to data availability. Some covariates are widely used across the set of cases we replicate. For instance, measures of GDP or GNP are often included in regression analyses. For purposes of efficiency, and in some cases for the sake of data improvement, we adopt standard measures of such variables, applying them to all extensions, even where the original authors adopted a different data source. GDP is a good example. Historically, obtaining quality data on GDP has been challenging for countries experiencing civil conflict (Gleditsch, 2002) — precisely the set of countries of interest in many of the papers we replicate/extend. Recent work by Fariss et al. (2022) introduces improved GDP data for use by conflict (and other) scholars. Thus, we adopt their updated GDP (and population) measures in our extensions. In other cases, data used by authors has not been updated for many years (e.g. some of the Correlates of War data). For these, we necessarily identify alternative measures for the extensions. These coding decisions and other details relating to each case are provided below.

As a second example, authors using the Polity dataset dealt with missing data using various strategies. Polity has since taken steps to deal more carefully with these special transition codes. Thus, in the extensions, we may drop additional variables that the authors included solely based on missingness and simply use the updated Polity measures.

Ethical and Data Access Considerations

All data used in the study are publicly available, with the exception of the restricted ITERATE terrorism dataset as well as the DATABANKS INTERNATIONAL'S Cross-National Time-Series Data (CNTS).

[61] This cutoff is somewhat arbitrary, but we selected it based on the fact that a number of covariates required for the extensions come from datasets that themselves do not cover much of the past decade. The feasibility of consistently carrying out extensions that extend beyond this period is limited.

A.3 Results

A.3.1 Summary of Replication Scores

Table A1: Result Scores (Causes of Refugee Flows)

Causes					
No.	**Article**	**False 0's Removed**	**New Flow Measure**	**Both Modifications**	**Contemporary**
1	Davenport, Moore and Poe (2003)	7/7	7/7	6/7	6/7
2	Dreher, Fuchs and Langlotz (2019)†	NA∗	0/3	0/3	0/3
3	Echevarria and Gardeazabal (2016)‡†	NA∗	4/4	4/4	4/4
4	Echevarria and Gardeazabal (2021)‡†	NA	3/4	3/4	3/4
5	Ulasoglu Imamoglu (2022)†	NA	1/1	1/1	1/1
6	Jackson and Atkinson (2019)	2/2	2/2	2/2	2/2
7	Melander and Oberg (2007)	3/3	2/3	2/3	3/3
8	Moore and Shellman (2004)†	4/4	3/4	4/4	4/4
9	Moore and Shellman (2006)	4/4	2/4	2/4	2/4
10	Moore and Shellman (2007)†	16/17	10/17	10/17	11/17
11	Rubin and Moore (2007)	3/3	3/3	2/3	3/3
12	Moorthy and Brathwaite (2019)	2/2	1/2	1/2	1/2
13	Ruhe, Martin-Shields and Groß (2021)†	NA∗	1/1	1/1	NA×
14	Schon and Johnson (2021)	NA∗	1/1	1/1	NA
15	Schon and Leblang (2021)†	NA∗	3/3	3/3	3/3
16	Turkoglu and Chadefaux (2019)‡†	2/2	2/2	2/2	0/2
17	Turkoglu (2021)†	1/1	1/1	1/1	1/1
18	Uzonyi (2014)	2/2	2/2	2/2	1/2
19	Warziniack (2013)‡	NA∗	2/2	2/2	NA×
19	**Total**	47/48 ≈**98** (100)%	50/66 ≈**76** (83)%	49/66 ≈**74** (82)%	46/62 ≈**74** (74)%
8	**Excluding Non-Plausibly Identified**	24/25 ≈**96** (99)%	28/40 ≈**70** (79)%	29/40 ≈**73** (82)%	27/39 ≈**69** (77)%
15	**Excluding Theory-Based**	45/46 ≈**98** (100)%	39/54 ≈**73** (80)%	38/54 ≈**71** (78)%	39/52 ≈**75** (78)%

‡Theory-based Extension ∗Author correctly handled missing values

†Plausibly Causally Identified ×Author's original study period included only post-2000 observations

Weighted Averages followed by Averages in Parentheses

Table A2: Result Scores (Consequences of Refugee Flows)

Consequences					
No.	**Article**	**False 0's Removed**	**New Flow Measure**	**Both Modifications**	**Contemporary**
20	Bohmelt, Bove and Gleditsch (2019)‡	2/2	2/2	2/2	2/2
21	Choi and Salehyan (2013)†	NA∗	0/2	0/2	1/2
22	Chu (2020)‡	2/2	0/2	0/2	0/2
23	Milton, Spencer and Findley (2013)	1/1	1/1	1/1	1/1
24	Polo and Wucherpfennig (2022)‡†	6/6	6/6	6/6	5/6
25	Salehyan and Gleditsch (2006)‡	0/1	0/1	0/1	0/1
26	Salehyan (2008)‡	2/2	2/2	2/2	1/2
27	Uzonyi (2015)†	0/2	0/2	0/2	0/2
28	Wright and Moorthy (2018)‡†	2/2	2/2	0/2	0/2
9	**Total**	13/17 ≈**76** (63)%	11/19 ≈**58** (44)%	11/20 ≈**55** (44)%	10/20 ≈**50** (43)%
3	**Excluding Non-Plausibly Identified**	6/9 ≈**66** (33)%	6/11 ≈**55** (25)%	6/12 ≈**50** (25)%	6/12 ≈**50** (33)%
3	**Excluding Theory-Based**	3/5 ≈**60** (67)%	1/5 ≈**20** (33)%	1/5 ≈**20** (33)%	1/5 ≈**20** (33)%

‡Theory-based Extension ∗Author correctly handled missing values

†Plausibly Causally Identified Weighted Averages followed by Averages in Parentheses

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