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Measuring common standards and equal responsibility-sharing in EU asylum outcome data

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Abstract
We construct novel measures to assess (i) the extent to which European Union member states are using common standards in recognizing asylum seekers and (ii) the extent to which the responsibilities for asylum applications, acceptances and refugee populations are equally shared among the member states, taking into account population size, gross domestic product (GDP) and GDP expressed in purchasing power parity (GDP-PPP). We track the progression of these measures since the implementation of the Treaty of Amsterdam (1999). These measures display divergent trends and we try to provide an interpretation of the dynamics that are constitutive of these trends.

Keywords
asylum statistics, burden-sharing, Common European Asylum System, EU asylum policy, refugee protection, refugee statistics

Introduction

Two objectives need to be clearly distinguished in the design of European Union (EU) asylum policy. First, there is the objective that asylum cases be assessed in all member states on the basis of *common standards* that warrant fair treatment of

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asylum seekers. Second, there is the objective that the *responsibilities* of (i) processing asylum applications, (ii) granting temporary, subsidiary and refugee protection and (iii) harbouring persons who have received such protection be equally shared among member states, that is, be in accordance with their respective absorption capacities, suitably defined. There are interesting relationships between these objectives.

A violation of the common-standards objective occurs when some member state has very restrictive recognition standards while another has very lenient recognition standards. The former is thereby shirking its responsibility, resulting in unequal responsibility-sharing. In addition, such differential standards will lead to asylum-shopping, so that the flow of applicants will be diverted from the former member state to the latter, exacerbating the problem of an unequal distribution of responsibilities.

However, the two objectives are different, and respecting the one does not automatically lead to respecting the other. Clearly, if a member state with a low absorption capacity gets the lion's share of applications from deserving asylum seekers, then applying common standards will saddle this low-absorption-capacity member state with an unequal share of responsibilities in matters of asylum. Furthermore, suppose that we assigned strict quotas on application and recognition numbers based on each member state's absorption capacity. Then we might satisfy the equal-responsibility-sharing objective, but if, in a low quota member state and a high quota member state, the respective pools of applicants are of the same size and have the same proportions of deserving applicants, then these respective quotas cannot be met by applying common standards.

These objectives are already expressed in the Treaty of Amsterdam of 1997, which came into effect in 1999. The Treaty of Amsterdam requires the Council to institute measures that ensure that asylum seekers in all member states are fairly treated in accordance with the 1951 Convention and the 1967 Protocol relating to the Status of Refugees. At the same time, there is a need to promote 'a balance of effort between Member States in receiving and bearing the consequences of receiving refugees and displaced persons' (Article 73k).

In the *Green Paper on the Future Common European Asylum System* (European Commission, 2007), the distinction between the objectives is reflected in the two stages of implementation. The first phase (which was originally envisioned to run from 1999 to 2005) focuses on policy harmonization. The aim is to establish 'a level playing field: a system which guarantees to persons genuinely in need of protection access to a high level of protection under equivalent conditions in all Member States while at the same time dealing fairly and efficiently with those found not to be in need of protection' (European Commission, 2007: 2). In the second phase (which was originally envisioned for 2005–10 but, owing to the slow progress in the first phase, the projected deadline for the completion of the second phase 'might have to be rescheduled, possibly for 2012' [European Commission, 2008: 2]), the aim is 'a higher common standard of protection and greater equality in protection across the EU and to ensure a higher degree of solidarity between EU Member

States' (European Commission, 2007: 3). So there is the common-standards objective (in phase one) with the additional objective of setting these standards at a sufficiently high level (in phase two). The objective of *solidarity* among member states is relegated to stage two. Now, solidarity hints at mutual assistance among the member states in shouldering the responsibilities and is in the neighbourhood of the equal-responsibility-sharing objective. And, indeed, it is further addressed in Section 4 entitled 'Burden-Sharing and Solidarity', with subsection 4.1 entitled 'Responsibility-Sharing': 'Other factors could be taken into account, such as Member States' capacities to process asylum applications and to offer long-term solutions to recognised refugees. This reflection is necessary if the application of the system is to result in a more balanced distribution between Member States' (European Commission, 2007: 11).

In the Treaty of Lisbon, the same combination of objectives is present. Article 78 states that the Union shall develop 'a common policy on asylum, subsidiary protection and temporary protection' which 'must be in accordance with the Geneva Convention of 28 July 1951 and the Protocol of 31 January 1967 relating to the status of refugees, and other relevant treaties' and is followed by a series of policy harmonization instruments. Article 80 then states that these policies and their implementation 'shall be governed by the principle of solidarity and fair sharing of responsibility . . . between the Member States.'

To assess the extent to which these objectives have been realized since the Treaty of Amsterdam took effect, one could compare the actual policies and their implementation in the various member states. This would be one way to proceed. But we will proceed differently. Policies have an effect on asylum statistics. If the EU member states genuinely use common standards and if the EU genuinely apportions responsibilities to them so that these responsibilities are commensurate with their absorption capacities, then this should be reflected in asylum outcome data. We need to determine how these objectives, if satisfied, would be reflected in asylum outcome data and design measures of the degree to which the objectives are met.

Our goal is to assess trends in the extent to which these objectives have been met in the EU over the period ranging from 1999, that is, the year that the Treaty of Amsterdam came into effect, to 2009 and to provide an insight into these trends by isolating the main players among the member states whose asylum data are constitutive of these trends. It is not our goal in this article to assess what factors (political climate, national and supranational legislation, geographical location, labour conditions, and so on) are causally responsible for trends in the asylum data of particular EU member states.

The common-standards objective

Let a 'bona fide asylum seeker' be an asylum seeker for whom there is an imperative that she should be awarded some form of protection on some objective moral standard. How this objective moral standard is determined is not our concern here.

We first make the simplifying (but unrealistic) assumption that the proportion of bona fide asylum seekers is uniform across member states. So we expect the same proportions of bona fide asylum seekers among applicants to Austria, Belgium, . . . , UK. On this assumption, if all member states were to apply correct standards, then we would expect the same recognition rate to be exhibited by each EU member state. Hence, the degree of variability across recognition rates would be an indicator of whether member states of the EU employ common standards.

This is not to say that the same recognition rates warrant the conclusion that *correct* standards were applied. It may be the case that all member states apply common standards, but standards that are much too lenient or much too stringent. Or it may be the case that they apply very different standards – standards that are more and less stringent in different respects – but that the outcomes are the same, namely, the application of these standards leads to the same recognition rates. But, having said this, radically different recognition rates are certainly a source of concern and a tentative indicator that correct standards are not in operation across the EU. With this concern in mind, Holzer et al. (2000a: 253) point to differences across the recognition rates of seven member states for the years 1985–95.

How should we measure the variability of recognition rates? Let us start with a simple weighted standard deviation in which the proportions of applicants to member states constitute the weights. The standard deviation is problematic for familiar reasons. The set of proportions {0.01, 0.02, 0.03} seems to display more variability than the set of proportions {0.49, 0.50, 0.51} (for the same reasons that one would think that a set of leprechauns with the set of heights {1 cm, 2 cm, 3 cm} displays greater variability in height than a set of giants with the set of heights {10.01 m, 10.02 m, 10.03 m}). A common solution to this problem is to adopt the coefficient of variation, that is, the ratio of the standard deviation to the mean, as a measure of variability. This addresses the problem of the variability of the leprechauns and the giants. Eric Neumayer (2005: 57) proposes to make the same move to measure the variability of recognition rates.

But this measure has the following problem. It seems reasonable that the variability of a set of recognition rates in a given year should equal the variability of the set of rejection rates – for example, the measures of variability of the sets {0.01, 0.02, 0.03} and {0.99, 0.98, 0.97} should be equal. We wish to measure the variability of a *variable*, not the variability of a particular *value* of the variable. Clearly, the coefficient of variation will not satisfy this requirement.

Coffey et al. (1988) offer a solution to the problems in the previous two paragraphs. They propose the following measure of variability for proportions. We first determine the weighted variance of a set of proportions. Subsequently, we determine the *maximal* weighted variance that a set of proportions (i) of the same size, (ii) with the same weighted mean, and (iii) with the same set of weights might have. The measure of variability for sets of proportions of at least size 2 is the square root of the ratio of the actual weighted variance over this maximal weighted variance (for sets of size 1, we just set the measure at 0). Let us call this the

Coffey-Feingold-Bromberg (CFB) measure. Clearly, this measure ranges from 0 to 1, with higher values indicating higher variability.

Here is a simple example. Consider the set of proportions $P = \{0.38, 0.42\}$ with weights $W = \{0.50, 0.50\}$. The weighted mean equals 0.40. The weighted variance equals $0.5(0.38 - 0.40)^2 + 0.5(0.42 - 0.40)^2 = 0.0004$. The (ordered) sets of proportions of size 2 that yield maximal weighted variance with weights W and weighted mean 0.40 are $\{0, 0.80\}$ and $\{0.80, 0\}$. The variance of these sets equals $0.5(0 - 0.40)^2 + 0.5(0.80 - 0.40)^2 = 0.16$. Hence, the CFB measure equals $\text{CFB}(\{0.38, 0.42\}) = \sqrt{0.0004/0.16} = 0.05$. It is easy to check that $\text{CFB}(\{0.01, 0.02, 0.03\}) = \text{CFB}(\{0.99, 0.98, 0.97\}) > \text{CFB}(\{0.49, 0.50, 0.51\})$.

Data were gathered from the statistical online database of the office of the United Nations High Commissioner for Refugees (UNHCR). We use recognition rates of EU member states as defined in the UNHCR database, namely, the ratio of the number of asylum applicants awarded refugee or subsidiary protection over the sum of this number plus the number of rejected applications. These recognition rates are entered in the UNHCR database as 'Recognition rates Excl. o/w. cl. Ref. status' ('Recognition rates excluding otherwise-closed Refugee Status').

We construct a vector of recognition rates of all member states for each year over the period 1999–2009 – with 2009 being at the time of our analysis the latest year for which data are available. We then calculate the CFB measure for each year and track its progression from 1999 to 2009:

$$\begin{aligned} &\text{G-CFB}(\{r_1, ..., r_n\}) \\ &= \text{CFB}(\{r_1, ..., \mathrm{r}_n\}) \\ &= \sqrt{\frac{\sum_i^n w_i \left(r_i - \sum_i^n w_i r_i\right)^2}{\max\left[\sum_i^n w_i \left(r_i^* - \sum_i^n w_i r_i^*\right)^2 \middle| \sum_i^n w_i r_i = \sum_i^n w_i r_i^*;\ 0 \le r_i^* \le 1\right]}} \end{aligned} \tag{1}$$

where w_i is the ratio of applicants to member state i over the total number of applicants to the EU, r_i is the recognition rate, that is, the ratio of acceptances over applicants, for member state i, and $\{r_1^*, \ldots, r_n^*\}$ is a set of recognition rates that would yield maximal variance while preserving the actual weighted mean. Let us call this the 'General CFB measure' (G-CFB) for reasons that will become clear below. The calculation of the CFB measure is computationally demanding. A Mathematica program can be found at Fitelson (2011).

We conduct the same analysis for the EU15 – that is, excluding the new accession states – for the years 2004–9. This distinction is important because it permits us to isolate to what extent the variability in recognition rates is due to the expansion of the EU.

An obvious objection to the analysis so far is that the assumption that the proportion of bona fide asylum seekers is uniform across member states is unwarranted. Owing to location or to historical contingencies, the asylum seekers

knocking on the door of one of the member states may be very different from the asylum seekers knocking elsewhere. Some member states attract more migrants from countries of origin that suffer economic hardship. Other member states attract more migrants from countries of origin in which citizens are subjected to massive persecution. Applicants from the latter countries of origin tend to be more bona fide than applicants from the former countries of origin.

Following Holzer et al. (2000a: 253–5) and Neumayer (2005: 57–8), we make the less demanding assumption that, for each country of origin, the proportion of bona fide asylum seekers is uniform across the member states. So, for applicants from, say, Afghanistan, we expect the same proportion of bona fide asylum seekers among applicants to Austria, Belgium, …., UK. This assumption may still be unwarranted, but it is clearly more realistic.

We now construct a CFB measure for each country of origin. Subsequently, we construct a weighted average of these CFB measures in which the weight for a particular country of origin is the proportion of applicants from this country of origin relative to the total applicant pool to the EU in the given year. Let us call this the 'Aggregate CFB measure' (A-CFB). We repeat this analysis for the EU15.

The measure of variability can then be defined as follows:

$$\text{A-CFB}(\{r_1^1, ..., r_n^1\}, ..., \{r_1^j, ..., r_n^j\}, ..., \{r_1^1, ..., r_n^m\}) = \sum_1^m v^j \text{CFB}(\{r_1^j, \ldots, r_n^j\}) \quad (2)$$

for $i = 1, \ldots, n$ EU member states and $j = 1, \ldots, m$ countries of origin and where v^j is the proportion of applicants from country of origin j relative to the total applicant pool to the EU.

We can make the following observations in Figure 1:

1. The G-CFB measure decreases drastically from the late 1990s to the early 2000s but then starts rising again, with a peak in 2007 and successive drops in 2008 and 2009.
2. The variability increases minimally with the inclusion of the new accession states.
3. The A-CFB measure follows the same trend as the G-CFB measure, but is systematically higher.

We would like to gain a better understanding of why these particular patterns hold.

Observation 1. We construct tables with (i) the recognition rate of each EU member state and (ii) the proportion of applicants to each member state (weight) from 1999 to 2009. We now construct a 'small world' in Table 1. We restrict ourselves to the years 1999, 2003, 2007 and 2009, since these are some salient extreme points. We restrict the rows to those member states that receive a relatively high proportion of applicants (that is, whose weight is at least 0.08, that is 8 percent

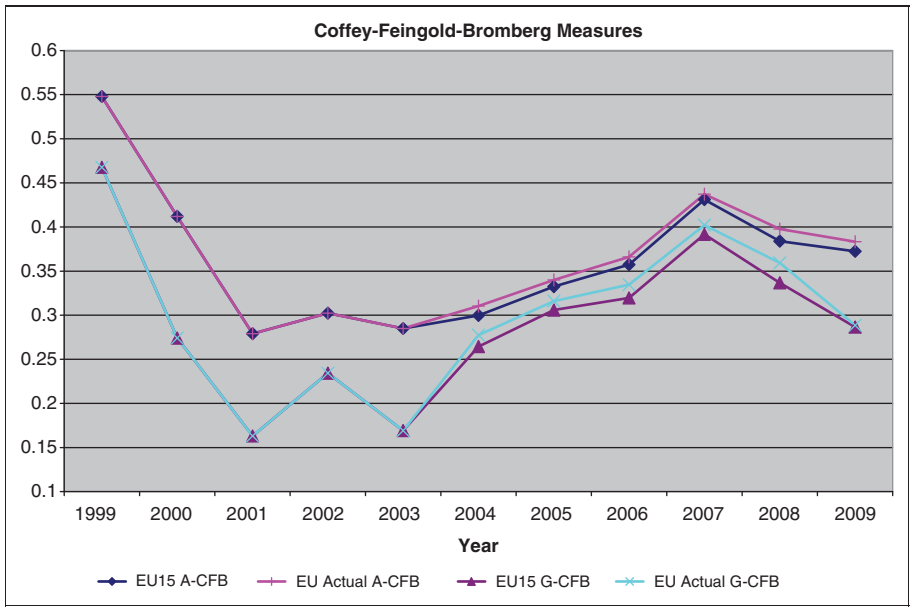

Figure 1. General Coffey-Feingold-Bromberg (G-CFB) measures and Aggregate Coffey-Feingold-Bromberg (A-CFB) measures.

Table 1. Recognition rates (RR) and weights (W) for member states with relatively high proportions of applicants in 1999, 2003, 2007 and 2009

	1999		2003		2007		2009	
Member state	RR (percent)	W	RR (percent)	W	RR (percent)	W	RR (percent)	W
France	16	0.17	13	0.24	25	0.22	26	0.15
Germany	13	0.41	7	0.16	38	0.08	46	0.08
Greece	26	0.01	1	0.01	1	0.10	1	0.06
Italy	73	0.01	22	0.03	68	0.07	44	0.08
Netherlands	41	0.10	27	0.07	55	0.04	48	0.06
Sweden	34	0.04	14	0.10	50	0.13	26	0.14
United Kingdom	73	0.13	20	0.31	27	0.14	29	0.16
Weighted mean	29		16		33		29	

of the applicants to the EU) in at least one of these years since they are substantial contributors to the (*weighted*) G-CFB measure. This restriction to this small world permits us to identify what underlies the trends by focusing on the major players.

The high variability in 1999 is due to the fact that, of the four member states with high weights, two have high recognition rates (namely, the UK and the

Netherlands) and two have low recognition rates (namely, France and Germany). The weighted mean of recognition rates is at 29 percent.

In 2003, the weighted mean decreases to 16 percent. The UK's recognition rate drops drastically and is closer to the weighted mean; the Netherlands' recognition rate likewise drops and this member state has lost weight. France's recognition rate remains low but is closer to the weighted mean; Germany maintains a low recognition rate, but its weight decreases significantly relative to earlier years. Sweden becomes more of a player, with higher weight and a recognition rate close to the weighted mean. This combination of facts explains the drop in variability.

In 2007, the weighted mean increases again to 33 percent. France, Germany and the UK are relatively close to the weighted mean. But the high variability is mainly owing to the extremely high recognition rates of Italy and Sweden and the extremely low recognition rate of Greece, which becomes a player.

In 2009, the weighted mean is at 29 percent. The three most important players – namely, the UK, Sweden and France, which have the highest weights – have recognition rates very close to the weighted mean. This explains the drop in variability. Note, though, that Italy, the Netherlands and Germany are relatively high, whereas Greece is relatively low, which prevents the measure from dropping to its 2003 low.

Observation 2. The proportion of applicants to the new accession states is so low that the expansion of the EU does not make much difference to the measure of variability: the proportion of applicants to these states (taken as a bloc) ranges from merely 0.04 to 0.09 over the years 2004–9. In so far as the expansion does make a difference, the variability is greater when we include all EU member states: the new member states do contain some serious outliers in both directions. The only three member states with non-negligible proportions (> 0.005 over the aggregate period 2004–9) of applicants are Cyprus, the Czech Republic and Malta. Cyprus and the Czech Republic have very low recognition rates (9 percent and 10 percent, respectively) whereas Malta has a very high recognition rate (55 percent). This explains the slight increase in variability when we include the new member states.

Observation 3. We first need to understand how the A-CFB measure may differ from the G-CFB measure. Consider Tables 2 and 3, representing imaginary worlds with two member states and two countries of origin. In Table 2, the

Table 2. Recognition rates and application numbers (in brackets) with the A-CFB measure exceeding the G-CFB measure

	Country of Origin$_1$	Country of Origin$_2$	
Member State$_1$	60 percent (100)	40 percent (100)	50 percent (200)
Member State$_2$	40 percent (100)	60 percent (100)	50 percent (200)

G-CFB measure is 0 because both member states have the same recognition rate of 50 percent. But there is variability in the recognition rates at the country-of-origin level. The variability at the country-of-origin level *washes out* if we do not distinguish between countries of origin. In Table 3, the A-CFB measure is 0. Country of $Origin_1$ has consistently low recognition rates and Country of $Origin_2$ has consistently high recognition rates. But applicants from Country of $Origin_1$ tend to apply to Member $State_1$, whereas applicants from Country of $Origin_2$ tend to apply to Member $State_2$, so that the recognition rate of Member $State_2$ much exceeds the recognition rate of Member $State_1$. Hence, the G-CFB measure exceeds the A-CFB measure owing to the *differential quality of applicant pools* knocking on the doors of the different member states.

The *washing out* pattern (as witnessed in Table 2) and the *differential quality* pattern (as witnessed in Table 3) pull the A-CFB and G-CFB measures in different directions. In our results, we see that the A-CFB measure is consistently above the G-CFB measure. Hence, the data should display an identifiable *washing out* pattern. And this is what we need to check.

To do this, we create another 'small world'; that is, we isolate a limited number of member states that receive the bulk of the asylum seekers and a limited number of countries of origin from which the bulk of asylum seekers originate. We restrict ourselves to member states that receive a relatively high proportion of applicants (> 9 percent of the total applicants to the EU) in at least one year over the aggregate period 1999–2009. These member states are France, Germany, Greece, Italy, the Netherlands, Sweden and the UK. We focus on the 12 countries of origin for which the ratio of asylum seekers from this country of origin over the total number of asylum seekers exceeds 2 percent over the aggregate period 1999–2009; these countries of origin are Afghanistan, China, Democratic Republic of the Congo, Iraq, Islamic Republic of Iran, Nigeria, Pakistan, Russian Federation, Serbia, Somalia, Sri Lanka and Turkey. These countries of origin are responsible for 55 percent of all asylum applications in the EU in the period 1999–2009. Our question is: can we identify variability in the recognition rates of EU member states when distinctions between countries of origin are made that then washes out (to some extent) when we assess the variability in recognition rates without distinguishing between these countries of origin?

We present the data for our small world with 12 countries of origin and 7 EU member states covering 1999–2009 asylum data in Tables 4 and 5. For each country

Table 3. Recognition rates and application numbers (in brackets) with the G-CFB measure exceeding the A-CFB measure

	Country of $Origin_1$	Country of $Origin_2$	
Member $State_1$	5 percent (180)	95 percent (20)	14 percent (200)
Member $State_2$	5 percent (20)	95 percent (180)	86 percent (200)

Table 4. Proportions of applicants from specific countries of origin in the small world (first row) and proportions of applicants from each country of origin to each member state in the small world (3rd–9th rows)

Weights	0.08	0.06	0.06	0.18	0.06	0.03	0.05	0.05	0.15	0.07	0.07	0.13
Member state	Afghanistan	China	Democratic Republic of the Congo	Iraq	Islamic Republic of Iran	Nigeria	Pakistan	Russian Federation	Serbia	Somalia	Sri Lanka	Turkey
France	0.02	0.53	0.64	0.01	0.02	0.22	0.12	0.37	0.15	0.01	0.44	0.38
Germany	0.24	0.11	0.06	0.27	0.23	0.13	0.12	0.26	0.35	0.03	0.07	0.30
Greece	0.07	0.01	0.00	0.07	0.03	0.06	0.27	0.01	0.00	0.01	0.01	0.01
Italy	0.04	0.00	0.01	0.07	0.01	0.24	0.05	0.01	0.05	0.08	0.03	0.07
Netherlands	0.20	0.06	0.04	0.14	0.10	0.05	0.01	0.06	0.04	0.20	0.03	0.03
Sweden	0.07	0.01	0.01	0.24	0.11	0.05	0.02	0.16	0.21	0.17	0.00	0.03
United Kingdom	0.38	0.28	0.24	0.20	0.49	0.25	0.41	0.13	0.21	0.50	0.42	0.19

Table 5. Recognition rates (percent) for small world with country-of-origin-specific CFB measures, G-CFB measure and A-CFB measure

Member state	Afghanistan	China	Democratic Republic of the Congo	Iraq	Islamic Republic of Iran	Nigeria	Pakistan	Russian Federation	Serbia	Somalia	Sri Lanka	Turkey	Overall
France	44	1	18	49	35	8	6	38	24	46	31	13	18
Germany	44	6	14	53	24	2	7	18	3	39	19	19	24
Greece	2	1	16	5	9	1	0	4	25	3	5	9	3
Italy	59	45	71	10	64	16	20	44	40	84	30	15	30
Netherlands	50	23	32	42	30	8	21	25	22	53	22	13	39
Sweden	39	13	18	47	19	4	11	13	17	58	9	10	33
United Kingdom	47	9	30	36	22	15	14	18	30	58	20	24	30
Overall	44	6	21	40	23	10	9	25	17	58	25	17	26
CFB measure	0.24	0.27	0.18	0.29	0.14	0.18	0.24	0.25	0.32	0.20	0.18	0.12	
G-CFB													0.1762
A-CFB													0.2301

of origin, we calculate the proportion of applicants to each member state in Table 4 and we list the recognition rates exhibited by each EU member state in Table 5. We then calculate the CFB measure for each country of origin. Subsequently, we calculate the A-CFB measure, which is the sum of the country-of-origin-specific CFB measures weighted by the proportion of applicants from each country of origin. Finally, we calculate the G-CFB measure for the recognition rates exhibited by each of these 7 member states, irrespective of the origin of the applicants. Our hope is that we will be able to recognize patterns in this small world that permit us to identify how recognition-rate variability across member states at the country-of-origin level is *washed out* at the level of the federation. The data for this small world over a period from 1999 to 2009 are much more parsimonious than the data for all member states and countries of origin on a yearly basis, but they cover much of the asylum activity in the EU, and hence small-world patterns can inform us about the overall trends.

Note also that, in this small world, the A-CFB measure (0.2301) exceeds the G-CFB measure (0.1762). The countries of origin with the highest CFB measures are Serbia, Iraq, China and the Russian Federation. Serbia's high variability is partly owing to the very low recognition rate of Germany (3 percent), which receives 0.35 of Serbia's applicants. Iraq's high variability is partly due to the very high recognition rate of Germany (53 percent), which receives 0.27 of Iraq's applicants. China's high variability is partly owing to the very low recognition rate of France (1 percent), which receives 0.53 of China's applicants. The Russian Federation's high variability is partly owing to the very high recognition rate of France (38 percent), which receives 0.37 of the Russian Federation's applicants. These high country-of-origin-specific CFB measures add up to a high A-CFB measure. High and low recognition rates across EU member states for different countries of origin *wash out* so that there is less variability in the overall recognition rates. This is reflected in a lower G-CFB measure.

If we accept the assumption that, for each country of origin, the proportion of bona fide asylum seekers is uniform across member states, then the A-CFB measures are disconcerting. They indicate a high variability across member states, suggesting that they are biased for and against applicants from certain countries of origin. A lower G-CFB measure comes about only because the consequences of these biases cancel each other out – variability in recognition rates washes out when we aggregate over multiple countries of origin.

The equal-responsibility-sharing objective

There has been recent interest in designing a measure of the assumption of responsibilities (or burdens) of asylum seekers for *individual EU member states*. Czaika (2005) designed such a Refugee Burden Index. Subsequently, there was a recent document by the EU Directorate General for Internal Politics, Policy Department C, Citizens' Rights and Constitutional Affairs – Justice, Freedom and Security

(Matrix Insight Ltd et al., 2010). This document proposes two measures of responsibility: one is novel and one builds on Czaika's measure.

The first difference between our approach and the approach of these studies is that we are interested in giving an overall measure of how unequally various responsibilities are spread in the EU, whereas Czaika and Matrix Insight et al. are interested in providing a measure of the extent to which a country meets its responsibilities.

The second difference is that both Czaika and Matrix Insight et al. try to construct some overall measure of absorption capacity for individual member states taking into account multiple factors. We will compare results for multiple single-factor measures of absorption capacity, namely, population size, gross domestic product (GDP) and GDP expressed in purchasing power parity (GDP-PPP). This is desirable for two reasons. First, it allows us to isolate the features of interest constitutive of absorption capacity and see what patterns emerge relative to each feature or how these patterns compare. This would be impossible to do with a combined measure. Second, it permits a simple and natural interpretation of the Lorenz curve (see below); that is, it tracks the relative load on the shoulders of citizens, units of GDP or units of GDP-PPP. Such an interpretation is unavailable for a combined measure.

The question of responsibility-sharing comes up with respect to (i) the number of applications processed in particular years by each EU member state, (ii) the number of applicants who have been granted temporary, subsidiary or refugee protection in particular years by each member state, and (iii) the number of persons who have been granted protection (at some point in time) and are residing in each member state in particular years. Let us look at each in turn.

Some member states tend to be subject to greater applicant flows than others owing to factors such as their history, migration policies, geographical location, existing migration networks, labour market opportunities, etc. (Bocker and Havinga, 1998; Holzer et al., 2000b, for Switzerland; Neumayer, 2004; and Thielemann, 2006). An equal spread of applications requires that applicant numbers in each member state be proportional to its absorption capacity. We will use three indicators for absorption capacity: the member state's population size, GDP and GDP-PPP.

But how can we measure the degree to which we deviate from an equal spread? We take the lead from the measurement of income inequality. A standard way of measuring cross-country income inequality in a federation is to construct a Lorenz curve and to calculate the Gini coefficient. Let us adapt this methodology to the measurement of cross-country asylum application load inequality. We start with population size as a measure of absorption capacity. Table 6 contains data for 2009. We order the EU member states on the variable 'applicants per capita' – from 'applicant-poorest' to 'applicant-richest' in column 1. In column 2, we list the values of this variable; in column 3, the actual population size of each member state; in column 4, the percentage of the total population size of the EU that each member state makes up; in column 5, the cumulative percentages of the population

Table 6. Data for the Lorenz curve for asylum applicants per capita in the EU (2009)

1	2	3	4	5	6	7	8
Member state	Applicants per capita	Population	Population as percent of EU total	Cumulative percentages of population	No. of applicants to each member state	Applicants as percent of EU total	Cumulative percentages of applicants
Portugal	0.00001	10,627,250	2	2	100	0	0
Latvia	0.00001	2,261,294	0	3	27	0	0
Estonia	0.00002	1,340,415	0	3	21	0	0
Romania	0.00004	21,498,616	4	7	883	0	0
Lithuania	0.00004	3,349,872	1	8	144	0	0
Slovenia	0.00005	2,032,362	0	8	111	0	0
Slovakia	0.00008	5,412,254	1	9	440	0	1
Bulgaria	0.00009	7,606,551	2	11	647	0	1
Spain	0.00010	45,828,172	9	20	4465	2	3
Czech Republic	0.00010	10,467,542	2	22	1062	0	3
Hungary	0.00017	10,030,975	2	24	1713	1	4
Poland	0.00017	38,135,876	8	32	6647	3	6
Germany	0.00026	82,002,356	16	48	21,086	8	14
Finland	0.00033	5,326,314	1	49	1732	1	15
Denmark	0.00036	5,511,451	1	50	2010	1	16
Italy	0.00037	60,045,068	12	62	21,983	8	24
France	0.00063	64,350,759	13	75	40,656	15	39
United Kingdom	0.00069	61,634,599	12	88	42,685	16	56
Luxembourg	0.00074	493,500	0	88	364	0	56

(continued)

Table 6. Continued

1	2	3	4	5	6	7	8
Member state	Applicants per capita	Population	Population as percent of EU total	Cumulative percentages of population	No. of applicants to each member state	Applicants as percent of EU total	Cumulative percentages of applicants
Netherlands	0.00099	16,485,787	3	91	16,357	6	62
Ireland	0.00132	4,450,014	1	92	5885	2	64
Greece	0.00134	11,260,402	2	94	15,108	6	70
Belgium	0.00149	10,750,000	2	96	16,065	6	76
Austria	0.00219	8,355,260	2	98	18,314	7	83
Sweden	0.00387	9,256,347	2	100	35,820	14	96
Malta	0.00668	413,609	0	100	2764	1	97
Cyprus	0.00837	796,875	0	100	6669	3	100
Grand total		499,723,520	100		263,758	100	

sizes; in column 6, the actual number of applicants to each member state; in column 7, the percentage of applicants to each member state within the EU; in column 8, the cumulative percentages of applicants. From columns 5 and 8, we can now read off that the applicant-poorest x percent of the EU population receives y percent of the applicants to the EU. We then plot the pairs (x, y) and connect the dots. This is the Lorenz curve. Clearly, if there were complete equality of responsibility-sharing, then x would equal y for all entries and the Lorenz curve would coincide with the diagonal. The greater the space between the diagonal and the Lorenz curve, the greater the inequality. The Gini coefficient is the ratio of this space over the total space underneath the diagonal and hence is a measure of inequality. Clearly, this measure ranges from 0 to 1, with higher values indicating greater inequality.

Alternatively, we might say that it is not the citizens who carry the responsibility of asylum applicants, but rather the actual resources that are available in each member state, as measured by GDP (or GDP-PPP). We now order the member states on the variable 'applicants per unit of GDP'. An applicant-poor member state is now understood to be one in which each unit of GDP carries a relatively light portion of the application load. The Lorenz curve indicates what (cumulative) percentage y of applicants to the EU is carried by what (cumulative) percentage of the units of GDP of the applicant-poorest member states in the EU. The greater the Gini coefficient, the more unequally the application load is spread across the shoulders of the units of GDP of EU member states. We have plotted the Lorenz curves for 2009 for population size, GDP and GDP-PPP in Figure 2.

In the top row of Figure 3, we track the Gini coefficients for applicants ('applications') from 1999 to 2009 for population size, GDP and GDP-PPP, with the member states that actually constitute the EU in each given year and with the EU15. We repeat this exercise for the number of applicants who have been granted temporary, subsidiary or refugee protection in particular years by each member state ('acceptances') in the second row of Figure 3 and for the number of persons who have been granted protection (at some point in time) and are residing in each member state in particular years ('refugee population').

We can make the following five observations:

1. The inequality in the application load oscillates but displays an upward trend overall.
2. The inequality in the acceptance load oscillates until 2005 and subsequently displays a downward trend.
3. The inequality in the refugee population load displays a downward trend throughout, but markedly so from 2004 onwards (abstracting from the rise owing to the EU expansion).
4. Inequality relative to population size is greater than inequality relative to GDP-PPP, which in turn is greater than inequality relative to GDP (though trends are roughly the same).
5. The extension of the EU aggravates inequalities.

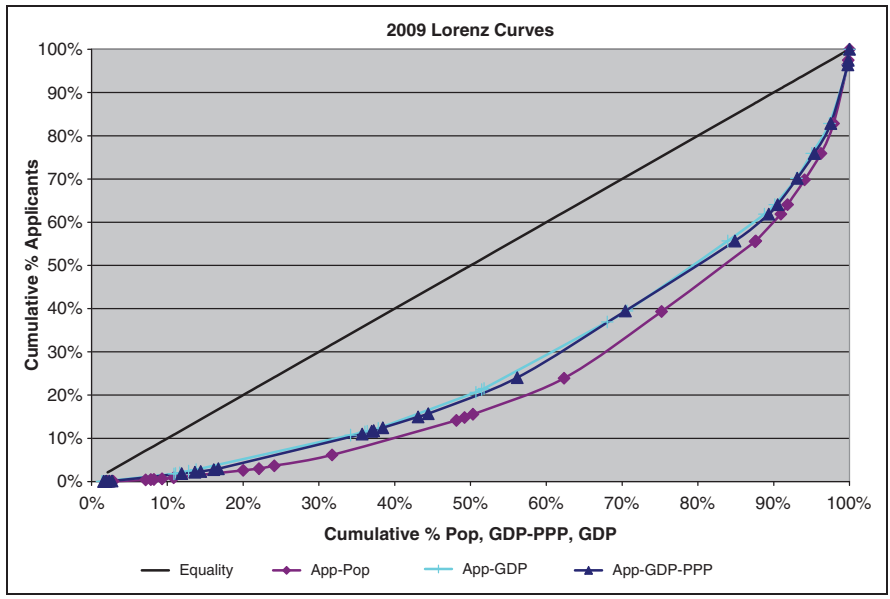

Figure 2. 2009 Lorenz curves for applicants relative to population size, to GDP and to GDP-PPP.

What explains these observations? Let us consider each observation in turn. For observations 1–3, we focus on the EU15 and responsibility-sharing measures relative to population size.

Observation 1. In Figure 4, we depict for each year the difference between the percentage of applicants to a particular member state relative to the total number of applicants to the EU and the percentage of the total population of the EU that this member state constitutes. The upward trend in the Gini coefficient for the application load can be explained by focusing on (i) Germany, whose application load is roughly proportionate to its population size in the early 2000s and dropped disproportionately low, and (ii) Austria, Belgium, Greece and Sweden (jointly depicted), whose application loads are roughly proportionate in earlier years and rose disproportionately high. However, there is also a slight countervailing trend: Italy is always disproportionately low, but is moving closer to proportionality. Furthermore, the following contributes to the oscillation: France and the UK are close to proportionality in earlier and later years but in the intervening period peak in different years.

Observation 2. In Figure 5, we depict for each year the difference between the percentage of acceptances by a particular member state relative to the total number of acceptances by the EU and the percentage of the total population of the EU that

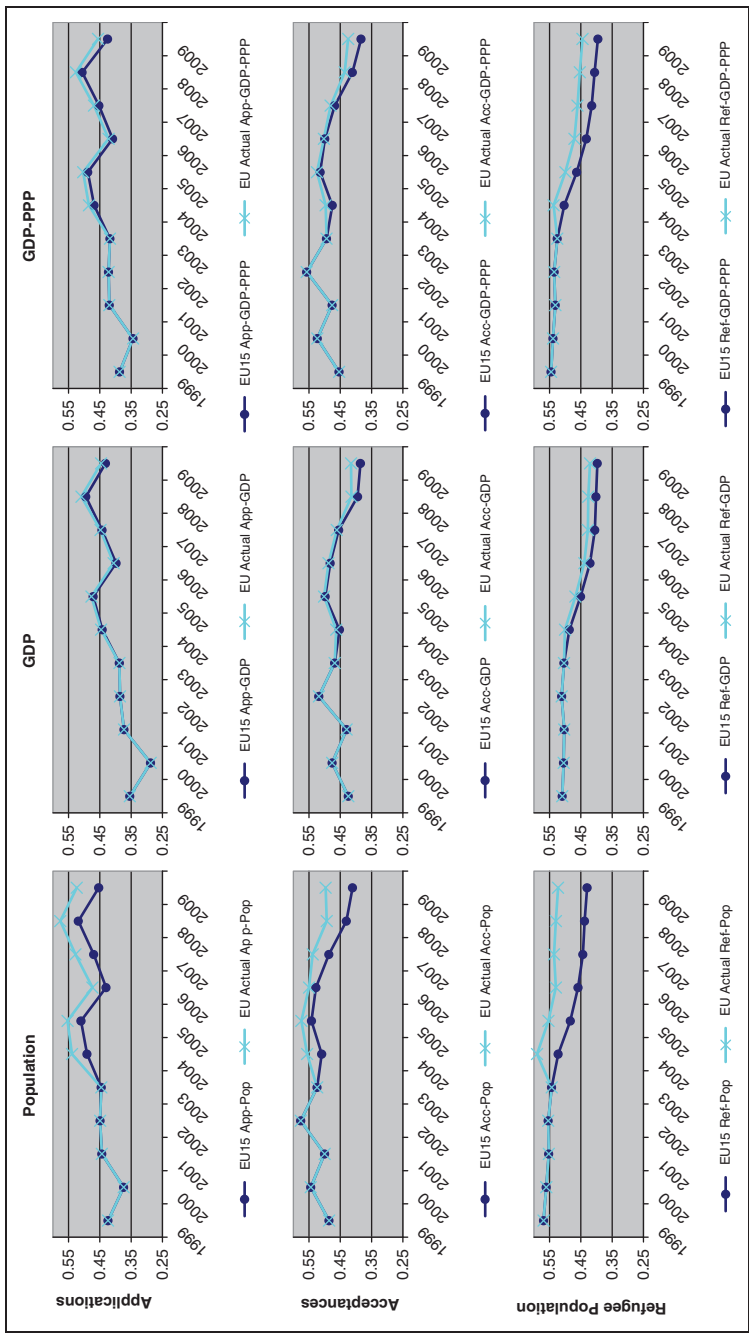

Figure 3. Gini coefficient trends, 1999–2009.

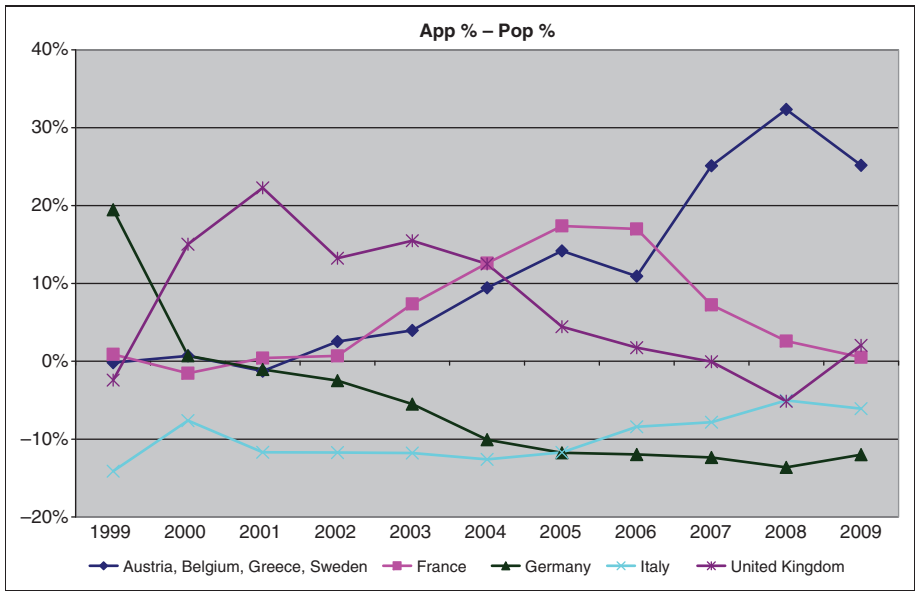

Figure 4. Difference between percentage of applicants and percentage of population, by year, 1999–2009.

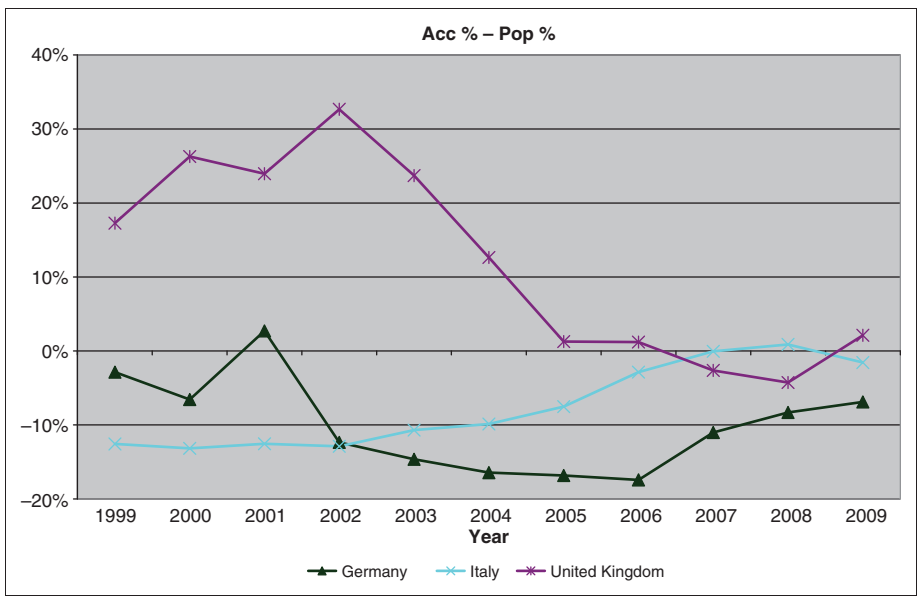

Figure 5. Difference between percentage of acceptances and percentage of population, by year, 1999–2009.

this member state constitutes. The drop in the Gini coefficient for the acceptance load from 2002 to 2009 is largely explained by focusing on three major players: Germany, Italy and the UK. In 2002, Germany and Italy each has a disproportionately low number of acceptances relative to population size whereas the UK has a disproportionately high number of acceptances. Over the period 2002–9, these three member states bring their acceptance numbers more into line with their population sizes, reducing the inequality in acceptance load.

Observation 3. In Figure 6, we depict for each year the difference between the percentage of the refugee population in a particular member state relative to the total refugee population in the EU and the percentage of the total population of the EU that this member state constitutes. The drop in the Gini coefficient for the refugee population load can be explained as follows. First, there are a number of member states whose refugee populations are disproportionately high relative to their population sizes: Denmark, the Netherlands and Sweden (depicted jointly) and Germany. For all these member states, these proportions decrease and become more in line with the corresponding population sizes. Second, there are a number of member states whose refugee populations are disproportionately low: France and Italy. Their proportions increase and become more in line with the corresponding population sizes. Other member states do not make much of a difference to this

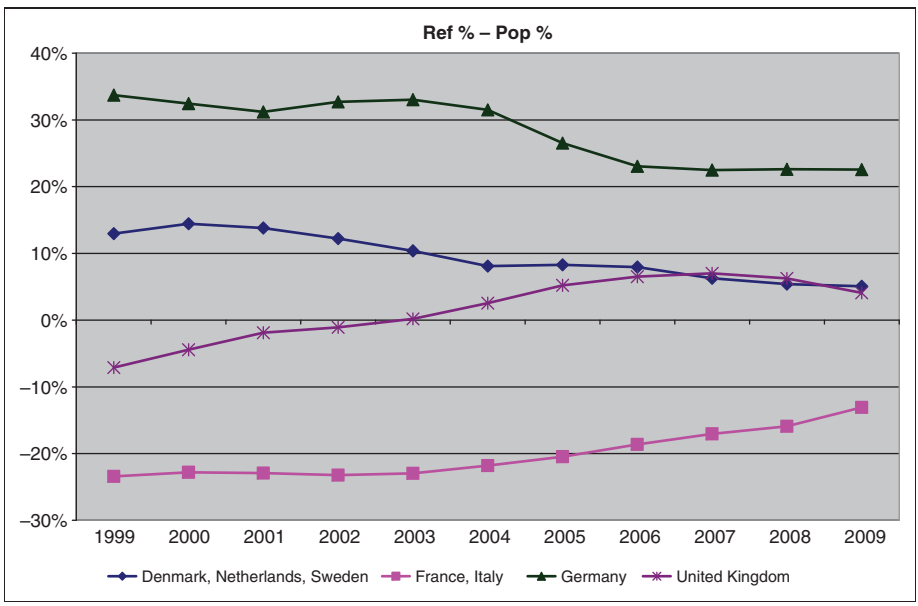

Figure 6. Difference between percentage of refugee population and percentage of population, by year, 1999–2009.

trend: Greece, Portugal and Spain (not depicted) are disproportionately low but remain stable. Austria, Belgium, Finland, Ireland and Luxembourg (not depicted) are roughly proportionate and remain stable. The UK moves from being disproportionately low to being disproportionately high.

Observation 4. To understand this observation, we will focus on the inequality in the application load in 2009 in Figure 2 and Table 6. Eastern European states as well as Spain and Portugal are applicant poor. They constitute a large cumulative proportion x of the EU population receiving a small proportion of applicants. However, these member states are also poorer states in terms of GDP per capita. Hence, a smaller proportion of the total GDP of the EU (that is, smaller than x) will take on this small proportion of applicants. So the inequality relative to GDP is smaller than the inequality relative to population size. Furthermore, the inequality relative to GDP-PPP falls in between the inequality relative to population size and the inequality relative to GDP because the member states noted earlier tend to be poorer in terms of GDP per capita, but less so in terms of GDP-PPP per capita, owing to their lower living costs.

Observation 5. Let us first consider inequality in the application load relative to population size (see Table 6). The new member states tend to be either very applicant poor (the Eastern European member states) or very applicant rich (Malta and Cyprus) relative to population size. So there is a polarizing effect and this aggravates the inequality. The same reasoning holds for acceptances and refugee populations.

Discussion and summary of results

Various EU asylum policy documents state the use of common standards in the EU member states and equal responsibility-sharing among the member states as objectives. We have asked ourselves: what would data on asylum flows and stocks be like if these objectives were met, given certain assumptions? We then designed measures to assess how far we are removed from these ideals and we have tracked the performance of these measures year by year since the Treaty of Amsterdam took effect in 1999.

If the common-standards objective is met, then, depending on background assumptions about the quality of the applicant pools, EU member states should display the same recognition rates either overall or relative to each country of origin. We use the CFB measure as a weighted and normalized measure of variability to assess the distance from this ideal.

If the equal-responsibility-sharing objective is met, then, for each member state, the numbers of applications, acceptances and resident refugees should be

proportional to the population size, GDP or GDP-PPP. We use the Gini coefficient to assess the distance from this ideal.

Our work is strictly an exercise in descriptive statistics. We construct measures to uncover certain features of interest that are hidden in complex arrays of data and we track how these measures perform over a period of time. The value of such an exercise consists in bringing patterns and trends that are hidden in the complexity of the data and are of interest to policy makers into plain daylight. It is *not* an exercise in *inferential* statistics; that is, we do not do any hypothesis testing by making inferences from facts about samples to facts about larger populations. For example, we do not test the hypothesis that, say, applicants from non-OECD countries of origin meet with lower recognition rates than applicants from OECD countries of origin by sampling applicants from non-OECD and OECD countries of origin. It is *not* an exercise in *causal* analysis; that is, we do not attempt to give any causal explanations. For example, we do not assess whether a drop in recognition rates in earlier years causes lower applicant numbers in later years for particular EU member states. These are all good questions to ask, but our aims in this paper are different.

When there are certain trends in the progression of the measures over time, one would like to hear an account of why these trends hold. Such a request may, but it need not, be a request for a *causal* explanation. Rather, it could simply be a request to provide an account of what particular asylum data are constitutive of the change in values for the measure in question. For example, if the Gini coefficient for asylum applications per capita drops, then we may say that this is because particular member states were outliers in this respect before and now have applications numbers that are proportionate to their population size. To put one's finger on this fact is informative, though it does not say anything about what caused this change. It advances our understanding even though it is not a causal explanation.

Such an exercise in descriptive statistics does not fall short of some ideal of scientific enquiry nor is it preliminary work for a causal analysis. Compare: an epidemiologist might want to know whether the fat content of the food in fast food restaurants has been increasing or decreasing over the years and what changes in the choices of ingredients are constitutive of such trends. Now, there is the further question of what the causal determinants (costs and availability of ingredients, and so on) are of such changes. But answering the first two descriptive questions in a lucid way without addressing any causal questions is perfectly legitimate. It may be all that is of interest within the context in question. Similarly, identifying trends in the extent to which EU asylum policy objectives are met and isolating the particular member-state-level and country-of-origin-level asylum data that are constitutive of these trends without addressing any causal questions are of independent interest.

What have we learned from this exercise? Without rehearsing all the details, let us just lay out our findings in broad strokes:

- Trends in the degree to which the common-standards objective is satisfied and the degree to which the equal-responsibility-sharing objective is satisfied, relative to application load, acceptance load or refugee population load, diverge widely.

- The common-standards objective displays a U-shaped trend – variability in recognition rate was at its lowest in the early 2000s.
- Variability in earlier years is due to the variability across the recognition rates of major (that is, high-weight) players: the UK and the Netherlands have high rates and France and Germany have low rates. Variability in later years is owing not so much to variability across the rates of major players – France, Sweden and the UK – but rather to the deviation from the weighted mean by secondary players – Germany, Italy and the Netherlands (high) and Greece (low).
- Variability across the recognition rates of member states relative to individual countries of origin is strikingly high and washes out to some extent when we consider recognition rates for all countries of origin taken together.
- Responsibility-sharing relative to *application* load oscillates strongly, but the overall trend is towards greater inequality. The main contributors to greater inequality are Germany, which drops from due (that is, proportional) responsibility in the early 2000s to shortfall responsibility and smaller member states such as Austria, Belgium, Greece and Sweden which rise from due towards excess responsibility.
- Responsibility-sharing relative to *acceptance* load oscillates until 2005 and then the trend is towards greater equality. The main contributors to greater equality are Germany, which drops from due (that is proportional) responsibility in the early 2000s to shortfall responsibility and smaller member states such as Austria, Belgium, Greece and Sweden which rise from due to excess responsibility.
- Responsibility-sharing relative to *refugee population* load displays a trend towards greater equality (markedly so since 2004). The main contributors are France and Italy, which move from shortfall towards due responsibility, and Germany, Denmark, the Netherlands and Sweden, which move from excess towards due responsibility.
- Inequalities are most pronounced when absorption capacity is measured by population size, less so when measured by GDP-PPP, and least when measured by GDP, but the choice of a measure of absorption capacity does not affect broad trends.
- The inclusion of the new accession states increases variability (slightly) and inequality owing to the fact that the new accession states include the Eastern European member states on the one hand and Malta on the other hand, which are polar opposites when it comes to asylum variables.

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