

POLICY BRIEF

Doing the Maths to End the Refugee Crisis. Modelling Responsibility-sharing in Refugee Response

Executive Summary

The number of refugees worldwide is big and growing; solutions for them, however, lack ambition. The answer, as outlined by the Global Compact on Refugees, is supposed to lie in “responsibility-sharing” among states. While this concept is not new, its definition is contested. There have been proposals on what responsibility-sharing could look like, all of them are simply frameworks. This analysis models an example of responsibility-sharing to significantly increase the number of durable solutions for refugees. Doing so demonstrates the impact of diffusing refugee hosting from a few, largely lower-income countries and how much more can be achieved with broader and more equitable participation. While there are limits to the feasibility and reliability of this model, non-profits, advocacy organizations, and academia must continue to infuse responsibility-sharing in refugee protection with actual numbers, countries, and dates for three reasons: (1) It defines the scope of the responsibility that needs to be shared amongst states; (2) it paints a clear, ambitious numerical goal that can motivate actors to contribute; and (3) it creates benchmarks to compare what states are currently contributing to what a more responsible distribution would suggest.



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1. Why we need to figure out the numbers and how to do it

1.1 The number of refugees is big and the solutions are painstakingly small

From 2010 to 2020, the number of refugees under the responsibility of the UN refugee agency (UNHCR) doubled to 20.6m.¹ Policymakers continue to respond in two ways: honing in on the enormity of the problem and then creating and celebrating the smallest of initiatives. For example, at a recent UNHCR meeting where world leaders gathered to take stock of the implementation of the 2018 Global Compact on Refugees (Compact), despite multiple examples of the increasing challenges in refugee protection and how much “more” work needs to be done, there was continual celebration of one of the Compact’s initiatives to resettle one million refugees, cumulatively, over 10 years.²

Is finding solutions for one million of the world’s more than 20m refugees the best we can do?

UNHCR’s report details that at the current rate it will take 18 years just to meet today’s refugee resettlement needs.³ The scale of the problem and scale of the available solutions do not match.

1.2 Responsibility-sharing is viewed as the answer; but no one agrees on what it means

Within the Compact, the term *responsibility-sharing* appears on roughly every second page. Set in motion by the earlier 2016 New York Declaration, responsibility-sharing has taken a central role in any conversation about refugee response. It was in many ways *the* mandate that led to the creation of the Compact:⁴ the UN Secretary General called in 2016 for greater “international cooperation and

action to address large movements of refugees and migrants...[as] individual countries cannot solve these issues on their own,”⁵ and that “a greater sharing of responsibilities for refugees is *urgently* [emphasis added] needed.”⁶

The near unanimous support⁷ for the Compact and the subsequent infusion of responsibility-sharing into government officials’ vernacular at best represents exactly what the Compact set out to do: get everyone to care, commit, and work together to solve one of the biggest humanitarian crises to date. Yet lacking any definition, monitoring, or enforcement, it has become a mere platitude and at worst an indirect—and maybe at times direct—way of reprimanding other actors for not doing their share.

The concept of responsibility-sharing in refugee protection is not new. It was outlined in the very preamble of the 1951 Convention relating to the Status of Refugees, recognizing that refugees may “place unduly heavy burdens on certain countries,” and that the international scope of the problem cannot be “achieved without international cooperation.”⁸ In the years since the Convention, there have been multiple attempts to define, conceptualize, and increase responsibility-sharing, with proposals including everything from assignments based on countries’ population and economy, to creating safe territories to which refugees can flee, to a system for states to pay other countries to fulfil their assigned quota, and to multiple iterations in between (see Figure 1 for a summary of responsibility-sharing proposals). However, these attempts have failed either because they have been “insufficiently concrete or based on unrealistic assumptions”⁹ and/or while “bold [and] ambitious...have zero chance of success in the ‘real world of politics and diplomacy.’”¹⁰

Further, responsibility-sharing has historically been a murky subject. In the early 1980s, it was described as “at best an ill-defined concept of an

1 UNHCR, “Refugee Data Finder, Key Indicators,” accessed January 6, 2022, <https://www.unhcr.org/refugee-statistics/>. This figure is the refugees under UNHCR’s mandate and does not include Palestinian refugees under UNWRAP’s mandate.

2 The initiative, known as the Sustainable Resettlement and Complementary Pathways, began at the signing of the Global Compact on Refugees in 2018.

3 UNHCR, “Global Resettlement Infographic,” June 2018, <https://www.unhcr.org/en-us/5b28c7c04>.

4 It also led to the creation of the Global Compact on Migration 2018

5 UN Secretary-General, “In Safety and Dignity: Addressing Large Movements of Refugees and Migrants,” April 21, 2016, <https://refugeesmigrants.un.org/report-secretary-general-safety-and-dignity-addressing-large-movements-refugees-and-migrants-a7059>, §3.

6 UN Secretary-General, §§68-86.

7 The United States and Hungary were the two countries that opposed the adoption of the Compact.

8 Convention Relating to the Status of Refugees (189 UNTS 150 July 28, 1951). Preamble, §4.

9 Patrick Wall, “A New Link in the Chain: Could a Framework Convention for Refugee Responsibility Sharing Fulfil the Promise of the 1967 Protocol?,” *International Journal of Refugee Law* 29 (2017): 205.

10 Rebecca Dowd and Jane McAdam, “International Cooperation and Responsibility-Sharing to Protect Refugees: What, Why and How?,” *International & Comparative Law Quarterly* 66, no. 4 (2017): 866.

essentially collective nature.”¹¹ UNHCR’s senior staff, Volker Türk and Madeline Garlick, who are largely responsible for laying the groundwork of the Compact’s text, cite James Milner’s definition of responsibility-sharing as the “the mechanism through which the diverse costs to a State of granting asylum to refugees are more equitably divided among States.”¹² While responsibility-sharing is generally perceived by government officials to include both financial and physical hosting or resettling efforts,¹³ the terms responsibility-sharing, burden-sharing, and international cooperation are all used seemingly interchangeably throughout both the New York Declaration and the Compact.¹⁴ It is argued that because there is no international legal obligation for states to “resettle refugees or finance [refugee] protection in *other states* [emphasis added]...the concept of responsibility-sharing seeks to address this lacuna...but there is currently no agreement on the term’s *exact scope or meaning* [emphasis added].”¹⁵

Subsequently, responsibility-sharing has come to be viewed as both a crucial pillar for how the world will collectively respond to refugees *as well* as a term with unclear boundaries and imprecise meaning. Further, despite the many proposals that have been made on responsibility-sharing, they are all abstract frameworks for what it *could* look like. Frameworks have merits, namely that they create mental categories and methodologies that can then be discussed, analysed, and evaluated. But frameworks can also remain just that: a frame of how to *think* about the work. If we want to help move states towards increasing their commitments to refugee protection, then what is needed is a *plan* for *how* to do the work.

1.3. Methodology

Good planning requires us, as a first step, to **look at numbers**. While many humanitarians balk at the notion of anything that reduces a refugee—a living, breathing person with hopes, skills, and passions who happens to have experienced the terrible injustice of being subjected to persecution and needing to flee their home—to a number, in light of an intractable, international crisis of immense human suffering, **at the barest minimum, we should at least understand the figures that would be needed to solve it**. This should be the bedrock of our political, humanitarian, and philanthropic efforts: on the basis of what numbers can we solve the refugee crisis.

What numbers would it take to solve the refugee crisis? Could we make the math work?

This policy brief will seek to do just that by attempting to model an example of what responsibility-sharing could look like in order to significantly increase the number of durable solutions for the world’s more than 20m refugees by 2030. To that end it will assess the number solutions needed (targeted capacity) and what would it look like to fairly divide up who provides them (outputs).¹⁶

1.4 Limitations

There are several important limitations with this analysis:

- **Definition of refugee:** The modelling is only based on the narrowest definition of a refugee as someone who has already received designated refugee status and is under UNHCR’s mandate; this excludes other forcibly displaced groups, who also still lack solutions;

11 J. P. L. Fonteyne, “Burden-Sharing: An Analysis of the Nature and Function of International Solidarity in Cases of Mass Influx of Refugees,” *Australian Year Book of International Law* 8 (1983): 185.

12 Volker Türk and Madeline Garlick, “From Burdens and Responsibilities to Opportunities: The Comprehensive Refugee Response Framework and a Global Compact on Refugees,” *International Journal of Refugee Law* 28, no. 4 (2016): 664.

13 Dowd and McAdam, “International Cooperation and Responsibility-Sharing to Protect Refugees”, *supra*.

14 Tristan Harley, “Innovations in Responsibility Sharing for Refugees,” *Center for International Governance Innovation, World Refugee Council Research Paper Series*, 14 (May 2019): 1–26.

15 *Id.*, Harley, p. 6.

16 To conduct this analysis, it uses the following data sources:

- UNHCR Resettlement Data Finder: tracks historical numbers of forcibly displaced populations as well annual totals and types of solutions found for refugees;
- UNHCR Projected Global Resettlement Needs: an annual report that projects needed resettlement for the year ahead;
- World Bank Country Classifications by Income Level: the World Bank’s annual assignment of each country into four economic groups –low, lower-middle, upper-middle, and high-income—based on gross national income per capita;
- World Bank World Development Indicators: used to identify countries’ GDP per capita and population size.

- **Most straightforward formula:** Further, the formula for responsibility-sharing only uses three metrics to allocate refugee placements. The model aimed to be intentionally straightforward, even though that meant forfeiting some of the metrics in other promising responsibility-sharing frameworks that could have made the formula more robust.
- **Feasibility and viability:** A result of the straightforward formula is that it does not factor in feasibility or viability. For example, it does not factor in a country's current resettlement rates and how much it would need to scale in order to achieve the assigned placements in the model or the logistics required to pull it off; in addition it does not factor in aspects such as a country's human rights practices, values of democracy, availability of social support services, and **whether or not refugees would want to resettle in that country**. While there is value to each of these, there are not agreed upon measures to equally capture these aspects across all states. When and if it is adopted, DARA's proposed Refugee Response Index, which aims to capture what states are already contributing, could be a useful tool in this respect.
- **Emphasizes consensus:** This brief attempts to paint a picture of what it would take if all states operated as '*bona fide* actors' and 'ready to do their fair share,' whatever it may be.
- **Forward-looking and narrow definition of responsibility-sharing:** This brief uses the term *responsibility-sharing* to align with its use in the Compact. Further, it narrowly defines 'responsibility' in what it would look like to achieve a certain number of *new* durable solutions for refugees. It does this based, not on what they are already contributing to refugee protection as there are currently no uniform metrics that capture this across countries, but instead on three widely captured and standardized metrics (country income level, GDP per capita, and population size). Both the term and the definition could risk implying that states are currently irresponsible in their response to refugees and does not appropriately attribute credit to the existing array of refugee protection that states offer.

Even with these limitations, significant as they are, there is value in attempting to model a solution to the growing numbers of refugees for two primary reasons. The first is that there is a tendency in all fields, refugee response not excluded, to do what behavioural scientists refer to as 'glorifying the problem'; where so much time is spent discussing the problem that no time is afforded to developing solutions. The limitations noted above are not insignificant, but they can cause paralysis; they may become a way of keeping attention focused on the problem without inspiring the pursuit of possible solutions.

Second, this analysis starts to translate frameworks into a plan—albeit a basic one—with actual numbers and dates. This is both helpful and needed because the refugee crisis does not exist in frameworks, but in actual numbers—it is the number of refugees that is large, that is growing, and is what makes it a crisis. Thus, solutions to the refugee crisis must start to be anchored with actual numbers, even if it is quickly apparent how difficult the task is. Any industry that wanted to achieve an ambitious goal would know the numbers needed to do that and then work to develop quantifiable plans to achieve that.

This analysis starts us on that path.

Figure 1. Summary of Responsibility-Sharing Proposals

Summary of Responsibility-Sharing Proposalsⁱ

Year	Lead Proponent	Proposal
1970	Atle Grahl-Madsen	Assign refugees to countries based on gross national product and population density
1995	Terje Einarsen	Identify physical/neutral territories that UNHCR would govern and would be a safe place for refugees to flee to
1997	James Hathaway; Alexander Naeve	Countries would form groups and then collectively assign other countries levels of responsibilities in protecting refugees
1997 (& 2014)	Peter Schuck	Assign quotas of refugees to countries, but create a market option to allow countries to pay other countries to fulfill their quota
2003-2005	UNHCR	Convention Plus - create a responsibility-sharing framework of inter-state bargaining and international agreements ⁱⁱ
2016-2018	UNHCR	Drafts of text for the Compact proposed that “resettlement states agree to progressively increase” their resettlement programs, and create a “guide to encourage States to resettle a fair share” of refugees. ⁱⁱⁱ
2017	Model International Mobility Commission	Proposes a Responsibility-sharing Framework that includes 1) needed shares defined by UNHCR, 2) a formula for identifying each State’s shares based on population, GDP, number of asylum applications and unemployment rates, 3) then letting States pledge on their number of visas and financial contribution to meet the targeted shares; (part of a larger model that addresses all types of human mobility) ^{iv}
2017	Oxfam	Determined and allocated a “fair share of responsibility” using previously proposed measures such as population and GDP but also added in others such as the Human Development Index and Fragile State Index. ^v
2018	DARA	Refugee Response Index - creates uniform measures across six different pillars not to assign responsibility-sharing but to fairly measure how states are already responding to refugees. ^{vi}

ⁱ See Cook, Betts, and Harley for more detailed overviews of different proposals.

ⁱⁱ Alexander Betts, “International Cooperation in the Global Refugee Regime” (GEG Working Paper, 2008), p.18.

ⁱⁱⁱ Gillian D. Triggs and Patrick CJ Wall, “The Makings of a Success: The Global Compact on Refugees and the Inaugural Global Refugee Forum,” *International Journal of Refugee Law* 32: 2 (2020), 283–339, p.295.

^{iv} T. Alexander Aleinikoff, “Taking Mobility Seriously in the Model International Mobility Convention,” *Columbia Journal of Transnational Law* 56, no. 2 (2018): 342–466.

^v Harley, “Innovations in Responsibility Sharing for Refugees.”

^{vi} “Shaping the RRI: Preliminary Work Completed - DARA,” accessed January 31, 2022, <https://daraint.org/2018/01/11/5546/shaping-rr-i-preliminary-work-completed/>.

2. Running the numbers to model responsibility-sharing

2.1 Targeting capacity: Aiming for 10m solutions in a decade would halve the number of refugees

While researchers are making progress, current models of longer-term forced migration flows are characterized by especially “high margins of error.”¹⁷ So while we cannot reliably say how many more refugees there will be by 2030, we do know there are approximately 20m right now. The number of refugees doubled from 2010 to 2020 so an ambitious and impactful goal would be trying to cut the current number in half, bringing it back to 2010 levels by 2030. To do that, we would need to find 10 million durable solutions (placements) in other countries for refugees.

2.2 Assigning outputs: 10m solutions through a five-step formula of responsibility-sharing among high- and upper middle-income countries

With a set targeted capacity of 10m, the following formula is used to equitably assign the number of solutions to each state (see also Figure 2).

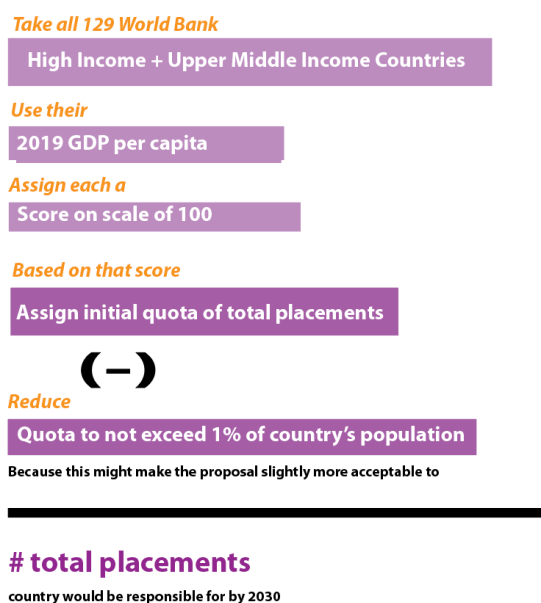
- **Step 1: Country identification:** Using the World Bank’s Country Classifications, all 129 high-income or upper-middle income countries were selected. While this is not a perfect sample, it is a straightforward way of selecting *many* countries to participate all of whom have some threshold of financial resources.
- **Step 2: Score:** Using each country’s GDP per capita in constant \$USD,¹⁸ each country is assigned a score or ‘grade’ on a scale of 100. *For example, Monaco with the high GDP per capita at 190,513 received a score of 100 percent, where Belgium with GDP per capita of 46,414 received a score of 28 percent.*
- **Step 3: Allocation:** Based on their grade, each country is then allocated an initial number of refugee placements out of a maximum of 1.5m. *For example, Brazil with a GDP per capita of 8,897 and a score of nine percent would be allocated 137,884 refugee placements.*
- **Step 4: Population adjustment:** Then, in order to balance out a country’s GDP per capi-

ta with the size of their population, each initial allocation is adjusted to not exceed one percent of a that country’s entire population. *For example, Albania with a GDP per capita of 5,356 receives a score of seven percent and an initial allocation of 111,321 refugee placements. However, this allocation is then reduced by 82,779, bringing their final allocation to 28,542 refugees in order to not exceed one percent of their total population.*

- **Step 5: Yearly target:** Because this modelling is based on a 2030 timeline, a two-year onramp period between 2022 to 2024 could be assumed and then each country’s total allocation is divided by five to create a yearly target for years 2025 to 2030. *For example, Costa Rica with a total allocation of 50,476 refugee placements would need to resettle 10,095 refugees (or allow refugees its hosting to fully integrate) each year between 2025 to 2030.*

Figure 3 shows the placement allocations for each high- and middle-income country (See Appendix 1 for tables of these data).

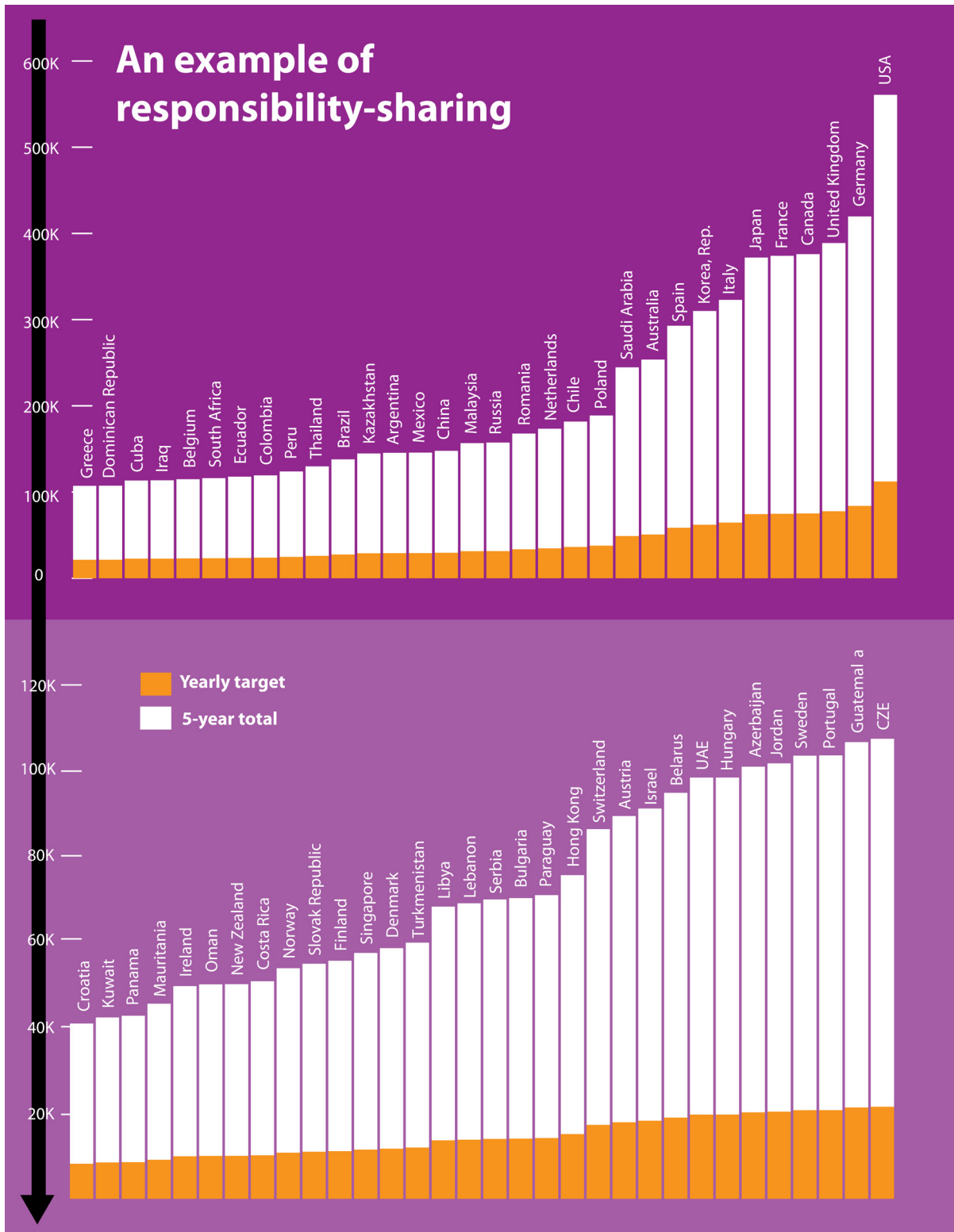
Figure 2. Responsibility-Sharing Formula

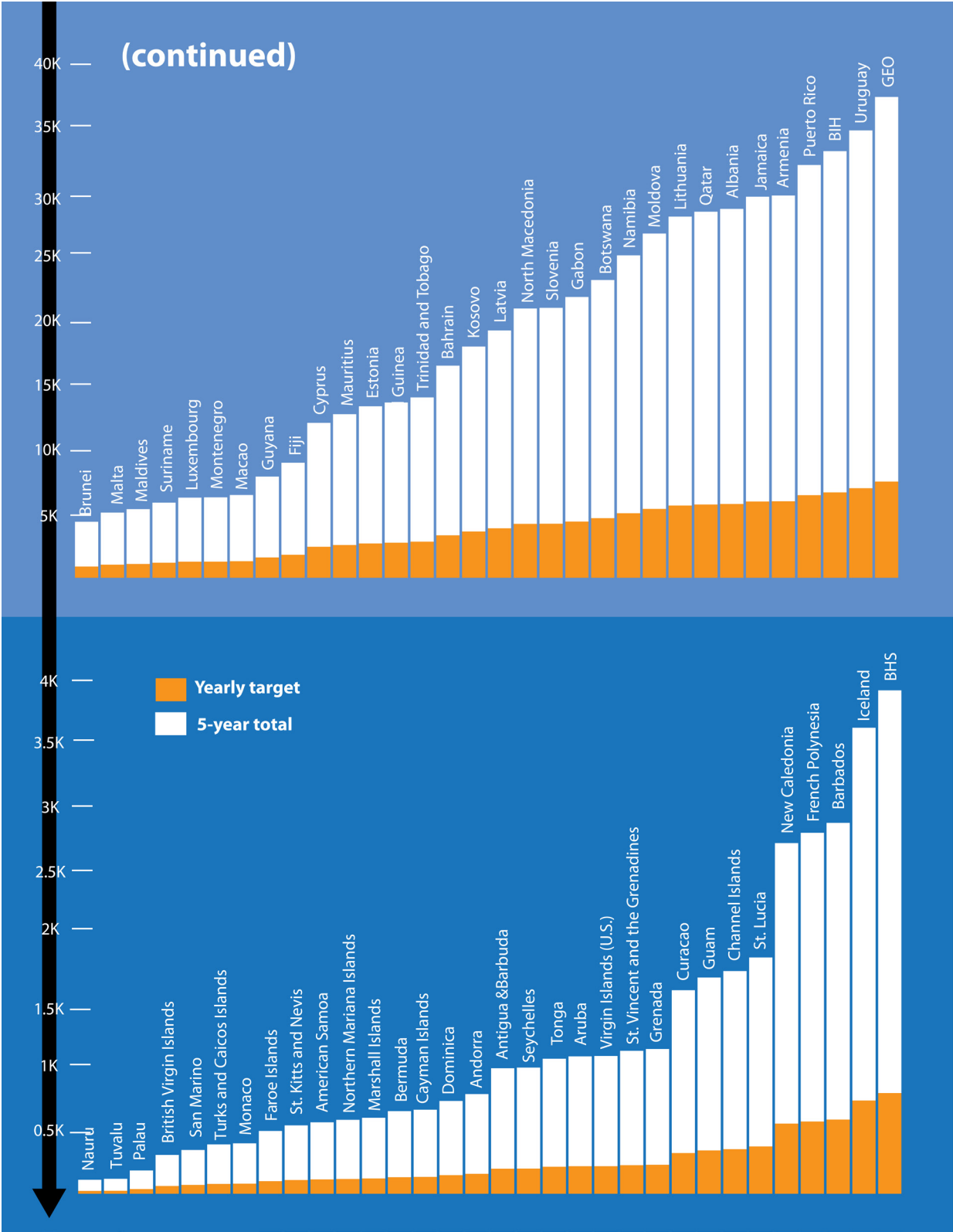


17 Jakub Bijak et al., “Assessing Time Series Models for Forecasting International Migration: Lessons from the United Kingdom,” *Journal of Forecasting* 38:5 (2019), 470–87.

18 2019 was used as there was more complete GDP data reporting than for 2020.

Figure 3. Responsibility-Sharing Model of Placements per Country





3. What we find and why it matters

Figure 4. UNHCR's Top 20 Refugee Hosting Countries in 2020

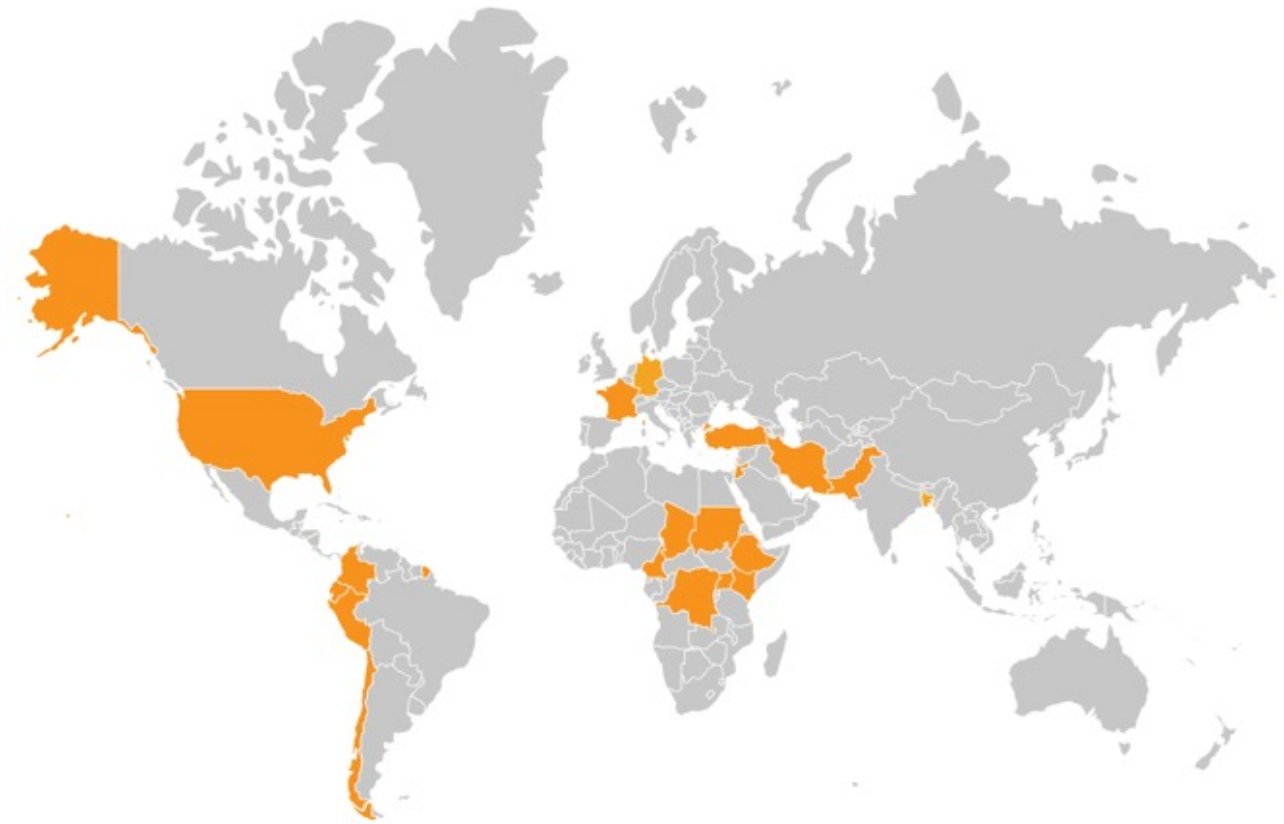
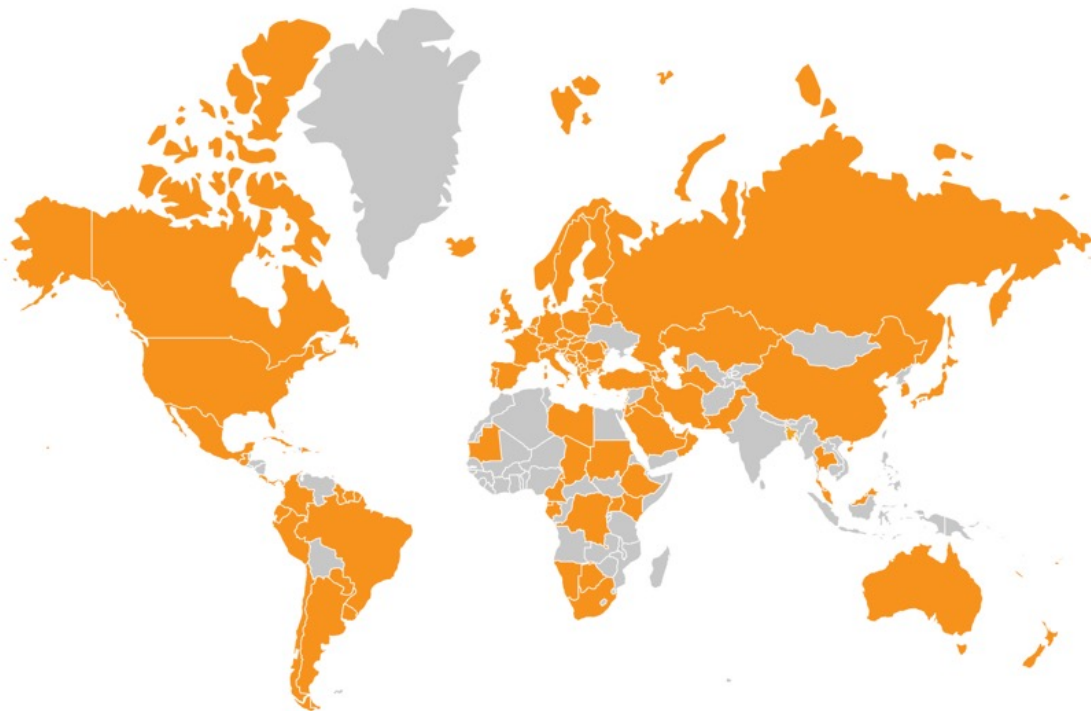


Figure 5. Refugee hosting in 2030 under responsibility-sharing formula



3.1. Sharing responsibility among many states makes a big impact

This example of allocating placements to countries demonstrates the potential impact of responsibility-sharing. It reinforces what the Compact lays out in principle: all states have to do more and share in the response to the refugee crisis if they collectively want to solve it.

3.1.1 Responsibility-sharing diffuses the impact of the refugee crisis from a few key areas

Historically, there have been significant inequities between the countries hosting the most refugees and the size of their economies. As the Compact's Indicator Report details, in 2020:¹⁹

- 9 out of 10 refugees were hosted in lower income economies;
- 8 low-income countries that account for less than one percent of global GDP host 18% of the world's refugees; contrastingly collectively high-income countries that account for 63% of global GDP host 17% of the world's refugees;
- Ten of the top 20 refugee-hosting countries in both absolute and relative terms are nearly all low- or middle-income countries.

Thus, making high- and upper-middle income countries responsible for most solutions helps ensure that more countries are playing a role and that they are doing so proportionally to their financial resources.

3.1.2 Responsibility-sharing brings significantly more actors to the table

On average, only 20 to 30 countries worldwide participate in third country resettlement.²⁰ But, when the pool is expanded to the World Bank's high- and upper-middle income countries, the number of contributors more than quadruples.

3.1.3 Responsibility-sharing creates more solutions for refugees

The example of responsibility-sharing demonstrates that more (and in this case a lot more) can be achieved, when more participate. For example,

as mentioned earlier the Compact has set a goal and subsequent initiative to resettle 1m refugees by the end of the decade, which most view as ambitious. However, modelling what involvement from many countries could look like vividly demonstrates just how many more refugee solutions could be found. Even if countries only achieved one year of their targeted allocations, it would double the current goal set by UNHCR to 2m solutions.

3.1.4 Responsibility-sharing is more attainable when broken into smaller yearly targets

To achieve a 10m target by the end of the decade, the needed outputs from each state are substantial; close to 40 countries have a total allocation of more than 100,000 refugees. However, when this number is chunked into a yearly target for five years, they get significantly more attainable.

3.2 Limits to this model and areas for improvement

Despite the positive impact of responsibility-sharing, it still has its limits:

3.2.1 The preferences of refugees are not addressed

This model only demonstrates an equitable distribution of increasing solutions for refugees among states, which is only one side of the equation. It does not address the extremely and arguably more important question of refugees' agency and preferences—*Would a Rohingya refugee want to be resettled to Ireland? A South American refugee to Japan?* The model's purpose is to translate and visualize the Compact's stated aim of responsibility-sharing into actual figures and it should not be implied that the next step would be to systematically assign refugees to countries. Instead, a parallel process could include scaling the refugee matching schemes²¹ that several researchers have prototyped, which enable refugees to voice and indicate what and where they are interested in moving to. Further, an even more important and preliminary process would be to have refugees define the number and type of solutions on their own terms. The solutions in this model use UNHCR's historic durable solutions of resettlement and integration; systematic evidence has not been gathered to know if and how these align the desired solutions of refugees.

19 UNHCR, "Global Compact on Refugees Indicator Report" (United Nations High Commissioner for Refugees, November 16, 2021), This document is available at www.unhcr.org/global-compact-refugees-indicator-report.

20 UNHCR (6 January 2022). Data Finder.

21 See [Matching Systems for Refugees](#), [Dynamic Refugee Matching](#), [Refugee Matching as a Market Design](#), [Matching Mechanisms for Refugee Resettlement](#).

3.2.2 Even with new actors and high allocations, the targeted capacity is still not quite met

Even with bringing new actors to the table and setting high total allocations, the model still shows a total of 9.7m solutions, just shy of making the 10m solutions goal. The model could of course be tweaked to result in a higher number, but under this current model, doing so would mean that nearly every country would be responsible for resettling or integrating refugees equal to one percent of their total population (i.e. every country would receive a population adjustment as their initial quota would exceed that). This could create an argument to subsequently simplify the model to just having every country be responsible for the number of placements equal to one percent of their total population. This leads us to the next point.

3.2.3 There is value in a model that accounts for more factors than GDP and population size

This analysis used only three metrics in allocating placements: classified as a high- or upper middle-income economy, GDP per capita, and population size. The population adjustment had to be applied to most countries and for some their adjustment was substantial. One possible equalizing measure would be to require countries who receive a population adjustment (i.e. reduction in their initial placement allocation) to pay some proportion of that adjustment to the top refugee hosting countries. Further, a model that used variables to inform feasibility and viability would have promise. For example, in this model, Japan, which is a high-income country with a moderately high GDP per capita and large population, is assigned 372,000 total placements. For context, as of 2019, Japan had resettled 194 refugees, over a ten-year period.²²

3.2.4 Advances in artificial intelligence and big data would allow for sophisticated forecasts of future flows, which would better inform the scope of needed responsibility-sharing

This model was applied simply to the current number of refugees, without respect to future increases. However, to truly make a substantive difference

in the number of refugees a model should account for future growth in refugee numbers. As described earlier, forecasting in all fields is wrought with difficulty, but increasingly so in migration. Statistically reliable forecasting needs to be based on multiple drivers of forced displacement, leverage multiple sources of data, calculate probability, and strongly communicate areas of uncertainty.²³ Appendix 2 outlines challenges and progress in forced-migration forecasting.

3.2.4 Not having clear metrics on what states are already contributing to refugee protection, limits the ability to equitably distribute responsibility

The model only shows what responsibility-sharing looks like to achieve 10m more solutions for refugees over the next decade and thus ‘responsibility’ is only forward looking and does not acknowledge the responsibility already being assumed nor should it imply states are currently irresponsible. There is no uniform way to quantify and assess the range of contributions states already make toward refugee protection. The metrics that do exist are limited to UNHCR’s tracking of refugee resettlement, integration, and hosting countries (for example, Figure 4 only shows top countries on these parameters). There is not currently a uniform process to capture other significant ways that states have assumed responsibility—for example, quantifying the millions of residence permits South American countries have issued to displaced Venezuelans²⁴ or the European Union’s Temporary Protective Directive to Ukrainians. This highlights the important need for the Refugee Response Index being developed by DARA, which through a variety of categories and benchmarks will capture what countries already contribute to refugee protection, enable better apples-to-apples comparisons, and thus more accurately understand what equitable responses from countries would entail.

3.2 Three reasons to continue modelling responsibility-sharing and trying to make the math work

The Compact itself is not binding and given the lack of definition on the term of responsibility-sharing alone, nothing would indicate that states are going to both agree to a responsibility-sharing allocation

²² UNHCR, “Fact Sheet; Japan” May 2020).

²³ Bijak et al., “Assessing Time Series Models for Forecasting International Migration”.

²⁴ Leiza Brumat and Luisa Feline Freier, “South American De Jure and De Facto Refugee Protection: Lessons From The South.” *The EU Pact on Migration and Asylum in Light of the United Nations Global Compact on Refugees*. European University Institute, 2021.

formula and adhere to it anytime soon. In fact, it is possible that just deciding on a formula would consume so much time and effort that it would take away from making important progress on other fronts.

So, if this model will not be adopted and thus cannot be achieved, why is there is value in running such models and painting examples of responsibility-sharing? There are three reasons modelling responsibility-sharing is needed both by states and by international NGOs, academia, and refugee advocacy organization.

3.3.1 Identify the need, in numbers

While states might be a long way off from deciding how to share responsibility, modelling is needed to define the universe of what needs to be shared, and then to assess how close (or far) states are from meeting that. Even if the figures are widely discouraging, knowing the gap between the problem and the solution is often what drives innovation.

3.3.2 Paint a destination postcard to focus and motivate efforts

Behavioural scientists Dan and Chip Heath describe that successful social change often occurs when leaders paint ‘a destination postcard’—a clear and captivating picture of where they are trying to head.²⁵ A key example of this is from the 100,000 Lives Campaign that aimed to reduce morbidity. In his famous 2004 speech, the president of the institution leading the campaign Donald Berwick said, “Some is not a number. Soon is not a time. Here’s the number: 100,000 and here’s the time: June 14, 2006, at 9AM.”²⁶ In doing so, Berwick made it clear to his organization where they were trying to head.

However, when it comes to refugees, as witnessed in various UN forums and gatherings, senior government officials are not heeding this advice; ‘more’ responsibility-sharing is not a number, ‘urgently’ as mandated by the UN Secretary General is not a time. It is at best ineffective and at worst irresponsible to try to galvanize contributions to solving the refugee crisis without defining the hoped-for impact.

Modelling responsibility-sharing helps to paint a destination postcard. It enables a goal to be set; a vision to be cast. And, an ambitious, numerical goal that motivates states to contribute is needed, but that cannot be done if all states know is that refugees need more, and need it urgently.

3.3.3 Make high asks of countries

Countries are going to celebrate their contributions to the refugee crisis as important and significant; they are going to feel like they are doing their part unless they have a benchmark to which to compare their contributions. Modelling responsibility-sharing allows advocates to anchor high with countries in setting their resettlement rates, deciding on local integration policies, and making financial contributions. Negotiations experts know that anchoring high matters. There is no guarantee that countries will then rise to meet such a large need, but it should be obvious to them and everybody else the difference between a) what is needed and b) what they are offering. Anchoring high also allows for naming & shaming and global campaigns to this effect.

Further, combining ambitious country asks with the aforementioned ‘destination postcard’ is especially powerful. Maybe finding 10m solutions in a decade, as is modelled above, is preposterous. But if anyone is hoping to increase what states contribute, which is a better approach?

“This The problem is so bad, we need all the help we can get. Each year we’re trying to make small improvements that likely won’t change the scope of the entire problem at all, but any individual life saved is worthwhile so whatever [your country] can contribute would be great.

or

We could cut the number of refugees worldwide by close to half, if [your country] does [x] by this date.”

²⁵ Chip Heath and Dan Heath, “Switch: How to Change Things When Change Is Hard” (London: Random House Business Books, 2010).

²⁶ Institute for Healthcare Improvements, 2004 – *Some Is Not a Number. Soon Is Not a Time.*, YouTube, 2017, <https://www.youtube.com/watch?v=VFZwclQli9s>. Minute 1:45-1:54

Conclusion

If there was a straightforward way to solve the refugee crisis, such as through some basic math equations, there likely would not be a crisis. Modelling an example of responsibility-sharing highlights both that the sum of all countries doing more, much more, has a significant impact, and there would still be millions of refugees waiting for a solution to the persecution and danger they fled.

Many argued for the merit of the Compact as a non-binding framework. It was believed that that such a framework was the best way to “to commence the construction of an architecture for burden and responsibility-sharing”²⁷ and that the framework would “translate states’ ongoing commitments and international obligations into a predictable response.”²⁸ Further, it was hypothesized that “if countries agree to participate in [a] framework” such as the Compact, they would eventually become engaged enough to “subsequently agree to undertake further obligations.”²⁹ States needed “steppingstones in a process towards more responsibility-sharing.”³⁰

However, it has now been four years since this framework, the Compact, was adopted and many more since policymakers and researchers have been debating the meaning of responsibility-sharing. Thus, it is time to start putting actual numbers of what would be needed of countries to responsibly share in the worldwide refugee response. Steppingstones should be laid for states, but not just with framework, also with actual figures. As even with the simplest of models, there is value in knowing the numbers it would take to substantially reduce the number of refugees.

As mentioned in the beginning, the Compact is aiming to resettle one million refugees by the end of the decade. In light of a tangible example of responsibility-sharing of how states could achieve 10m solutions by 2030, it suddenly seems certain that at least one million could be achieved.

Ukraine gives us hope that this is possible

Millions of refugees have fled Ukraine. The number fleeing is unprecedented; what is also unprecedented is the world’s response. Countries have issued Ukrainian refugees immediate protected

statuses and citizens have coordinated everything from transportation to lodging. The response has been quick, collective, and large. While nothing can overshadow the horror and depravity of war, the initial response to Ukrainian refugees should give us hope that we can make a significant impact in finding solutions for refugees. States have demonstrated that they can, if they want to, quickly receive and protect millions of refugees in a very short amount of time. The response demonstrates loudly and clearly that responsibility-sharing works.

27 Triggs and Wall, “The Makings of a Success”, p. 304.

28 Türk and Garlick, “From Burdens and Responsibilities to Opportunities,” p.673.

29 Wall, “A New Link in the Chain.” p.222.

30 Wall. p. 217.

Appendix 1: Modelling Responsibility-Sharing Tables

Table 1. Results of responsibility-sharing formula among upper middle- and high-income countries to achieve 10m solutions by 2030

Notes:

- Column 2 (country classification): UM: Upper-middle Income, HI: High-Income
- Column 7 (Population adjustment): If row is left blank it indicates that no population adjustment was needed for that country.

Country	Country Classification	GDP per capita	Population (M)	Score	Initial Allocation	Population Adjustment	Final Allocation	Yearly Target (2025-2030)
Albania	UM	5,356	2.85	7%	111,321	(82,779)	28,542	5,708
American Samoa	UM	11,535	0.06	11%	157,662	(157,109)	553	111
Andorra	HI	40,897	0.08	25%	377,882	(377,111)	771	154
Antigua and Barbuda	HI	17,113	0.10	13%	199,503	(198,531)	971	194
Argentina	UM	9,912	44.94	10%	145,495		145,495	29,099
Armenia	UM	4,623	2.96	7%	105,823	(76,246)	29,577	5,915
Aruba	HI	30,253	0.11	20%	298,050	(296,987)	1,063	213
Australia	HI	55,057	25.37	32%	484,082	(230,424)	253,657	50,731
Austria	HI	50,122	8.88	30%	447,064	(358,265)	88,799	17,760
Azerbaijan	UM	4,806	10.02	7%	107,196	(6,953)	100,243	20,049
Bahamas, The	HI	34,863	0.39	22%	332,628	(328,733)	3,895	779
Bahrain	HI	23,443	1.64	16%	246,978	(230,567)	16,412	3,282
Barbados	HI	18,148	0.29	14%	207,266	(204,396)	2,870	574
Belarus	UM	6,839	9.42	8%	122,446	(28,267)	94,178	18,836
Belgium	HI	46,414	11.49	28%	419,261	(304,371)	114,890	22,978
Bermuda	HI	117,098	0.06	63%	949,391	(948,752)	639	128
Bosnia and Herzegovina	UM	6,120	3.30	8%	117,053	(84,043)	33,010	6,602
Botswana	UM	7,971	2.30	9%	130,933	(107,896)	23,037	4,607
Brazil	UM	8,897	211.05	9%	137,884		137,884	27,577
British Virgin Islands	HI	43,189	0.03	26%	395,070	(394,770)	300	60
Brunei Darussalam	HI	31,086	0.43	20%	304,297	(299,964)	4,333	867
Bulgaria	UM	9,828	6.98	10%	144,864	(75,106)	69,758	13,952
Canada	HI	46,327	37.59	28%	418,603	(42,669)	375,934	75,187
Cayman Islands	HI	91,393	0.06	50%	756,597	(755,948)	649	130
Channel Islands	HI	74,458	0.17	42%	629,588	(627,865)	1,723	345
Chile	HI	14,742	18.95	12%	181,715		181,715	36,343
China	UM	10,217	1397.72	10%	147,777		147,777	29,555

Country	Country Classification	GDP per capita	Population (M)	Score	Initial Allocation	Population Adjustment	Final Allocation	Yearly Target (2025-2030)
Colombia	UM	6,425	50.34	8%	119,340		119,340	23,868
Costa Rica	UM	12,670	5.05	11%	166,175	(115,700)	50,476	10,095
Croatia	HI	14,944	4.07	12%	183,235	(142,583)	40,653	8,131
Cuba	UM	9,100	11.33	9%	139,400	(26,065)	113,335	22,667
Curacao	HI	19,701	0.16	15%	218,912	(217,338)	1,574	315
Cyprus	HI	28,288	1.20	19%	283,316	(271,330)	11,986	2,397
Czech Republic	HI	23,490	10.67	16%	247,330	(140,612)	106,719	21,344
Denmark	HI	60,213	5.81	35%	522,751	(464,606)	58,144	11,629
Dominica	UM	8,002	0.07	9%	131,167	(130,449)	718	144
Dominican Republic	UM	8,282	10.74	9%	133,268	(25,879)	107,390	21,478
Ecuador	UM	6,223	17.37	8%	117,821		117,821	23,564
Equatorial Guinea	UM	8,420	1.36	9%	134,302	(120,742)	13,560	2,712
Estonia	HI	23,718	1.33	17%	249,036	(235,767)	13,269	2,654
Faroe Islands	HI	64,225	0.05	37%	552,842	(552,355)	487	97
Fiji	UM	6,176	0.89	8%	117,472	(108,572)	8,900	1,780
Finland	HI	48,712	5.52	29%	436,489	(381,273)	55,216	11,043
France	HI	40,380	67.25	25%	374,003		374,003	74,801
French Polynesia	HI	14,324	0.28	12%	178,583	(175,790)	2,793	559
Gabon	UM	7,767	2.17	9%	129,405	(107,679)	21,726	4,345
Georgia	UM	4,698	3.72	7%	106,387	(69,186)	37,202	7,440
Germany	HI	46,468	83.09	28%	419,659		419,659	83,932
Greece	HI	19,151	10.72	14%	214,783	(107,568)	107,216	21,443
Grenada	UM	10,816	0.11	10%	152,272	(151,152)	1,120	224
Guam	HI	37,724	0.17	24%	354,081	(352,408)	1,673	335
Guatemala	UM	4,639	16.60	7%	105,942		105,942	21,188
Guyana	UM	6,610	0.78	8%	120,724	(112,896)	7,828	1,566
Hong Kong SAR, China	HI	48,354	7.51	29%	433,811	(358,737)	75,074	15,015
Hungary	HI	16,733	9.77	13%	196,652	(98,941)	97,711	19,542
Iceland	HI	68,883	0.36	39%	587,776	(584,170)	3,606	721
Iraq	UM	5,658	39.31	8%	113,591		113,591	22,718
Ireland	HI	80,779	4.93	45%	676,994	(627,650)	49,343	9,869
Israel	HI	43,589	9.05	27%	398,068	(307,528)	90,540	18,108
Italy	HI	33,567	59.73	22%	322,903		322,903	64,581
Jamaica	UM	5,369	2.95	7%	111,424	(81,941)	29,483	5,897
Japan	HI	40,113	126.26	25%	372,000		372,000	74,400

Country	Country Classification	GDP per capita	Population (M)	Score	Initial Allocation	Population Adjustment	Final Allocation	Yearly Target (2025-2030)
Jordan	UM	4,405	10.10	7%	104,194	(3,177)	101,017	20,203
Kazakhstan	UM	9,813	18.51	10%	144,747		144,747	28,949
Korea, Rep.	HI	31,846	51.71	21%	309,999		309,999	62,000
Kosovo	UM	4,446	1.79	7%	104,497	(86,608)	17,889	3,578
Kuwait	HI	32,373	4.21	21%	313,952	(271,881)	42,071	8,414
Latvia	HI	17,794	1.91	14%	204,611	(185,473)	19,138	3,828
Lebanon	UM	7,584	6.86	9%	128,030	(59,473)	68,557	13,711
Libya	UM	7,686	6.78	9%	128,797	(61,023)	67,775	13,555
Lithuania	HI	19,555	2.79	15%	217,817	(189,875)	27,941	5,588
Luxembourg	HI	114,685	0.62	62%	931,291	(925,091)	6,200	1,240
Macao SAR, China	HI	86,118	0.64	48%	717,035	(710,630)	6,404	1,281
Malaysia	UM	11,414	31.95	10%	156,759		156,759	31,352
Maldives	UM	10,626	0.53	10%	150,851	(145,541)	5,310	1,062
Malta	HI	30,186	0.50	20%	297,549	(292,508)	5,041	1,008
Marshall Islands	UM	4,073	0.06	7%	101,701	(101,113)	588	118
Mauritania	UM	1,679	4.53	6%	83,748	(38,491)	45,257	9,051
Mauritius	UM	11,098	1.27	10%	154,384	(141,727)	12,657	2,531
Mexico	UM	9,946	127.58	10%	145,748		145,748	29,150
Moldova	UM	4,494	2.66	7%	104,858	(78,225)	26,633	5,327
Monaco	HI	190,513	0.04	100%	1,499,998	(1,499,608)	390	78
Montenegro	UM	8,911	0.62	9%	137,982	(131,762)	6,220	1,244
Namibia	UM	5,037	2.49	7%	108,933	(83,987)	24,945	4,989
Nauru	HI	10,983	0.01	10%	153,527	(153,419)	108	22
Netherlands	HI	52,295	17.34	31%	463,365	(289,917)	173,449	34,690
New Caledonia	HI	12,579	0.27	11%	165,495	(162,782)	2,713	543
New Zealand	HI	41,999	4.98	26%	386,148	(336,355)	49,793	9,959
North Macedonia	UM	6,022	2.08	8%	116,319	(95,485)	20,835	4,167
Northern Mariana Islands	HI	20,660	0.06	15%	226,100	(225,528)	572	114
Norway	HI	75,826	5.35	43%	639,848	(586,369)	53,479	10,696
Oman	HI	15,343	4.97	12%	186,225	(136,475)	49,750	9,950
Palau	HI	14,908	0.02	12%	182,961	(182,781)	180	36
Panama	UM	15,728	4.25	13%	189,112	(146,648)	42,464	8,493
Paraguay	UM	5,381	7.04	7%	111,510	(41,063)	70,446	14,089
Peru	UM	7,028	32.51	8%	123,860		123,860	24,772
Poland	HI	15,695	37.97	13%	188,864		188,864	37,773

Country	Country Classification	GDP per capita	Population (M)	Score	Initial Allocation	Population Adjustment	Final Allocation	Yearly Target (2025-2030)
Portugal	HI	23,285	10.29	16%	245,786	(142,924)	102,863	20,573
Puerto Rico	HI	32,851	3.19	21%	317,532	(285,595)	31,937	6,387
Qatar	HI	62,088	2.83	36%	536,812	(508,492)	28,321	5,664
Romania	UM	12,890	19.37	11%	167,826		167,826	33,565
Russian Federation	UM	11,498	144.41	10%	157,385		157,385	31,477
San Marino	HI	47,731	0.03	29%	429,137	(428,798)	339	68
Saudi Arabia	HI	23,140	34.27	16%	244,701		244,701	48,940
Serbia	UM	7,412	6.95	8%	126,739	(57,287)	69,452	13,890
Seychelles	HI	16,199	0.10	13%	192,641	(191,665)	976	195
Singapore	HI	65,641	5.70	38%	563,458	(506,422)	57,036	11,407
Slovak Republic	HI	19,273	5.45	14%	215,702	(161,160)	54,541	10,908
Slovenia	HI	25,941	2.09	18%	265,708	(244,824)	20,884	4,177
South Africa	UM	6,001	58.56	8%	116,163		116,163	23,233
Spain	HI	29,565	47.13	20%	292,888		292,888	58,578
St. Kitts and Nevis	HI	19,773	0.05	15%	219,453	(218,925)	528	106
St. Lucia	UM	11,611	0.18	11%	158,236	(156,408)	1,828	366
St. Vincent and the Grenadines	UM	7,457	0.11	8%	127,082	(125,976)	1,106	221
Suriname	UM	7,261	0.58	8%	125,611	(119,798)	5,814	1,163
Sweden	HI	51,687	10.28	31%	458,804	(356,015)	102,789	20,558
Switzerland	HI	85,300	8.58	47%	710,905	(625,152)	85,753	17,151
Thailand	UM	7,817	69.63	9%	129,780		129,780	25,956
Tonga	UM	4,903	0.10	7%	107,925	(106,880)	1,045	209
Trinidad and Tobago	HI	16,637	1.39	13%	195,931	(181,982)	13,950	2,790
Turkmenistan	UM	7,612	5.94	9%	128,243	(68,822)	59,421	11,884
Turks and Caicos Islands	HI	31,351	0.04	20%	306,284	(305,902)	382	76
Tuvalu	UM	4,056	0.01	7%	101,572	(101,455)	117	23
United Arab Emirates	HI	43,103	9.77	26%	394,428	(296,722)	97,705	19,541
United Kingdom	HI	42,354	66.84	26%	388,811		388,811	77,762
United States	HI	65,280	328.33	37%	560,749		560,749	112,150
Uruguay	HI	17,688	3.46	14%	203,813	(169,195)	34,617	6,923
Virgin Islands (U.S.)	HI	37,233	0.11	23%	350,400	(349,333)	1,067	213
Total							9,760,245	1,952,049

Appendix 2: Challenges and Progress in Forecasting Forced Migration Flows

The challenge

Research has shown that forecasting in all fields is highly inaccurate.³¹ However, out of demographic events of births, deaths, and migration, “migration is notably the most volatile component to forecast accurately” and subsequently “accounting for forced migration is even more challenging.”³² While there are multiple, complex drivers of migration, there has historically been “no single, robust migration theory that can be used for forecasting purposes.”³³ Researchers Jakub Bijak and his colleagues outline three reasons for this: the first is being unable to predict future “shocks” to the system, the second is issues with reliability and accuracy of the migration data itself, and the third is the immense variability that results when different forecasting models are applied to the same data. In a brief on utilizing big crisis data, UNHCR cautions of limitations with these data, including the accuracy of the data (i.e. noise), biases in the data, and difficulties in scaling the data beyond specific geographic areas.³⁴ After evaluating the efficacy of multiple forecasting models of forecast displacement, Bijak and colleagues’ main conclusion was not to recommend a specific model nor did they find one ‘that works;’ instead it was to emphasize that “given the high levels of uncertainty of migration forecasts, this uncertainty should be stated explicitly.”³⁵

The value

Despite these limitations in forecasting, it is widely agreed upon that knowing future numbers is vitally important for policy planning.³⁶ In fact the first objective in

the Global Compact for Migration calls for using “accurate and disaggregated data as a basis for evidence-based policies”³⁷ Toward that end, there has been growth in predictive modelling, big data, and artificial intelligence to forecast flows of forced migration. UNHCR, through its Innovation team and initiatives like Project Jetson, has taken an active role in piloting and evaluating how big data can be used to predictively model forced displacement. UNHCR believes that big crisis data has value in its ability to access certain key types of information that traditional sources don’t have.³⁸

Models of promise

There has been a growth in efforts to create effective, accurate, and reliable models. Many forecasting models either focus in the short-term (a week to a month in advance) to create early-warning systems or long-term (the next decade) for policy planning, with the former having the most predictability and latter having the least.³⁹ Long-term machine learning forecasts that incorporate a number of migration drivers and different data sources have shown promising results. Oishi and colleagues created a model, which successfully predicted internally displaced persons in the Democratic Republic of Congo.⁴⁰ Nair and colleagues created a model which successfully predicted migratory flows from Ethiopia.⁴¹ In contrast, in one study, Wanner solely used Google searches to try to predict the attractiveness of migrants moving to Switzerland, and the results were mixed. The most recent and perhaps most compelling forecast is Carammia and colleagues’ model that uses machine learning to create both an early warning system and a longer-term forecast, and unlike Nair’s and Oishi’s, is able to do so at scale, looking beyond one country and instead modelling flows to all of the EU.⁴²

31 Jack B. Soll et al., “Overconfidence in Probability Distributions: People Know They Don’t Know but They Don’t Know What to Do about It,” *Kelley School of Business Research Paper* (2019), 19–46.

32 Raya Muttarak, “Applying Concepts and Tools in Demography for Estimating, Analyzing, and Forecasting Forced Migration,” *Journal on Migration and Human Security* 9:3 (2021), 182–96, p. 182.

33 Bijak et al., “Assessing Time Series Models for Forecasting International Migration,” p. 471

34 UNHCR, “Big (Crisis) Data for Predictive Models 2021 - A Literature Review” (UNHCR, the UN Refugee Agency, Statistics and Demographics Section, 2021), <https://www.unhcr.org/statistics/unhcrstats/61bc6ae84/big-crisis-data-predictive-models-literature-review-outline-opportunities.html>.

35 Supra 34 p. 482.

36 Philippe Wanner, “How Well Can We Estimate Immigration Trends Using Google Data?,” *Quality & Quantity* 55:4 (2021), 1181–1202; R. Nair et al., “A Machine Learning Approach to Scenario Analysis and Forecasting of Mixed Migration,” *IBM Journal of Research and Development* 64:1/2 (2020), 1–7; Christopher Earney and Rebeca Moreno Jimenez, “Pioneering Predictive Analytics for Decision-Making in Forced Displacement Contexts,” in *Guide to Mobile Data Analytics in Refugee Scenarios: The “Data for Refugees Challenge” Study*, ed. Albert Ali Salah et al. (Cham: Springer International Publishing, 2019), 101–19.; Marcello Carammia, Stefano Maria Iacus, and Teddy Wilkin, “Forecasting Asylum-Related Migration Flows with Machine Learning and Data at Scale,” *Scientific Reports* 12:1 (2022).

37 United Nations General Assembly, “Global Compact for Safe, Orderly and Regular Migration” (2019), p. 6

38 UNHCR, “Big (Crisis) Data for Predictive Models 2021 - A Literature Review.”

39 Nair et al., “A Machine Learning Approach to Scenario Analysis and Forecasting of Mixed Migration”; Marcello Carammia and Jean-Christophe Dumont, “Can We Anticipate Future Migration Flows?,” *OECD Migration Policy Debates* 16 (May 2018), 1–9.

40 Ayaka Oishi et al., “Forecasting Internally Displaced People’s Movements with Artificial Intelligence,” in *Digital Innovations, Business and Society in Africa: New Frontiers and a Shared Strategic Vision*, ed. Richard Boateng et al., *Advances in Theory and Practice of Emerging Markets* (Cham: Springer International Publishing, 2022), 311–39, https://doi.org/10.1007/978-3-030-77987-0_14.

41 Nair et al., “A Machine Learning Approach to Scenario Analysis and Forecasting of Mixed Migration.”

42 Carammia, Iacus, and Wilkin, “Forecasting Asylum-Related Migration Flows with Machine Learning and Data at Scale.”

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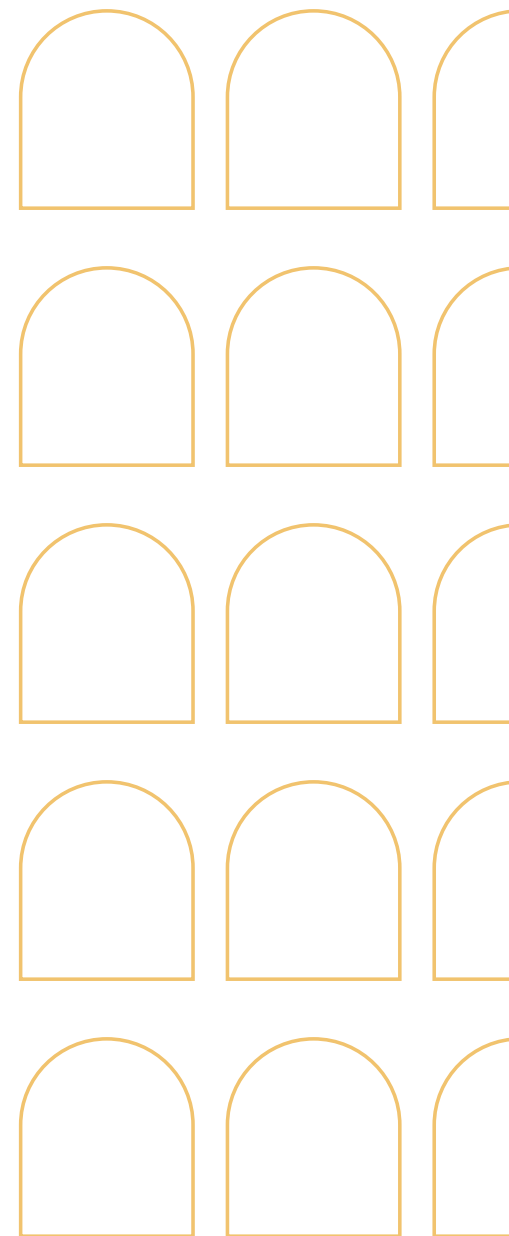
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