Aid Allocation and Deportation Enforcement

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Abstract:

Scaling up deportations has become a prominent policy demand in many destination countries, yet implementation requires the cooperation of countries of origin, who often resist the return of their nationals. We argue that official development assistance (ODA) functions as a bargaining chip in two-sided strategic interactions: destination countries use aid payments to secure cooperation, while origin countries leverage enforcement cooperation to obtain more aid. Using data on more than 3,000 deportation corridors from 32 European to 142 origin countries of citizenship over the period 2008–2022, we estimate the effect of bilateral aid on bilateral returns, conditional on previously emitted orders to leave. For every additional order to leave, the number of effectuated returns increases more when countries also receive more aid. This effect is larger along corridors where stakes are high and were bargaining power lies with the deporting country, and smaller where repatriation agreements exist. Overall, aid allocation translates into a moderate increase in enforced returns per aid dollar spent: For an average corridor, a scenario of 10 million bilateral aid dollars compared to no aid is associated with roughly 20 additional enforced returns per year.

Keywords: Immigration Enforcement, Deportation Corridors, Official Development Aid, Dyadic Models

JEL Codes: F22, F35, F51

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I. Introduction

International migration is one of the most divisive policy issues of our time. On the one hand, many economists emphasize the multiple economic benefits from international migration and the need for more immigration, especially in aging societies of high-income countries. On the other hand, anti-immigration discourses are on the rise across the Western world, reflected in — and responding to — large electoral gains among right-wing parties that capitalize on anti-immigrant sentiments.

One topic that ranks high on the policy agenda in many high-income countries is the return of migrants who lack resident permits or who are being denied refugee status. US President Donald Trump promised the largest deportation operation in the history of the US during election campaigns and doubled down on his promise after taking office. Similar calls have been made across Europe. In Italy, Prime Minister Giorgia Meloni and her coalition have declared the intensification of deportations a core objective[1]. In Germany, Chancellor Olaf Scholz pledged in 2023 to "massively scale up deportations"[2], followed by legislation in early 2024 to accelerate forced returns[3], echoing other countries. In France, the interior minister called for a stricter implementation of obligations to leave in 2023[4]. The UK government has made it an explicit policy goal to seep up removals of those with no right to reside in the country[5]. These moves reflect a broader trend: in 2024, seventeen EU member states jointly

[1] https://www.theguardian.com/world/2023/sep/27/italian-pm-crackdown-migrants-deportation-decree-giorgia-meloni, accessed on 5.2.2024.

[2] https://www.spiegel.de/international/germany/interview-with-german-chancellor-olaf-scholz-we-have-to-deport-people-more-often-and-faster-a-790a033c-a658-4be5-8611-285086d39d38, accessed on 30.05.2024.

[3] https://www.bundesregierung.de/breg-en/news/repatriation-package-2230562, accessed on 30.05.2024.

[4] https://www.lemonde.fr/politique/article/2022/11/17/expulsions-gerald-darmanin-demande-aux-prefets-d-appliquer-plus-fermement-les-oqtf_6150338_823448.html, accessed 6.12.2025

[5] https://www.gov.uk/government/publications/asylum-and-returns-policy-statement/restoring-order-and-control-a-statement-on-the-governments-asylum-and-returns-policy, accessed 6.12.2025

called for a "paradigm shift" to ensure rejected asylum seekers are "effectively and speedily sent back."[6]

As much as deportations are applauded by many voters in destination countries of the Global North, these measures are highly unpopular among populations in migrants' countries of origin who often perceive the treatment of their co-nationals as unfair or unjustified. Especially in African countries, images of cuffed deportees relate to memories of colonial oppression (Cham and Adam 2023) and have led to significant political pressure on origin country governments (Zanker et al. 2019; Paasche 2022). For instance, thousands went to the streets in Tunisia after German chancellor Merkel announced the repatriation of migrants considered to be an "Islamist threat" in 2017[7]. In Senegal, returnees from Spain organized riots and protests the government and lobbied against repatriation agreements (Andersson 2014, 42). In The Gambia, public opposition against deportations even led to the adoption of a moratorium on deportation flights from the European Union (Zanker and Altrogge 2022) and in January 2025 Colombian president Gustavo Petro temporarily banned deportation flights from the U.S..[8] Opposition to deportations is also driven by concerns about their broader effects on origin countries. A small but growing literature on deportation externalities based on Latin American experiences suggests that deportation threats pose a burden not only on migrants themselves who must navigate stigma and difficult post-deportation trajectories (Brotherton and Barrios 2009; Schuster and Majidi 2013; Mojica Madrigal 2017; Silver 2018). The deportation of relatives may also come with a loss of access to remittances by migrated family members or an increase in debt taken up to finance the migration of relatives (Hernández-Carretero and Carling 2012, 410; Menjívar et al. 2018, 130). In Central America and Mexico, the precariousness created by deportations has fed into local dynamics of violent crime (Rozo et al. 2021; Ambrosius 2021; 2024) and had negative effects on overall wages in countries that offer few employment opportunities for returnees (Pearson 2022; Bandiera et al. 2023; Ambrosius, Quigua, et al. 2025).

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[6] https://www.euronews.com/my-europe/2024/10/07/17-european-countries-call-for-a-paradigm-shift-to-deport-rejected-asylum-seekers, accessed 6.12.2025

[7] https://www.welt.de/politik/ausland/article160986896/Tunesier-gegen-Abschiebungen-von-Islamisten-aus-Deutschland.html, accessed 31.1.2024.

[8] https://www.bbc.com/news/articles/cdxny0lnyepo, accessed 6.12.2025

Departing from these observations, our paper focuses on bilateral negotiations over deportations in settings of asymmetrical interdependences and conflicting policy goals between deporting and receiving countries. We use the term "deportations" as synonym for the removal of migrants from countries´ territories to their countries of citizenship. This excludes the denial of entry at the border; and it also excludes returns to third countries from which migrants entered, known as "Dublin regulations" in Europe. Among deportees, we distinguish "enforced returns" for cases where migrants do not consent to being returned from other forms of consented or assisted returns often coined as "voluntary". The latter do not include physical force as part of the return process but other forms of "soft" coercion and sanctions such as long-lasting situations of economic precariousness, migrants' exclusion from formal labor markets, cuts in financial support, uncertain legal status, and the threat of force in case of non-compliance. Although a strict distinction between "voluntary" and "non-voluntary" return is conceptually imprecise, what matters to our research question is that the two categories bear different implications in terms of countries´ cooperation on enforcement.

While deportation decisions are made in countries of destination, its execution requires the cooperation of governments in migrants' countries of origin. Receiving countries must, for instance, issue travel documents, support the reintegration of returnees, cooperate with coast guards and identification missions, agree on the number of returns, and authorize flight landings (Zanker 2023). This provides strategic leverage that can be employed in bilateral bargaining. Seen from deporting countries, the promise of aid can be used to coerce countries into cooperation. Seen from the perspective of countries of citizenship, cooperation in return management of migrants can be used to negotiate an increase in aid. What makes the case of bargaining over aid allocation against deportation enforcement an interesting case of analysis is that we observe outcomes of negotiation dynamics that are itself non-transparent and not officially recognized as a conditioning clause of development funding.

We test our argument that aid allocation is used as a bargaining chip over deportation enforcement on a dyadic country-by-country sample of ≈ 3,000 deportation corridors from 32 European countries to 142 countries of citizenship from the rest of the world over the period 2008 to 2022. The European context offers an ideal setting to test our argument: For one, forced and assisted returns are an important part of the migration policy toolkit of European countries. Countries of the European Union ordered the return of more than 7 million persons from 2008 to 2022 (Ambrosius and Luna 2025 based on Eurostat Data). At the same time, countries of the European Union reported approximately 2.2 million returns, either by force or under schemes coined "voluntary". The discrepancy between return orders and registered repatriations

indicates a considerable rate of non-enforcement (Gibney 2008; Stutz and Trauner 2022) that varies across countries as well as across bilateral deportation corridors (Gu and Czaika 2025). While non-enforcement may have multiple reasons including appeals to revoke return orders as well as voluntary returns not being registered in bilateral return data, it also hints towards receiving countries' capacities to resist the reception of deportees.

Our main empirical challenge lies in isolating the causal effect of aid on deportations from other variables that are correlated both with aid and with deportations. For instance, aid could be targeted toward countries that send more migrants with the aim of addressing the "root causes" of migration or aid could affect the number of migrants via its impact on the social and economic conditions of migrant-sending countries. We therefore predict the effect of aid on deportations conditional upon previously emitted orders to leave, an act that precedes all deportation procedures in the European context. By estimating enforcement elasticities with respect to a given number of persons marked for removal, our estimate should not be vulnerable to bias from unobserved bilateral migration flows.

Our findings are summarized as follows: The elasticity of enforced returns with respect to lagged orders increases, on average, by an additional ≈ 0.04% for every 1% increase in bilateral aid. This effect is strongly statistically significant; it holds for returns only that imply the use of force; is stronger in corridors with larger numbers of asylum requests, with countries that rely heavily on bilateral aid from the deporting countries, and for countries who also depend on access to export markets in the deporting countries. These patterns suggest that the "price" of enforcement is largest where stakes are high and were bargaining power lies with the deporting country. For most deportation corridors, the increase in enforcement elasticities translates into a moderate increase in enforced returns per aid dollars spent: For an average corridor, a scenario of 10 million bilateral aid dollars compared to no aid increases the annual number of enforced returns by around 20 persons, all else equal. The size of this effect diminishes when repatriation agreements are signed.

The rest of the paper is organized as follows: In Section II, we discuss theoretical arguments on the link between forced returns and aid based on existing literature. Section III formalizes the bargaining scenarios, before we offer five testable hypotheses on the link between aid allocation and return enforcement in Section IV. Section V presents data on deportation corridors from 31 European countries. Section VI explains the empirical strategy. We present our baseline results in Section VII, then test the robustness of our findings for alternative specifications in section VIII and address heterogeneities across country pairs in Section IX. Section X concludes and

points to the paradox of aid and forced returns: Aid allocation is used to obtain cooperation on a policy that is likely detrimental to the social and economic development of migrants' countries of origin.

II. Relevant Literature

This paper connects two strands of literature. First, it builds upon a well-established body of research on the political economy of aid allocation and the strategic use of aid to advance broader policy objectives (see Dreher et al. 2024 for a recent summary). Since the pioneering work of Alesina and Dollar (2000), numerous studies have demonstrated that aid allocation is influenced not only by the economic needs and policy performance of recipient countries but also by the political and economic interests of donor states, including access to resources, trade partnerships, and geopolitical influence (e.g. Alesina and Dollar 2000; Kuziemko and Werker 2006; Dreher et al. 2008; Carter and Stone 2015; Dreher et al. 2022). While these studies primarily focus on donors' foreign policy and trade agendas, aid allocation is also shaped by domestic policy considerations. One pertinent example is the use of aid to address the so-called root causes of migration. As argued by Czaika and Mayer (2011) and Bermeo and Leblang (2015), donor countries frequently direct aid toward migrant-sending states in the expectation that economic development will reduce bilateral migration flows. Our argument follows a similar rationale: aid can serve as a tool to coerce recipient states into cooperating on deportation enforcement, thereby aligning with donor countries' domestic priorities regarding migration control.

From the perspective of the recipient countries, cooperation on migration governance can be conceptualized as a strategic tool to secure increased aid from deporting countries. This aligns with the literature on migration diplomacy (Adamson and Tsourapas 2019), which highlights how the governance of human mobility is embedded within broader foreign policy goals. For example, OECD countries have linked visa facilitation and guest worker programs to policy cooperation in trade or security (e.g. Bon Tempo 2008; Hollifield et al. 2014; Lavenex et al. 2024). Moreover, migration control policies have been employed as leverage to extract financial concessions. For instance, Greece leveraged its role in hosting refugees as a bargaining tool during EU bailout negotiations amid the debt crisis (Tsourapas and Zartaloudis 2022). Similarly, Turkey negotiated substantial financial assistance from the EU in exchange for hosting Syrian refugees (Adamson and Tsourapas 2019, 114). Other Global South states, including Kenya and Pakistan, have used the threat of refugee deportations to secure increased

international aid, particularly from Western countries concerned about regional instability (Micinski 2023). Lebanon and Jordan also sought enhanced financial support in return for hosting displaced Syrians (Del Sarto 2021). These strategies have diffused across Global South countries, exemplifying what Freier et al. (Freier et al. 2021) term the "commodification of refugees."

Unlike unilateral aid allocation decisions, deportation enforcement involves two-sided strategic interactions that require the cooperation of recipient states, thereby providing leverage to migrants' countries of origin. Outright refusals to accept deportation flights—such as those by The Gambia in 2019 or Colombia in January 2025—are among the most visible forms of resistance employed by recipient states. However, more subtle forms of non-compliance are also prevalent (Zanker 2023). A common tactic involves withholding the documentation necessary for repatriation operations. For example, one source claims that in a single year, approximately 65,000 deportations from Germany were prevented due to the absence of travel documents[9]. Bureaucratic impediments serve as a "sand in the wheels" strategy, significantly delaying deportations, increasing enforcement costs for deporting states, and ultimately transforming administrative obstruction into a bargaining tool for migrants' countries of origin (Qadim 2014; Kefale et al. 2025).

The case of 28 deportees from Germany to Afghanistan in 2024 illustrates the negotiation dynamics in the absence of formal bilateral repatriation agreements. Since Germany does not officially recognize the Taliban regime, the deportation was facilitated through secret negotiations mediated by Qatar[10]. The German government sought to signal a strong stance on migration control following a politically sensitive terrorist attack weeks earlier, making a successful deportation operation a domestic priority. Conversely, the Taliban regime leveraged its cooperation to extract concessions from German negotiators. Although the specific terms of the agreement remain undisclosed, the case underscores how the absence of formal rules and transparency enables non-cooperation to function as a "weapon of the weak." Both sides benefited from the opacity of the negotiations: Germany could conceal politically sensitive

[9] https://www.dw.com/en/thousands-of-deportations-fail-due-to-lack-of-papers/a-43223447, accessed 31.1.2024.

[10] "Deutschland schiebt afghanische Straftäter in ihr Heimatland ab". Der Spiegel, 30.8.2024. Accessed on 16.9.24. URL: https://www.spiegel.de/politik/deutschland/flug-nach-kabul-gestartet-deutschland-schiebt-afghanische-straftaeter-in-ihr-heimatland-ab-a-f01c0bb1-b5a8-41cd-977d-098a0c165ca6

concessions, while the Taliban retained bargaining power by avoiding the formalization of repatriation procedures.

Both strands of research—the political economy of aid allocation and the literature on migration diplomacy—offer complementary perspectives on negotiation dynamics and the interlinkages between deportation enforcement and aid allocation. On one hand, donor states may use aid to pressure recipient countries into cooperation. On the other, recipient states leverage non-cooperation as a means of extracting financial or political concessions.

III. Bargaining Outcomes

The bargaining outcomes of these strategic interactions can be modeled as the result of three parameters: (i) how much the deporting country *i* is interested in obtaining the cooperation of citizenship country *j*; (ii) how much the citizenship country *j* gains or looses from cooperating; and (iii) the extent to which either country has leverage that it can use to influence the terms in its favor—in other words, which country holds greater bargaining power.

Annex A formalizes these bargaining scenarios in a game-theoretic setup, in which bargaining outcomes depend on three parameters: $\boldsymbol{\alpha}$ (the deporting country *i*'s interest in obtaining an agreement), γ (the citizenship/origin country *j*'s resistance to an agreement), and θ (a bargaining weight between 0 and 1, where $\boldsymbol{\theta} = 1$ implies that all bargaining power lies with deporting country *i*, and $\boldsymbol{\theta} = 0$ implies that all bargaining power lies with origin country *j*). In addition, both countries have "fallback utilities" that describe their expected payoffs under a scenario of no cooperation.

If all parameters were fixed while countries bargained over a payment **P** in exchange for an enforcement level ***E***, the actors would, in principle, converge to a unique Nash equilibrium in which aid payments and enforcement maximize joint payoffs. In practice, however, countries are not necessarily—and not usually—situated in a stable equilibrium, because the parameters influencing bargaining outcomes vary over time. The literature highlights that enforcement intensities often carry a political-signaling function and respond to domestic political cycles, functioning as visible demonstrations of the state's ability to control mobility and uphold the authority of borders. The same applies to resistance in citizenship countries, which can shift in response to political or economic events (Zanker and Altrogge 2022). Relative bargaining power may also change, for example due to shifting geopolitical situations.

Empirically, we therefore focus on the temporal dynamics of observed bargaining, i.e., the relationship between bilateral aid payments and bilateral enforcement outcomes over time. One can interpret aid payments as a function of an enforcement target or alternatively view enforcement rates as the response to a given level of aid. Figure 1 summarizes predictions regarding the relationship between aid payments $\boldsymbol{P}$ and enforcement $\boldsymbol{E}$, derived by solving the bargaining equilibria for aid as a function of enforcement, as derived in Annex A. The graph depicts the expected association between aid allocation (horizontal axis) and enforcement rates (vertical axis). For simplicity, we assume a linear relationship between the two variables[11]. The graph shows two scenarios:

Baseline scenario. Bargaining power is equally distributed between *i* and *j*; the deporting country *i* has a moderate interest in increasing enforcement; and country *j* has moderate resistance to enforcement. With aid used as a bargaining instrument to obtain cooperation, we expect higher aid payments to correlate with higher enforcement rates on average (Baseline curve A).

Scenario B (higher stakes and more power for *i*). Curve B illustrates how the slope changes when (1) deporting country *i* has a stronger interest in enforcement relative to the baseline, and (2) deporting country *i* also holds greater bargaining power. In the baseline scenario, *i* obtains an increase in enforcement of $\boldsymbol{E(H,G)}$**.** Under the steeper Curve B, with higher stakes and greater bargaining leverage, *i* obtains a larger increase in enforcement: for the same payment $\boldsymbol{P(H,F/G)}$, deporting country *i* obtains $\boldsymbol{E(H,F)}$ instead of $\boldsymbol{E(H,G)}$**.**

The next section formulates testable hypotheses that correspond to these parameters: enforcement interests, resistance, and bargaining power.

[Figure 1: Bargaining Scenarios]

[11] The relationship is likely to be concave (flattening with increasing levels of aid), reflecting decreasing returns: as aid levels rise, further increases in enforcement become harder to achieve, and enforcement rates may be subject to an upper bound defined by the institutional or legal constraints of deporting country *i*. In the empirical model, we use transformed variables to capture decreasing returns.

IV. Testable Hypotheses

H1. Bilateral rates of enforced returns increase with bilateral aid payments, whereas aid allocation is not correlated with assisted or voluntary return schemes.

Our central argument is that aid "buys" the cooperation of origin countries in managing returns. We therefore expect the amount of bilateral aid to correlate with the number of bilateral *enforced* returns, conditional on a given number of orders to leave. As discussed above, we view these correlations as the outcome of two-sided strategic interactions between deporting countries *i* and citizenship countries *j*. On the one hand, increases in enforcement elasticities—executed returns conditional on previously issued return orders—may arise when deporting countries make aid allocation contingent upon cooperation in migration management. Conversely, origin countries may exert leverage by signaling a willingness to accept repatriation in exchange for increased aid commitments.

Under "voluntary" or assisted return schemes, migrants' participation is typically incentivized through individual reintegration assistance aimed at supporting their return process. Although such schemes may also require cooperation at the state level, origin countries' structural leverage over deporting states is primarily relevant in cases of *enforced* return. Non-cooperation strategies—such as withholding travel documents, refusing landing permits for chartered return flights, or engaging in other forms of "bureaucratic obstruction"—are not applicable when migrants consent to return. For this reason, we expect correlations between aid and *enforced* return enforcement, but not between aid and assisted or consented return programs.

H2. Larger numbers of bilateral asylum applications are associated with higher aid payments in exchange for enforcement cooperation, because they raise the stakes for both the deporting country and the citizenship country and provide additional leverage to the latter.

As discussed in the previous section, the parameters **α** (the deporting country *i*'s preference for increasing enforcement) and **γ** (the citizenship country *j*'s resistance to accepting deportees) shape the relationship between **P** and **E**. Higher preferences on the side of *i* or higher resistance on the side of *j* both lead to a steeper **P(E)** curve—that is, a higher payment required for a given enforcement level—because more is at stake for both actors. The intuition is straightforward: when both sides attach greater marginal value to each unit of enforcement, *j*'s marginal cost and *i*'s marginal benefit increase, raising the "price" at which cooperation becomes feasible.

We expect both **preferences** and **resistance** to increase with larger bilateral numbers of asylum applications. For the deporting country *i*, higher numbers of asylum claims may generate political or administrative pressure to control inflows and to demonstrate policy effectiveness. In the citizenship country *j*, the political costs of accepting deportees may also rise with the size of the affected population: the larger the group at risk of return, the stronger the potential domestic opposition to receiving deportees. An alternative interpretation is that asylum applications create leverage for country *j*: citizenship countries may "use" or "commodify" the presence of their nationals seeking asylum abroad to negotiate higher aid commitments, provided that *i* cares about enforcement and is willing to compensate *j* for cooperation.

We focus on the number of asylum applications over the period of analysis as an indicator of "how much is at stake". This flow measures capture short-term shifts in political preferences and public reactions to "new arrivals" more than long-term or mobility patterns captured in stock variables. Second, we expect public opinion and government responses in destination countries to react to increasing number of asylum seekers (Abdelaaty and Steele 2022; Dustmann et al. 2019).

H3. Greater aid dependence enhances the bargaining leverage of deporting countries, resulting in stronger responsiveness of enforcement outcomes to aid payments.

The main source of leverage available to the deporting country *i* vis-à-vis the citizenship country *j* is *j*'s reliance on aid payments. The more country *j* depends on financial support from *i*, the more vulnerable it becomes to pressure and inducements to accept a cooperation agreement. We therefore posit that deporting countries' primary bargaining advantage stems from origin countries' dependence on bilateral aid. Accordingly, the greater a citizenship country *j*'s reliance on aid, the more responsive it should be to aid allocation as an incentive for cooperation on deportation enforcement. For example, Zanker et al. (2019) argue that aid-dependent countries such as The Gambia and Niger face stronger incentives to comply with the demands of deporting states than countries like Nigeria or Senegal, where large migrant populations abroad are also important economic pillars to their economies at home via remittances. In our framework, the latter would manifest as higher resistance (γ) rather than greater susceptibility to financial pressure—a dynamic consistent with hypotheses H2 and H3. In contrast, in highly aid-dependent countries, bilateral aid forms a substantial share of national budgets and thus constitutes an effective lever for incentivizing cooperation.

Hence, higher bilateral aid dependence should lead to greater responsiveness of enforcement cooperation to increases in aid payments. In graphical terms, as in the previous case, we would

expect a shift from Curve A to Curve B in Figure 1—i.e., a steeper relationship between payments **P** and enforcement **E** when *i* possesses stronger bargaining power.

H4. Greater export dependence of the citizenship country on the deporting country increases the deporting country's bargaining leverage, resulting in stronger responsiveness of enforcement outcomes to aid payments.

Bilateral interdependencies along other dimensions may also shape bargaining outcomes. For instance, the deporting country *i* may use alternative sanctioning mechanisms in cases of non-cooperation. When Colombia sought to suspend deportation flights in January 2025, Donald Trump threatened the country with punitive tariffs on its exports. This illustrates that trade dependence can serve as a bargaining instrument, enhancing the negotiating power of the deporting country[12]. If the citizenship country *j* relies heavily on export markets in *i*, the latter may credibly threaten to restrict market access in response to non-cooperation. Conversely, hard bargaining by *j* may put its commercial interests at risk. In theory, trade policy could fully substitute for aid as a bargaining chip—in which case we would not observe responsiveness of enforcement to aid flows. However, such situations are unlikely in the European context, where trade relations are typically governed by binding treaties that cannot be altered quickly to generate short-term leverage.

We therefore expect that greater export dependence on *i* weakens the bargaining position of citizenship country *j*. Higher export exposure increases *i*'s ability to threaten costs in the event of non-cooperation, thereby strengthening *i*'s bargaining power. As in the previous cases, this should produce a steeper **P(E)** curve—meaning that enforcement cooperation becomes more responsive to a given level of aid payments.

H5: The signing of bilateral repatriation agreements weakens the role of aid as a bargaining tool against enforcement cooperation

Because of the difficulty of enforcing returns without origin countries' collaboration, deporting countries have a strong interest in formalizing bilateral cooperation on forced returns. EU states, for instance, actively lobby for the inclusion of repatriation agreements with migrant-sending

[12] In principle, also other dependencies like access to labor markets for high-skilled migrants via visa agreement could have a similar effect. However, since only a relatively small number of countries underholds visa agreement, access to labor markets is more challenging to test empirically. We therefore focus on access to export markets only.

countries. The European Union Repatriation Agreements (EURAs) have been central to EU foreign policy efforts in this regard, intending to reinforce EU countries´ control over deportation procedures.

Origin countries tend to resist signing such agreements. Wolff (2014) documents the cases of Turkey and Morocco, both of which engaged in prolonged negotiations—lasting over a decade—before agreeing to repatriation deals. Their eventual cooperation was secured only after significant concessions, including a Mobility Partnership with Morocco and visa liberalization for Turkey. Similarly, Senegal employed a strategy of "passively stalling" EU negotiations, while Nigeria prolonged discussions without outrightly rejecting agreements (Chou and Gibert 2012; Zanker 2023). Deporting countries recognize the challenges of securing binding repatriation agreements and have gradually lowered expectations in this regard (Zanker 2023). Even when agreements are signed, they often maintain a high degree of flexibility or what Cardwell and Dickson (2023) term "formal informality": measures that resemble legal commitments but lack enforceable provisions. Consequently, states could exercise strategies of bureaucratic obstruction irrespective of formal agreements being in place.

While recent literature has shown that return agreements did, in fact, increase enforcement rates among European countries (Torres Chedraui et al. 2026), we empirically assess whether the presence of bilateral agreements influences the role of aid as a bargaining instrument for enforcing returns. On the one hand, countries of origin forego their leverage of using non-cooperation against aid payments, provided agreements on enforced return are binding. In this case, we should not see an effect of aid on enforcement intensities. On the other hand, countries may still retain considerable margins to resist the reception of deportees because provisions on cooperation in repatriation agreements are often vague and many of them non-binding (Sinnige et al. 2025, 4; Torres Chedraui et al. 2026), and even states with higher numbers of these agreements have not substantially increased their return rates over time (Stutz and Trauner 2022; Leerkes et al. 2022). If agreements are not fully binding or leave margins of resistance to countries of origin, we would still observe an effect of aid on deportation enforcement when agreements are in place, although the effect would likely be weaker than under absence of an agreement.

Conversely, aid concessions may also serve as a bargaining tool for donor countries to pressure recipient states into signing such agreements. We therefore also assess whether aid allocations increase in the years surrounding the signing of these agreements.

V. Data

To test the hypotheses developed in the previous section, we use a bilateral country panel covering the years 2008 to 2022; that covers 31 deporting countries from Europe and 142 countries of citizenship from the rest of the world; corresponding to more than 3,000 deportation corridors in the full sample.

Enforcement Data: For enforced returns, we use the DepRisk database (Ambrosius and Luna 2025), which for the country sample used here is equivalent to Eurostat's Enforcement of Immigration Legislation data sets[13]. From this dataset we extracted four variables of interest: (1) The variable "orders to leave" refers to "third-country nationals found to be illegally present who are subject to an administrative or judicial decision or act (…) imposing an obligation to leave the territory" of the destination country (2) The variable "total returns" refers to "third-country nationals who have in fact left the territory (…), following an administrative or judicial decision or act" of the destination country.. It refers to all individuals who either voluntarily left after an order or who were subject to an enforced measurement, such as being escorted in an official flight. For such differentiation, Eurostat provides disaggregated data by two distinct types of return: (3) "enforced returns" [14] refers to situations "in which the third-country national is subject to the enforcement of the obligation to return"; while (4) "voluntary returns" refers to situations in which the "third-country national complies voluntarily with the obligation to return (i.e. no enforcement procedure had to be launched)"[15]. In this context, "voluntary returns" include both non-assisted and assisted voluntary returns, for instance: in-kind assistance prior to departure, in-kind or in-cash allowance the point of departure/upon arrival, and/or in-kind or in-cash reintegration assistance. We use the term "voluntary" in quotation

[13] The only difference is the case of Germany. Here, we use also publicly available data on enforced returns (Abschiebungen) from parliamentary inquiries submitted by the Left Party (Die Linke) to the German Parliament (Deutscher Bundestag). We exclude all cases of enforced returns from Germany towards the 31 countries that are signing parties of the so-called Dublin agreements on safe third countries, including the UK until 2021. See Ambrosius et al. (2025)

[14] In the original data set, this variable is called "forced returns". We use the term "enforced returns" in our analysis to make a clear distinguishment with the variable "total returns", which arguably can be broadly understood as forced returns, containing both those enforced and "voluntary" returns.

[15] See Ambrosius et al. (2025) for definition and the original sources of the variables, all of which are taken from Eurostat.

marks, because the absence of physical force does not necessarily mean that return has been a willing choice of migrants. Rather, this category reflects softer forms of coercion compared to enforced return; and incentivized returns are usually paired with enforcement threats or other sanctions under non-compliances. For the period analyzed in this paper, countries reported data to Eurostat on a voluntary basis[16]. The variables used for analysis come from three different data sets, with varying levels of country reporting and year coverages[17]. Eurostat collects and harmonizes data sent by European Union member countries, usually provided by the Ministries of the Interior or related Immigration Agencies. All these data sets provide disaggregated data on the citizenship of individuals. While citizenship and country of return do not always overlap, we use citizenship as a proxy of the country of return, considering it would hold for most cases. These statistics do not include persons who are transferred from one European Member State to another under the mechanism established by the Dublin regulation, nor people whose entry in the territory was denied.

Figure 1 shows the time trends for data of the country sample aggregated by year, for orders to leave and total returns, for the period 2008 to 2022. Annual rates of total returns relative to emitted orders to leave vary between 15% (2022) and 46% (2016)

[Figure 2: Persons Ordered to Leave and Total Returns (in thousands, 2008-2022)]

Figure 3 displays the average proportion of total returns and enforced returns relative to orders to leave for the ten largest corridors of five major reporting countries—France, Germany, Spain, Italy, Greece, Great Britain, and Poland[18]. As noted elsewhere (e.g. Gu and Czaika 2025), return rates vary substantially both across countries and across corridors, posing an important research

[16] The compulsoriness for EU Member States to report for some data sets related to the Enforcement of Migration Legislation only started in 2021, with a three-year period of derogations, extendable for two years more. More information available here:

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2020.198.01.0001.01.ENG.

Accessed on September 19, 2024.

[17] The different data coverages are detailed in Annex 2.

[18] The country code used in the paper is the ISO 3166-1 alpha-3 code and the full list can be consulted in Annexes 2 and 3.

puzzle. Rates are calculated using the years and corridors for which each indicator is available, and corridors are ranked by the absolute number of orders issued. In several corridors, total-return rates reach or exceed 1—for example, from Germany to Albania, North Macedonia, and Serbia, and from Great Britain to China. These cases are capped at 1 in the figure. Values above 1 likely reflect orders issued in earlier years not captured in the data, highlighting the challenge of linking aggregate orders and returns given uncertain and varying lags between an order to leave and enforcement. We revisit this issue in the estimation strategy below.

[Figure 3: Enforced Returns and Total Returns, as a Share of Ordered to Leave, Selected Corridors]

Aid Data: For bilateral aid allocation, we use data from the OECD development assistance committee (DAC). Bilateral aid is available as "committed aid" and as "disbursed aid". While we consider both indicators – and the differences between the two indicators is small –our preference lies with committed aid, because we expect bargaining outcomes to be reflected in new aid commitments principally. OECD data provides bilateral aid for several subcategories, we use the total aid for two reasons: For one, our theoretical argument does not distinguish by purpose of aid. It is not clear how leverage in terms of cooperation enforcement would hold for certain categories of aid only should be conditioned on cooperation – say, infrastructure but not overall budget support. More importantly, coverage is limited for subgroups and varies for different aid categories, making it difficult to compare outcomes for different categories. Negative values that can occur in cases where loan repayments are larger than new commitments or disbursements are truncated at zero.

Additional Data: We include additional data for two reasons. For one, we include additional data to control for (time-varying) economic conditions via GDP per capita and demographic conditions (via population sizes) and political conditions via democracy scores; and we use a set of migration-related variables to control for changes in the size and composition of migration via the number of bilateral asylum requests, asylum decisions, and estimated bilateral migrant stocks. Second we use data to split samples and explore heterogeneity in how enforcement responds to aid allocation according to hypotheses H2 to H5. To this end, we also include UN trade data (UN Comtrade data) and data on the existence of return agreements from Harnisch et al. (2023).

Summary statistics, descriptions and sources of all data used are provided in Annex B.

VI. Empirical Model

To estimate the relationship between $returns$ and aid, we estimate a dyadic panel at the level of bilateral corridors (country pairs) of deporting country i and citizenship country j, in year t. We use bilateral returns as an outcome variable, that respond to bilateral aid payments. In principle, we could also estimate aid payments in response to enforcement. As emphasized in the theoretical sections, we interpret the correlation between two variables, not the casual effect of one exogenous variable on an outcome.

The main empirical threat to identifying this relationship lies in the possibility that both enforced returns and aid could respond to a third unobserved variable. The arrival of new migrants is closely related to deportations but also likely to be correlated with bilateral aid. On the one hand, the inflow of aid could affect migration: Aid could have a negative effect on migration because it reduces migration pressure (Lanati and Thiele 2018; Gamso and Yuldashev 2018; Dreher et al. 2019; Murat 2020) or it could have a positive effect, because a higher income could make migration more affordable (Berthélemy et al. 2009; Belloc 2015; Clemens and Postel 2018; Dreher et al. 2019). On the other hand, migration could also affect the magnitude of bilateral aid, either because countries allocate aid with the purpose of curtailing migration or because migrants residing in host countries could lobby for an increase in aid towards their countries of origin (Bermeo and Leblang 2015; Czaika and Mayer 2011). In both cases, the correlation of ODA with our variables of interest — total and enforced returns — would be driven by (unobserved) changes in migration. If aid is, on overall, associated with more migration, our estimates would be upward biased and vice versa. At the same time, the population at risk is not well captured in existing bilateral migration data. Asylum data misses those who do not enter via the asylum system, and other estimates on overall migrant stocks and flows such as the OECD International Migration Database (IMD) or estimates obtained from a comparison of migration stocks do not distinguish by migration status and are therefore imperfect measures of the population at risk (cp. Abel and Cohen 2019).

In the European context, an order to return must be emitted prior to its enforcement. Rather than looking at numbers of enforced returns as such, we therefore predict the likelihood of being returned, conditional on the emitted number of orders to leave in preceding periods. While many of those being vulnerable to returns are not captured in official counts of migrant populations, return orders already identify the population marked for potential return and are therefore

preferable over other indicators. This means that we only need to be concerned about endogeneity in terms of enforcement *conditional upon the number of orders in previous periods*. Bilateral aid is expected to be correlated with bilateral migration, but there are fewer reasons to be concerned about the endogeneity of returns given orders to leave.

Our baseline model is estimated as follows:

$$\begin{aligned} \text{ihs}(returns)_{i,j,t} \quad & (1) \\ &= \beta_1 ihs(aid)_{i,j,t} + \beta_2 ihs(orders\ to\ leave)_{i,j,t-1} \\ &+ \beta_3\, \text{ihs}(aid)_{i,j,t} * ihs(orders\ to\ leave)_{i,j,t-1} + \beta_4 X_{i,j,t} + \rho_{i,j} \\ &+ \tau_t + u_{i,j,t} \end{aligned}$$

The dependent variable $returns$ are the number of returned migrants from deporting country i to citizenship country j in year t. We consider three alternative return indicators as discussed above: Total returns, consented ("voluntary") returns following an order to leave, and enforced returns. All key variables – $returns$, $orders\ to\ leave$ and aid are transformed using the inverse hyperbolic sine (ihs) transformation[19]. In difference to the alternative of natural logarithms, the ihs transformation retains the zero values, while coefficients can still be interpreted as elasticities. We have data starting in 2008, but regressions cover the period 2009 to 2021 because we include lagged indicators. When using enforced returns as outcome, data for most countries only starts in 2014.

For the explanatory variable aid, we use bilateral annual aid commitments. We interact aid with the number of orders to leave ($orders\ to\ leave$) lagged by one period. Our main interest lies on the interaction coefficient β_3 which measures a conditional effect, i.e. the additional expected percent increase in deportations for every percent increase in aid relative to orders in the previous period. This coefficient can be interpreted as the elasticity of returns with respect to previously emitted orders to leave[20]. This describes how strongly enforcements respond to

[19] The inverse hyperbolic sine transformation is defined as $\log(y_i+(y_i^2+1)^{1/2})$. Except for very small values of y, coefficients can be interpreted the same way as one on a logarithmic variable.

[20] Taking the derivative of returns with respect to orders gives: $1/_{return} * \frac{\partial\, return}{\partial\, orders} = \beta_1/_{orders} + \beta_3/_{orders} * ihs(aid)$. Multiplying both sides by orders and rearranging gives $orders/_{return} * \frac{\partial\, return}{\partial\, orders} = \beta_1 + \beta_3 * ihs(aid)$, where the left-hand side is the definition of an elasticity of returns with respect to orders.

an increase in orders to leave or "how effective is aid in increasing enforcement rates". While related to, this is not identical to indicators of "enforcement gaps" obtained from dividing the number of enforced returns over emitted orders, as presented in section IV. We use the interaction of transformed variables instead of enforcement rates for the following reasons: For one, ratios of return to lagged orders can only be calculated when orders are non-zero. Second, the equation in log terms – or, in our case, as inverse hyperbolic sine transformation - reduces the effect of outliers that would strongly drive the results. Third – and related to this – the transformation of aid and enforcement allows us to model decreasing returns to scale: For large values of aid or enforcement, an additional increase in compensation payments translates into a smaller increase in enforcement relative to orders; reflecting the fact that there are ceilings to how much enforcement can be increased via aid allocation; and vice versa: How much additional aid can be obtained via enforcement cooperation.

All identifying variation comes from changes over time. The inclusion of corridor fixed effects ρ means that all variables that are specific to a given corridor but that do not change over time are controlled for. Some of these could be related to enforcement rates: Geographical distance for instance could be related to deportation costs; time constant (perceived) cultural distances could affect biases in deportation regimes; as could other institutional or political legacies such as former colonial links.

We assume that executed returns conditional upon previously emitted orders are unlikely to be affected by other time-varying variables that are also related to changes in aid allocation. For remaining concerns, we include a set of time-varying variables X to control for other potential drivers of bilateral deportation risk, that could also be correlated with bilateral aid allocation. A change in social, political, and economic conditions at origin could in principle be related to the number of deportations per orders to leave, but also to the amounts of bilateral aid. For instance, the decline of political or economic conditions at origin could increase migrants' resistance to return voluntarily. And a worsening of political or economic conditions could also lead to more legal appeals and more return orders being revoked. In this case, enforced returns could be associated with a decrease in returns relative to orders. Both conditions could also show up in an increase of bilateral aid and would therefore lead to a downward bias of the interaction coefficient. We control for economic distance via deporting country GDP per capita

relative to citizenship country GDP. We control for political distance via deporting country democracy scores (on a scale from 0 –least democratic– to a maximum of 1) relative to receiving country democracy scores. These could affect deportations because fewer people could be willing to return voluntarily to countries that are poorer or less democratic; and because migrants coming from countries that are poorer and less democratic are more likely to obtain protection from deportations and recur to legal means of delaying or revoking deportation orders. Both distances could also be related to bilateral aid. In addition, we control for joint population size because both deportations and ODA are expected to increase with population size. To capture differences in the size and type of bilateral migrant populations we also include controls for the number of asylum applications, bilateral migration stocks, and the number of bilateral decisions on asylum requests. Time fixed effects τ control for changes that affect all corridors at a given time, and u is the usual error term.

A remaining caveat of the estimation strategy – and a limitation of the data – is the fact that the exact lag between an order to leave and the enforcement of return is unknown and varies for individual cases, as well as for different countries and corridors. To assuage concerns regarding the correct lag between orders to leave and enforced returns, we estimate models for different lags and provide regressions on running means over three-year periods instead of annual periods. This accommodates some of the uncertainty regarding the lags from return orders to executed returns and helps to smooth the effect of outliers. We also exclude all cases where the number of returns exceeds the number of lagged orders in at least one year – as was the case for deportations from Germany to several countries on the Balkan, see Figure 2 – , and we use lagged asylum rejections instead of lagged orders to leave as an alternative indicator for the number of persons potentially marked for removal.

Finally, we run equation (1) on different subsets of the sample: This allows us to assess whether the effect of aid on enforcement varies by numbers of asylum requests according to hypothesis H2; whether it differs among countries strongly dependent on aid according to hypothesis H3; for countries depending on export markets in deporting country according to hypothesis H4; and for subsets of countries having signed repatriation agreements. Finally, we evaluate the role of repatriation agreements on enforcement by replacing the variable aid in equation (1) with a binary indicator on the existence of bilateral repatriation agreements. Under the assumption that agreements lead to higher elasticity of enforcements with respect to orders to leave, the coefficient for the interaction of aid with the existence of such agreements should be positive.

VII. Main Results

Table 1 shows results on the baseline model of bilateral aid on enforced returns, for a panel of up to 3,174 deportation corridors and a maximum of 31 deporting countries from Europe since 2009. All regressions include corridor fixed effects and are therefore identified via variation over time only. The first three columns interact lagged orders to leave with aid commitments, and columns four to six interact orders to leave with aid disbursements. The number of corridors and observations vary, depending on data availability for the different aid indicators, and in particular for the different indicators of return: Data on enforced return is available only for a smaller set of country pairs and covers fewer years in many of these cases. Our main interest lies on the interaction term between aid and lagged orders to leave. Interactions of lagged orders with committed aid (Column 1) and with disbursed aid (Column 4) indicate that the expected number of implemented returns increases per aid dollar committed or spent. A one percent increase in aid commitment increases predicted returns by an additional 0.016 per cent, for a given level of orders (and by 0.015 for disbursed aid). It is unlikely that coefficients for the interaction term are driven by the omitted variable of migration: We identify the population marked for removal via lagged orders to leave. This way, we control for the migrant population at risk of being deported. Columns 2 and 5 run the same regression for the subset of countries that report data on enforced returns. These regressions halve the sample size and cover 22 deporting countries only. In these regressions, the size of the coefficient for the interaction term increases by more than twice its size and increases in statistical significance, despite the smaller sample size. For cases of returns classified as "voluntary" in Columns 3 and 6, we observe no statistically significant effect for the interaction term. This confirms our expectations formulated in Hypothesis H1 that effects are driven by enforced returns not by returns to which migrants consented. Using data on committed or disbursed aid makes little differences, although the effect is slightly larger for aid commitments compared to aid disbursements.

Figure 4 provides an interpretation of the magnitude of the predicted effect, based on coefficients estimated in Column 1 (total returns, graph at the left) and Column 2 (forced returns, graph at the right). The vertical axis shows the elasticity of returns with respect to orders to leave. For the case of enforced returns, a 1% increase in orders is associated with an enforcement elasticity of between 0.1% and 0.3%, depicted for a range of values of bilateral aid commitments (in millions) on the horizontal axis. For total returns, the range is smaller. The horizontal axis for aid is transformed back to its original value. This way, the graph also shows how the transformation of the aid variable models decreasing returns to aid in terms of

enforcement. The intuition behind this: Enforcement cooperation may have a natural ceiling beyond which every additional increase in enforcement becomes increasingly costly in terms of aid allocation, seen from the point of view of the deporting country. The depiction of enforcement elasticities is useful in interpreting the magnitude of the estimated effect: The average number of annual orders to leave per corridor was 220 during the period of analysis (2009 to 2021). Hence, an increase in enforcement elasticities from 0.1 to 0.2 would result in 22 additional enforced returns per corridor, everything else unchanged. This increase in enforcement elasticities comes with an additional 10 million USD in bilateral aid on average, compared to a scenario without aid. Apparently, the "price" of increasing enforcement elasticities is high.

[Table 1: Aid Allocation and Returns, Conditional on Orders to Leave]

[Figure 4: Predicted Enforcement Elasticities for Total Returns and Enforced Returns]

VIII. Alternative Specifications

We show results for alternative specifications and samples in Table 2, focusing on enforced returns, our main outcome variable of interest, and aid commitments. Table 2 should therefore be seen as variants of Column 2 in Table 1. In Columns 1 and 2, we assess sensitivity of results when including time-varying bilateral controls, in addition to corridor and year fixed effects. Columns 2 includes joint population size of corridors, their economic distance in terms of per capita GDP, and their political distance in terms of democracy scores, the number of asylum applications, bilateral migration stocks, and the number of bilateral decisions on asylum requests. All of the migration variables are transformed using the inverse hyperbolic sine (ihs) transformation and can be interpreted as elasticities, as were aid, orders to leave and the number of enforced returns. To compare coefficients on the same sample, Column 1 shows results without time-varying bilateral controls on the same sample and therefore differs from results in Column 2 of Table 1. The coefficient of interest – the interaction between aid and orders to leave – changes little with or without the inclusion of additional time-varying control variables. Compared to Table 1, the interacted coefficient – the elasticity of returns with respect to orders is at a similar magnitude of around ≈ 0.04.

A main concern in estimating returns conditional upon previously emitted orders to leave is that we don´t know the exact lag between orders to leave and enforced returns. Column 3 therefore repeats the specification in Column 2 on three-year running means of enforced returns, lagged orders, and aid. We find a similarly sized coefficient. The fourth column shows results excluding all corridors in which lagged orders to leave exceeded the number of returns in at least one year. In most cases, these are corridors with very small overall numbers of orders and returns but also some outlier cases in which repatriation agreements or unilateral policy decisions led to the return of larger numbers of persons with pending orders to leave in specific years. This includes, for instance, removals from Germany towards countries in the Western Balkan countries (see Figure 2). Excluding all corridors in which removals exceeded lagged orders reduces the number of observations from 1470 in Columns 1 and 2 to 813 in Column 4, when we also exclude corridors with mussing values on the set of control variables. The size of the coefficient is slightly lower (0.03) but still strongly statistically significant.

Table 3 uses asylum rejections as an alternative to orders to leave. This allows us to estimate the likelihood of removals relative to an alternative reference group. It should be noted that not all of those who have their asylum claims rejected necessarily receive an order to leave. Rejections can be appealed; and those whose claims have been rejected can still be granted temporary protection. Table 3 follows the otherwise same specifications as in Table 2: In Column 2, we show results with additional time-varying controls. Column 1 uses the same sample but without these time-varying controls. Column 3 shows results for three-year running means. Column 4 excludes all corridors in which the number of enforced returns were larger than orders to leave in at least one periods. The coefficient for enforcement elasticities is smaller for the case of asylum rejections compared to orders to leave and varies for different samples between 0.017 (Column 3) and 0.027 (Column 2). This reflects the fact that for most corridors and years, the number of asylum rejections is larger than the number of orders to leave. Overall, our message remains the same using this alternative indicator to capture the population vulnerable to deportation.

[Tables 2: Aid Commitments and Enforced Returns, Alternative Specifications]

[Table 3: Aid Commitments and Enforced Returns, Conditional on Asylum Rejections]

IX. Heterogeneities

Average effects may hide differences in how enforcement elasticities respond to aid allocation for different regions and groups of countries. We first look at results by migrants' regions of origin and plot them in Figure 5, all of them based on Column 2 in Table 1. The vertical axis refers to enforcement elasticities, as in Figure 3. On the horizontal axis, we draw levels of aid in its transformed values.

We observe substantial variation across migrants' regions of citizenship. While the interaction term is positive and statistically significant at the 5% level in all regions, the magnitude and the uncertainty differ, partly due to variation in the number of corridors underlying each estimate. Notably, corridors towards Sub-Saharan African countries are relatively well predicted—reflected in narrower uncertainty bounds compared to other regions—yet the slope is also smaller than, for instance, for corridors towards Europe and Central Asia. This implies that the same amount of aid "buys" a smaller increase in enforcement elasticities in Sub-Saharan Africa than in Europe and Central Asia. The graph also reveals diferences in the predicted intercept for scenarios of no aid. Under a "no aid scenario", enforcement rates are highest in Central and Eastern Europe and lowest in countries of the Middle East and North Africa.

Figure 6 explores heterogeneities according to hypotheses H3, H4, and H5. According to these hypotheses, we expect a stronger response of enforcement to aid (i.e. a larger interaction coefficient) in corridors where stakes are higher and where bargaining power lies primarily with the deporting countries. These include (i) corridors that experienced a stronger increase in asylum requests (higher stakes, H3); (ii) countries that are more aid-dependent (where bargaining power lies with the deporting country and the receiving country gains more from cooperation, H4), and (iii) corridors whose economies rely more heavily on access to export markets in the deporting country (which increases the deporting country's leverage, H5).

We explore these heterogeneities by comparing predicted enforcement elasticities across different groups of country pairs. To do so, we split all dyads into quantiles based on the respective conditioning variable. The upper panel compares the 10% of corridors with the largest number of asylum requests over the period of analysis to all remaining corridors. The middle panel compares the 20% of corridors with the strongest bilateral aid dependence at the beginning (2008) of the period with the rest. The lower panel compares the 20% of corridors that initially relied most on exports to the deporting country with all remaining corridors. Across all three dimensions, we observe a stronger responsiveness of enforcement elasticities to aid

allocation in line with the theoretical expectations formulated in Section IV. More asylum applications, higher aid dependence, and greater trade dependence all result in a steeper slope of predicted elasticities. Also, these subsamples have higher predicted enforcement elasticities in a no-aid scenario. According to the theoretical model from Section III and Annex A, this would be consistent with higher "fallback utilities" in either the deporting country or the country of citizenship. Concerns among countries of citizenship about other negative effects from non-cooperation would be captured in these fallback utilities. For instance, the costs of no cooperation at all would be higher in more trade-dependent countries because the deporting country could threaten a non-cooperative country with trade embargoes.

[Figure 5: Heterogeneity by Region of Citizenship]

[Figure 6: Heterogeneity by Asylum Requests, Aid Dependence, and Trade Dependence]

X. The Role of Return Agreements

Table 4 assesses the role of bilateral repatriation agreements in bargaining over deportation enforcements. First, Column 1 assesses the effect of bilateral repatriation agreements on enforced returns, interacted with lagged orders. The existence of bilateral repatriation agreements increases the predicted number of enforced returns for a given level of (lagged) orders by roughly 20%. This is comparable in size to the estimate provide by Torres Chedraui et al. (2026), who find a 17% increase in enforcement rates for bilateral agreements[21]. Columns 2 and 3 then look at conditional effects of aid on enforced returns for two different subsets: Column 2 uses all corridor-year observations in which an agreement had been in place. This covers 141 corridors and 851 observations. Since countries who sign an agreement are likely to differ on many dimensions, we can´t directly compare coefficients for this sample to coefficients obtained from the larger sample in Column 1. We therefore show the regression for the same sample of country corridors including years with and without agreements. Column 3

[21] The study by Chedrai Torres et al. (2026) differs in several ways, which explains a slightly different coefficient. For instance, their outcome are enforcement rates and not enforcement elasticities; they exclude all country pairs for which no orders were emitted; they estimate an effect on total returns, not only enforced returns; and they cover more years (the entore period 2008 to 2021 for which data on total return is available).

includes regression on the subset of corridors who eventually signed an agreement, using years when agreements were in place and years when not. Column 2 uses only the years when agreements were in place, for the same corridors. The corridors in which bilateral agreements were signed, have a higher interaction coefficient compared to the full sample in Column 1 (enforcement responds more to aid in this subset). As we would expect – and in line with hypothesis H5 - The elasticity of aid with respect to orders to leave is lower among observations who had signed an agreement (Column 2), compared to the sample that includes years without an agreement (Column 3). However, even among those who signed, enforced returns increase with additional aid dollars spent, for a given level of orders to return. This suggests that aid still seems to play a role in negotiations over deportation enforcement, even when agreements have been signed. This seems plausible, given that bilateral repatriation agreements leave margins of resistance among the signing countries of origin, as discussed in Chapters 2 and 3 and as has also been observed in the literature (Sinnige et al. 2025, 4; Torres Chedraui et al. 2026).

It is possible that the signing of an agreement is itself the result of bargaining dynamics that include aid promises by deporting countries. To evaluate this possibility, we look at bilateral aid flows around the signing date of agreements. We summarize results from these regressions graphically in Figure 7, where aid (using the ihs transformation) is the outcome variable and the explanatory variable is a binary indicator "*agreement start*". This indicator takes the value one for a total of 170 corridor-year incidents when an agreement was signed. Bilateral aid commitments slightly increase after the signing of repatriation agreements and they slightly decrease before the signing of agreements, but these have large confidence intervals (weak statistical significance). While we would not interpret too much into these results, patterns are consistent with an interpretation of aid commitments being withheld before the signing of agreements. Aid payments seem not to differ markedly among parties after having signed an agreement compared to those who have not.

[Table 4: Bilateral Repatriation Agreements and Enforced Returns]

[Figure 7: Event Plot. Aid Allocation Before and After the Signing of Repatriation Agreements]

XI. Conclusion

In this paper, we argued that aid is used as a bargaining chip in two-sided strategic interactions over deportation enforcement: Deporting countries use the allocation of aid as a tool to coerce countries into cooperation, while receiving countries use non-compliance in return management as a leverage to obtain more aid. We presented our argument along five testable hypotheses: First, we expected a higher number of enforced returns per orders to leave for larger levels of bilateral aid but not for consented return. Second, we expected a stronger effect where stakes are higher, proxied by the number of asylum requests. Third, we expected the effect to driven by corridors with strong bilateral aid dependence. Fourth, more bargaining power of the deporting country as proxied by countries` dependence on export markets should lead to a more enforcement cooperation per aid dollar spent. Fifth, we expected repatriation agreements to weaken the role of aid as a bargaining mechanism over deportation enforcement.

In a dyadic panel of country-by-country deportation corridors from Europe over the period 2009 to 2021, we find support for all five hypotheses. Bilateral aid allocation increased the elasticity of return with respect to previously omitted orders. This effect is stronger for the case of enforced returns; weaker after the signing of repatriation agreements; and most pronounced among corridors with more asylum seekers, high bilateral aid dependence, and dependence on access to export markets. The increase in enforcement elasticities comes with a high price in terms of aid per deportee. In an average corridor, a scenario of 10 million bilateral aid dollars increases enforcement elasticities with respect to lagged orders to leave by roughly 0.1. This translates to approximately 20 additional annual enforced returns in an average corridor.

In a context where calls for scaling up the forced return of migrants are becoming louder across major destination countries, the linkages we observe between aid allocation and deportation enforcement creates a paradox: The guiding principles of the Development Assistance Committee of OECD countries acknowledges that development cooperation programs can be part of broader policy dialogue including co-operation in the return and readmission of rejected asylum seekers and irregular migrants. At the same time, the conditions imposed should "primarily contribute to the promotion of the economic development and welfare of developing countries, and not primarily to the donor's domestic migration concerns" (OECD, n.d.). In the case of deportation enforcement, aid is partly allocated to gain cooperation on a policy that comes at the expense of social and economic outcomes in receiving countries and is usually opposed by these.

XII. Literature

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XIII. Tables

Table 1: Aid Allocation and Returns, Conditional Upon Orders to Leave

	Aid Committed			**Aid Disbursed**		
	Total Returns	Enforced Returns	Assisted Schemes	Total Returns	Enforced Returns	Assisted Schemes
	I	II	III	IV	V	VI
Aid	-0.095***	-0.16***	-0.093***	-0.096***	-0.18***	-0.081***
	[-5.9]	[-6.8]	[-4.7]	[-5.4]	[-6.7]	[-3.7]
Lagged Orders to Leave	0.21***	0.1***	0.14***	0.22***	0.11***	0.14***
	[19]	[8.2]	[10]	[20]	[8.5]	[10]
Aid * Lagged Orders to L.	0.023***	0.042***	0.0074	0.02***	0.038***	0.0051
	[6.5]	[8.2]	[1.5]	[5.6]	[6.6]	[0.88]
# Corridors	3127	2368	2382	3309	2465	2480
# Obs.	24614	12925	12031	27632	13897	13004
Years covered	14	14	14	14	14	14
Adj. R^2	0.86	0.84	0.85	0.85	0.84	0.84

Estimates from ordinary least squares regressions for a dyadic panel of up to 32 deporting countries (for aid disbursements) and 21 deporting countries (for aid commitments), and up to 142 countries of citizenship, covering the period 2008 to 2022. Variables of aid, orders to leave and returns have been transformed using the inverse hyperbolic sine transformation and can be interpreted as elasticities. All regressions include corridor and year fixed effects. Orders to leave are lagged by one year. Stars denote statistical significance at the 1% (***), 5% (**) and 10% level (***). T-values clustered at the corridor level are given in brackets.

Table 2: Aid Commitments and Enforced Returns, Alternative Specifications and Samples

	Enforced Returns			
	I	II	III	IV
Aid	-0.14***	-0.13***	-0.19***	-0.084***
	[-4.5]	[-4.5]	[-3]	[-2.6]
Lagged Orders to Leave	0.091***	0.075***	0.24***	0.11***
	[5.1]	[4.1]	[7.4]	[5.4]
Aid * Lagged Orders to L.	0.044***	0.041***	0.04***	0.032***
	[7]	[6.8]	[3.6]	[4.1]
Sample	all observed	all observed	3-yr running means	restricted sample
Controls	only fixed effects	full set	full set	full set
# Corridors	1470	1470	1261	813
# Obs.	7360	7360	2203	3960
Years covered	13	13	4	13
Adj R2.	0.83	0.83	0.93	0.85

Estimates from ordinary least squares regressions for a dyadic country panel covering the period 2008 to 2022. All regressions include corridor and year fixed effects. Time-varying controls are bilateral distances in terms of per capita GDP, bilateral democracy distances, the natural log of joint population size, bilateral asylum applications, bilateral migration stocks, and bilateral total decisions on asylum requests. Variables of aid and all migration variables have been transformed using the inverse hyperbolic sine transformation and coefficients can be interpreted as elasticities. Aid refers to annual aid commitments. Column 3 uses three-year periods with running means for orders to leave and aid. Columns 4 and 6 exclude all corridors where the number of lagged orders was higher than the number of enforced return in at least one period. Stars denote statistical significance at the 1% (***), 5% (**) and 10% level (***). T-values clustered at the corridor level are given in brackets.

Table 3: Aid Commitments and Enforced Returns, Conditional on Asylum Rejections. Alternative Specifications and Samples

	Enforced Returns			
	I	II	III	IV
Aid	-0.047*	-0.049**	-0.00021	-0.11**
	[-1.9]	[-2.1]	[-0.0074]	[-2.1]
Lagged Asylum Rejections	0.04**	0.087***	0.034	0.087**
	[2.3]	[4]	[1.4]	[2.3]
Aid * Lagged Asylum Rejections	0.029***	0.027***	0.017**	0.028***
	[5.2]	[5.1]	[2.3]	[3.3]
Sample	all observed	all observed	3-yr running means	restricted sample
Controls	only fixed effects	full set	full set	full set
# Corridors	1472	1472	815	1261
# Obs.	7463	7463	4029	2203
Years covered	13	13	13	4
Adj R2.	0.82	0.83	0.85	0.92

Estimates from ordinary least squares regressions for a dyadic country panel covering the period 2008 to 2022. All regressions include corridor and year fixed effects. Time-varying controls are bilateral distances in terms of per capita GDP, bilateral democracy distances, the natural log of joint population size, bilateral asylum applications, bilateral migration stocks, and bilateral total decisions on asylum requests. Variables of aid and all migration variables have been transformed using the inverse hyperbolic sine transformation and coefficients can be interpreted as elasticities. Aid refers to annual aid commitments. Column 3 uses three-year periods with running means for orders to leave and aid. Columns 4 excludes all corridors where the number of lagged orders was higher than the number of enforced returns in at least one period. Stars denote statistical significance at the 1% (***), 5% (**) and 10% level (***). T-values clustered at the corridor level are given in brackets.

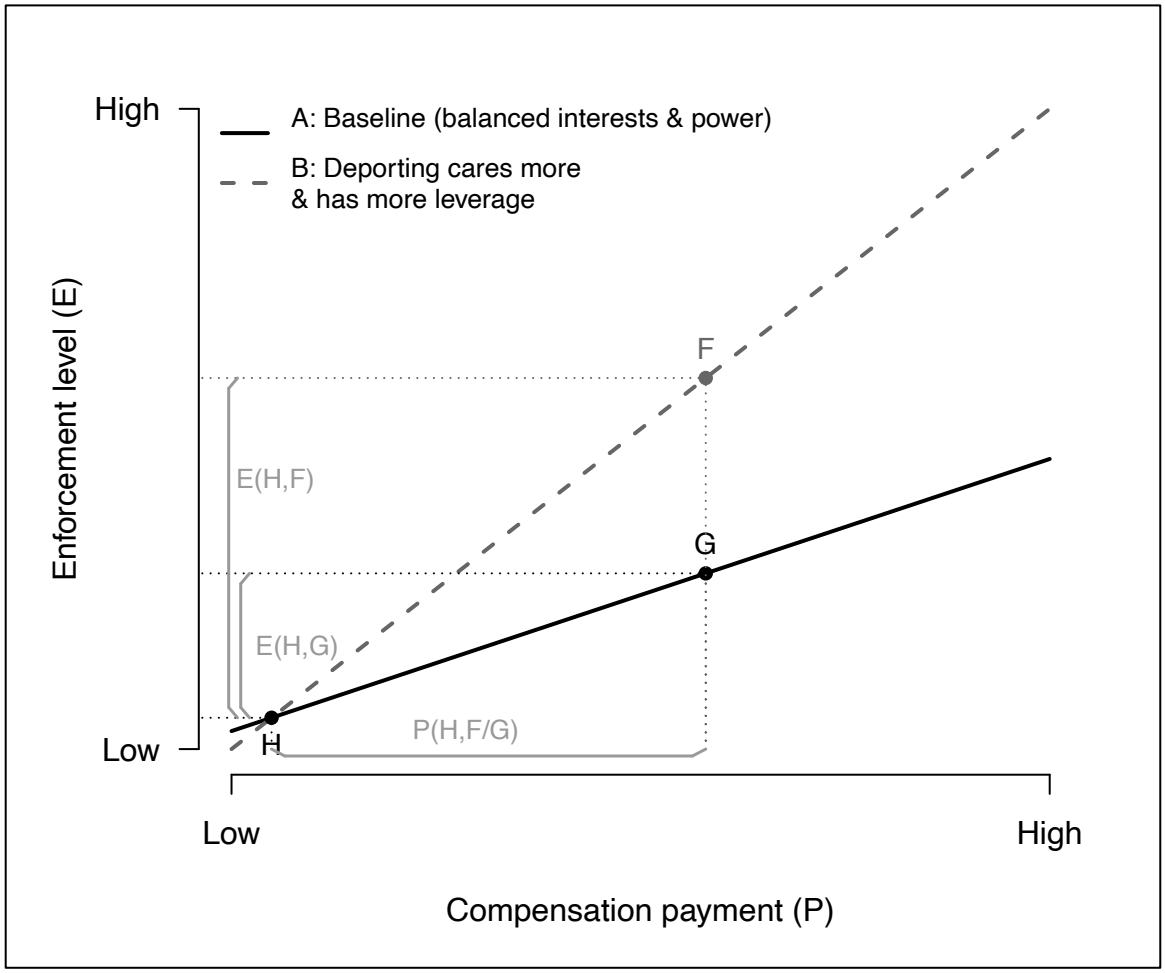
Table 4: Bilateral Repatriation Agreements and Enforced Returns

	Enforced Returns		
	I	II	III
Lagged Orders to Leave	0.091***	0.26***	0.2***
	[11]	[3.4]	[2.6]
Repatriation Agreements	-0.36		
	[-0.97]		
Committed Aid		-0.22	-0.4***
		[-1.6]	[-2.6]
Rep. Agreements * Lagged Orders to L.	0.2***		
	[3.5]		
Committed Aid * Lagged Orders to L.		0.045**	0.071***
		[2.2]	[3.2]
Sample	all observed	bilateral agreement in place	signers of bilateral agreements
# Corridors	4210	141	141
# Obs.	26191	851	909
Years covered	13	13	13
Adj R2.	0.85	0.83	0.81

Estimates from ordinary least squares regressions for a dyadic country panel covering the period 2008 to 2022. All regressions include corridor and year fixed effects. The variable agreements refers to bilateral migration agreements that include clauses on repatriation and is based on Harnisch et al. (2023). Variables of aid, orders to leave and returns have been transformed using the inverse hyperbolic sine transformation and coefficients can be interpreted as elasticities. Aid refers to annual aid commitments. Stars denote statistical significance at the 1% (***), 5% (**) and 10% level (***). T-values clustered at the corridor level are given in brackets.

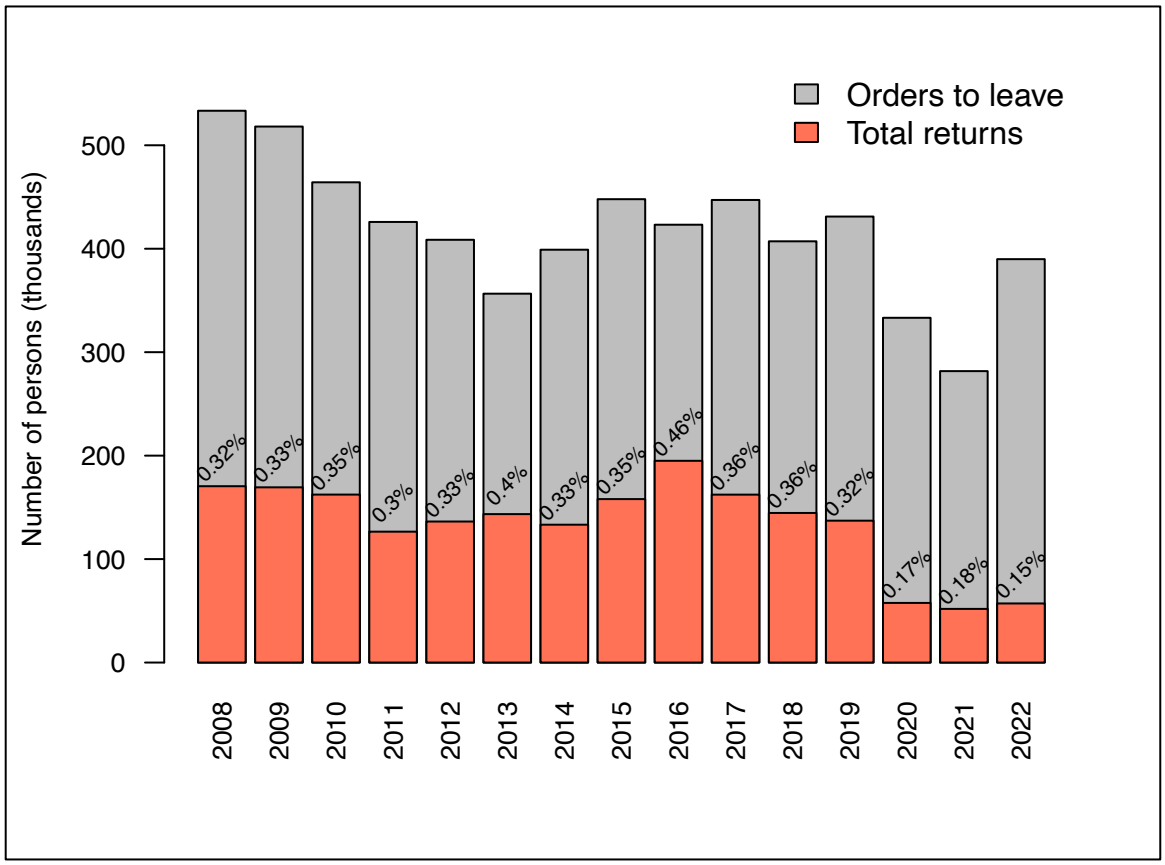
XIV. Figures

Figure 1: Bargaining Scenarios



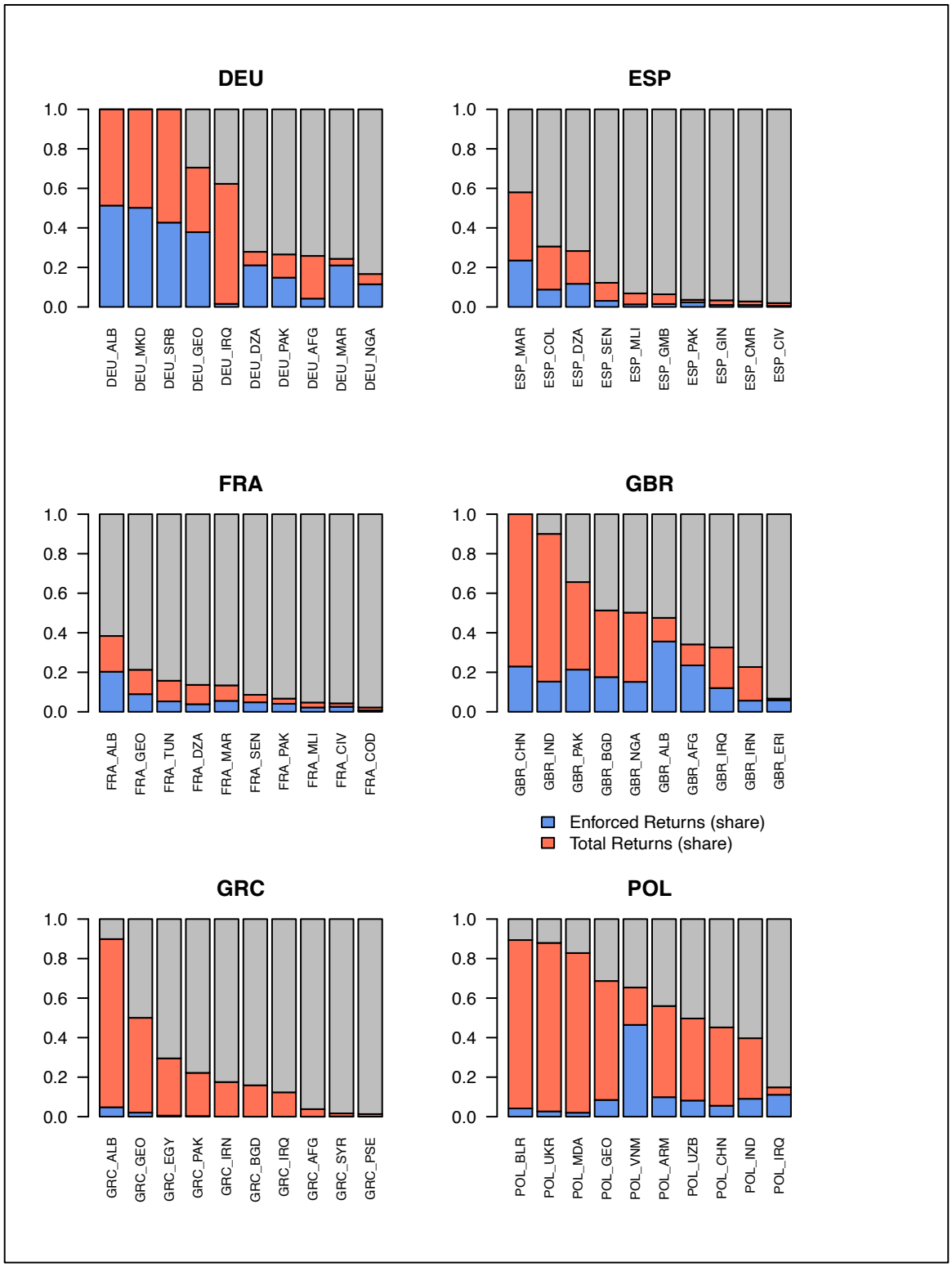
The Figure illustrates bargaining scenarios as derived in Annex A, where Scenario B differs from Baseline Scenario A in terms of more bargaining power **θ** for the deporting country, and higher stakes (a larger preference for enforcement by the deporting country, captured in a higher value for **α)**.

Figure 2: Annual Number of Persons Ordered to Leave and Total Reported Returns from European Countries (in Thousands, 2008-2022)



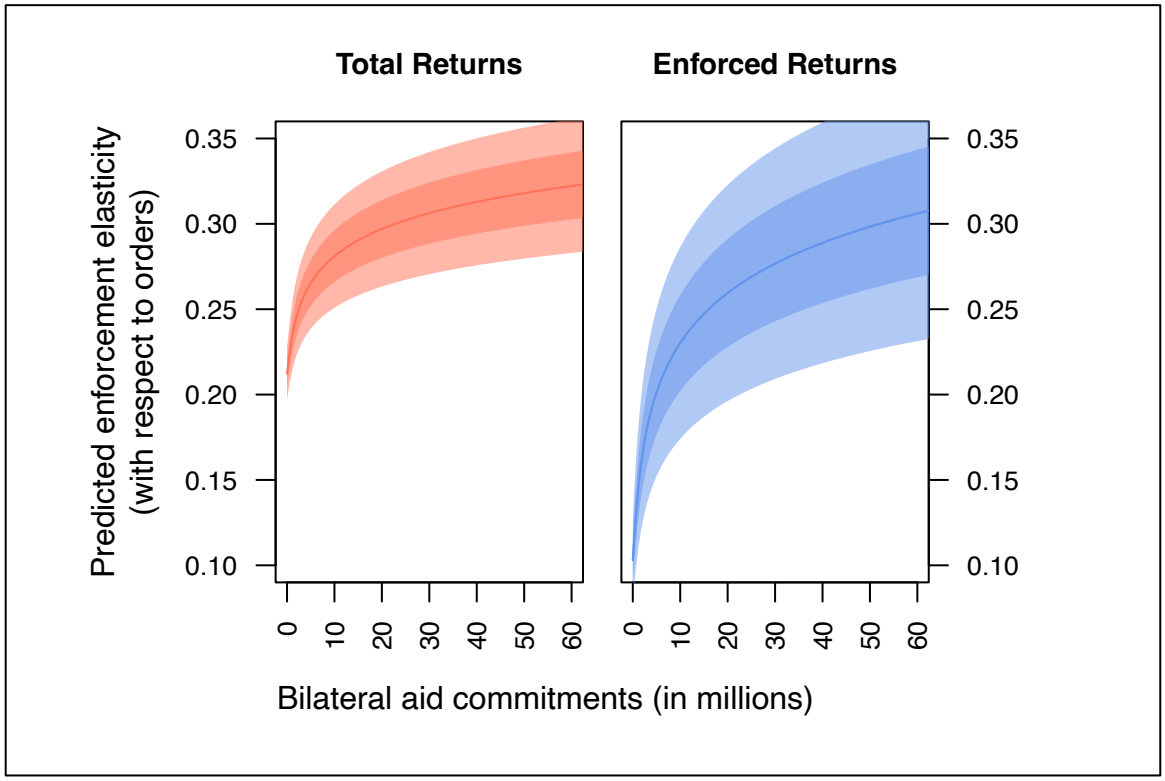
Source: Eurostat, data sets migr_eiord and migr_eirtn. Annual aggregates for European countries who reported orders to leave and total returns for the period from 2008 to 2021. On top of the red bars: Shares of Total Returns relative to Orders to Leave in each year.

Figure 3: Total Returns and Enforced Returns, as a Share of Orders to Leave, for Selected Corridors.



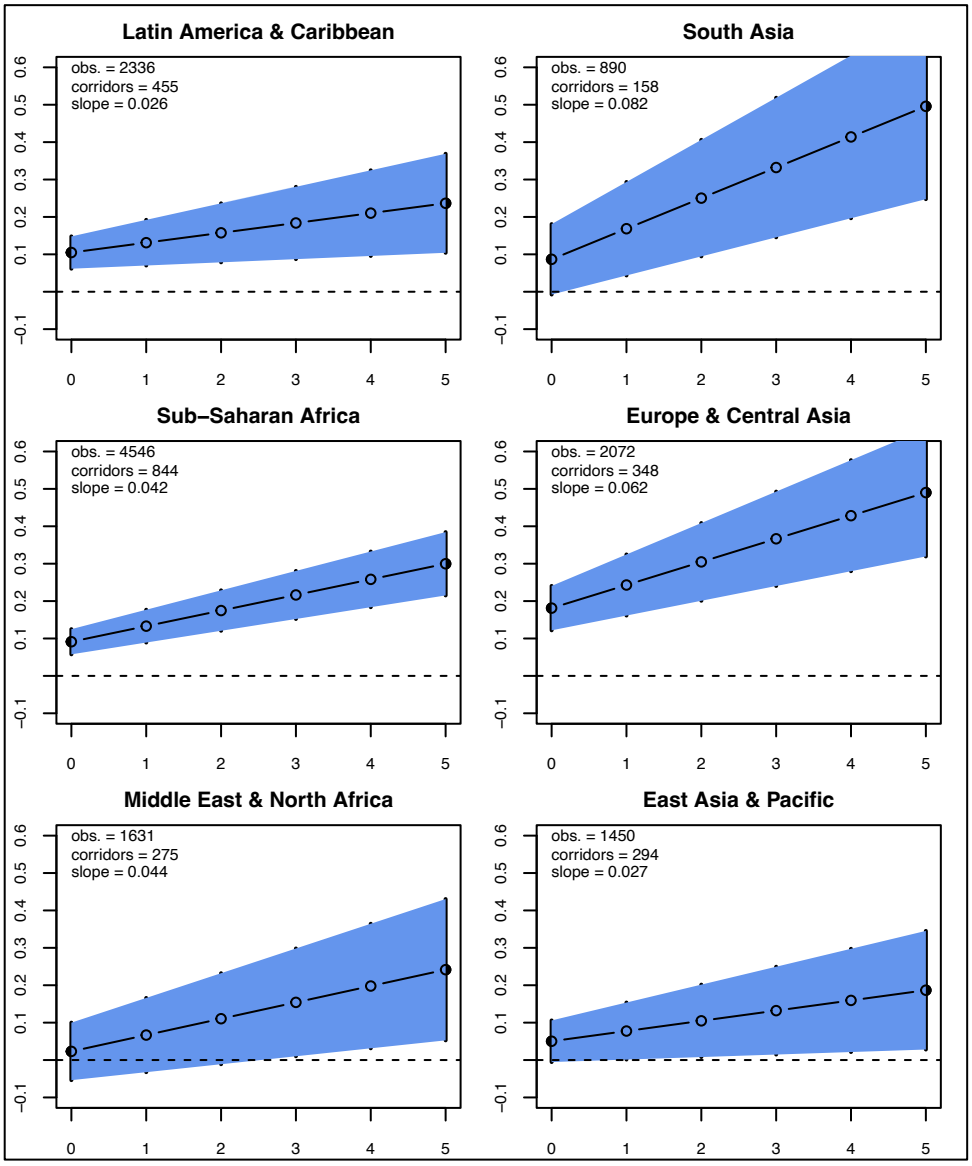
Source: Ambrosius and Luna (2025) based on Eurostat. Data on enforced returns from Germany have been complemented with data from parliamentary requests. We selected the six countries with the highest aggregate number of orders to leave and ordered corridors by the number of orders to leave. Shares were capped at a maximum of 1 in cases where the total number of returns over the period were larger than orders. We calculate annual average numbers over the years in which data is reported.

Figure 4: Enforcement Elasticities in Response to Aid Commitments



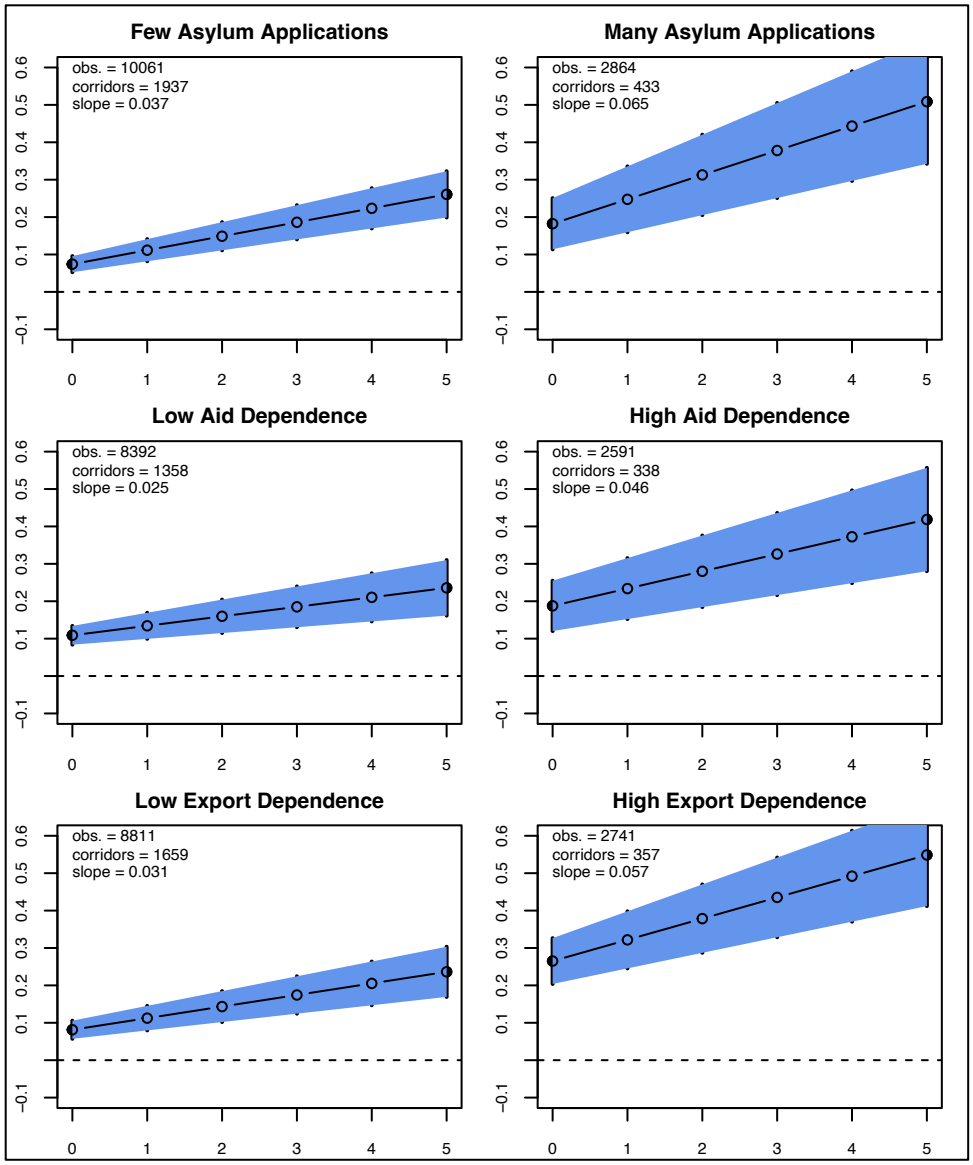
Enforcement elasticities are based on regression output in Column 1 (left) and in Column 2 (right) in Table 1. Aid commitments on the horizontal axis are transformed back to their original value to allow interpretation in terms of levels.

Figure 5: Enforcement Elasticities in Different Regions of Origin



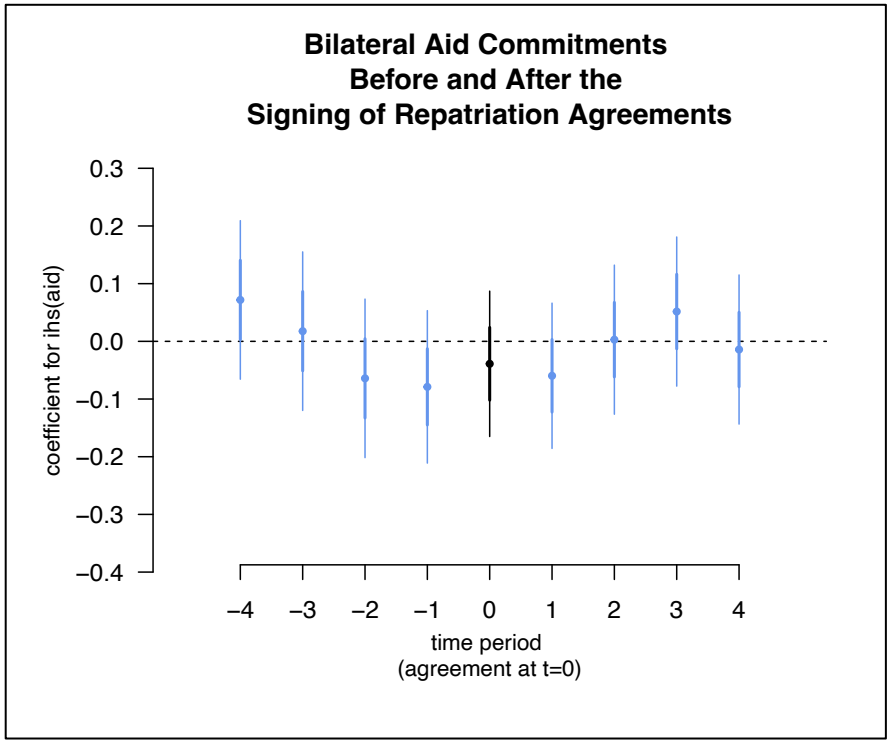
The figure depicts the predicted interaction effects between aid commitments and lagged orders in different regions of migrants' citizenship and 95% confidence intervals. The vertical axis are enforcement elasticities with respect to lagged orders, and the horizontal graph is aid in its transformed version (inverse hyperbolic sine). Regressions are as in Column 2 of Table 1, as subsets on different regions.

Figure 6: Enforcement Elasticities for Different Corridors, by Asylum Applications, Aid, and Trade Dependence



The figure depicts the predicted interaction effects between aid commitments and lagged orders and 95% confidence intervals for six different subgroups. Corridors on the right-hand side are (1) the 10% of corridors with the largest number of asylum applications between 2008 and 2022; (2) the 20% of corridors with the strongest bilateral dependence on aid, relative to GDP, in 2008; and (3) the 20% of corridors with the strongest bilateral dependence on exports relative to GDP in 2008. We compare these with predictions for the remaining observations on the left. The vertical axis are enforcement elasticities with respect to lagged orders, and the horizontal graph is aid in its transformed version (inverse hyperbolic sine). Regressions are as in Column 2 of Table 1, as subsets on different regions.

Figure 7: Correlations between the Signing of Repatriation Agreements and Bilateral Aid Commitments. Coefficient Plot for Event Times



The figure plots point estimates and confidence intervals of one (two) standard errors for a binary variable on whether bilateral repatriation agreements have been signed in this year, on bilateral aid commitments transformed using inverse hyperbolic sines. The period *t=0* refers to agreements signed the same year, compared to lagged effects (negative *t*) and leading effects (positive *t*). All regressions control for year and corridor fixed effects. Estimates are based on a dyadic panel of 3,304 deportation corridors over the period 2008 to 2022 (30,053 observations) and 170 incidents in which agreements were signed between country pairs.

XV. Annex A: Bargaining Model on Enforcement Cooperation

Bargaining outcomes over enforcement cooperation are captured in two variables: First, the enforcement rate or enforcement intensity, which we can understand as the fraction of those given an order to leave the country accepted back:

$$E \in [0,1]$$

Second, the total compensation payment (aid allocations) made by deporting country i to citizenship or origin country j

$$P \geq 0$$

The amount of P that countries will settle for shall be modelled as a combination of two factors: The utility they derive from cooperating; and their bargaining power (how much is deporting country i able to extract from citizenship country j in return for cooperation).

For the deporting country, utility is a result of responding to domestic pressures on immigration enforcement policies (the value they perceive in increasing enforcement rates) and a payment they have to make to citizenship country j to make that happen. We assume that the utility from enforcement increases linearly with enforcement by a coefficient α. Under no-cooperation, the fallback utility is defined as D_i. Utility u_i of the deporting country can therefore be written as:

$$u_i(E,P) = \alpha * E - P - D_i \qquad \text{(eq.1)}$$

For the receiving country j, utility u_j decreases with enforcement E and increases with P; γ captures their resistance to enforcement; and fallback utility is defined as D_j:

$$u_j(E,P) = P - \gamma * E - D_j \qquad \text{(eq.2)}$$

The total surplus S is defined as net gains from coooperation, relative to each country's fallback position of no cooperation, D_i and D_j:

$$S = u_i + u_j \quad \text{(eq.3)}$$

The total surplus S is split between the two countries according to their bargaining position θ. Let θ be deporting country i's bargaining power relative to country j :

$$\theta \in [0,1]$$

Then, following a Nash bargaining set up, each country obtains a share of the total surplus, depending on its bargaining position vis-a-vis the other country; where a high value for θ reflects a stronger position of the deporting country:

$$u_i = \theta * S \quad \text{(eq.4)}$$

$$u_j = (1 - \theta) * S \quad \text{(eq. 5)}$$

Substituting values for u_i and u_j from above we obtain for the total surplus:

$$S = (\alpha - \gamma) * E - D_i - D_j \quad \text{(eq.6)}$$

In principle, we could obtain a unique Nash bargaining equilibrium for a set of fixed parameters α, γ and θ that maximizes the Nash product of joint gains or utilities. However, our goal is to present P as a function of a given enforcement target E. Empirically we are observing these two bargaining outcomes, whereas the parameters α, γ and θ are unknown and expected to change over time for different country pairs. We therefore solve the formula for compensation payments P as a function of E.

Substituting for S from (eq. 6) as well as for the utility of deporting country i with $\theta * S$ from (eq. 4) gives:

$$\alpha * E - P - D_i = \theta\left((\alpha - \gamma) * E - D_i - D_j\right) \quad \text{(eq.7)}$$

In order to present P as a function of E we rearrange so that we obtain a term $(1-\theta)\alpha + \theta\gamma$ that is a function of E (interpretable as a slope) and a second term $(1-\theta)\ D_j + \theta D_i$ that can be interpreted as an intercept, and that depends on the terms D_i and D_j (the fallback situations of no cooperation) and bargaining power.

$$P\ (E)\ = (1-\theta)D_i + \theta D_j\ + ((1-\theta)\alpha + \ \theta\gamma)\boldsymbol{E} \quad \text{(eq.8)}$$

Equivalently, we can also present E as a function of P. In this case, we would obtain

$$E(P) = \frac{P - (1-\theta)D_i - \ \theta D_j}{(1-\theta)\alpha + \ \theta\gamma} \quad \text{(eq.9)}$$

whenever the denominator is nonzero. If to be presented as a slope that varies with P and an intercept if $P = 0$, we can reformulate as follows:

$$E(P) = \frac{1}{\alpha - \theta(\alpha - \gamma)}P + \frac{(1-\theta)D_i + \ \theta D_j}{\alpha - \theta(\alpha - \gamma)} \quad \text{(eq.10)}$$

XVI. Annex B: Tables

Annex B1: Data Description. Unbalanced Dyadic Country Panel (data for period 2008 to 2022)

Variable	Data Description	Source	Mean [st.dev.]	# Corridors [# Obs.]
Orders to leave	Annual number of orders to leave the territory of the deporting country i, emitted to nationals from citizenship country j	Ambrosius and Luna (2025) based on Eurostat	27838 [3240]	226.6 [1191.8]
Total Returns	Number of third country nationals from country A returned following an order to leave by the deporting country i. Third country nationals who have in fact left the territory of the Member State, following an administrative or judicial decision or act stating that their stay is illegal and imposing an obligation to leave the territory.	Ambrosius and Luna (2025) based on Eurostat	26207 [3190]	76.5 [796.9]
Enforced Returns	Number of third-country nationals from citizenship country j in he deporting country i who are subject to the enforcement of the obligation to return. These are individuals for whom an enforcement procedure has been launched to ensure their return.	Ambrosius and Luna (2025) based on Eurostat	13129 [2372]	37.2 [221.2]
Voluntary Returns	Number of third-country nationals from citizenship country j who voluntarily comply with the obligation to return from deporting country i (i.e. no enforcement procedure had to be launched) and their departure is confirmed by the information from e.g. the border authority or the consulate authorities in the country of origin or other authorities such as IOM or any other organizations implementing a program to assist migrants to return to a third-country.	Ambrosius and Luna (2025) based on Eurostat	12145 [2385]	44.9 [420.7]

Readmission Agreements	Binary indicator whether there's an agreement between the deporting country i and citizenship country j on readmissions of returned people.	Harnisch et al. (2023)	27838 [3240]	0.1 [0.3]
Official Development Assistance Total Commitments	Total bilateral commitments of Official Development Assistance (ODA) from deporting country i to citizenship country j, in millions of US dollars (constant prices 2022).	OECD Stats – ODA (Development) Indicators	27838 [3240]	18 [72.6]
Gross Official Development Assistance Disbursements	Gross disbursed ODA from from deporting country i to citizenship country j in millions of US dollars (constant prices 2022)	OECD Stats – ODA (Development) Indicators	27711 [3224]	14.1 [48.6]
GDP Per Capita Distance	Difference in GDP per capita between deporting country i and citizenship country j, based on purchasing power parity (PPP), in constant 2017 dollars.	World Bank	24087 [2874]	12.3 [14.5]
Total population	Combined total population of deporting country i and citizenship country j (in millions)	World Bank	25767 [3086]	87.1 [198.4]
Liberal Democracy Index Distance	Difference in the Liberal Democracy Index between the deporting country i and cititzenship country j. This index evaluates the degree of liberal democracy in each country, focusing on the protection of individual and minority rights, constitutional civil liberties, rule of law, an independent judiciary, and effective checks and balances limiting executive power, along with the level of electoral democracy. Scale: Interval, from low to high (0-1).	V-Dem Democracy Indices	27175 [3036]	5.9 [11.5]

Exports	Annual exports from the country of citizenship j towards the deporting country i, nominal USD, in 1000s.	UN Comtrade Database	25599 [2877]	604.3 [4083.3]
Asylum Seekers	Number of persons from citizenship country j seeking international protection in deporting country i and whose claim for refugee status (or other protection) has not yet been finalized.	UNHCR	18406 [2061]	406.1 [2661.3]
Asylum Applications	Number of annual formal requests submitted by asylum-seekers from citizenship country j to the relevant state authorities for recognition of refugee (or other protection) status in deporting country i.	UNHCR	27838 [3240]	255.7 [2573.2]
Asylum Decisions	Number of annual decisions on an asylum application made by persons from citizenship country j in deporting country i.	UNHCR	27811 [3230]	318.3 [3016.3]
Asylum Rejections	Number of annual asylum decisions by persons from citizenship country j in deporting country i that end with denial of refugee status or protection.	UNHCR	27811 [3230]	143.3 [961.1]

Annex B2: Data on Returns reported to Eurostat, Coverage by Number of Years (2008 to 2022, by Deporting Country)

Country	ISO-3	Orders to Leave	Total Returns	Enforced Returns	Voluntary Returns
Austria	AUT	15	13	6	6
Belgium	BEL	15	15	8	8
Bulgaria	BGR	1	1	0	0
Croatia	HRV	6	6	6	6
Cyprus	CYP	5	4	0	0
Czechia	CZE	12	12	6	6
Denmark	DNK	12	12	8	8
Estonia	EST	10	10	9	9
Finland	FIN	15	14	0	0
France	FRA	15	15	7	7
Germany	DEU	15	15	15	1
Greece	GRC	15	15	4	4
Hungary	HUN	8	8	6	6
Iceland	ISL	1	1	0	0
Ireland	IRL	15	15	8	8
Italy	ITA	15	15	8	8
Latvia	LVA	7	7	5	5
Liechtenstein	LIE	2	1	0	0
Lithuania	LTU	9	8	0	0
Luxembourg	LUX	13	13	8	8
Malta	MLT	1	1	1	1
Netherlands	NLD	15	15	0	0
Norway	NOR	9	9	7	7
Poland	POL	10	10	8	8
Portugal	PRT	15	14	6	6
Romania	ROU	9	9	5	5
Slovakia	SVK	10	10	7	7
Slovenia	SVN	11	11	9	9
Spain	ESP	15	15	6	6
Sweden	SWE	15	15	6	6
Switzerland	CHE	11	4	0	0
United Kingdom	GBR	12	12	12	12