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DATA PAPER

Data visualization tool for a fairer geography of refugee protection in Europe

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Abstract

European asylum policy still has a long way to go to better address protection challenges. This paper presents data and visualizations that should help improve responsibility-sharing and solidarity between states. We developed an interactive cartographic tool to map the distribution of refugees in Europe. Besides the observed geographic distribution of asylum seekers and beneficiaries of the temporary protection status, our tool allows for the calculation of a theoretical distribution between countries based on different criteria. The tool is an interactive visualization created with the software "Tableau Desktop." The original data was collected from Eurostat and the World Bank, before being processed by the research team with the Extract Transform Load (ETL) utility "Tableau Prep" and made available through the Tableau Desktop application. The actual number of asylum applications lodged in country A can thus be compared with the number that would be proportional to that country's population within Europe in combination with three other criteria. Maps of observed and theoretical reallocations can thus be produced based on population size, area, unemployment rate, economic prosperity or a mix of these factors. The number of refugees received is represented by a red semicircle while the "equitable" number in proportion to given criteria is represented by a grey semicircle. Our database not only allows geographical analysis of the drivers of refugee distribution in Europe, but it also provides the population and policymakers with a solid basis for discussing responsibility-sharing schemes, such as those envisaged in the new EU Asylum Pact of 2024.

Policy Significance Statement

Responsibility-sharing is at the heart of the EU"s asylum policy, but there is as yet no measure of what constitutes a "fair distribution" of refugees between member states. Thanks to our new cartographic tool, it is now possible to identify countries that take in "too many" or "too few" refugees according to different criteria. An interactive interface makes it possible to simulate a fair share according to population size, surface area, unemployment rate, economic prosperity or a mix of such factors. Calculations can be made for the period 2008 to 2024, distinguishing between asylum seekers and beneficiaries of temporary protection. This tool provides an evidence-based foundation for reflection and negotiation. We hope that it will stimulate cooperation between countries in the context of the Asylum Pact ratified in 2024.

This research article was awarded Open Data badge for transparent practices. See the Data Availability Statement for details.

1. Background

Accepting refugees can lead to long-term demographic and economic benefits for welfare states, but the initial years of residence are costly in social services and can give rise to volatile political discourse. With few exceptions—most notably the short-lived "open doors" policy of Angela Merkel in 2015–2016—most European countries have attempted in the past to shift the responsibilities of receiving refugees onto their neighbours. Europe's asylum landscape is thus marred by blatant geographic imbalances whereby certain countries accommodate asylum seekers in far greater numbers than others, with Greece and Cyprus often leading the way. In 2020, the European Commission put forward its New Pact on Migration and Asylum as a means of remedying these imbalances, which have only been exacerbated by the Dublin agreement that obliges asylum procedures to be conducted in the country of first arrival.

The European Commission presented the *New Pact on Migration and Asylum* in September 2020: the provisions agreed in Dublin would be amended in favour of a mechanism whereby, in case of massive arrivals, applications would be redistributed geographically following an initial assessment in the country of arrival. Countries wishing to host fewer people would instead be tasked with higher financial contributions or providing logistical resources.

The war in Ukraine has complexified the issue of responsibility sharing with the implementation of the Temporary Protection Status (TPS), which had not been used in the past. Unexpectedly, however, the influx of millions of Ukrainians has helped ease the imbalances between EU members with countries that were traditionally very reluctant to accept asylum seekers—most notably Poland—now opening their doors to Ukrainians. This might have stimulated the final acceptance of the Pact by the *European Council* on 24 May 2024.

The EU pact only includes a very crude mention of a statistical key for a "share of solidarity contributions" that would include "population" (50%) and "GDP" (50%) (European Union, 2024: Art. 66 & Annex 1). Several countries, however, already operate statistical "repartition key" systems for geographically redistributing asylum seekers and/or existing refugees. Such systems often work to a satisfactory extent, despite the Herculean effort it can take to implement them and make them politically acceptable in the first place. This is the case in Germany, for example, where the "Königstein key" system is used among federal states (The quota is based for two-thirds on tax revenue and for one-third on the population of the "Bundesländer" (Bartl, 2019), and in Switzerland at the cantonal level, where each canton hosts a number of asylum-seekers proportional to its population size (Angeloni, 2019; Piguet, 2019).

That said, implementing this kind of system across 27 EU countries, and ideally including Norway, Switzerland, the United Kingdom as well as, in due course, other EU neighbouring countries such as the Balkan nations, is a different matter entirely. A project of this magnitude could only be negotiated and implemented if it relied on robust statistical tools to objectively measure what a fair distribution of refugees would look like. The following proposal focuses on the distribution of spontaneously lodged asylum requests as well as TPS beneficiaries to assess the "burden" of processing applications and assist asylum seekers during the initial phase of their arrival. Further development of the tool could easily generate maps showing the number of people granted refugee and other forms of protection status, taking into account the variability of protection rates between European countries.

2. Methods

In this section, we present the development of the interactive visualization tool available at one line: https://nccr-onthemove.ch/indicators/what-would-be-a-fair-distribution-of-refugees-in-europe/

2.1. Visual statistics

Interactive visualizations allow users to explore and manipulate complex quantitative data with limited technical skills. Being able to perform these actions depends on a system that combines a sound grasp of numeracy with an infrastructure that supports machine-user interaction. The field of visual statistics has a long history, with strong advocates such as John Tuckey in the US and Eugene Horbert in Switzerland.

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Under the leadership of Leland Wilkinson, the discipline has significantly influenced the development of graphic capabilities in statistical tools like R and SPSS, and more recently, the rise of business intelligence software, of which Tableau is a successful example.

2.2. Visualization software

In our solution, we opted for Tableau over open-source alternatives such as R/Shiny developed by RStudio/Posit, as the proprietary software offers a relatively simple and fast way to create interactive visualizations. However, the ongoing development of equivalent open-source tools will probably make this choice obsolete in the near future. The main inconvenience of Tableau for scientific use is its restricted export capabilities, particularly in .txt format, which forces us to rely on screenshots for documentation.

2.2.1. Software for data preparation

Although the original files are well documented, many operations are needed to make them efficient for the software used for interactive visualizations. We have imported, cleaned, harmonized, and pre-processed the original data files that Eurostat and the World Bank make publicly available by using an ETL tool (also produced by Tableau) called "Tableau Prep," which executes a flow of data manipulation scripts using visual paths. The resulting files allow fast online processing of the interactive visualization, which would be impossible if all these steps were to be computed from scratch every time the users change a parameter of the tool.

In this overview (Figure 1), every line starting on the left represents a data source. They are linked on the right to symbols that represent operations that are taken on variables or records. Merging operations can fuse data sources. At the right end of the graphs, two final files are produced; one becomes the source of the visualization, and the second one, in a text format, is used to build a codebook. The central red-framed region is enlarged for discussion in the next graph.

2.2.2. Detailed view (step: "limit period")

This illustration (Figure 2), representing an extract of the general flow, contains a subset of operations, from which the blue square "Limit period" has its operation ("Filter [Year] >2011"), further described. The file contains four variables ("Value," "Year," "GeoTime," and "Variable").

The following extract (Figure 3) displays the last step of the preparation of the data ("Main Output") listing all variables that will be handled by the interactive visualization.

The tool allows users to freely adjust the initial parameters: select time series up to 2024, include or exclude non-EU (i.e. EFTA) countries, and select the protection category (asylum request or temporary protection status (related to the Ukraine war)). Due to a lack of compatibility of UK post-Brexit data, we have had to exclude the UK from our calculations since 2020.

2.3. Development criteria for the visualization

The tool was built with the following criteria:

- Without leaving the main screen that displays a symbolic map, the users must be able to change the relative importance of four criteria that ponder the number of simulated applicants for each country.
- These interactions must be done with the pointer/mouse alone, without typing numbers.
- The map highlights a specific time period, accompanied by a graph that offers a longitudinal view (later complemented with a heat map of the computations).
- To avoid clutter, the view focuses on graphical data, with additional numerical information appearing in pop-up windows when the user hovers over a country.
- In addition to the symbolic map replicated from the original article, a choropleth map has been added for a more traditional visualization of the difference between actual and simulated data.
- The computed data needs to be available for users who need to access the numerical data.

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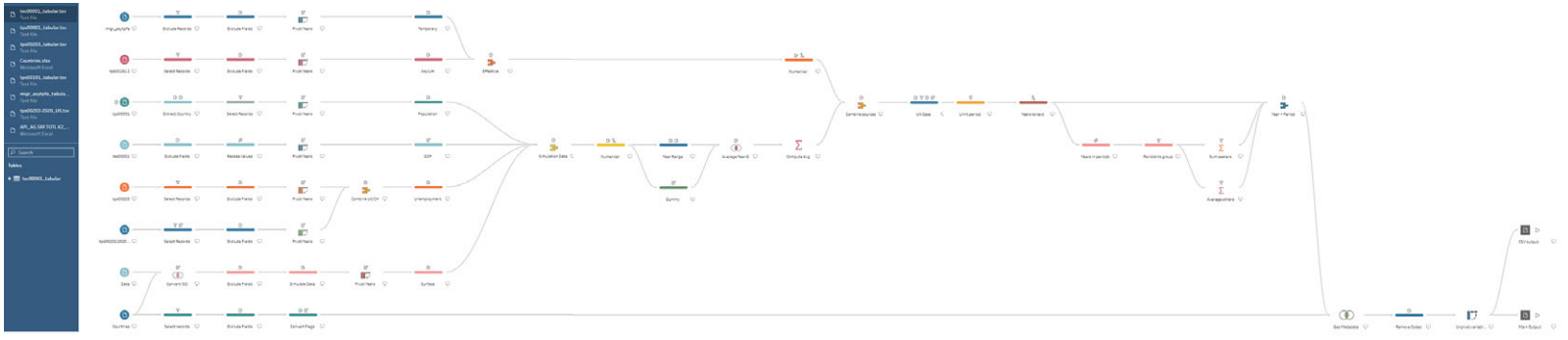

Figure 1. *Overview of the extract/transform/load process.*

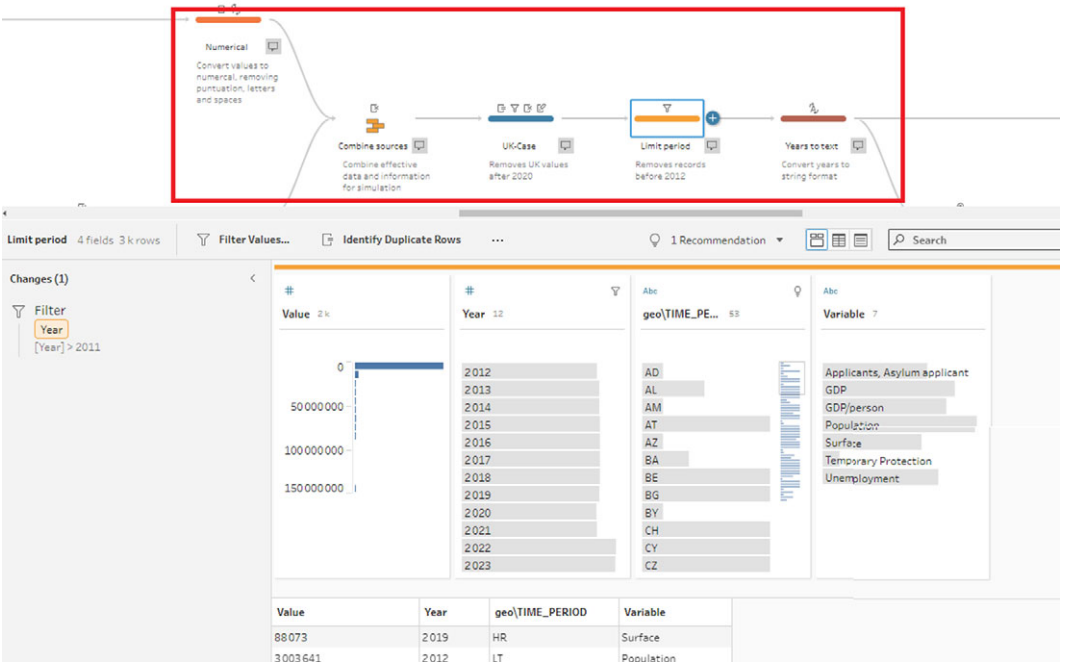

Figure 2. *Sub-section of the extract/transform/load process, with the highlight on a filter operation.*

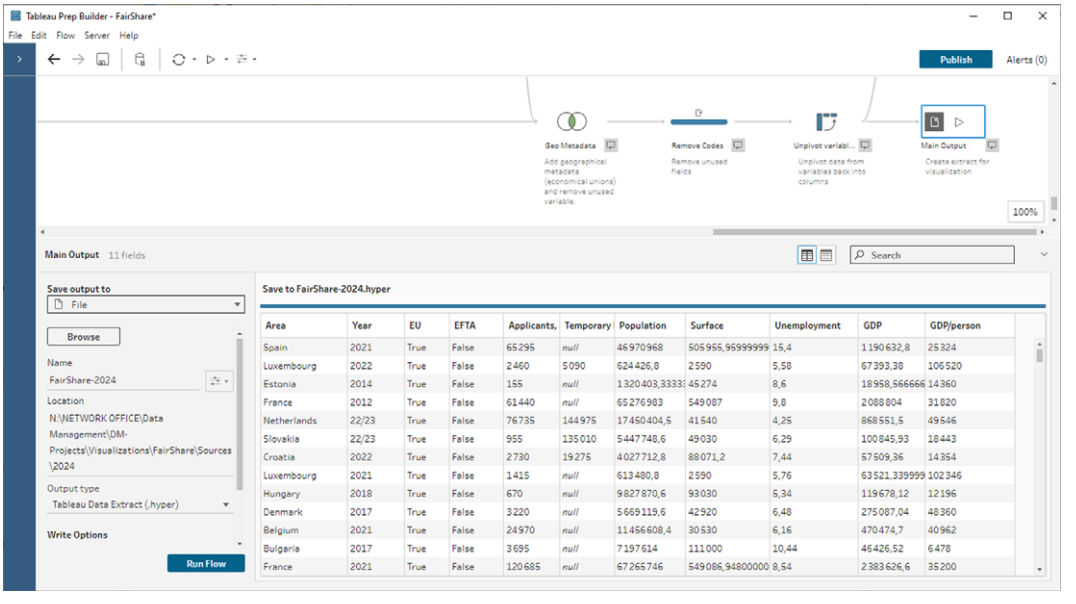

Figure 3. *View of the final operation of the extract/transform/load process, detailing the output file produced for the visualization.*

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- The original articles that the visualization relies on must be downloadable.
- Since the visualization is to be part of a set of indicators published on the website of the national center of competence in research "nccr—on the move," its general appearance must match the corporate design of the NCCR, and fit the required size of 760x800 pixels.

As the tool gained media attention, data journalists from the national television channel SRF replicated the interactive visualization with our support. They also simplified the weighting system offered to users, replacing the absolute scale (0%–100%) that users had to choose for each parameter with a relative scale ranging from "Not Important" to "Essential." This change eliminates the need for users to make sure that the cumulative percentage of parameters adds up to 100%. We updated our own tool in a similar way allowing us to remove the "warning" message that previously appeared when the total weights were below or above 100%.

General formula

$$\begin{aligned} Simulated\ Applicant\ Quote = {} & EffectGDP * GDP / UniverseGDP \\ & + EffectPopulation * Population / UniversePopulation \\ & + EffectSuface + Surface / UniverseSurface \\ & + EffectUnemploymentRate * (1 / UnemplomentRate) / \\ & \left(\sum_1^n [\![(1 / UnemploymentRate)]\!] \right) \end{aligned}$$

For each country, GDP, population, surface, and unemployment are averaged over the last five years available for each period.

Each 4 components of the formula calculates the theoretical share according to one variable. The variable "EffectNN" then associates a weight to each component (with a fixed total of 100%).

The variable "UniverseN" is the sum of each variable (UniverseGDP, e.g. is the total GDP of all countries).

The calculation for the unemployment differs as it calculates an inverse proportion of the sum of all unemployment rates (simplified example: among 3 countries with respective rates of 5%,5% and 10% the first two should admit twice as much asylum-seekers as the last one (with a weight of 100% on unemployment). The Universe (countries which are part of the analysis) depends on the choice made by users (EU or EU + EFTA) and also affects the number of applications (asylum and/or temporary protection) shared.

The choice of variables was directly inspired by the original research paper by Angenendt et al. (2013) and the subsequent scientific literature (see bibliography). It is intended to reflect arguments often heard in public and policy discourse regarding the criteria that could justify welcoming more or less refugees, for example, that "big countries" have more space to accommodate refugees, or that countries in need of labour are also in a better position to host them. While more sophisticated measures could certainly improve accuracy, some are not so easy to standardize across contexts. We argue that the most important indicators are population and GDP, and that a change in the calculation of the other two variables would have minimal impact on the overall results.

2.3.1. Development of the visualisation on Tableau

After connecting to the dataset generated during the ETL phase, we derive additional variables to be used in the graphs that compose the visualization. For instance, the following window (Figure 4) shows the interface used to compute the variable "Effective": the actual population that is measured, whether asylum applicants, temporary protection beneficiaries, or both.

In Tableau, each visualization is composed of several graphs. Below (Figure 5), the "Applicants" component is shown on the right, which is then embedded into the main visualization. On the left, the

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Figure 4. *Example of settings used to compute variables "on the flow" in response to user inputs.*

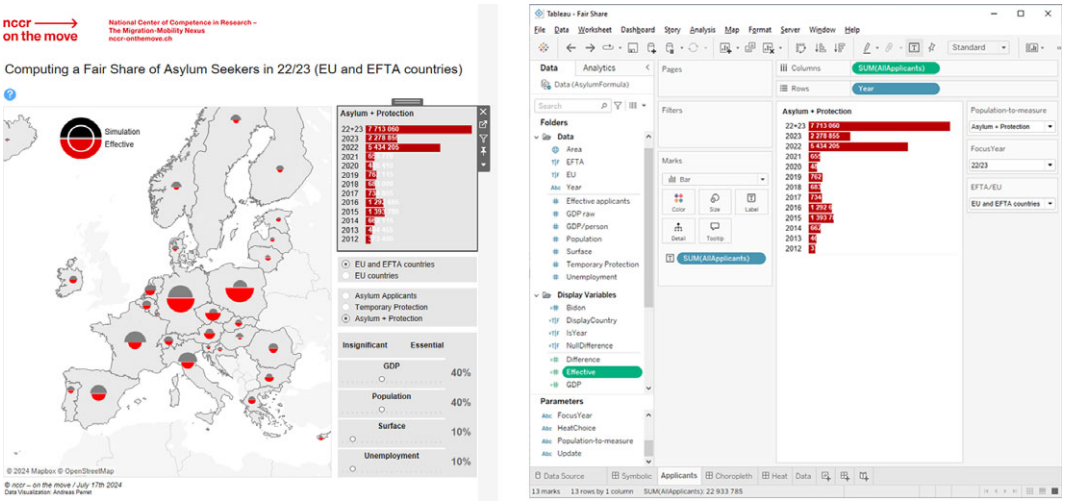

Figure 5. *Complete visualization and (on the left) and bar-chart component displaying the total numbers (on the right).*

graph displays the variables available: the "Data" folder contains the values produced after the ETL phase, while other folders display derived values, such as those that determine whether a country should be displayed on the map based on its EU/EFTA membership.

The lower red half-circle's size is proportional to the number of actual applicants (asylum and/or temporary protection).

The upper black half-circle represents the simulated number of applicants (asylum and/or temporary protection), with its size proportional to this value.

The simulated numbers are calculated by combining the share of applicants computed separately according to GDP, population, surface, and unemployment, all weighted according to the users" selected preferences.

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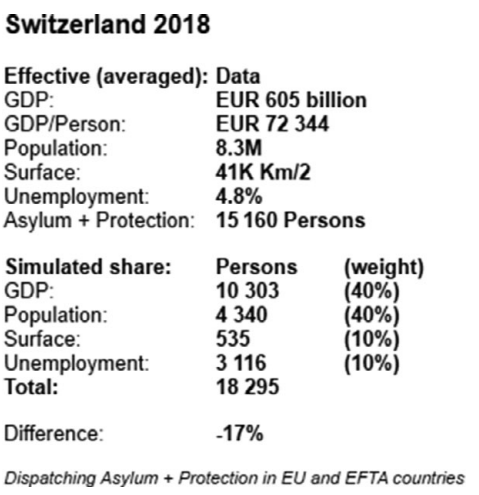

Figure 6. *A specific pop-up message gives information on each country in the map.*

2.3.2. Steps for calculation

1) Determine the total number of asylum seekers (and or) temporary protection beneficiaries for each period within the specified countries (based on trade association membership)
2) Calculate for each period the total Surface, Population, GDP, and average Unemployment rate for the specified countries.

The detailed information of the simulation is displayed in a pop-up window (Figure 6) that appears when users´ mouse hovers over a country. The lower part shows the weights in percentages and the "contribution" of each 4 components of the formula above in absolute terms ("Persons"). In the case of Switzerland, the 40% weight chosen for GDP corresponds to a simulated share of 10′303 persons (refugees). The discrepancy with the contribution of the variable "Population" (4′340)—also weighted at 40%—is due to the very large GDP of Switzerland and the relatively small population of the country. The "Difference" indicated in percentages at the bottom is calculated between the effective and simulated numbers (18,295 and 15,160 in the example).

3. Data records

This visualization uses publicly available statistics from the Eurostat and the World Bank websites. In the first versions of the visualization, we also included data from the OECD (Organization for Economic Co-operation and Development), as unemployment data for Switzerland was not available on Eurostat.

The latest version of all files used to produce the visualization is available on Zenodo.org (DOI: 10.5281/zenodo.15672219; URL: https://zenodo.org/records/15672219).

Eurostat

Eurostat provides official statistics and adopts the European Statistics Code of Practice. The website is segmented into thematic areas and public datasets available for download (besides interactive exploration tools). Time series data are limited to the latest 11 years.

Eurostat adopts a format called "Tab-separated values" (TSV) that slightly deviates from the standard: socio-demographic variables are separated by commas, while yearly values are separated by tabs. Since most software cannot parse columns with multiple separators, we need to run an initial script that transforms commas into tabs. No other processing is needed prior to the ETL handling of the data.

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Following the United Kingdom's exit from the European Community, the data for this country has been omitted from files starting in 2020, with retrospective effect. As our visualization is longitudinal, we kept the 2019 set of Eurostat files to preserve historical data.

Asylum applicants (estat_tps00191.tsv).
Temporary Protection (estat_migr_asytpfa.tsv).
Population (estat_tps00001.tsv).
GDP (estat_tec00001.tsv).
Unemployment (estat_tps00203.tsv).

World Bank

The World Bank offers a set of indicators at the country level. The data is available in Comma Separated Values (CSV) format. The files contain four header lines that need to be removed before processing the data with the Tableau Prep ETL.

Surface area

4. Display of results

We chose to analyze the distribution of new asylum seekers. An alternative approach would be to analyze the distribution of the new refugee status. In comparison with the number of new asylum seekers, that indicator would more accurately reflect the "final inflow" of protected persons, excluding rejected requests. However, new refugee status is highly dependent on specific national policies, as rejection rates vary significantly. By considering all new asylum-seekers, we allow for better comparability of each country's "effort" (costs of assistance and procedure) and create a better starting point for negotiating a "responsibility/burden sharing" agreement.

4.1. Proportional circle maps

The initial series of maps allows a comparison of the number of asylum seekers received (represented by a red semicircle) with an "equitable" number in proportion to given criteria (represented by a grey semicircle).

The maps are accompanied by a blog article, which explains in non-technical terms how the tool can be used (https://nccr-onthemove.ch/indicators/what-would-be-a-fair-distribution-of-refugees-in-europe/).

An example of the analysis (Figure 7) for the year 2018 could be as follows: Based on its population (1.6% of EU + EFTA countries), Switzerland received "too many" asylum seekers (2.3%, or 15,160 instead of 10,386). Similarly, countries like Germany, Luxembourg, Belgium, France, Sweden, and especially Greece (66,965 instead of 13,615) saw higher-than-expected numbers of refugees. While Portugal, Norway, Denmark, the United Kingdom, and many eastern EU countries did not welcome "enough" applicants. On the other hand, considering its gross domestic product (GDP), which is 3.72% of that of the EU, Switzerland would have had to accept a significantly higher number of refugees (24,418).

The same simulations can be performed based on geographic area, unemployment rate (inverse proportion), or a combination of criteria. If we adopt the weighting suggested in a report by the Mercator Foundation (Angenendt et al., 2013), that is 40% for GDP and population and 10% for employment rates and geographic area, we observe that Switzerland received a relatively high proportion of asylum seekers in 2017 and 2018. In 2016, however, in the midst of the Syrian refugee crisis, it should have processed more applications, especially in comparison with Germany.

4.2. Choropleth maps

The second (Figure 8) series of maps, of the choropleth type, allow for easy identification of which countries" should receive" more (orange) or fewer (blue) asylum seekers at a glance.

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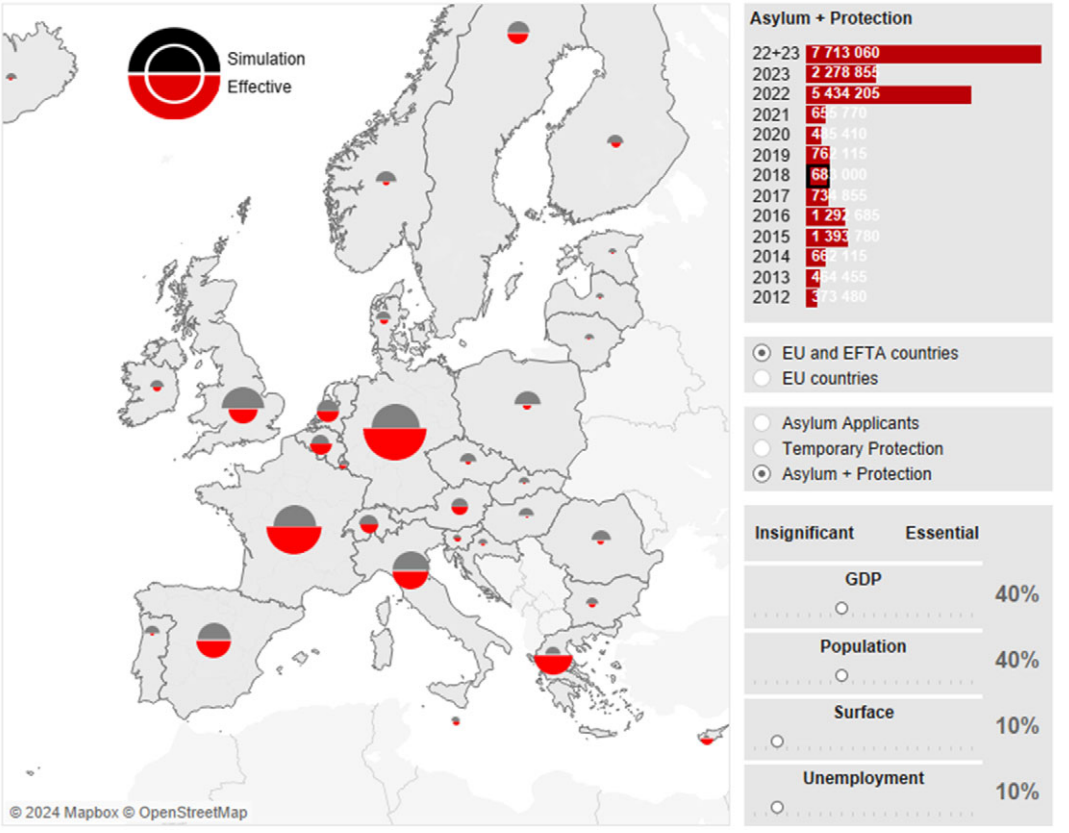

Figure 7. *Map showing the repartition in 2018.*

4.3. Historical table

A summary heatmap (Figure 9) illustrates developments between 2008 and 2024. When using the above-mentioned Mercator weighting method, the data shows that some countries are consistently "unwelcoming" (Eastern European countries, Portugal, Spain, Ireland, Luxembourg, and the United Kingdom). Others (such as Switzerland, Greece, and France) alternate between periods of openness and restriction. Germany, Sweden, Austria, and Belgium have been the most regularly accommodating. For Eastern European countries, and most strikingly Poland, the ongoing Ukraine war since 2022 marks a turning point from restrictive to more open policies.

The maps do not provide direct answers to questions of "fair" distribution, nor do they provide the appropriate criteria that should be used or the total number of asylum seekers that Europe should accommodate. However, by allowing for simulation of different scenarios of distribution, they can inform political discourse aimed at harmonizing refugee protection policies across Europe.

The value of our tool is that it does not prescribe what is "fair," but provides factual data to support informed discussion and negotiation. The current variables considered (population, surface area, GDP, and unemployment) are focused on "absorption capacity." Technically, however, it would be easy to take into account some of the "needs" of asylum-seekers (the density of the health infrastructure could for example, be added with a 10% weight). The tool then allows users to analyze the two populations of asylum seekers and beneficiaries of temporary protection either separately or together, and to determine the most appropriate distribution strategies based on various criteria considered appropriate. If other variables were considered relevant for discussion, the portfolio could easily be expanded. Our tool is therefore a major step forward in assessing the geography of protection as a whole and improving reception systems.

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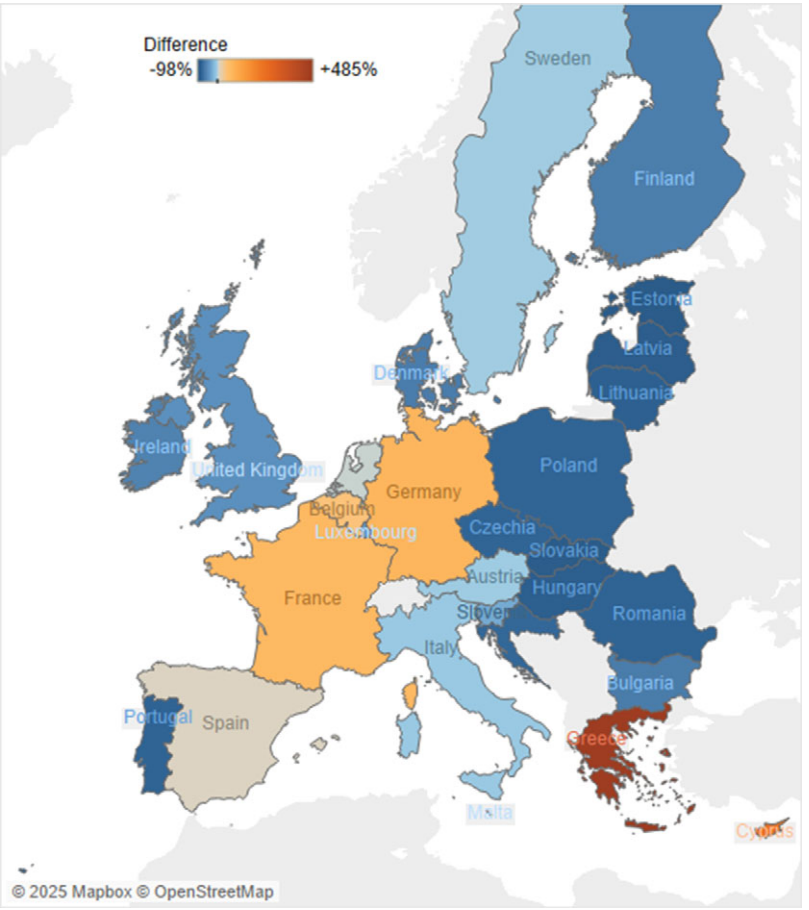

Figure 8. *Map showing which country receive more (red)/less (blue) requests than they "should" in 2018.*

4.4. Validation

The interactive tool produces results consistent with those shown in the initial article by E. Piguet (2014), as well as the Mercator Policy Brief based on 2012 data (Angenendt et al., 2013). Any differences are due to updates made by Eurostat to the datasets since the earlier versions of the articles.

All our data are sourced from official providers, and the original tables and simulation formulas are open source. Our maps can be replicated using alternative software such as ARC-GIS or Philcarto, in addition to Tableau.

5. Critical discussion and conclusion

The proposed tool remains exploratory and has several limitations. However, we believe that most of these can be addressed in future versions by adding new variables and features. We identify four areas of potential improvement.

Temporality: Since the tool relies on historical data, it is more focused on the past than the present realities, whereas its potential political applications would need more up-to-date data. This limitation is not easy to overcome because asylum data are harmonized and published with a considerable time lag. A "frontline" organization, such as the European Union Agency for Asylum, could, however, include the real-time mapping of arrivals in its monitoring tasks in the future, which would greatly reduce the delay. Nevertheless, we maintain that having a solid basis to assess past allocation patterns remains the best starting

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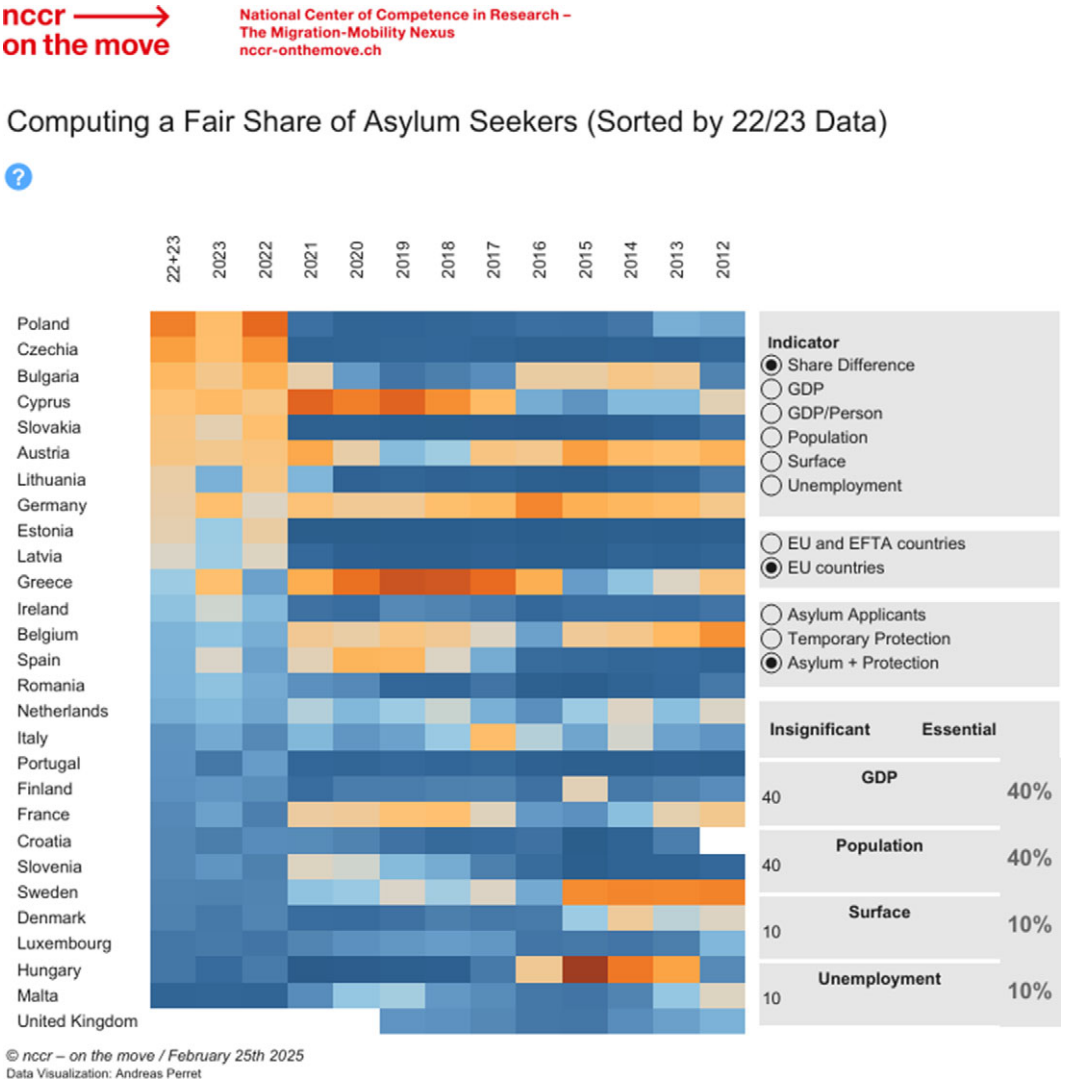

Figure 9. *Evolution of each country (a red country receives less than it "should").*

point for future discussions on fairer distribution criteria. It is important to clarify that the tool is not intended to be a "technocratic" real-time solution for direct policy implementation, but rather as a participatory mechanism to engage civil society in broader political discussions on refugee protection policies.

Selection of criteria: The four criteria we combine to map various distribution options are the most straightforward considering current political discussions, but other criteria could be considered. Some—such as the sum of past efforts to protect refugees—are easy to include because they are quantitative and rely on published data. Others—such as the cultural attitudes toward migrants coming from far away—are qualitative and more challenging to integrate. However, we maintain that our tool indirectly encourages informed discussions on such criteria by establishing a factual basis for them. In the future, the tool could be linked to the variables listed in Article 9 of the EU REGULATION 2024/1351 on asylum and migration management, supporting the implementation of solidarity mechanisms within the EU Pact on asylum or visualize other variables and mechanisms suggested in the literature such as composite indexes of "burden," labour market, linguistic proximity or preexisting networks/diasporas (Czaika, 2005; Grech, 2017; Hierro Franco and Maza Fernández, 2022; Delacrétaz et al., 2023; Vankova, 2023; Hagen, 2024).

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Ethical Considerations: While assigning refugees to specific countries to improve the overall responsibility sharing may seem fair from the perspective of destination countries, it raises sensitive ethical concerns for refugees themselves. Although there is a broad consensus that refugees cannot choose their destinations entirely freely, forcibly relocating people from one side of Europe to another without their consent is unacceptable. As with other geographic distribution models to improve refugee labour market integration (Bansak et al., 2018), such tools should be viewed as a basis for reflection to set up policies that consider other criteria, such as the wishes of the people themselves, family ties, and criteria that foster the best possible protection conditions.

Technical Limitations: Although the latest version of our tool incorporates several technical improvements, such as improved colour readability, it remains designed to be used on a "standard" computer screen and may not be fully compatible with all screen sizes, especially mobile devices.

This paper has presented a novel, interactive data visualization tool designed to foster a more equitable distribution of refugee protection responsibilities across Europe. By offering a tool that simulates refugee allocation based on population, GDP, unemployment rates, and superficies, we hope to contribute to the ongoing conversation surrounding the EU Asylum Pact. As Europe continues to grapple with fluctuating migration patterns and divergent national commitments, such visualization tools can serve as critical instruments for promoting solidarity and accountability in the governance of refugee reception.

Data availability statement. All data, formulas, and codebooks are available directly on the Tableau platform with links to the original sources so that all maps and simulations are replicable and can be updated with new data. In addition, the data used in the current paper are available on the ZENODO repository. DOI: 10.5281/zenodo.15672219; URL: https://zenodo.org/records/15672219

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Author contribution. Conceptualization: E.P. Methodology: E.P.; A.P. Data curation: A.P. Data visualization: A.P. Writing original draft: E.P. All authors approved the final submitted draft.

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Competing interests. None declared.

Usage notes. A step-by-step example for creating a map: In the "symbolic" panel, select the year 2018 and assign a weight of 100% to the geographic area. The resulting map shows (in a red semicircle) the actual number of asylum requests received by a country and (in grey) the number that it should have received based on its size (geographic area) relative to the total EU territory. For example, France, which constitutes 11% of the EU territory, should have received 73,370 asylum applications (11% of the total). However, it actually received 119,190 in 2018. This shows that, when using geographic area as the sole distribution criterion, France received "too many" asylum applications. By adjusting the weighting, it is possible to combine the effects of factors such as population, employment rates, GDP, and geographic area.

References

Angeloni S (2019) Improving the distribution of asylum-seekers through a multi-criteria index. *European Union Politics 20*(2), 328–337. https://doi.org/10.1177/1465116519831949.

Angenendt S, **Engler M and Schneider J** (2013) *Europäische Flüchtlingspolitik. Wege zu einer fairen Lastenteilung*. Berlin: Sachverständigenrat deutscher Stiftungen für Integration und Migration (SVR) Mercator.

Bansak K, **Ferwerda J**, **Hainmueller J**, **Dillon A**, **Hangartner D**, **Lawrence D and Weinstein J** (2018) Improving refugee integration through data-driven algorithmic assignment. *Science 359*(6373), 325–329. http://doi.org/10.1126/science.aao4408.

Bartl W (2019) Institutionalization of a formalized intergovernmental transfer scheme for asylum seekers in Germany: The Königstein key as an indicator of Federal Justice. *Journal of Refugee Studies 34*(3), 2613–2654. https://doi.org/10.1093/jrs/fez081.

Czaika M (2005) A refugee burden index: Methodology and its application. *Migration Letters 2*, 101–125.

Delacrétaz D, **Kominers SD and Teytelboym A** (2023) Matching mechanisms for refugee resettlement. *American Economic Review 113*(10), 2689–2717.

European Union (2024) *Regulation 2024/1351 of the European Parliament and of the Council of 14 May 2024 on Asylum and Migration Management.* Available at https://eur-lex.europa.eu/eli/reg/2024/1351/oj (accessed 10 September 2025).

Grech P (2017) Undesired properties of the European Commission's refugee distribution key. *European Union Politics 18*(2), 212–238. https://doi.org/10.1177/1465116516649244.

Hagen M (2024) Refugee relocation: A mechanism design approach. *The Economic Journal 134*(663), 3027–3046. https://doi.org/10.1093/ej/ueae028.

Hierro Franco M and Maza Fernández A (2022) Gauging the responsibility assumed by national governments in receiving asylum seekers: An overlooked cornerstone of the EU asylum policy. *Migration Letters 19*(2), 139–147. https://doi.org/10.33182/ml.v19i2.1228.

Piguet E (2014) «Ewropa ta "solidarjetà!» ? Pour une répartition équitable des responsabilités. *Terra Cognita: Revue suisse de l"intégration et de la migration 25*, 46–50.

Piguet E (2019) *Asile et réfugiés—Repenser la Protection*. Lausanne: Presse polytechniques romandes

Vankova Z (2023) Refugee labour mobility to the EU: A tool contributing to fairer sharing of responsibilities in the context of forced displacement? *Refugee Survey Quarterly 43*(1), 53–73. https://doi.org/10.1093/rsq/hdad023.

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