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Working Paper

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GLO Discussion Paper, No. 195

Provided in Cooperation with:
Global Labor Organization (GLO)

Suggested Citation: Dreher, Axel; Fuchs, Andreas; Langlotz, Sarah (2018) : The Effects of Foreign Aid on Refugee Flows, GLO Discussion Paper, No. 195, Global Labor Organization (GLO), Maastricht

This Version is available at:
https://hdl.handle.net/10419/176803

The Effects of Foreign Aid on Refugee Flows

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April 2018

Abstract: This article is the first to systematically study whether foreign aid affects the net flows of refugees from recipient countries. Combining refugee data on 141 origin countries over the 1976-2013 period with bilateral Official Development Assistance data, we estimate the causal effects of a country's aid receipts on both total refugee flows to the world and flows to donor countries. The interaction of donor-government fractionalization and a recipient country's probability of receiving aid provides a powerful and excludable instrumental variable, when we control for country- and time-fixed effects that capture the levels of the interacted variables. Although our results suggest that exogenous aid induces recipient governments to encourage the return of their citizens, we find no evidence that aid reduces worldwide refugee outflows or flows to donor countries in the short term. However, we observe long-run effects after four three-year periods, which appear to be driven by lagged positive effects of aid on growth.

JEL classification: F22, F35, F59, H84, O15, O19

Keywords: foreign aid, Official Development Assistance, migration, refugees, displaced people, humanitarian crises, repatriation policies

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Acknowledgements: We thank Hippolyte d'Albis, Gerda Asmus, Toman Barsbai, Richard Bluhm, Rune Hagen, Caleb Koch, Luigi Minale, Angelika Müller, Hillel Rapoport, Felipe Starosta de Waldemar, Nina Winzen (UNHCR), participants of the Workshop "The Domestic Dimensions of Development Cooperation" (University of Antwerp, October 2016), the Annual Meeting of the European Public Choice Society (Central European University Budapest, April 2017), the ZEW Public Finance Conference (ZEW Mannheim, May 2017), the Research Committee Development Economics of the German Economic Association (University of Goettingen, June 2017), the Beyond Basic Questions Workshop (University of Milan, June 2017), the 10th International Conference on "Migration and Development" (CERDI Clermont-Ferrand, June 2017), the DIAL Development Conference (Université Paris-Dauphine, June 2017), the Hamburg Lecture on Law & Economics (University of Hamburg, November 2017), and the Annual Conference on "Immigration in OECD countries" (Paris, December 2017), as well as seminar participants at the German Development Institute (DIE) in Bonn, Heidelberg University, and Université Paris Sud for valuable comments. Laura Barros, Patrick Betz, Dominik Jockers, Stephan Schneider, Samuel Siewers, and Franziska Volk provided excellent research assistance. We thank Jamie Parsons for proof-reading.

"It cannot be that you take the aid, but not your own citizens."
Sigmar Gabriel, Vice Chancellor of Germany[2]

1. INTRODUCTION

65.6 million people around the globe were forcibly displaced from their home at the end of 2016, of which 22.5 million have obtained refugee status (UNHCR 2017).[3] Politicians and pundits advocate foreign aid as a powerful tool to reduce these flows of refugees struck by persecution, civil war, and other humanitarian crises for at least three reasons. One, humanitarian aid provides immediate relief, for example, through the provision of food and shelter, and the construction of refugee camps. Two, development cooperation is seen as "fight[ing] the causes of flight and expulsion."[4] And three, Western politicians tie aid to recipient countries' cooperation in reducing the flows of refugees and accepting to take back some of those who donors aim to repatriate.[5]

Indeed, the share of foreign aid in donors' government expenditures has surged during the recent European refugee crisis, though much of the "aid" has been spent in donor rather than recipient countries.[6] Recent empirical research confirms that donors systematically channel aid to reduce the flow of migrants and refugees to donor countries, controlled for recipient-country need (Czaika and Mayer 2011, Bermeo and Leblang 2015). The European Union makes this policy explicit. For example, in 2013 the then-President of the European Commission José Manuel Barroso stated that the European Union must continue their "political and development action to improve the living conditions in the countries of origin, working

[2] See http://www.zeit.de/politik/deutschland/2016-01/sigmar-gabriel-entwicklungshilfe-fluechtlingskrise-nordafrika (accessed February 22, 2017; own translation from German).
[3] According to the 1951 United Nations Convention relating to the Status of Refugees, a refugee is a person who "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country […]" (see http://unhcr.org.ua/en/who-we-help/2011-08-26-06-55-36/368-protecting-refugees-faq, accessed November 12, 2017).
[4] See, for example, German Chancellor Angela Merkel's speech at the United Nations Sustainable Development Summit (https://www.bundesregierung.de/Content/EN/Reden/2015/2015-09-25-merkel-newyork-un_en.html, accessed October 16, 2016).
[5] Recent examples include the German Interior Minister Thomas de Maizière, the German Vice Chancellor Sigmar Gabriel, and the then Austrian Foreign Minister Sebastian Kurz (see http://www.spiegel.de/international/germany/refugee-crisis-leads-to-new-focus-of-german-foreign-policy-a-1062116.html and https://www.euractiv.com/section/development-policy/news/austria-seeks-eu-aid-suspension-for-countries-rejecting-failed-refugees/, accessed October 7, 2016).
[6] See for example the European Commission's press release, April 13, 2016 http://europa.eu/rapid/press-release_IP-16-1362_en.pdf (accessed October 2, 2016).

with them there, so that people do not have to flee their homes."[7] Sachs (2016) advocates aid "as a long-term instrument to reduce the poverty leading to mass outmigration." While previous studies have focused on the link between aid and migratory flows broadly defined,[8] no study provides causal evidence as to whether and to what extent the aid is effective in reducing the flow of refugees. This is the question we aim to address in this paper.

Our approach is twofold. First, we analyze whether inflows of foreign aid are effective in reducing the total outflows of refugees from recipient countries. Second, we more directly address the "benefits" of aid to the donor countries by estimating the effects of aid on the number of refugees going to the member countries of the OECD's Development Assistance Committee (DAC), i.e., the group of established donor countries. With these goals in mind, our dataset combines refugee data from the United Nations High Commissioner for Refugees (UNHCR) for 141 origin countries over the 1976-2013 period with data from the OECD on bilateral development assistance, including humanitarian aid.[9]

We identify the causal effect of aid relying on an instrumental variable (IV) suggested in Dreher and Langlotz (2017). Variation in the amount of aid a recipient country receives over time is identified by changes in the degree of government fractionalization of its donor countries. Higher fractionalization increases donor government expenditures, which in turn increases the amount of aid given by a donor. Countries that generally receive more aid from a donor have a higher probability of receiving a larger chunk of increases in aid compared to countries that hardly receive aid from a donor. The probability of receiving aid thus represents the cross-country dimension of our instrument. The IV is then constructed as the interaction of donor-government fractionalization and the recipient countries' probability of receiving aid. Controlling for fractionalization and the probability of receiving aid through the inclusion of country- and time-specific fixed effects, the interaction provides a powerful and excludable

[7] See the European Commission's 2013 Statement by President Barroso following his visit to Lampedusa http://europa.eu/rapid/press-release_SPEECH-13-792_en.htm (accessed October 11, 2016). Similarly, the EU Commissioner for Migration, Home Affairs and Citizenship Dimitris Avramopoulos is quoted saying that the EU is "considering stopping funding of major development projects" and "invested in these regions to create opportunities and keep people there" (see https://www.thetimes.co.uk/article/eu-threat-to-cut-aid-for-states-that-won-t-take-back-migrants-t8wv53c88, accessed November 24, 2017).

[8] Parsons and Winters (2014) summarize the literature on aid and migration (rather than flows of refugees). The bulk of studies focus on correlations rather than causation (e.g., Lucas 2005). Berthélemy et al. (2009) instrument aid with development, population, and institutions; Moullan (2013) uses GMM-type internal instruments. None of these convincingly address the exclusion restriction. For what it is worth, it seems that aid is positively rather than negatively correlated with migration outflows. This contrasts recent findings by Lanati and Thiele (2017) who find a negative link between total aid and a recipient country's emigration rate.

[9] In what follows, we refer to these countries of origin as (potential) recipient countries (of aid), while we refer to host countries as donors.

instrument. This estimation strategy allows us to identify the causal effects of exogenous changes in aid receipts on refugee flows.

To foreshadow our results, we find no robust evidence that total aid inflows reduce refugee outflows in the short run. Only with a long delay of eleven years or more do we find some evidence of refugee-reducing effects of aid, which appear to be driven by lagged positive effects of aid on economic growth. In the short run, donors even appear to receive larger refugee inflows in response to increased aid inflows although aid changes recipient countries' repatriation policies in the donors' favor. As a potential explanation we suggest that donor countries become a more attractive destination in the eyes of refugees through their provision of aid.

We also focus on aid given to the origin countries' neighbors and find evidence that such aid reduces the flow of refugees from the origin country to the rest of the world and to donor countries in particular. In concert with the findings of the main analysis, we interpret this as evidence that donors successfully use their aid to induce countries bordering the refugees' homes to block refugee flows. Finally, we investigate whether humanitarian aid, the component of Official Development Assistance (ODA) that is targeted at humanitarian crises, is more effective than total foreign aid in reducing the number of exiting refugees.[10] Once the share of humanitarian aid in total aid is sufficiently high, we indeed observe that aid reduces the number of refugees leaving their country also in the short run.

Our contribution to the literature is threefold. First, by focusing on the number of refugees and people in refugee-like situations, we add to the aid effectiveness literature, which has been largely (but not exclusively) concentrated on the aid-growth nexus (e.g., Burnside and Dollar 2000, Werker et al. 2009, Galiani et al. 2017). While previous work analyzed the link between aid and migration broadly defined, this is the first study to systematically investigate the effects of aid on refugees. Second, we contribute to the strand of the migration literature that focuses on understanding the causes of flows of refugees and asylum seekers (Neumayer 2005, Hatton 2009, 2016, Barthel and Neumayer 2015). Finally, our paper relates to the academic and policy debate about how (not) to respond to refugee crises and the ongoing European refugee crisis in particular (e.g., Maystadt and Verwimp 2015, Moraga and Rapoport 2015, Aiyar et al. 2016).

[10] This assumes that aid is not fully fungible, as any distinction of aid according to sectoral purposes would then be meaningless. See Van de Sijpe (2012) and Milner et al. (2016).

We proceed as follows. In the framework of a push-pull theory of migration (Lee 1966), Section 2 discusses the mechanisms through which foreign aid can affect the volume of refugee flows as a whole as well as to donor countries. In Section 3, we present our data and empirical strategy to identify causal effects of development aid on refugee flows. Section 4 presents and discusses our empirical findings. The final section summarizes our results and highlights the implications for governments in their use of foreign aid when facing humanitarian crises around the globe.

2. HOW AID COULD AFFECT REFUGEE FLOWS

Foreign aid can affect the push and pull factors on refugee flows in a number of important ways. Push factors refer to longer-term development-related outcomes in the origin countries but also to peoples' immediate concerns when being hit by crises. The broader literature on migration has shown that outflows depend on GDP per capita, trade flows, population size, economic and political freedom, human rights, and the age structure of the population (Berthélemy et al. 2009, Parsons and Winters 2014). Scholars have also investigated whether war and natural and man-made catastrophes affect emigration (e.g., Neumayer 2005, Laczko and Aghazarm 2009). Overall, we expect these push factors to determine the flow of refugees as well but acknowledge that some of these factors—such as a country's human-rights situation—should be more important for refugee flows than for average migration flows. The results in Hatton (2009, 2016) suggest that asylum applications in the West increase with oppression, terror, and poor economic conditions in origin countries.[11] To the extent that foreign aid alleviates unmet humanitarian needs, economic hardship, and other push factors, it should reduce the flow of refugees.

However, the literature on aid effectiveness is mixed. There is no robust evidence on whether or not aid affects economic growth (Doucouliagos and Paldam 2008, Werker et al. 2009, Dreher and Langlotz 2017, Galiani et al. 2017), economic and political freedom (Dreher and Gehring 2012), or trade (Cadot et al. 2014).[12] When aid fails to promote development, or even hurts development either directly or via its adverse effects on democracy, institutions, conflict, the terms of trade, and income inequality (Bjørnskov 2010, Rajan and Subramanian

[11] See also Neumayer (2005), Moore and Shellman (2007), and Barthel and Neumayer (2015) on the determinants of the flows of refugees and asylum seekers.
[12] Werker (2012), Doucouliagos (2016), and Dreher et al. (2017a) provide recent surveys of the aid effectiveness literature.

2011, Clemens 2014, Nunn and Qian 2014, Ahmed 2016, Bluhm et al. 2016), refugee flows may even increase. Even if development aid improves the well-being of the recipient population, the aggregate effect on refugee flows is unclear. Increases in income do not only incentivize potential refugees to stay, they might also enable more people to pay smugglers and thus lead to larger refugee flows in total. In line with this, Dao et al. (2017) show that development increases people's capabilities and aspirations and causes more rather than fewer people to emigrate.

Aid can have more immediate effects as well. Humanitarian aid is given to alleviate the consequences of humanitarian crises, including natural disasters, wars, and famines. Providing food, tents, medicine, and other basic needs reduces immediate pressure to seek refuge abroad. What is more, aid inflows are often highly visible to the affected population and might foster beliefs of a better future at home, to the extent that people expect the aid to improve their future lives. However, to the extent that emergency aid saves lives, but fails to deliver hope and development, the pool of potential refugees increases. Foreign aid can also have the perverse effect of creating more potential refugees in the first place as it incentivizes governments to reduce their engagement in disaster prevention and preparedness (Cohen and Werker 2008, Raschky and Schwindt 2016).

Foreign aid could also influence the pull factors of migration. It is sometimes argued that aid benefits the donors in addition to or rather than the recipients. When aid makes *donor* countries better off—in terms of trade-induced development (Martínez-Zarzoso et al. 2009), access to natural resources (Finney 1983), or political concessions from the aid recipients (Vreeland and Dreher 2014)—the donor country becomes more attractive as a host. Refugees' perceptions of their expected wellbeing are arguably even more important than the actual situation in donor countries. Since donors make sure that recipients can attribute their projects to them, aid has the potential to improve (or deteriorate) perceptions of the donor among the recipient population (Brückner et al. 2017, Milner et al. 2017, Tokdemir 2017, Dietrich et al. 2018). To the extent that the image of host countries matters for emigration decisions, refugees will flee to those countries whose development projects are visible and perceived positively. Taken together, aid appears more likely to strengthen rather than mitigate the attractiveness of donor countries. We would thus expect aid to increase refugee flows to donor countries.

What is more, donors explicitly use aid to buy policy concessions from recipient governments. They condition it on the deterrence of emigration (Azam and Berlinschi 2009), for example when they expect recipient governments to strengthen their border controls and

fight human trafficking. They use it in exchange for recipient governments to facilitate the repatriation of refugees. As one example, the European Commission states in an official communication that "presenting a global development package to developing countries […] will encourage them to enter into readmission agreements."[13] A statement by David Khoudour-Castéras, the OECD's head of the Migration and Skills unit, is telling in this regard. He describes development aid given to key transit countries as a means to outsource border controls and comes to the conclusion that "[w]e pretend it's a fund for development, but it's not really."[14]

Taken together, we have no clear expectation about the overall effect of total aid on refugee flows. While we start the empirical analysis examining the net effect of overall aid on refugee flows, our hypotheses can be refined according to a number of dimensions. The first dimension concerns the timing of aid. Parts of the push and pull factors introduced above are indirect and have the potential to change the flow of refugees in the medium and long run, to the extent that they improve or deteriorate development-related outcomes in the donor or recipient countries. Our calculations therefore need to account for the lag between the disbursement of aid and the realization of its potential effects. Given the mixed results of the aid effectiveness literature concerning the effects of aid on development, we have no strong expectations regarding the long-term effect of aid on refugee flows.

We expect the effect of aid on refugee flows to be more pronounced in the short run, given that parts of the aid directly aim at addressing immediate needs during humanitarian crises and some aid is directly used to pressure recipient governments to reduce refugee flows or to facilitate repatriation. In line with that expectation, we also expect humanitarian aid to be more effective in reducing the number of refugee flows compared to other aid, given that it directly targets the needs of people affected by crises.[15]

It is important to also distinguish between the total flow of refugees and the flow of refugees that arrives in the donor countries. If governments follow egoistic national interests, donors' ultimate goal is to discourage refugees from moving to their country rather than

[13] See EU website at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52002DC0703 (accessed 11 November 2017). Anecdotes are easy to find. The German Minister of the Interior argued in 2015 that since a lot of development aid has been directed to Afghanistan, "one can expect that the Afghans stay in their country." (https://www.bundesregierung.de/Content/DE/Artikel/2015/10/2015-10-28-de-maizi%C3%A8re-statements.html, accessed February 22, 2017). Similarly, former French President Nicolas Sarkozy expressed his hope "that development aid will be made conditional on readmission visas and the fight against illegal immigration" (http://web.archive.org/web/20170127220901/https://www.sarkozy.fr/international_europe_terrorisme, accessed February 22, 2017). All quotes are our translations.

[14] See http://www.irinnews.org/report/102225/how-refugee-crisis-hurting-foreign-aid (accessed November 24, 2017).

[15] Dreher et al. (2016) demonstrate the importance of the donors' motives of giving the aid for its effectiveness.

reducing refugee flows at large. This holds for a number of reasons, including, most obviously, the costs of processing and hosting the refugees, but also more indirect effects such as electoral incentives (see Dustmann et al. 2016), or the perceived threat of terrorism arising from larger foreign populations (see Dreher et al. 2017b). While aid spent with this goal in mind would not necessarily affect the total flow of refugees, it might reduce the flows of refugees to the donors of the aid. If donors use aid to induce changes in recipients' emigration and repatriation policies, we would expect the effects of aid to be more pronounced when we focus on refugee flows to donor countries rather than all countries.

Finally, in addition to targeting aid at countries directly affected by crises, donors may also provide aid to these countries' neighbors. Such aid can help neighbors to cope with the inflow of refugees. This is of importance as refugee shocks can deteriorate development outcomes of refugee-hosting communities (Baez 2011, Tumen 2016, but see also Alix-Garcia et al. 2018). In order to strengthen neighboring countries' capacity and willingness to host large flows of refugees, donor countries may increase their aid commitments to countries within the refugees' home region. For example, the Belgian Prime Minister Charles Michel explained that his country's pledge of EUR 75 million for Syria at an international donor conference should "encourage the refugees to stay in the region near their country of origin and to provide dignified living conditions."[16] As de Haas (2008: 1316) notes, "Maghreb states and, recently Mauritania, Senegal and the Gambia, have successfully capitalised on their new status as transit countries, which has increased their geopolitical leverage to negotiate migration agreements with European countries in exchange for financial aid and other forms of support." We therefore also investigate whether the number of refugees moving to donor countries is reduced by aid given to the recipients' neighbors.

3. DATA AND METHOD

We study the effect of development aid on refugee flows at the level of recipient countries over 13 three-year periods.[17] We analyze whether total aid inflows reduce the number of refugees leaving the country. Our regression model is the following:

[16] See http://premier.be/en/belgium-pledges-75-million-eur-syria-international-donor-conference (accessed October 16, 2016).

[17] Note that the last period covers only two years (2012 and 2013) due to data availability at the time we started this research project.

$$Ref_{i,t}=\beta_1 Aid_{i,t-z} + \boldsymbol{X'_{i,t-z}\beta_2} + \eta_i + \tau_t + \varepsilon_{i,t}, \quad (1)$$

where $Ref_{i,t}$ is the natural logarithm of refugee flows from origin country i to the entire world (data from UNHCR 2015) in a period *t*, and $Aid_{i,t-z}$ is bilateral net ODA as a share of recipient-country GDP in periods *t-z*, with *z* ranging between one and five.[18] The analysis of various lag lengths is important in our context. First, it may take time for aid to affect refugee outflows depending on the respective mechanism as discussed in the previous section. Second, it takes time for displaced people to reach another country and to obtain recognition as refugee. This is particularly salient if the host is a donor country. Donor countries are typically more geographically remote from the country of origin than their direct neighbors and have time-consuming asylum procedures.

Following the previous literature, we compute net refugee flows by taking the first difference in refugee stock values from period *t* to period *t*-1. This measure is affected by the (a) receipt of a non-humanitarian residence permit, (b) naturalization, (c) death, (d) return to the country of origin, and (e) migration to a third country. As a result, our measure of net refugee flows can turn negative. We replace these negative flows with zero following the related literature (e.g., Melander and Öberg 2004, Moore and Shellman 2007, Bertoli and Fernandez-Huertas Moraga 2015) and add one to all observations before taking logarithms.[19] Obviously, data on gross inflows would be better suited to test our hypotheses; such data are, however, not available for a sufficiently long period of time and a large set of origin countries. While an ideal measure of refugee flows would exclude (a) to (c), we do not expect their inclusion to systematically bias our results. We have no reason to expect that larger aid to a recipient country has a systematic link to the ease to obtain a non-humanitarian residence permit or to become a citizen of a donor country, or the likelihood to die in the donor country. In a robustness test, we replace our dependent variable with net refugee flows per 100,000 inhabitants to keep negative values.

Our data on net ODA are from the OECD (2016a) and cover aid provided by all 28 bilateral donors of the OECD-DAC. ODA includes all transfers (i) that are provided by official

[18] Figures E.1 and E.2 in Appendix E show world maps of the allocation of *(log) Refugee Flows* and *Aid/GDP*, where we plot the mean values over the entire observation period.

[19] In line with Barthel and Neumayer (2015), we set missing values to zero within the time period for which UNHCR provides stock values (for worldwide stocks this is the period from 1975 onwards and for stocks in OECD countries 1977 onwards). As Barthel and Neumayer (2015) argue, this procedure "is reasonable since there will be either no asylum seekers in this particular dyad year or the number is so small as to be unrecorded." In a robustness test, we keep missing values and rerun the regressions with the reduced sample. While the first-stage F-statistics are lower, results are overall similar.

agencies to developing countries and multilateral institutions; (ii) with the main objective of economic development and welfare; and (iii) which are concessional, reflecting that the grant element is at least 25 percent.[20]

Our main regressions are parsimonious and control for fixed effects for periods τ_t and countries η_i exclusively. The number of potential control variables abounds. Many of those are however arguably endogenous, as they might be important transmission channels by which aid affects refugee flows. Given that the exclusion restriction we outline below holds absent the inclusion of these control variables, their omission reduces the efficiency of the estimator, but does not bias our estimates. The covariate vector $\boldsymbol{X}_{i,t-z}$ is thus included only in selected regressions—to test robustness and demonstrate that our estimates do not depend on their inclusion, as we would expect. Following the literature on the determinants of refugee flows and emigration more broadly (e.g., Moore and Shellman 2007, Hatton 2009, 2016, Berthélemy et al. 2009, Beine et al. 2016), the vector covers origin-specific characteristics—the so-called push factors. Specifically, we include the lagged log of the stock of all refugees from origin country i in the world (UNHCR 2015), the log of population size, the share of young people in the population (both from World Bank 2016), the log of GDP per capita (World Bank 2016), trade with all donor countries as a share of GDP (IMF 2015), a binary indictor of democracy (Cheibub et al. 2010, updated in Rode and Bjørnskov 2016), an index of economic freedom (Gwartney et al. 2015), an index of human rights (Fariss 2014), a binary variable indicating conflicts with more than 25 battle-related deaths (Gleditsch et al. 2002), and the number of people affected by natural and man-made catastrophes (Guha-Sapir et al. 2016). We also construct an index of donor countries' entry restrictiveness with data from DEMIG (2016) to account for changes in the destination countries' entry restrictions.[21] The measure takes a value of zero for all observations in the base year 1976 and then increases (decreases) by one if the entry restrictiveness of all laws increases (decreases) in a given year. We then take the mean change over all donor countries. We provide detailed definitions of all variables in Appendix B and descriptive statistics in Appendix C.

The resulting estimation dataset covers 141 recipient countries over the 1976-2013 period.[22] We average all data over three years to smooth out yearly fluctuations in our baseline

[20] For a list of donor and recipient countries included in the analysis, see Appendix A.
[21] Bertoli and Fernández-Huertas Moraga (2015) show that immigration policies affect bilateral migration flows.
[22] We only include recipient countries that have at least once been on the "DAC List of ODA Recipients" over the 1997-2013 period. To make our results comparable across model specifications, we restrict the sample in all

regressions, as is common in the aid effectiveness literature,[23] but also show results with yearly data for comparison. We cluster standard errors at the recipient-country level.

While we report conditional correlations between aid and refugee flows for comparison (estimated with OLS), aid and refugee flows are arguably jointly determined by variables we cannot control for in our analysis. What is more, to some extent refugee flows determine the amount of aid a country receives (Czaika and Mayer 2011, Bermeo and Leblang 2015). We therefore rely on instrumental-variables regressions rather than OLS to test our hypotheses. Our instrument for bilateral aid follows Dreher and Langlotz (2017) and is an interaction of a time-variant variable—donor-government fractionalization $FRAC_{j,t}$—and a time-invariant variable that varies at the country-pair level—the probability of receiving aid from a particular donor $\bar{P}_{i,j}$. The resulting interaction thus varies both across time and space. More precisely, we exploit the exogenous variation resulting from a differential effect of donor-government fractionalization for regular and irregular aid recipient (origin) countries. As is well-established in the political-economy literature, donor-government and donor-legislature fractionalization are important determinants of overall government expenditures, due to the logrolling involved when more parties govern in concert (Volkerink and de Haan 2001, Scartascini and Crain 2002). Overall government expenditures in turn determine the size of the aid budget, which then results in positive or negative aid shocks at the recipient-country level (Bertoli et al. 2008, Dreher and Fuchs 2011, Brech and Potrafke 2014). The local average treatment effect (LATE) resulting from the use of donor government fractionalization captures the availability of aid *amounts* that are exogenous to refugee flows. This does not imply that the aid is not used for political reasons or to fight the flows of refugees. We have no reason to believe that larger aid budgets are used in a different way compared to smaller ones (as a result of less fractionalization). However, it is important to acknowledge that our LATE does not capture the effects of endogenous changes in aid, including increases in aid budgets that are caused by refugee flows. This aid might or might not be spent in different ways and could have different effects on refugee flows. The goal of this paper is to identify the effects of exogenous changes in aid on refugee flows.

We measure fractionalization using Beck et al.'s (2001) government fractionalization data for most of the 28 OECD-DAC donor countries. This variable measures the probability

models to those observations included in the regressions that contain all control variables. This choice does not affect our main findings.

[23] See, for example, Dreher and Lohmann (2015) and Galiani et al. (2017). Much of the literature on aid and growth averages over four or five years. We prefer to focus on shorter periods so that we can include deeper lags in our regressions. We return to this below.

that two randomly-chosen deputies from among the parties forming the government represent different parties. In keeping with Dreher and Langlotz (2017), we replace government fractionalization with legislature fractionalization if a country's political system does not yield variation in government fractionalization over time. This is the case for Canada and the United States throughout the entire sample. The United Kingdom and France also stand out, as their political systems rely on majority election rather than proportional representation. But since government fractionalization shows some variation there, we rely on government fractionalization in our main regressions. Below, we test robustness to how we code these four countries in a number of ways, where we (1) replace government fractionalization with legislature fractionalization for the United Kingdom and France, (2) drop the United States and Canada from our sample, and (3) drop the United Kingdom and France in addition to dropping the United States and Canada.

We follow Nunn and Qian (2014) and define the probability of receiving aid from donor j as $\bar{P}_{i,j} = \frac{1}{38}\sum_{y=1}^{38} P_{i,j,y}$, where $P_{i,j,y}$ is a binary indicator variable that is one when recipient i received a positive amount of aid from donor j in year y.

To aggregate our instrument to the recipient-period level, we first generate an IV at the donor-recipient-period level, which we then aggregate over all 28 donor countries. More precisely, we construct an interacted variable $FRAC_{j,t} * P_{i,j}$, where $FRAC_{j,t}$ is the time-varying component and $P_{i,j}$ varies over recipient countries. We then aggregate this variable over all donors j and use the aggregated term as an IV at the recipient-period level. Specifically, the sum $\sum_j FRAC_{j,t} * P_{i,j}$, which varies over recipients i and periods t, is used as our IV for $Aid_{i,t}$ in equation (1). The first-stage regression at the recipient-period level thus becomes:

$$Aid_{i,t}=\beta_1\left(\sum_j FRAC_{j,t} * P_{i,j}\right) + \boldsymbol{X'_{i,t}\beta_2} + \eta_i + \tau_t + \varepsilon_{i,t}, \quad (2)$$

where $X_{i,t}$ is the same set of control variables as in equation (1). After aggregating over all donors, we control for the sum of the levels forming the interaction $\sum_j FRAC_{j,t}$ and $\sum_j P_{i,j}$ by including period-fixed effects τ_t and recipient-fixed effects η_i. The remaining variation in the first-stage regression is then introduced by the interaction term only.

This approach leads to the same results as the "zero-stage procedure" in Dreher and Langlotz (2017). Before running the Two-Stage Least Squares (2SLS) regression at the recipient level, they run a zero-stage regression at the donor-recipient-period level where

bilateral aid is predicted from the exogenous IV—$FRAC_{j,t} * P_{i,j}$—that varies at the dyadic level.[24] Since we have only one dyadic IV in our setting, their approach is equivalent to ours.

While we refer the reader to Dreher and Langlotz (2017) for a more detailed description of our IV, note that the intuition behind it follows the logic of a difference-in-difference approach. We investigate whether there is a differential effect of donor-government fractionalization on the amount of aid given to countries with a high compared to a low probability of receiving aid from this donor. The identifying assumption is that refugee flows from countries with differing probabilities of receiving aid will not be affected differently by changes in donor-government fractionalization, other than via the impact of aid, when controlling for recipient-country- and period-fixed effects. In other words, as in any difference-in-difference setting, we rely on an exogenous treatment and the absence of different pre-trends across groups. Since period-fixed effects capture donor-government fractionalization, fractionalization cannot be correlated with the error term and is thus clearly exogenous to aid. In order for different pre-trends to exist, these trends across countries with a high compared to a low probability of receiving aid would have to vary in tandem with period-to-period changes in donor-government fractionalization. Given that fractionalization follows no obvious trend in our data, we consider this unlikely.

To illustrate the development of our key variables over time, we follow Christian and Barrett (2017) and plot the variation in donor-government fractionalization in concert with the variation in aid as a share of GDP and refugee flows for two different groups that are defined according to the median of the probability of receiving aid. Figure 1 shows these graphs. The results give little reason to believe that the parallel-trends assumption is violated in our case. More precisely, the probability-specific trends in aid and refugee flows, respectively, seem rather parallel across the regular recipients (those with a probability of receiving aid that is above the median) and the irregular recipients (those with a probability of receiving aid that is below the median). There is also no obvious non-linear trend visible for regular compared to irregular recipients that is similar for aid and refugee flows. These trends also do not overlap with the trend in government fractionalization.[25]

[24] This procedure has been applied in the trade and aid literatures to make use of an IV that varies at the dyadic level (e.g., Frankel and Romer 1999, Rajan and Subramanian 2008). In the migration literature, similar procedures are typically applied to instrument migration flows (e.g., Ortega and Peri 2014, Preotu 2016).

[25] As in Dreher and Langlotz (2017), our identification strategy would be at risk in the presence of a non-linear trend in donor-government fractionalization that is similar to the trends in aid and refugee outflows for the group of regular recipients. A common trend in all three variables that is not different for regular and irregular recipients

The exogeneity of our interacted instrument would be violated if changes in donor-government fractionalization affected refugee flows differentially in countries with a high probability of receiving aid compared to countries with a low probability of receiving aid for reasons unrelated to aid. Fractionalization is arguably correlated with a large number of other variables. For example, fractionalization could be correlated with trade volumes. Potentially, frequent recipients of aid are also those with close trade ties. This could imply that any differential effects of aid on refugee flows that we observe could result from trade rather than aid. To address this concern, we included trade with donor countries as a share of GDP among the set of control variables introduced above.[26]

One might also argue that refugee flows could affect donor-government fractionalization, for example because they give rise to additional (populist) parties. However, even when the number of parties increases as a consequence of refugee inflows, this does not have to hold for the number of parties in parliament, let alone in government. Typically, new parties instead replace established ones, in parliament and government. In any case, our period-fixed effects control for donor-government fractionalization.[27] What is more, a skeptical reader could argue that donor-government fractionalization might have different effects on refugee flows depending on whether the recipient is a regular or irregular recipient of aid. When donor countries increase their expenditures following increased fractionalization, they might become more attractive to refugees as a potential destination. This effect is arguably more pronounced for populations from countries that are well-connected with the donor (which could be correlated with the probability of receiving aid). Given that the fractionalization-induced increase in expenditures typically caters to special interests in particular, we consider this possible, but unlikely. Finally, aid might affect developmental policies and outcomes that in turn affect the outflow of refugees. For example, as will be seen below, we consider our instrumental variable valid as an instrument for aid for a range of dependent variables (like economic growth) that we expect to affect refugee flows. Endogeneity via such transmission

would be captured by our time-fixed effects. We also run a placebo test of our instrument by regressing aid as a share of GDP on future values of donor-government fractionalization. We instrument Aid/GDP in t-z with the IV in t-z+1, starting with z=1 (L1) and ending with z=5 (L5). As expected, the Kleibergen-Paap F statistics fall below the critical value of 8.96 for a maximum bias in the IV of less than 15 percent, indicating the lack of power of future values of the IV.

[26] We obtain the same qualitative results when we replace trade with donor countries by a recipient country's total trade as a share of its GDP. Our conclusions also hold when we control for foreign direct investments or remittances as well. These results are available on request.

[27] An effect of refugee flows on fractionalization is plausible at times of large inflows only. In our robustness section below, we therefore test whether our results are driven by these observations. They are not.

channels of aid does not threaten the identification of the total, direct and indirect, effect of aid on refugee flows.

The regression results of Equation (1) with the IV strategy summarized in Equation (2) provide us with causal estimates of the effect of aid on a country's total refugee *out*flows, i.e., they help us to answer the question of whether aid is successful in reducing refugee flows independent of the destination. To address the question of whether aid donors are successful in reducing the level of refugee inflows they experience, we estimate a variant of Equation (1) where we replace $Ref_{i,t}$ with $Ref_{OECD,i,t}$, which we define as the natural logarithm of net refugee flows from origin country i to OECD-DAC donor countries (data from UNHCR 2015) in a period t.[28]

4. RESULTS

4.1 Main Results

We present our main results in two sets of regressions. While the first focuses on the effect of the total amount of aid disbursed in recipient countries on the number of refugees leaving the country (to any destination), the second investigates refugee flows to OECD-DAC donor countries. We show the results on total refugee outflows in Table 1. Column 1 reports the unconditional effect of aid on refugee flows obtained with OLS. As can be seen, there is a significant and negative correlation between aid and the number of refugees. This should not be interpreted as evidence of a negative causal effect of aid on refugee outflows, of course. Endogeneity is likely to be eminent. Since aid donors may avoid fragile countries that are a typical source of refugees, our finding of a negative coefficient on aid may be spurious (e.g., Chauvet and Collier 2006, Besley and Persson 2011). Omitted-variables bias looms large. Indeed, column 2 shows that once we take account of the endogeneity of aid in our 2SLS regressions, the coefficient of aid turns positive and is no longer statistically significant at conventional levels. Overall aid—measuring the net result of a plethora of different channels with opposite effects—does not measurably affect refugee flows. The first-stage F statistic

[28] At this level of analysis, we lose two years, as the UNHCR refugee dataset does not include any flows to the 28 DAC donor countries before 1979. In a previous version of this paper we also included a dyadic donor-recipient-period analysis. Focusing on single destination countries—many of which are not among the main destinations of refugees—for each country of origin ledt to a substantial increase in missing observations. We found no robust results and therefore excluded this analysis.

given in the table is well above the critical value of 8.96 for a maximum bias in the IV of less than 15 percent and thus demonstrates the power of our instrument (Stock and Yogo 2005).

Columns 3 and 4 include the control variables. Reflecting an important push factor, we find refugee outflows to decrease with higher respect of human rights in countries of origin. This corroborates the conclusion in Hatton (2016: 444) according to which "political terror and human rights are at the heart of refugee flights." According to the IV regression (shown in column 4), outflows increase with population size and per-capita income, which suggests that richer countries and those with larger populations have a larger stock of potential refugees. None of the other control variables reaches statistical significance at conventional levels. Most importantly, the coefficient of aid is of similar magnitude including or excluding our control variables, which implies that the potential effects of aid on these variables do not substantially bias the coefficient of aid in either direction. While the correlation between aid and refugee flows stays negative and significant (column 3, OLS), there is no causal effect of aid on refugee outflows (column 4, 2SLS) in the short run.

Panels A of Table 2 and Figure 2 turn to the timing of aid. We test whether aid affects refugee flows after longer time lags, based on the 2SLS regressions, and instrumenting aid with the appropriate lags of our instrument. The data in Table 2 are again averages over three-year periods, while Figure 2 shows results with annual values for comparison.[29] The results show some evidence that aid reduces refugee flows—but only after four three-year time periods, or eleven years.[30] Specifically, at the ten-percent level, the number of refugee flows decreases by more than a quarter with an increase in aid by one percent of GDP four periods earlier.[31] While this effect seems very large at first sight, one has to put this into perspective since refugee flows are very volatile with a standard deviation of 3.74 and a mean of 3.06. This implies that a one-percentage-point change in *Aid/GDP* only leads to a 9 percent change of a standard deviation in *(log) Refugee Flows Worldwide.* Results are similar when we lag aid by an additional three-year period (column 5), both quantitatively and in terms of statistical significance. Potentially, the aid becomes effective in improving development outcomes and altering migration policies with substantial delay, which in turn reduces refugee flows. We return to the analysis of potential mechanisms below.

[29] In this and further regressions we do not include the control variables. Our exclusion restriction arguably holds without them and we prefer to avoid introducing bias by including potentially endogenous controls over the increase in efficiency resulting from their inclusion. Our results do not depend on this decision.
[30] Note that in the yearly analysis the first lag is positive, at the ten-percent level of significance.
[31] exp(-0.326)-1= -0.278.

We proceed in narrowing the lens and focus on refugee flows to OECD-DAC donor countries rather than the total outflow of refugees. These regressions more directly address the "benefits" of aid to the donor countries. Panels B of Table 2 and Figure 2 show the results, in analogy to those in the respective panel A. We find that more refugees come to the OECD when aid increases, after one, two and three three-year periods (Table 2). According to the estimates, a one-percentage-point increase in aid as a share of GDP increases refugee outflows by between 43 and 52 percent. Again, the effect seems very large. However, when considering the high standard deviation of the *(log) Refugee Flows OECD* (3.18 with a mean of 2.97), the effect size turns out to be more reasonable. A one-percentage-point change in *Aid/GDP* leads to an 11 percent change of a standard deviation in *(log) Refugee Flows OECD*. The coefficient however drops in size and becomes statistically insignificant after one additional lag, and turns negative and significant after five three-year periods, in line with the results for total refugee flows reported above. Overall, these results imply that more rather than fewer refugees come to the donors of aid in the short and medium term. Only after 15 years do refugee flows decrease (see Panel B of Table 2, column 5 and Figure 2).

A number of explanations fit the observed pattern of short-run positive effects of aid on refugee flows to donor countries. First, if aid is effective in promoting development, increases in income could enable refugees to flee to destinations that are more distant rather than to neighboring countries. We test this mechanism below. Second, if aid improves the donors' image in recipient countries (Brückner et al. 2017, Tokdemir 2017, Dietrich et al. 2018), it could fuel emigration intentions and make Western countries more attractive destinations relative to the refugees' home region.[32] And third, those parts of the aid that are spent in donor rather than recipient countries might make it more appealing to seek refuge there, increasing the inflow of refugees.[33]

In summary, we find that aid increases the number of refugees in donor countries in the short run but there is no immediate effect on worldwide refugee outflows. In the longer run, however, aid appears to be successful in reducing refugee flows, both to donor countries and overall. We now turn to testing the potential channels that might drive these findings.

[32] When we correlate average aid receipts with the recipient populations' view of the United States (based on data from the Pew Research Center), the correlation is positive and significant, but low (0.24). Correlation with aid from the United States is even negative. However, we only have data for 41 countries, so these correlations can only be suggestive.

[33] The OECD-DAC provides data that would allow us to calculate the share of aid spent in donor countries only since 1995 for commitments and since 2002 for disbursements, so we do not test this channel.

4.2 Exploring the Mechanisms

Table 3 tests a number of potential mechanisms for our results. We start by investigating whether aid affects the push factors of migration. Specifically, we estimate its effects on GDP per capita growth, a binary variable indicating conflict and/or war events with more than 25 battle-related deaths, and an index capturing respect of human rights, where higher values indicate a better human-rights situation in the country of origin.[34] To the extent that aid promotes economic development (proxied by the growth rate of per-capita GDP), refugee outflows could either increase (because more people have the means to leave their country) or decrease (when growth reduces misery or repression). As the true motive for migration or refuge cannot be disclosed, a part of refugees is likely motivated by economic reasons rather than persecution or by a combination of both. Therefore we can expect economic development to reduce the number of people applying for recognition as a refugee. The occurrence of war and conflict, and human-rights violations should trigger more refugees to leave their country of origin.

We use the same instrument for aid as in the main analysis. Given that the variables we investigate here are transmission channels for how aid affects refugee outflows, this does not violate the exclusion restriction. In other words, we acknowledge that donor-government fractionalization might have a differential effect on refugee flows in regular and irregular recipients of aid via its effect on economic growth and the other mechanisms we investigate here. The coefficients of aid in the main regressions above thus capture the combined direct and indirect effects on refugee flows.

In line with the results in Dreher and Langlotz (2017), we find that aid has no effect on economic growth in the short run (panel A). It is only after three three-year periods that aid's effect of increasing growth is seen.[35] Strikingly, the timing of this effect resembles the lagged negative effects of aid on refugee flows revealed in Table 2. This evidence is in line with the idea that aid addresses some root causes of development. However, since the positive effects of aid on refugee outflows are lagged, aid does not reduce refugee flows in the short term. Turning to our results for conflict (panel B) and human rights (panel C), we do not observe significant

[34] The data are taken from the World Bank (2015), Gleditsch et al. (2002), and Fariss (2014). Appendix B provides detailed definitions.
[35] This is in line with results in Dreher and Langlotz (2017) who report that aid increases growth with a lag of 12 years (but do not investigate these longer-term effects in any detail).

effects. This is in line with some parts of the previous literature (de Ree and Nillesen 2009, Dreher and Gehring 2012, Ahmed and Werker 2015, Bluhm et al. 2016), but not others (Crost et al. 2014, Nunn and Qian 2014).[36]

We also provide suggestive evidence on the effects of aid on policy. As described above, donors use aid to buy policy concessions from countries of origin—to block borders for refugees and to repatriate its citizens in refuge. We therefore test whether aid induces policy changes in the countries receiving the aid. In panel D of Table 3, we estimate how aid affects a binary indicator that is one if the origin country's government has adopted policies that facilitate the return of its citizens to their home country. In order to do so, we rely on data from the United Nations' Department of Economic and Social Affairs (UN 2017). Since these data cover only 10 years in the 1976-2013 period, we carry forward the values to fill the gaps. Nevertheless, this database is to our knowledge the only source of data that covers a sufficiently long time series for a large number of countries. Using the same data source, panel E looks also at a binary variable that takes a value of one if the country of origin has policies in place that aim to reduce emigration.

According to the results of panels D and E, while aid does not seem to significantly affect emigration policies, we find that a one-percentage-point increase in aid as a share of GDP increases the probability that the government receiving the aid has adopted policies or programs to encourage the return of its citizens living abroad by 5.7 percentage points in the following period, at the ten-percent level of significance. This finding offers tentative evidence of an effect on return policies. It fits well with our main finding that aid reduces refugee flows in the long run to the extent that such policies need time to be successfully implemented and to affect citizens' willingness and ability to return to their country of origin.

We next examine whether aid redirects potential refugees into neighboring countries and into other parts of their country of origin. We start by investigating how aid to the origin's neighbor countries affects the number of refugees overall, and to the donor countries. These specifications thus test whether the evidence is compatible with the hypothesis that aid is used

[36] Bluhm et al. (2016) show that bilateral aid raises the probability of escalating from a small conflict to armed conflict. Small conflicts include government purges, assassinations, riots, and guerrilla warfare where the number of annual battle-related deaths does not exceed 25. However, in line with our findings, the authors find no effect of development aid on conflict if conflict is defined by reaching a threshold of 25 or 1,000 battle-related deaths per year.

to induce neighboring countries to block or host refugees.[37] We estimate regressions including average aid received by all countries *n* that share a border with country *i*, as a share of their GDP ("Mean Neighbor Aid/GDP"), in addition to aid as a share of GDP to country *i*. We instrument neighbor aid with the interaction of donor-government fractionalization and the probability that a neighbor receives aid from a donor. We use a zero-stage regression at the neighbor-recipient-donor-year level. We then collapse predicted aid to the neighbor countries by taking the mean of all neighbors *n* for each donor-recipient pair. Our instrument is then the mean of predicted bilateral aid as a share of GDP of an origin country's neighbors received from a specific donor in year *t*, which we again average over three-year periods. We use total bilateral aid from all donors, resulting in the sum of the predicted mean neighbor aid from all donors of all neighbors of each country *i*.

The results in panel A of Table 4 show that aid to neighbor countries reduces refugee flows worldwide in the first and second three-year period; panel B shows similar results when we focus on refugee flows to the OECD exclusively.[38] Our results are thus in line with the hypothesis that foreign aid induces countries bordering the refugees' homes to block some of the refugees from leaving their country. Our results also show that aid to neighbors increases refugee flows in the longer run. Potentially, to the extent that aid promotes development there, it becomes comparably easier and more attractive to leave one's country and take refuge in a neighbor country.

Panel C focuses on internally displaced people rather than refugees. We use data on the (log) number of people displaced in their own country over the 1976-2008 period (Marshall n.d.).[39] We find that a one-percentage-point jump in aid increases the number of internally displaced people by 28 percent, at the one-percent level of significance. We find similar results for the second and third lag of the three-year period and insignificant coefficients for deeper

[37] As one example, the European Union provides Niger with almost EUR 600 million in budget support over the 2014-2020 period, "which is one of the highest amounts per capita among African, Caribbean and Pacific (ACP) countries." Among others, these funds are given to "support Niger to better manage migration flows, through improved border management and increased support to fight against trafficking and smuggling networks." As a consequence of European pressure, Niger passed a law that criminalizes people-smuggling, which has contributed to reducing the number of refugees departing from neighboring Libya (see European Commission Fact Sheet on Development Cooperation with Niger, 5.11.2015, http://europa.eu/rapid/press-release_MEMO-15-5988_en.pdf and https://www.economist.com/news/international/21709019-flow-africans-libya-italy-now-europes-worst-migration-crisis-travelling, accessed February 6, 2018).

[38] The two instrumental variables are powerful as indicated by the first-stage F statistics. It is only in column 3 that the F statistic falls slightly below the critical value of 4.58 for a maximum bias in the IV of less than 15 percent.

[39] Negative flows of internally displaced people are replaced by zero, following the procedure also applied to negative refugee flows described above. Our results are qualitatively similar when we focus on net changes in displaced people rather than the log (results available on request).

lags. Overall, our results thus show that while aid increases refugee outflows to donor countries in the short run, the number of internally displaced people increases during the first three three-year periods as well. Potentially, the two go hand-in-hand. Aid appears to enable people to escape imminent threats to their lives—to international and domestic destinations. This finding is also in line with the idea that aid enables local governments to build refugee camps domestically, which should incentivize citizens suffering from humanitarian crises to seek refuge within their own country.

Finally, panel D turns to humanitarian aid. While we found no evidence that general development aid reduces refugee flows in the short run, we aim to investigate whether humanitarian aid is more successful in providing immediate relief. Specifically, we interact aid with the share of aid that is intended for humanitarian projects.[40] We include our instrument from the main analysis and add its interaction with the share of humanitarian aid as a second instrument. As can be seen, the results provide evidence that humanitarian aid is more effective in reducing refugee flows in the short run, compared to general development aid. More precisely, we find that aid reduces refugee outflows as long as the share of humanitarian aid exceeds nine percent of total ODA receipts.[41] In line with Dreher et al. (2016), this result provides support for the notion that the purpose of aid matters for its effectiveness.

In summary, we find some evidence that aid has immediate effects on repatriation policies, and longer-run effects on economic growth. Aid to neighboring countries reduces refugee outflows in the short run, both worldwide and to the donor countries. Aid increases the number of internally displaced people. Finally, we find that the effectiveness of aid in decreasing total refugee outflows increases with the share of humanitarian aid in all aid.

4.3 Tests for Robustness

Table 5 tests the robustness of our main findings in several ways. First, we change the definition of our instrument as introduced above. Specifically, we replace government fractionalization with legislature fractionalization for the United Kingdom and France in panel A, drop the United States and Canada in panel B, and drop the United Kingdom and France in addition to

[40] The OECD defines humanitarian aid as emergency response, reconstruction relief and rehabilitation, as well as disaster prevention and preparedness (CRS sector "700 – VIII. Humanitarian Aid, Total").
[41] This is the case for 72 of 1,386 country-period pairs in our sample, including at least one time period for 38 of 141 countries covered.

dropping the United States and Canada in panel C. The results confirm our main finding of a long-run negative effect of aid on refugee flows worldwide.

Second, we change the definition of our dependent variable. In panel D, we cover asylum seekers in addition to refugees—persons claiming refugee status, in addition to those that have already obtained it. In line with our findings and explanations above, we do not find short-term effects of aid on flows of asylum seekers and refugees. However, the negative effect of aid on refugees is already visible after two three-year periods. As asylum seekers have not (yet) gone through the lengthy administrative procedures to become recognized refugees, the observed accelerated effect is not surprising. In panel E, we use net refugee flows per 100,000 people as the dependent variable instead of logged net refugees. While taking logs is standard in the literature, this alternative measure comes with the advantage that we can account for negative net refugee flows. The results confirm our main conclusion of long-term effects of aid on refugee flows.

Third, we test whether the effect of aid is non-linear rather than linear (see Clemens 2014, Dao et al. 2017). We instrument aid squared with the square of predicted aid to GDP from the first-stage regression, following Wooldridge (2010: 268). We find no evidence of a non-linear effect of aid one or two three-year periods after the aid is disbursed. The only substantial difference compared to our main results above materializes three periods after disbursement. We find that aid reduces refugee flows after three periods given that it exceeds 20.5 percent of GDP, which is the case for 28 of 1,149 country-year pairs.

Fourth, we test the robustness of our main result in Table 1 to the exclusion of (i) one country or (ii) one period at a time. As can be seen from Figures D.1 and D.2 in Appendix D, our findings are not driven by any particular country or special period of time.

Finally, we "winsorize" *(log) Refugee Flows* and *Aid/GDP* at the 99^{th} and 95^{th} percentile of their distributions. That is, we replace the largest values of these variables by their values at the respective percentile. By reducing the values for refugee flows, in particular, we test whether our results hold in "normal" times, or depend on the inclusion of large outlying values at times of refugee crises. As can be seen in Figures D.3 and D.4, our results remain very similar.

5. CONCLUSIONS

While previous work analyzed the link between foreign aid and migration broadly defined, this is the first study to systematically investigate the causal effects of aid on refugee flows.

Specifically, we analyzed whether and to what extent inflows of foreign aid reduce the outflows of refugees from countries receiving the aid. We also examined the "benefits" from a donor perspective by examining whether aid reduces refugee flows to the group of OECD-DAC donor countries. Our results over the 1976-2013 period show no robust effect of total aid inflows on total refugee outflows in the short run. Only with very long lags of eleven years or more does aid reduce refugee outflows. In the short run, donor countries even experience increases in refugee inflows. However, we find that aid reduces the number of refugees already in the short run provided the share of humanitarian aid in total aid exceeds nine percent. Analyzing the underlying mechanisms, our results are in line with the idea that aid's long-run refugee-reducing effects are driven by its delayed positive effects on economic growth. The short-run positive effects of aid on refugee flows to donor countries could be driven by an improved image of donor countries through aid. While we cannot formally test this last mechanism due to lack of data, such an effect would be in line with recent findings on the link between aid and donor perceptions (Brückner et al. 2017, Tokdemir 2017, Dietrich et al. 2018).

We also tested whether aid is used to change the recipients' migration policies. Our results show that aid induces recipient governments to make it easier for refugees to repatriate. Finally, we investigated whether donors use their aid to induce countries close to those in crises to accept larger flows of refugees than they would otherwise receive. As de Haas (2008: 1316) notes, "many African states seem to adopt a strategy of paying lip service to Europe's 'fight against illegal immigration' to varying degrees, while using the migration issue as a bargaining chip in negotiating aid […]." Our results show that aid given to a country's neighbors indeed reduces refugee flows to the donor countries and worldwide.

Our results have important implications for how (not) to respond to refugee crises and the ongoing European refugee crisis in particular. They clearly show that general development aid to countries in crisis cannot be expected to reduce refugee flows in the short run, but might rather lead to a larger number of refugees in donor countries. Donors allocate aid in response to crises in three different ways. They disburse aid to countries directly hit by the crises, spend it in their own country on projects related to the inflow of refugees, and support third countries to block or absorb refugees. To increase the effectiveness of aid in achieving these goals, policymakers interested in fast results should either give aid in the form of humanitarian assistance or spend it in the origin countries' neighborhood rather than directly in countries of origin. The findings that aid increases the number of internally displaced people and that aid to the neighboring countries reduces refugee flows could also indicate that refugees are—in the

worst case involuntarily—stuck in their own country. In the eyes of a person that seeks refuge, this could thus rather mean the opposite of effectiveness.

On the contrary, less shortsighted policymakers could be well advised to increase development aid to respond—or ideally to prevent—refugee crises. While politicians are unlikely to witness the benefits in terms of reduced refugee inflows during their time in office, development aid may enable refugees to stay at home through its long-term effects on economic growth. This is a preferred outcome from a development perspective and is likely to match with refugees' preferences. In the Syrian case, for example, only 8.4 percent of refugees state that they "don't want to go back to Syria in the future."[42]

Our paper focused on bilateral aid flows from Western bilateral donors. Future research could also study the link between refugee flows and support from other donors. Multilateral institutions such as UNHCR or the European Union are important providers of aid to crises-prone areas. What is more, a comparison of Western aid with aid from emerging economies, such as China or India, deserves attention as development finance and emergency relief from so-called non-traditional actors increases.

[42] See https://www.adoptrevolution.org/wp-content/uploads/2016/03/Data_complete_-1840_151006.pdf (accessed 28 November 2017).

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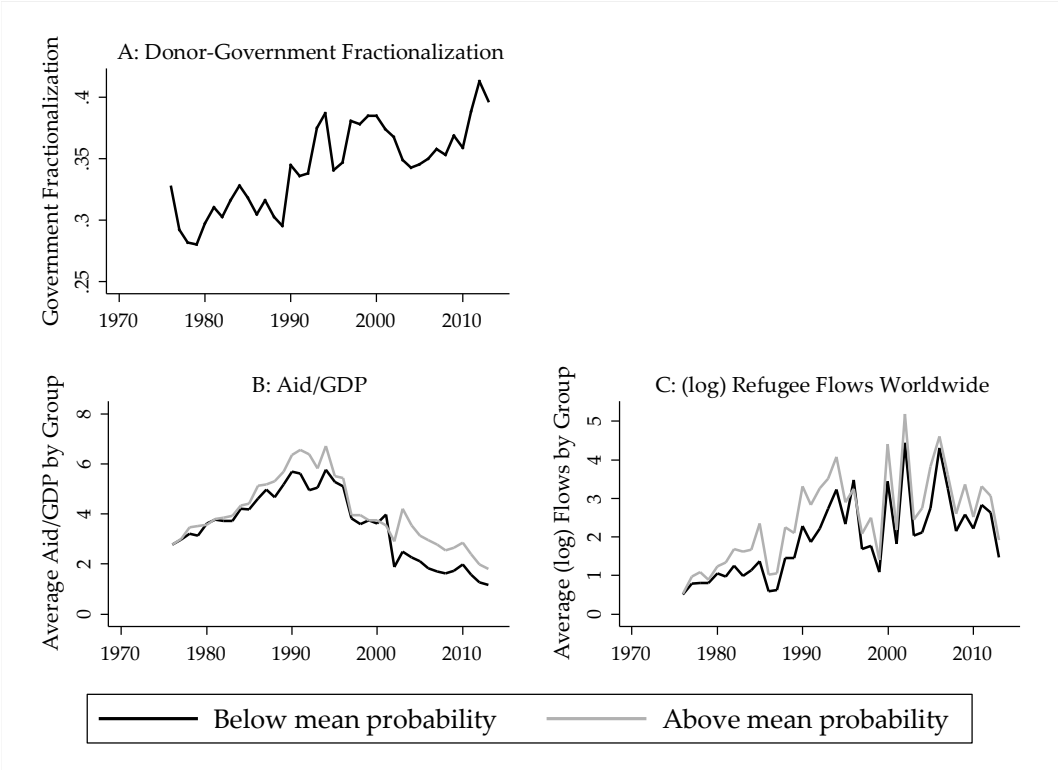
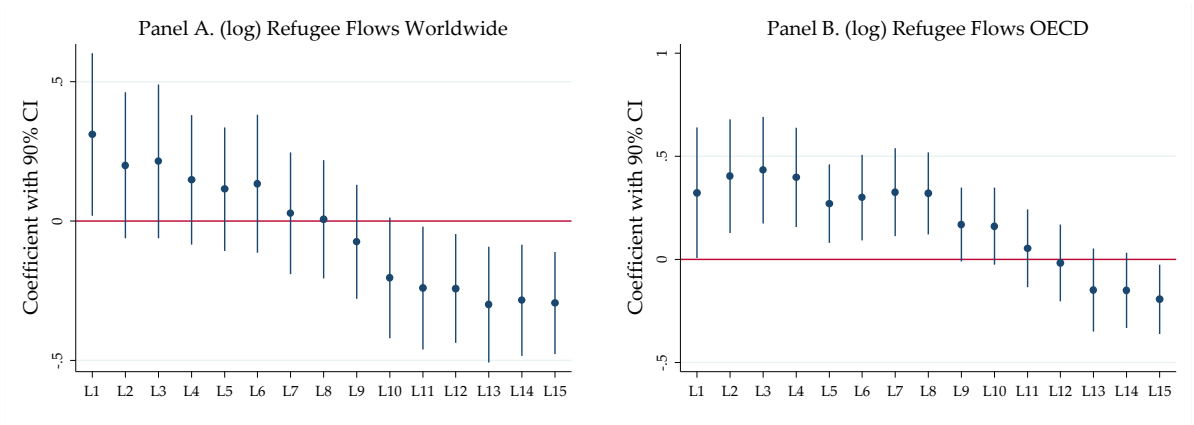
Figure 1: Test of the Parallel-trends Assumption



Notes: Panel A shows donor-government fractionalization over time. Panel B shows the average aid-over-GDP ratio within the group that is below the median of the probability of receiving aid and the group that is above the median over time. Panel C shows the average (log) outflow of refugees within these two groups over time. For the construction of the averages we use observations from the sample of Table 1.

Figure 2: Refugee Flows and Official Development Assistance (annual data, 2SLS, 1976/79-2013)



Notes: The figure summarizes the results of 30 regressions. The dependent variable is *(log) Refugee Flows Worldwide* in panel A and *(log) Refugee Flows OECD* in panel B. Each point in the figure represents the coefficient on *Aid/GDP*, *t-z* where we replicate Table 2 with annual data, starting with *z*=1 (L1) and ending with *z*=15 (L15). Kleibergen-Paap F statistics are above 13 in all regressions in panels A and B (with the exception of the regression with a one-year lag in panel B where the Kleibergen-Paap F statistic is 9.269). Detailed regression results are available on request.

Table 1: Refugee Flows Worldwide and Official Development Assistance (1976-2013)

	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS
Aid/GDP, t-1	-0.110**	0.277	-0.108**	0.173
	(0.043)	(0.209)	(0.046)	(0.208)
(log) Total Refugee Stock, t-1			0.002	0.022
			(0.055)	(0.060)
(log) Population, t-1			1.343	2.095*
			(0.921)	(1.148)
Share of Young Population, t-1			-0.010	-0.000
			(0.055)	(0.054)
(log) GDP p.c., t-1			0.708	1.736*
			(0.560)	(0.891)
Trade/GDP, t-1			0.000	-0.002
			(0.001)	(0.002)
Democracy, t-1			-0.087	-0.275
			(0.472)	(0.519)
Economic Freedom, t-1			0.030	0.013
			(0.327)	(0.352)
Human Rights, t-1			-1.457***	-1.396***
			(0.265)	(0.278)
Conflict/War, t-1			0.343	0.460
			(0.546)	(0.563)
(log) Disaster Affected, t-1			0.007	-0.001
			(0.025)	(0.027)
Donor Entry Restrictiveness, t-1			-2.705	-3.220
			(2.553)	(2.559)
Observations	1386	1386	1386	1386
Kleibergen-Paap F stat.		19.206		15.242

Notes: The dependent variable is *(log) Refugee Flows Worldwide*. Standard errors (clustered at the recipient-country level) in parentheses; period-fixed effects and recipient-fixed effects included; significance levels: * 0.10, ** 0.05, and *** 0.01.

Table 2: Refugee Flows and Official Development Assistance (timing, 2SLS, 1976/79-2013)

	(1)	(2)	(3)	(4)	(5)
	Panel A. (log) Refugee Flows Worldwide				
	1-period	**2-period**	**3-period**	**4-period**	**5-period**
Aid/GDP, t-*z*	0.277	0.033	-0.057	-0.326*	-0.348*
	(0.209)	(0.175)	(0.191)	(0.174)	(0.199)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422
	Panel B. (log) Refugee Flows OECD				
	1-period	**2-period**	**3-period**	**4-period**	**5-period**
Aid/GDP, t-*z*	0.357*	0.405***	0.417**	0.069	-0.331*
	(0.188)	(0.145)	(0.164)	(0.142)	(0.196)
Observations	1304	1271	1149	1021	890
Kleibergen-Paap F stat.	14.106	20.545	13.126	16.337	17.422

Notes: The dependent variable is *(log) Refugee Flows Worldwide* in panel A and *(log) Refugee Flows OECD* in panel B. Standard errors (clustered at the recipient-country level) in parentheses; period-fixed effects and recipient-fixed effects included; significance levels: * 0.10, ** 0.05, and *** 0.01.

Table 3: Exploration of Mechanisms I (2SLS, 1976-2013)

	(1)	(2)	(3)	(4)	(5)
	1-period	**2-period**	**3-period**	**4-period**	**5-period**
	Panel A. GDP p.c. Growth				
Aid/GDP, t-z	0.270	0.262	0.527*	0.533**	0.671**
	(0.313)	(0.295)	(0.304)	(0.239)	(0.274)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422
	Panel B. Conflict/War				
Aid/GDP, t-z	-0.007	0.007	-0.018	-0.026	-0.015
	(0.018)	(0.017)	(0.019)	(0.018)	(0.014)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422
	Panel C. Human Rights				
Aid/GDP, t-z	-0.095	-0.090	-0.023	0.031	0.063
	(0.063)	(0.058)	(0.053)	(0.044)	(0.042)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422
	Panel D. Return Policy				
Aid/GDP, t-z	0.057*	0.061*	0.060	0.073	0.058
	(0.032)	(0.035)	(0.045)	(0.046)	(0.041)
Observations	1337	1230	1116	996	874
Kleibergen-Paap F stat.	15.511	15.007	7.707	9.769	12.977
	Panel E. Emigration Policy				
Aid/GDP, t-z	-0.002	-0.010	-0.003	0.006	0.004
	(0.011)	(0.009)	(0.010)	(0.011)	(0.010)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422

Notes: The dependent variable is indicated in the header of each panel. Standard errors (clustered at the recipient-country level) in parentheses; period-fixed effects and recipient-fixed effects included; significance levels: * 0.10, ** 0.05, and *** 0.01.

Table 4: Exploration of Mechanisms II (2SLS, 1976/79-2013)

	(1)	(2)	(3)	(4)	(5)
	1-period	**2-period**	**3-period**	**4-period**	**5-period**
	Panel A. (log) Refugees Flows Worldwide				
Mean Neighbor Aid/GDP, t-z	-0.376**	-0.362*	-0.161	0.340	1.065*
	(0.183)	(0.199)	(0.207)	(0.337)	(0.620)
Aid/GDP, t-z	0.451	0.204	0.032	-0.497*	-0.860*
	(0.276)	(0.236)	(0.240)	(0.291)	(0.501)
Observations	1378	1263	1140	1012	881
Kleibergen-Paap F stat.	6.858	7.034	4.220	4.877	5.215
	Panel B. (log) Refugees Flows OECD				
Mean Neighbor Aid/GDP, t-z	-0.207*	-0.216*	-0.199	0.200	0.582*
	(0.120)	(0.130)	(0.191)	(0.233)	(0.327)
Aid/GDP, t-z	0.460**	0.510***	0.529**	-0.028	-0.611*
	(0.226)	(0.186)	(0.235)	(0.207)	(0.334)
Observations	1297	1263	1140	1012	881
Kleibergen-Paap F stat.	5.286	7.034	4.220	4.877	5.215
	Panel C. (log) Flow Internally Displaced				
Aid/GDP, t-z	0.248***	0.153*	0.258**	0.054	0.049
	(0.091)	(0.084)	(0.118)	(0.070)	(0.086)
Observations	1218	1103	981	853	722
Kleibergen-Paap F stat.	22.428	22.034	14.075	19.576	16.308
	Panel D. (log) Refugees Flows Worldwide (Interaction with Share Humanitarian)				
Aid/GDP, t-z	0.275	0.055	-0.043	-0.343*	-0.403*
	(0.209)	(0.183)	(0.200)	(0.194)	(0.224)
Aid/GDP * Share Humanitarian, t-z	-3.068*	-1.529	-0.865	1.299	2.934
	(1.691)	(1.170)	(1.066)	(1.944)	(3.179)
Share Humanitarian, t-z	13.868*	1.816	1.443	-9.276*	-14.767*
	(7.740)	(4.767)	(4.792)	(5.483)	(8.608)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	10.391	10.280	6.704	7.901	8.517

Notes: The dependent variable is indicated in the header of each panel. Standard errors (clustered at the recipient-country level) in parentheses; period-fixed effects and recipient-fixed effects included; significance levels: * 0.10, ** 0.05, and *** 0.01.

Table 5: Refugee Flows Worldwide and Official Development Assistance (robustness tests, 2SLS, 1976-2013)

	(1)	(2)	(3)	(4)	(5)
	1-period	**2-period**	**3-period**	**4-period**	**5-period**
	Panel A. Alternative IV for UK and France				
Aid/GDP, t-z	0.317	0.045	-0.084	-0.324*	-0.322
	(0.222)	(0.173)	(0.188)	(0.176)	(0.196)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	17.332	20.697	14.173	16.444	18.110
	Panel B. Drop US and Canada				
Aid/GDP, t-z	0.273	0.026	-0.067	-0.358*	-0.395*
	(0.211)	(0.174)	(0.194)	(0.187)	(0.213)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.395	20.930	12.778	15.436	15.905
	Panel C. Drop US, Canada, UK, and France				
Aid/GDP, t-z	0.272	0.003	-0.067	-0.348*	-0.421**
	(0.195)	(0.164)	(0.186)	(0.185)	(0.212)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	20.243	23.105	14.088	15.922	16.359
	Panel D. (log) Refugees+Asylum Seeker Flows Worldwide				
Aid/GDP, t-z	-0.088	-0.414*	-0.211	-0.460**	-0.366*
	(0.267)	(0.229)	(0.201)	(0.200)	(0.192)
Observations	1135	1104	1065	937	806
Kleibergen-Paap F stat.	10.090	18.341	13.520	17.180	20.065
	Panel E. Refugees Flows per 100,000 Inhabitants				
Aid/GDP, t-z	-29.168	-19.200	-62.503	-86.522*	-88.665
	(38.313)	(48.810)	(64.900)	(51.687)	(60.773)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat.	19.206	20.545	13.126	16.337	17.422
	Panel F. Squared Aid Terms				
Aid/GDP, t-z	0.289	0.136	0.149	-0.153	-0.340*
	(0.203)	(0.191)	(0.222)	(0.173)	(0.177)
Aid/GDP squared, t-z	-0.000	-0.004	-0.007*	-0.006**	-0.000
	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)
Observations	1386	1271	1149	1021	890
Kleibergen-Paap F stat. linear	19.206	20.545	13.126	16.337	17.422
Kleibergen-Paap F stat. squared	6.887	14.206	13.819	19.208	24.455

Notes: The dependent variable is *(log) Refugee Flows Worldwide* in panels A-C and F, *(log) Refugees+Asylum Seeker Flows Worldwide* in panel D, and *Refugees Flows per 100,000 Inhabitants* in panel E. Standard errors (clustered at the recipient-country level) in parentheses; period-fixed effects and recipient-fixed effects included; significance levels: * 0.10, ** 0.05, and *** 0.01.

Appendix A: List of Countries (in alphabetic order)

Recipient countries (origin countries)			
1 Afghanistan	37 Cuba	73 Lebanon	109 Senegal
2 Albania	38 Cyprus	74 Lesotho	110 Seychelles
3 Algeria	39 Cote d'Ivoire	75 Liberia	111 Sierra Leone
4 Angola	40 Djibouti	76 Libya	112 Singapore
5 Antigua and Barbuda	41 Dominican	77 Macedonia	113 Solomon Islands
6 Argentina	42 Ecuador	78 Madagascar	114 South Africa
7 Armenia	43 Egypt	79 Malawi	115 Sri Lanka
8 Azerbaijan	44 El Salvador	80 Malaysia	116 St Lucia
9 Bahamas	45 Equatorial Guinea	81 Maldives	117 St Vincent &
10 Bahrain	46 Eritrea	82 Mali	118 Sudan
11 Bangladesh	47 Ethiopia	83 Malta	119 Suriname
12 Barbados	48 Fiji	84 Mauritania	120 Swaziland
13 Belarus	49 Gabon	85 Mauritius	121 Tajikistan
14 Belize	50 Gambia	86 Mexico	122 Tanzania
15 Benin	51 Georgia	87 Micronesia	123 Thailand
16 Bhutan	52 Ghana	88 Moldova	124 Timor-Leste
17 Bolivia	53 Grenada	89 Mongolia	125 Togo
18 Bosnia and Herzegovina	54 Guatemala	90 Morocco	126 Tonga
19 Botswana	55 Guinea	91 Mozambique	127 Trinidad and Tobago
20 Brazil	56 Guinea-Bissau	92 Namibia	128 Tunisia
21 Brunei	57 Guyana	93 Nepal	129 Turkey
22 Burkina Faso	58 Haiti	94 Nicaragua	130 Turkmenistan
23 Burundi	59 Honduras	95 Niger	131 Uganda
24 Cambodia	60 India	96 Nigeria	132 Ukraine
25 Cameroon	61 Indonesia	97 Oman	133 United Arab Emirates
26 Cape Verde	62 Iran	98 Pakistan	134 Uruguay
27 Central African Republic	63 Iraq	99 Panama	135 Uzbekistan
28 Chad	64 Israel	100 Papua New Guinea	136 Vanuatu
29 Chile	65 Jamaica	101 Paraguay	137 Venezuela
30 China	66 Jordan	102 Peru	138 Vietnam
31 Colombia	67 Kazakhstan	103 Philippines	139 Yemen
32 Comoros	68 Kenya	104 Qatar	140 Zambia
33 Congo, Dem.Rep.	69 Kiribati	105 Rwanda	141 Zimbabwe
34 Congo, Rep.	70 Kuwait	106 Samoa	
35 Costa Rica	71 Kyrgyz Rep.	107 Sao Tome and Principe	
36 Croatia	72 Laos	108 Saudi Arabia	

Donor countries (host countries)			
Australia	France	Korea	Slovak Republic
Austria	Germany	Luxembourg	Slovenia
Belgium	Greece	Netherlands	Spain
Canada	Iceland	New Zealand	Sweden
Czech Republic	Ireland	Norway	Switzerland
Denmark	Italy	Poland	United Kingdom
Finland	Japan	Portugal	United States

Appendix B: Variables, Definitions and Sources (in alphabetic order)

Variable name	Description	Data source
Aid/GDP	Total net bilateral ODA by all OECD-DAC donor countries in current prices (USD) divided by recipient GDP in current prices	OECD (2016a) [Table DAC2a], WDI (World Bank 2014)
Conflict/War	1 if conflict and/or war with more than 25 battle-related deaths in the recipient country	UCDP/PRIO Armed Conflict Dataset, version 2014 (Gleditsch et al. 2002)
Democracy	1 if the recipient country's regime qualifies as democratic	Cheibub et al. (2010), updated by Rode and Bjørnskov (2016)
(log) Disaster Affected	Log of number of people affected by disasters in the recipient country	EM-DAT (Guha-Sapir et al. 2016)
Donor Entry Restrictiveness	Index of entry restrictiveness. We use the mean over all donor countries. The index is calculated at the donor level in the following way: Zero for all observations in the base year 1976. The index increases (decreases) by one if the entry restrictiveness of all laws increases (decreases) in a year	Own construction based on DEMIG (2016)
Donor-government Fractionalization (Frac)	Probability that two deputies picked at random from among the government parties will be from different parties, at the donor level	Database of Political Institutions, version 2015 (Beck et al. 2001, Cruz et al. 2016)
Economic Freedom	Average chain-linked economic freedom rating that measures the degree to which the policies and institutions are supportive of economic freedom, where higher values indicate a larger degree of economic freedom in a recipient country	Economic Freedom of the World (Gwartney et al. 2015)
Emigration Policy	1 if the origin-country government has policies in place to lower emigration	UN (2017)
(log) Flow Internally Displaced	Log of the flow of people displaced within their country of origin	Marshall et al. (n.d.) [download 2010]
(log) GDP p.c.	Log of the recipient country's GDP per capita (constant 2010 US$)	WDI (World Bank 2016)
GDP p.c. Growth	Annual percentage growth rate of GDP per capita of the country of origin	WDI (World Bank 2017)

Human Rights	Mean of the Latent Human Rights Protection Scores that accounts for systematic changes to the human rights country reports published by the US Department of State and Amnesty International, where higher values indicate a better human-rights situation in a recipient country	Fariss (2014), Schnakenberg and Fariss (2014) [download 2016]
Mean Neighbor Aid/GDP	Average of *Aid/GDP* of a recipient's neighboring countries	Own construction based on data from OECD (2016a) [Table DAC2a], WDI (World Bank 2014), and CEPII (Mayer and Zignago 2011)
(log) Population	Log of the recipient country's total population size	WDI (World Bank 2016)
Probability over all Periods	Probability of receiving aid from donor *j* within the whole observation period from 1976-2013	Own construction based on ODA data from OECD (2016a)
(log) Refugee Flows OECD	Log of net refugee flows (difference between refugee stock in t and t-1) of the recipient country into OECD-DAC donor countries	UN/UNHCR (2015)
Refugee Flows per 100,000 Inhabitants	Net refugee flows (difference between refugee stock in t and t-1 in OECD-DAC donor countries) as a share of 100,000 inhabitants of the country of origin	UN/UNHCR (2015)
(log) Refugee Flows Worldwide	Log of net refugee flows (difference between refugee stock in t and t-1) of the recipient country into the world	UN/UNHCR (2015)
(log) Refugee+Asylum Seeker Flows Worldwide	Log of net flows of refugees and asylum seekers (difference between stock in t and t-1) of the recipient country into the world	UN/UNHCR (2015), OECD (2016b)
(log) Total Refugee Stock	Log of worldwide refugee stock of the recipient country	UN/UNHCR (2015)
Return Policy	1 if the origin-country government has policies to encourage citizens to return	UN (2017)
Share Humanitarian	Total net bilateral humanitarian aid (CRS sector: 700 – VIII. Humanitarian Aid, Total) divided by total net bilateral ODA	OECD (2017) [Creditor Reporting System CRS]
Share of Young Population	Population aged between 0 and 14 in the country of origin	WDI (World Bank 2016)
Trade/GDP	Sum of the recipient country's bilateral exports to and imports from all OECD-DAC donor countries as a share of recipient GDP	DOTS (IMF 2015) [own calculation], WDI (World Bank 2014)

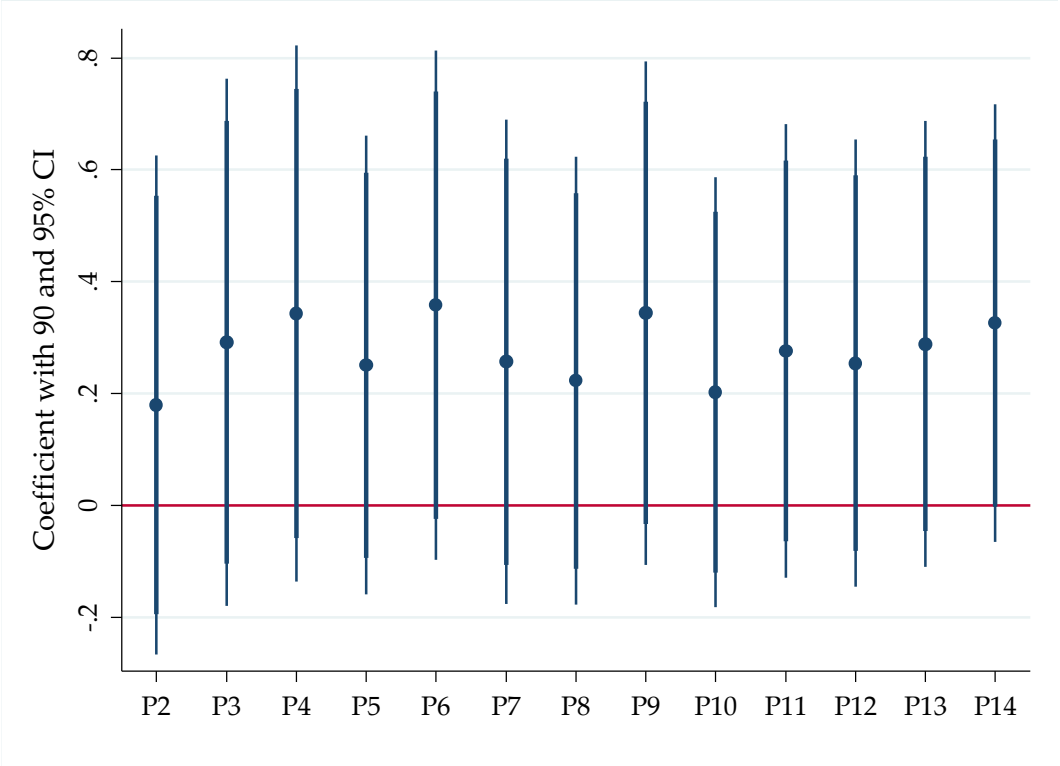
Appendix C: Descriptive Statistics (in alphabetic order)

Variable name	Count	Mean	SD	Min	Max
Aid/GDP	1385	4.01	5.86	-0.46	47.75
Conflict/War	1386	0.17	0.34	0.00	1.00
Democracy	1386	0.43	0.48	0.00	1.00
Disaster Affected	1386	1391528.39	10884756.23	0.00	1.82e+08
(log) Disaster Affected	1386	7.24	5.35	0.00	19.02
Donor Entry Restrictiveness	1386	-0.03	0.14	-0.18	0.21
Economic Freedom	1330	5.77	0.81	3.27	8.70
Emigration Policy	1386	0.07	0.16	0.00	0.67
Flow Internally Displaced	1218	36.68	187.84	0.00	3523.33
(log) Flow Internally Displaced	1218	0.61	1.67	0.00	8.17
GDP p.c.	1386	5281.23	9342.32	120.71	109586.38
(log) GDP p.c.	1386	7.73	1.28	4.79	11.60
GDP p.c. Growth	1386	1.73	4.69	-26.26	60.06
Human Rights	1386	0.05	1.12	-2.80	3.56
Mean Neighbor Aid/GDP	1380	2.93	3.57	-0.08	28.79
Population	1386	38919709.72	1.49e+08	62137.00	1.36e+09
(log) Population	1386	15.59	1.92	11.04	21.03
Refugee Flows OECD	1304	1365.84	6402.56	0.00	127166.34
(log) Refugee Flows OECD	1304	2.97	3.18	0.00	11.75
Refugee Flows per 100,000 Inhabitants	1386	6.84	1347.93	-20406.80	19056.15
Refugee Flows Worldwide	1386	8563.94	47764.85	0.00	1076545.75
(log) Refugee Flows Worldwide	1386	3.06	3.74	0.00	13.89
Refugee+Asylum Seeker Flows Worldwide	1135	9878.90	52197.13	0.00	1077172.38
(log) Refugee+Asylum Seeker Flows Worldwide	1135	3.60	3.85	0.00	13.89
Return Policy	1337	0.27	0.42	0.00	1.00
Share Humanitarian	1385	0.02	0.07	0.00	0.72
Share of Young Population	1386	37.62	8.31	13.59	51.30
Total Refugee Stock	1386	38560.30	141640.86	0.00	2128767.00
(log) Total Refugee Stock	1386	5.54	4.23	0.00	14.57
Trade/GDP	1385	42.63	104.91	0.00	2855.53

Notes: Based on observations from the sample of columns 1-4 in Table 1.

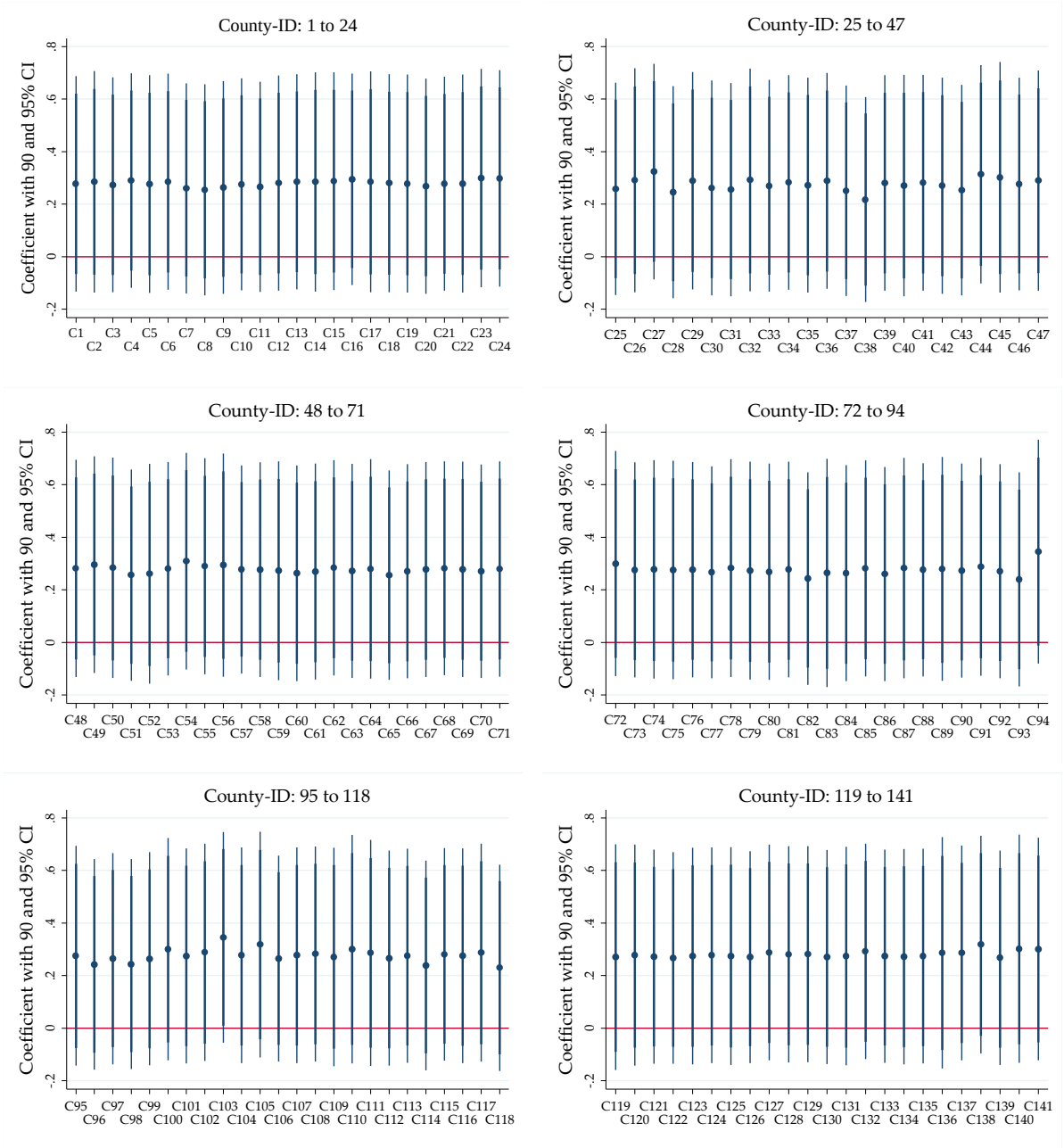
Appendix D: Additional Figures

Figure D.1: Refugee Flows Worldwide and Official Development Assistance (drop one period at the time, 2SLS, 1976-2013)



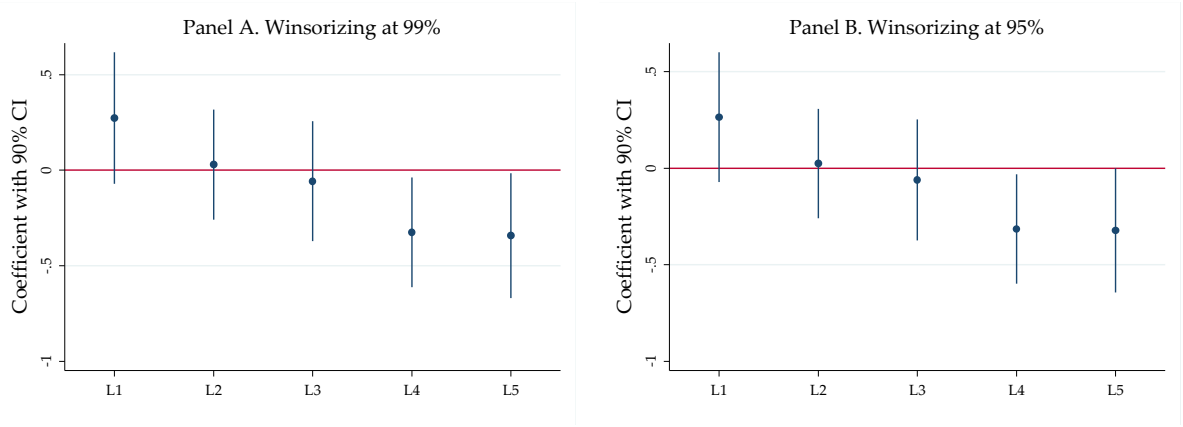
Notes: The figure summarizes the regression results of 13 regressions with *(log) Refugee Flows Worldwide* as dependent variable. Each point in the figure represents the coefficient on *Aid/GDP, t-1* of regressions where we replicate the specification in column 2 of Table 1 but drop one period at the time, starting with 1976-1978 (P2) and ending with 2012-2013 (P14). Kleibergen-Paap F statistics are above 14 in all regressions. Detailed regression results are available on request.

Figure D.2: Refugee Flows Worldwide and Official Development Assistance (drop one recipient country at the time, 2SLS, 1976-2013)



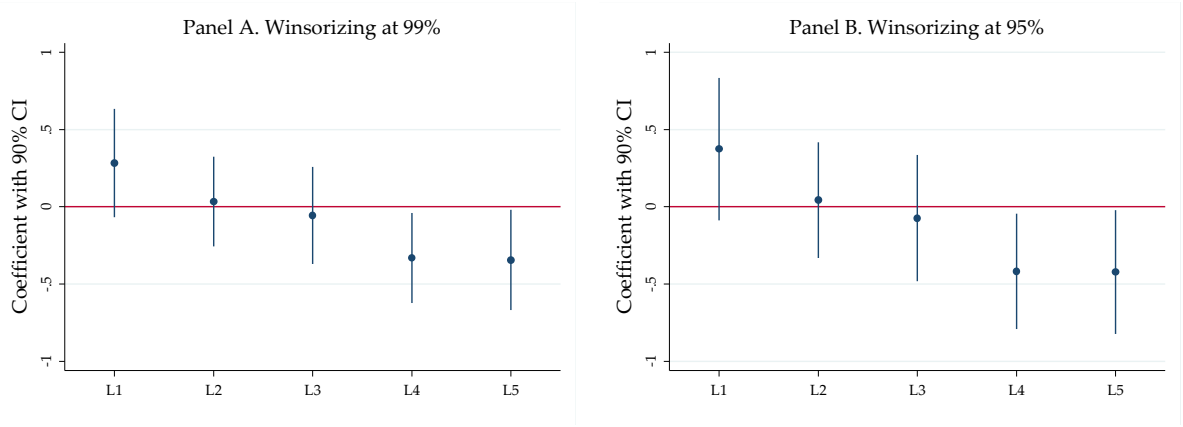
Notes: The figure summarizes the results of 141 regressions with *(log) Refugee Flows Worldwide* as the dependent variable. Each point in the figure represents the coefficient on *Aid/GDP, t-1* of regressions where we replicate the specification in column 2 of Table 1 but drop one country at the time, starting with Afghanistan (C1) and ending with Zimbabwe (C141). We provide a list of countries indicating the respective country numbers in Appendix A. Kleibergen-Paap F statistics are above 16 in all regressions. Detailed regression results are available on request.

Figure D.3: Refugee Flows Worldwide and Official Development Assistance (winsorized *(log) Refugee Flows*, 2SLS, 1976-2013)



Notes: The figure summarizes the results of 15 regressions. The dependent variable is *(log) Refugee Flows Worldwide* in all panels. Each point in the figure represents the coefficient on *Aid/GDP*, *t-z* where we replicate Table 2 at the period-level, starting with *z*=1 (L1) and ending with *z*=5 (L5). The dependent variable is winsorized at the 99th percentile in panel A, and the 95th percentile in panel B. Kleibergen-Paap F statistics are above 13.13 in all regressions. Detailed regression results are available on request.

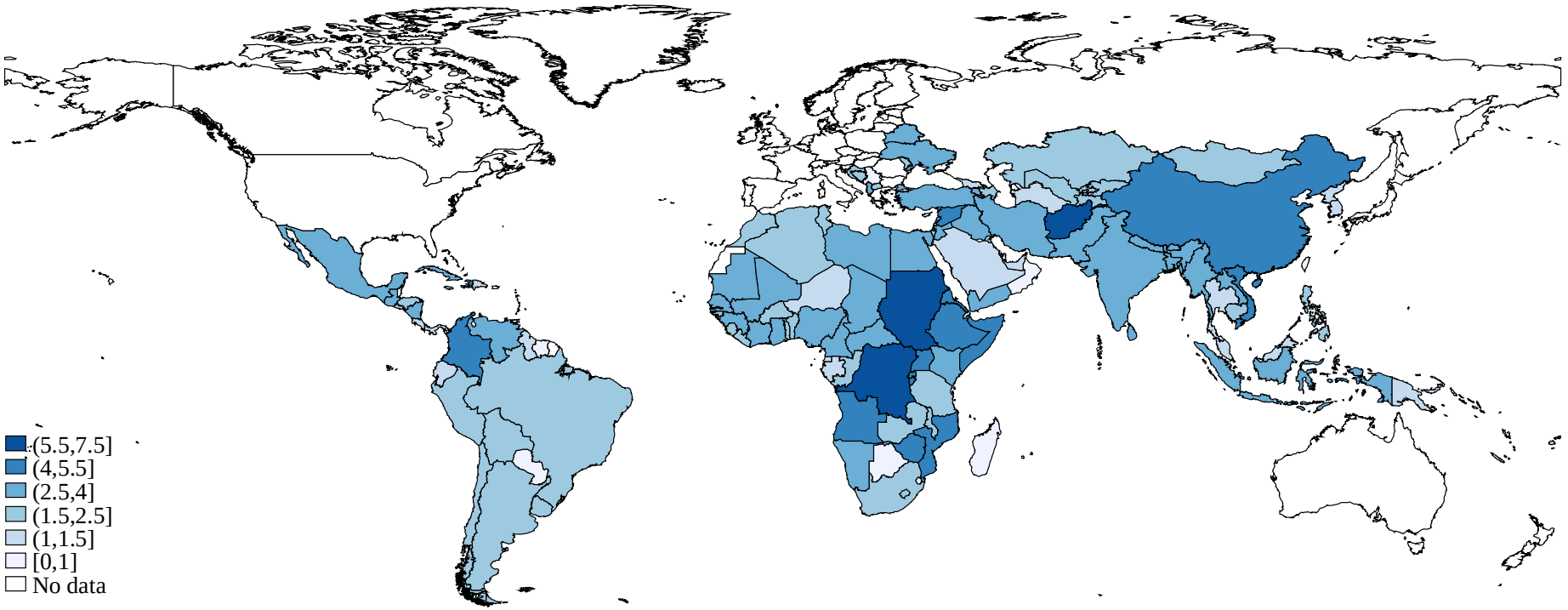
Figure D.4: Refugee Flows Worldwide and Official Development Assistance (winsorized *Aid/GDP*, 2SLS, 1976-2013)



Notes: The figure summarizes the results of 15 regressions. The dependent variable is *(log) Refugee Flows Worldwide* in all panels. Each point in the figure represents the coefficient on *Aid/GDP*, *t-z* where we replicate Table 2 at the period-level, starting with *z*=1 (L1) and ending with *z*=5 (L5). Aid/GDP is winsorized at the 99th percentile in panel A, and the 95th percentile in panel B. Kleibergen-Paap F statistics are above 13.43 in all regressions. Detailed regression results are available on request.

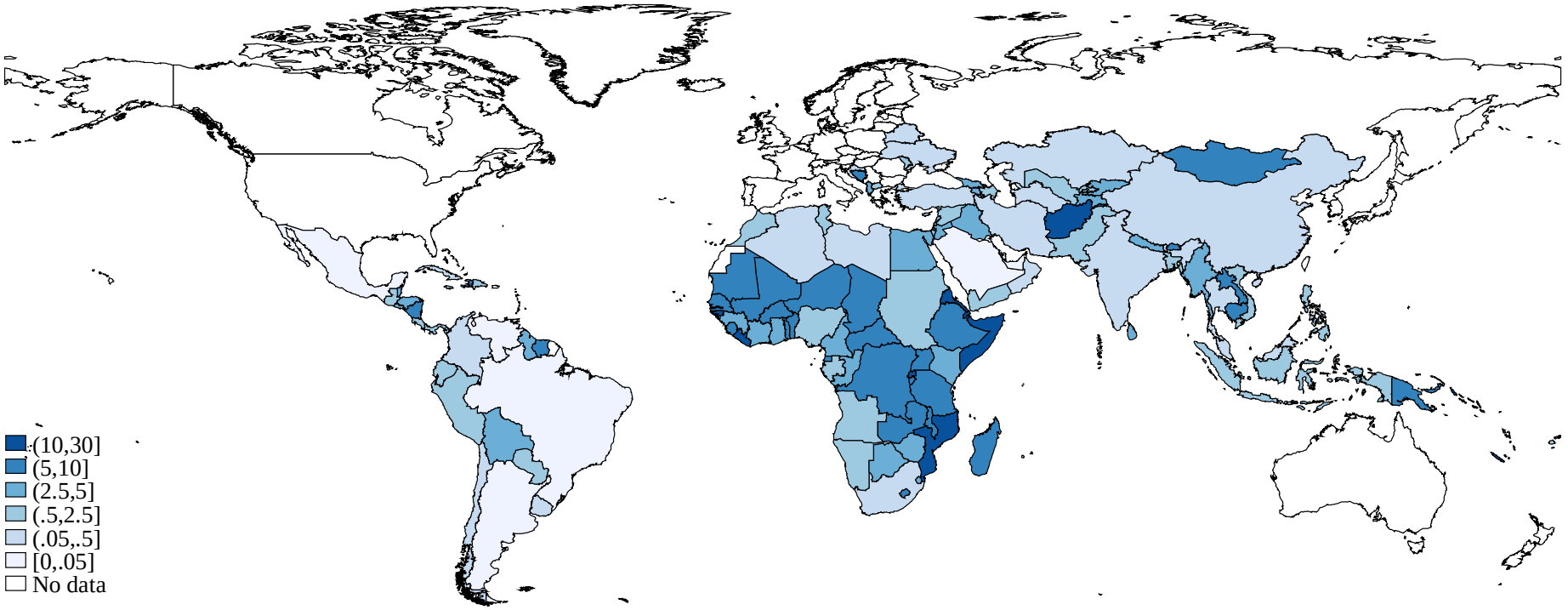
Appendix E: World Maps

Figure E.1: Refugee Flows



Notes: The world map displays the mean of *(log) Refugee Flows Worldwide* by recipient country over the 1976-2013 period.

Figure E.2: Aid as a share of GDP



Notes: The world map displays the mean of *Aid/GDP* by recipient country over the 1976-2013 period.