The Dynamic Relationship between Asylum Applications and Recognition Rates in Europe (1987-2010)

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Abstract

The intensity of asylum flows over the last 20 years represents a significant challenge to national and European policy making. This article studies the dynamic reciprocal effects between asylum applications and recognition rates in 29 European countries over 24 years. Furthermore, it explores the impact of the national economic and political context on these two aspects of asylum policy. Using a wide range of statistical models and approaches, the article reveals that asylum applications exert a negative effect on recognition rates, and recognition rates exert a positive effect on applications. However, despite their statistical significance, the effects are rather small and mostly related to between-country rather than within-country variation, which implies that they are of limited practical significance. Unemployment is only weakly related to recognition rates and not at all to application shares, while government positions favoring immigration and multiculturalism have no effect on asylum application shares and recognition rates.

Keywords

asylum applications, asylum policy, asylum recognition rates, migration, mixed effects models, multilevel modeling, policy making, refugees, time-series analysis

Acknowledgement

Introduction

Since the late 1980s, every year more than 250 000 people apply for asylum protection in Europe. During 2001 alone more than 475 000 persons sought protection in the 30 states that partake in the so-called Common European Asylum Space[1]. The distribution of asylum applications to the different European states was, and remains, rather skewed, even when we discount for the different size and wealth of destination countries (Bovens et al., 2012; Neumayer, 2004; Thielemann et al., 2010; Toshkov and de Haan, 2012). Moreover, applicants are faced with substantively different chances of having their applications recognized depending on the place where they lodged their request (Neumayer, 2005; Toshkov and de Haan, 2012; Vink and Meijerink, 2003). For example, during 2009, 33% from the Afghanis who applied for asylum protection received the full refugee status (according to the standards of the Geneva Convention) in France, but only 6% percent in the UK. For Iraqis in 2009, 70% from the decisions on asylum applications were positive in Germany, but only 7% in Sweden. Apparently, there is substantive variation in the asylum recognition rates across the European continent in addition to the variation in asylum applications. But are the two related? Does the distribution of asylum applications adjust to the different (and varying) recognition rates? On the other hand, do recognition rates change in response to the ups and down of asylum application flows? If a relationship exists, is it contingent on economic and political factors or is it independent from the broader context of asylum policy?

Understandably given the importance of these questions, they have been addressed by the academic literature before. The distribution of asylum applications has been studied more extensively (Böcker and Havinga, 1998; Hatton, 2009; Hatton and Williamson, 2004; Havinga and Böcker, 1999; Kim and Cohen, 2010; Moore and Shellman, 2007; Neumayer, 2004), and the empirical studies argue for a significant effect of recognition rates on applications (Holzer et al., 2000b; Neumayer, 2004; Robinson and Segrott, 2002). The other side of the relationship – the possible effect of application shares on recognition rates has received much less attention, but the evidence is consistent with an effect in that direction as well (Neumayer, 2005; Sicakkan, 2008; Vink and Meijerink, 2003). Scholars disagree about the possible impact of economic and political variables, like unemployment and societal support for right populist parties (Hatton et al., 2004; Holzer and Schneider, 2002; Holzer et al., 2000a, b; Neumayer, 2004, 2005). This article advances the state of the art of the literature by a more comprehensive empirical analysis which examines the dynamic relationship between applications and recognition rates using a range of statistical models (separate country-level, fixed effects, completely pooled, and mixed-effects regressions, Granger causality and cointegration tests), a more thorough discussion of the sources (cross-sectional and diachronic) of the association between applications and rates, and a focus on the **substantive** rather than the statistical significance of the reciprocal effects of these two variables. In addition, the article offers a new operationalization and test of the possible effect of government positions - arguably the most important political factor implicated in asylum policy - based on party positions provided by the Manifestos project (Budge et al., 2001; Klingermann et al., 2007).

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[1] On the development of the EU asylum policy see (Boswell and Geddes, 2011; Guild, 2006; Lavenex, 2001a, b; Niemann, 2008; Teitgen-Colly, 2006).

The article argues that the data on asylum applications, decisions, and recognitions for the European countries of destination since 1987 is consistent with small but statistically significant effects of past asylum application shares on current recognition rates and vice versa. The positive effect of higher recognition rates on applications is stronger regarding the distribution of applications *between* the European countries of destination rather than the variation within individual countries of destination over time. The negative effect of higher application shares received in the past on current recognition rates can be traced to both levels of variation. Most importantly, however, although statistically significant, the effects are so small in size to be of any practical significance – and this is a point where we depart from the existing quantitative literature (cf. Holzer et al., 2000b; Neumayer, 2005; Thielemann and Dewan, 2006). Some of the models provide evidence for statistically-significant negative effects of unemployment on recognition rates, but the effects are again so small in size that the statistical significance is almost beside the point. The article finds no effects of government positions favorable to immigration and multiculturalism on application shares and recognition rates.

Altogether, the reciprocal effects between applications and recognition rates, and the independent influence of economic and political factors can account for only a small part of the variation in asylum policy outcomes. Notwithstanding statistical significance, asylum application rates are much less sensitive and responsive to policy changes, and economic and political context than expected under a model of fully-informed strategic asylum seekers. At the same time, asylum policy and recognition rates seem to be much more insulated from current political and economic context than suggested by political rhetoric and common wisdom. Even if the reciprocal relationship between asylum applications and recognition rates is in some statistical sense 'real', its strength is much diluted in practice. That's why despite the fact that high applications lead to lower recognition rates which lead to lower applications, etc. we have not witnessed a total breakdown of asylum protection in Europe, and the theoretical expectations of a 'race to the bottom' (Czaika, 2009; des Places and Deffains, 2004; Monheim-Helstroffer and Obidzinski, 2010) have mercifully not been realized. The formal tests for an equilibrium relationship between applications and recognition rates show no evidence that such exists.

The article is structured as follows. The next section reviews in more details the empirical literatures on the determinants of asylum applications and recognition rates. After that, I discuss the theoretical assumptions about the motivations of governments and asylum seekers that would produce one pattern of correlations in the data rather than another. The theoretical discussion is followed by a short presentation of the data sources, operationalizations, and the methods of empirical analysis employed. The section that follows presents the results of the empirical tests and is divided in three parts covering the models of applications and recognition rates, and the time series analyses. Finally, the concluding section summarizes the results and draws the broader implications of the study.

Literature review

Part A. Asylum applications

The study of the determinants of asylum application flows has received more attention than the study of variation in recognition rates (reviewed in Part B of this section). With regard to the deterrent effect of asylum recognition rates on applications, there is a wealth of evidence that finds support for such an effect. In a longitudinal analysis of the asylum applications to Switzerland, Holzer et al. (2000b) conclude that the recognition rate can be used as a 'steering tool to influence future applications' (p.1201). According to the time-series analysis of the monthly applications, a 1% decrease in the recognition rate leads to a decrease of 70 applications (after a 7-month lag, p.1201). Interestingly, while the effect is visible when the total numbers of applications and recognition decision are considered, the authors find no evidence that country-specific recognition rates have any effect on the variation in asylum applications for people from particular countries of origin (p.1202). In one of the most comprehensive empirical studies on the topic, Neumayer confirms that higher recognition rates lead to more applications (2004, p.173). He uses origin-specific asylum data which provides a wealth of observations (20 146 to be precise) but it also creates problems because the measure of the dependent variable for most of these observations is zero or very close to zero. Estimating such highly skewed data with OLS is obviously problematic not only for deriving reasonable size effects for the independent variables but also for estimating these effects in the first place[2] (Kristensen and Wawro, 2003; Shor et al., 2007).

The possible impact of changes in the recognition rates on asylum application flows is directly related to the possible influence of asylum *policy* changes more broadly conceived. In a way, recognition rates are just a proxy for the strictness of the policy. Given the rather strong results about the deterrent effect of recognition rates reviewed above, one would expect other aspects of national asylum policies to have strong effects on applications as well, but this turns out to be true only to a limited extent. Holzer et al. (2000b) conclude that 'government regulation can considerably affect the number of asylum requests even in the absence of a formal restrictive regime between industrialized states ' (p.1184) but then suggest that not all country of origins are affected in the same way. Thieleman (2003) explores the impact of asylum policy by constructing a deterrence index which takes into account the share of people allowed to stay in the destination country, in addition to characteristics of the determination process and integration policy. The deterrence index is found to have a strong and statistically significant negative effect of the relative number of applications that a country gets[3]. Hatton et al. (2004) also find

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[2] In fact, the study does not provide enough information for the size of the 'significant' effect to be gauged. The entries in Table 6 (p.175) seem to be either mistaken or poorly annotated, and the coefficient for recognition rates is given as '0.000' (while highly significant) (Table 5, p.173).

[3] It is unclear whether the reported effect is due to within-country or between country variation in policy. Giver the slowly changing nature of policies, one would expect that the association is driven by the cross-sectional variation.

a negative and significant effect of asylum policy on applications – 'toughening one individual element of policy … reduces asylum flows by approximately 10%' (p.34). At the same time researchers have expressed doubts about the extent to which government can control and influence asylum flows. For example, Havinga and Böcker (1999) argue that 'many [policy] measures produced only limited effects or failed to have any effect at all' (p.245).

The effect of economic variables on asylum applications is even more contested. Neumeyer (2004) and Holzer et al. (2000b) find no evidence for effect of unemployment. Hatton et al.'s comparative analysis (2004) however concludes that unemployment matters - 1% rise in unemployment leads to a reduction in the number of asylum seekers by 7.2% (p.33). Thieleman (2003) also reports a negative effect. The solution to the conflicting findings could be that unemployment is related to cross-country but not to within-country variation in recognition rates (or the other way round) – a possibility that is not fully explored in the exiting literature.

There is also no agreement about the effect of political variables. According to Neumeyer (2004), the political support for right populist parties has a negative effect on applications while political support for left parties doesn't matter. Again, it is unclear whether the effect explains differences between countries, within countries of both, and how much of a difference it makes. Furthermore, electoral support might be a reasonable proxy for societal attitudes but not for *government* positions.

Part B. Asylum recognition rates

Studying longitudinal changes in recognition rates in Switzerland, Holzer et al. (2000a) conclude that negative societal attitudes and the share of foreign residents are significantly associated with recognition rates in the different Swiss cantons (with centralized asylum administration as a possible mediating variable). In another attempt to tackle systematically the variation in asylum recognition rates, Vink and Meierink (2003) offer an empirical analysis which finds some evidence for weak convergence and a strong negative correlation between the recognition rats and asylum applications over time. But the analysis does not include any potentially confounding variables and doesn't explore the question which factor leads and which factor lags in the relationship.

Sicakkan (2008) claims an effect of 'legal and institutional frames of asylum determination' (p.209) – a variable which captures variations in sovereignty-sharing arrangements between government agencies, independent asylum boards, NGOs and international organizations (p.210) – on recognition rates. While the focus on the organizational and institutional differences in how destination countries handle asylum applications is extremely interesting, the empirical results in this article are suspect because of inadequate controls for the multilevel structure of the data.

Neumayer's article (2005) investigates the period 1980-1999 and finds that recognition rates are lower in times of high unemployment in destination countries and when many asylum seekers from the same

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If this is the case, the implications for policy makers are quite different – changing your own policy might not have the desired effect if the relative strictness of the policy vis-à-vis other countries of destination remains the same.

country of origin have already applied in the past. These effects are only significant if no country controls are included which implies that they are related to between-country rather than within-country variation (this is not the author's, but my interpretation). Political conditions do not have a significant effect according to the statistical models, but the operationalization is rather indirect - the percentage of support for right populist parties during elections The article does not provide an estimate of how much of a difference the effect of past applications and unemployment makes in terms of substance (rather than statistical significance) but we can make this calculation. Contingent on the fixed effects model, it would appear that an increase of one standard deviation change in the stock of asylum applications received over the last 2-5 years by a destination country would bring on average the recognition rate down by 12 percentage points, which is a large effect but one that is suspect because the dependent variable is highly skewed with excess zeros, both of which are problematic for the OLS linear regression

In conclusion, the variation in asylum applications on the one hand and asylum recognition rates on the other hand have received a lot of attention in the academic literature. The debate has been characterized by rich empirical exploration and a multitude of statistical approaches – time-series, cross-sectional and panel designs, as well as more-detailed country analyses which rely on qualitative information as well. While existing research provides important evidence about substantively important effects of applications on rates, and of rates on applications, curiously, the implications of these findings are not pursued further – if applications and rates have reciprocal effects then these two variables should move in equilibrium over time and external shocks to either should be corrected in the sense of bringing applications and recognition rates back to their equilibrium level. But so far the relationships between applications and recognition rates are tested in isolation. In one part of the empirical analyses presented in this article, I test the implication of equilibrium by conducting a series of Granger–causality and co-integration tests. Furthermore, although the existing literature claims evidence for a number of causal effects, many of the conclusions are suspect because they do not take into account the fact that both applications rates and asylum applications are non-normally distributed variables which can only take a limited set of values. Ignoring this can lead to nonsensical predictions and overestimate effect sizes of the 'causal' effects. Before we turn to the empirical analysis, however, the next section will examine in more detail the assumptions about the behavior of asylum seekers and governments that one needs to make in order to produce the various possible patterns of association between asylum recognition rates, applications, and the political and economic context.

Theoretical perspectives on the links between asylum applications and recognition rates

The main purpose of this article is to understand the dynamic relationship between asylum recognition rates and the relative asylum application shares that countries receive. Of course, this relationship is embedded in broader institutional, political, economic, and cultural contexts. In order to gain theoretical insight into the links between applications and recognition rates, we consider alternative assumptions about the behavior of asylum seekers and governments as agents of asylum recognition or refusal. These assumptions are situated at the micro level (or, rather, at the meso-level since we are not talking

about individuals but aggregate actors like groups of individuals and governments as agents). On the basis of these different assumptions about the agents' motivation and capabilities we derive several implications about the aggregate level association between asylum applications, recognition rates and political and economic factors.

The two main actors that we consider are the asylum seekers and the government. Each asylum seeker has a certain (unobserved) merit of his/her application and some information about his/her chances of having the application for a refugee status approved. Governments set policy which affects recognition rates and can have different goals which will be discussed below.

Let us start with what is perhaps the simplest situation – a world in which asylum seekers do not adjust their choice of location for the submission of their applications and in which governments have no additional asylum policy goals other than recognizing genuine refugees and denying access to all the rest. Asylum seekers are assumed to lodge their applications guided by considerations which have nothing to do with the likely chance of having their application honored. While this seems implausible as a motivational assumption, it can be supported if asylum seekers have no information on recognition rates and on the political and economic situation in these different destination countries. The 'naïve' behavior of asylum seekers can be generated by prohibitive costs of obtaining relevant information. Their choice of a place to lodge an application is then entirely driven by custom, convenience of access and chance. In this version of the world governments have no other motives and goals rather than providing support to genuine asylum seekers and denying the status to everyone else. So governments 'call it as they see it'. The process is not perfect so some errors occur but there should be no systematic bias. What are the aggregate level implications of this theoretical view? The relative distribution of asylum applications between the different destination countries should be relatively stable (since it is guided mostly by chance, convenience and perhaps custom) and should not be related to past recognition rates, or any political and economic developments in the destination countries. Similarly, recognition rates should not be responsive to previous asylum application flows and to changing political and economic factors in the state.

In the second theoretical perspective that we consider, we relax the assumption that governments are interested only in the true merit of asylum applications. Government still care about providing protection to genuine refugees but now their motivation is complemented by a desire to minimize the share of asylum applications they get as more applications bring high administrative costs for the proper examination of applications, care for the applicants during this process, and societal costs if the asylum seekers are admitted. In this version of the world, governments use recognition rates as a policy instrument to suppress application flows. But, for now, we still keep the decision of asylum seekers for the location of their applications 'naive' in the sense that it is not being adjusted with a view of the likely chances of the application to succeed in different countries and in different economic and political contexts. As a result, increasing relative applications shares received by a destination country would lead to a decrease in its average recognition rate (and in times of unfavorable economic and political conditions). But the asylum flows themselves should be unresponsive to the changes in policy and recognition rates in particular, since they are still guided by chance, convenience, and custom.

In the third perspective governments 'call it as they see it' but asylum seekers adjust to varying recognition rates. As suggested above, getting precise and reliable information on the chances of an application having a positive decision might be difficult for individual asylum seekers, but 'mediating' agents can have the capacity and the incentives to acquire this information. Many of the asylum seekers do not reach the destination countries on their own but through intermediaries and 'professional' agents. The influence of these middlemen provides a channel for the flow of information and a mechanism for links between destination country policies (and economic and political conditions) and the spatial distribution of asylum applications. Initially, recognition rates themselves might vary due to chance. These random fluctuations would incite asylum seekers to aggregate at the destination which have higher average recognition rates. However, when more applicants flock at the door of on country, the distribution of asylum application with regard to the likely merits of the applications does not change – the marginal increase in applications comes from all parts of the distribution of asylum seekers, so recognition rates do not change. In the aggregate, asylum recognition rates influence application share, but not the other way round.

Finally, in the fourth theoretical version that we consider, both asylum seekers and governments act strategically – asylum seekers try to maximize the chances of their applications and government try to minimize the share of application flows that they get. In this world, the relationship between rates and applications is reciprocal – higher recognition rates attract more applications, but higher shares from the asylum flows depress the recognition rates. In addition to the association between rates and applications, political and economic variables are expected to influence both aspects of asylum policy – in more favorable economic and political times, the recognition rates are supposed to go up, which would attract more applications as a byproduct, and in addition to the direct economic and political effects on applications shares.

The four theoretical perspectives outlined above are not separate theories. In reality, shades of strategic behavior are inevitably going to be present in the choices of government agents and asylum seekers. However, separating the four 'worldviews' allows for a sharper focus on the different empirical patterns one is likely to observe in reality if strategic aspects play an important role in the game between governments of destination states and candidates for refugee status. The empirical analysis that follows investigates the compatibility of asylum policy developments in Europe since 1987 with the different theoretical perspectives outlined in this section of the article.

Operationalization, data sources, and description of the data

The UNHCR collects statistics on asylum applications, decisions, people recognized as refugees and people offered complementary protection for most of the countries in the world. The aggregate numbers of asylum applications, decisions, and positive decision are, in principle, available from the UNHCR statistical yearbooks for the period after 1987[4]. However, up to 1997 the Central and Eastern

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[4] Available online at http://www.unhcr.org

European countries, Cyprus and Malta are not included. Ideally, one would want to use data that specified the place of origin of the asylum-seekers. Unfortunately, this data is not easily obtainable from the published UNHCR statistical yearbooks for the years before 2006. On our request, the UNHCR office has provided us with origin-specific data of asylum applications, decisions, and recognitions for all the European counties of destination for ten countries of origin (the biggest suppliers of asylum-seekers) for the period 2000-2010.

The time period covered by the non-origin specific asylum data used for the main analyses presented in this article is 1987-2010 (24 data points). The geographical scope of the analysis is the 27 member states of the EU, Norway, and Switzerland (29 countries). Because of bilateral agreements with the EU, Norway and Switzerland participate to a large extent in the common EU asylum policy so we include them in the sample. We focus only on the European states in order to keep the sample of asylum destination countries homogeneous. Other asylum receivers, like the US or Australia, are subject to refugee pressures from a different kind and to asylum flows from different parts of the world than the European states which would introduce heterogeneity in the sample.

Asylum applications vary from a low of 174, 557 in 1987 to a high of 696, 584 in 1992 (see Figure A1, panel A.1 in the Appendix). Since the level of observation in our dataset is a country/year (e.g. the number of applications received by Austria in 1987), we need to standardize the raw number of applications by the total amount of applications lodged in a particular year. Essentially, this provides the yearly share of all applications lodged in the 29 European states received by a particular country (panel A.2, Figure A1). This variable is a proportion and ranges between 0 and 1. The distribution of the variable is non-normal. A common transformation to proportions is the logit transformation $[\ln(x / (1 - x))]$. Because the logit function is undefined for zeros and ones, fist we add a small amount (0.001) to the cases which have yearly application shares of exactly zero, and subtract a small amount (0.001) from the cases that have yearly application shares of exactly one. This allows us to keep these theoretically-relevant cases in. The distribution of the logit-transformed variables is less skewed and more symmetric around the mean (panel A.3 of Figure A1).

The asylum recognition rate is defined as the percentage of positive decisions from all decisions taken in a country in a year. We take into account only full status recognitions as a refugee under the Geneva Convention standards and disregard decisions which allow asylum seekers to stay for humanitarian reasons or which offer complementary protection while denying full recognition. These forms of alternative protection differ a lot between countries (many countries do not use them at all) and over time as well, while the Geneva Convention standards of refugee protection are the same over time and for all countries included in the analysis, hence providing a comparable yardstick. We use asylum decisions rather than asylum applications in the denominator because in some years more decisions are made than new applications lodged which would lead to nonsensical results if the number of positive decisions is greater than the applications. In practice, the choice of denominator has little influence because the numbers of applications and decisions are highly correlated (0.87). We look at first instance decisions only (when possible to separate them from all decisions taken). The distribution of recognition rates exhibits similar complications to the distribution of asylum application shares: as a percentage it is bound between zero and one, it is highly skewed, with a lot of zeros or near-zeros (see Figure A1, panel

B.2 in the Appendix). We applied a logit transformation to the recognition rates as well, following the same pre-processing procedure for replacing zeros and ones (panel B.3 of Figure A1)

The measures of GDP per capita and unemployment that we use are obtained from the Eurostat online databases. The distributions of the variables are plotted in Figure 1, panels C and D respectively. The unemployment levels are z-transformed.

We construct a new measure of government support for immigration and multiculturalism. We use data from the Manifesto project (MP) which provides 'quantitative content analyses of parties' election programs' from which we can derive party policy positions (Budge et al., 2001; Klingermann et al., 2007). In the MP dataset, each sentence of the party manifestos is classified into a predetermined set of categories (items). Unfortunately, there is no item in the MP dataset which directly measures party positions on the issue of asylum and refugees. Therefore, we combine several items from the MP which relate to different aspects of immigration, asylum seeking, support for marginal groups in society and multicultural policies: [*Internationalism: Positive + Social Justice + National Way of Life: Positive + Multiculturalism: Positive + Underprivileged Minority Groups] – [Internationalism: Negative + National Way of Life: Negative + Multiculturalism: Negative].* Once we construct the *party* positions on immigration/multiculturalism, we aggregate them into government positions by weighting the position of each party participating in a government by its share of parliamentary seats from the total of the parliamentary seats held by the governing coalition. In order to attribute government values to particular years, in cases when more than one government has been in place during the year, the governments' position were averaged and weighted by the months they held office during the year. The distribution of the resulting variable is plotted in Figure A1, panel E. Higher values indicate more immigration/multiculturalism-friendly government positions.

We also include the population of a county as a control variable. The cross-correlations of the (transformed) variables are plotted in Figure A2 to be found in the Appendix.

Method of analysis

The dataset has a non-nested multilevel structure with observations clustered within countries and within years. Both the applications and the recognition rates time series show significant 1st order auto-correlations. Autocorrelation in the dependent variable can lead to spurious results for the effects of the exogenous variables. One solution to the problem is to include lagged dependent variables in the right-hand side of the equations. Another is to take first differences (there are no remaining traces of auto-correlation in the 1st differences of both variables) and estimate the models on the change in applications and recognition rates from one year to the next. We apply both approaches[5]. In the main

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[5] Before deciding to include only single lags, we examined the cross-correlation functions to look for any systematic associations for greater lags. We did not find any and because of the relatively short time series and the fact that single lags solve the autocorrelation issue, we decided not to include lags greater than one.

body of the article we report the results based on the models in levels with lagged dependent variables included, while we provide details of the alternative model specification in first differences in the appendix. As mentioned above, both the Applications and the Recognition Rates variables are not normally distributed so we use the logit-transformed versions of the variables (the results with the non-transformed variables can be found in the appendix).

We address the multi-level structure of the data in the following way. First, we show results from the completely pooled regressions in the form:

(1) $y_{c,t} = \alpha + \beta y_{c,t-1} + \beta \boldsymbol{X}_{c,t-1} + \varepsilon_{c,t}$

Second, we include fixed country and year intercepts in the models. These sets of intercepts capture unaccounted systematic variation between countries and unmodeled common shocks to all countries over time.

(2) $y_{c,t} = \alpha_c + \alpha_t + \beta y_{c,t-1} + \beta \boldsymbol{X}_{c,t-1} + \varepsilon_{c,t}$

Third, we estimate the regressions for each country and for each year separately in order to examine whether any apparent associations in the pooled analysis can be traced to cross-sectional between-country variation or to temporal within-country variation. The results of these country- and year-specific regressions can be found in the appendix.

(3) $for\ c = 1,\ldots,\ldots C\ [\ y_t = \alpha + \beta y_{t-1} + \beta \boldsymbol{X}_{t-1} + \varepsilon_t]$

Fourth, we present a set of multilevel models which integrate the previous approaches into a common framework and allow the country and year intercepts to be modeled in a partial pooling framework.

(4) $y_{c,t} = \alpha_{c,t} + \beta y_{c,t-1} + \beta_{c,t-1} \boldsymbol{X}_{c,t-1} + \beta \boldsymbol{Z}_{c,t-1} + \varepsilon_{c,t}$

$\alpha_{c,t} \sim N(\mu_\alpha, \sigma^2_\alpha)$

Fifth, since any effects and associations we might discover can be driven by unobserved differences in the population of asylum applications that different countries receive, we replicate the models using origin-specific data. As explained above, these origin-specific time series are of much shorter duration so the power of the origin-specific models to detect any effects is rather low.

(5) $y_{c,t,o} = \alpha_{c,t,o} + \beta y_{c,t-1,o} + \beta_{c,t-1,o} \boldsymbol{X}_{c,t-1,o} + \beta \boldsymbol{Z}_{c,t-1} + \beta \boldsymbol{W}_{c,t-1} + \varepsilon_{c,t,o}$

$\alpha_{c,t,o} \sim N(\mu_\alpha, \sigma^2_\alpha)$

All the exogenous variables that we include are lagged – no contemporaneous relationships are included, because theoretically, the effects of asylum applications flows, recognition rates, and changing economic and political factors need time to affect the outcomes. Neither application flows nor recognition rates could adjust immediately to the changing environment.

Finally, we examine the relationship between asylum applications and recognition rates in a time-series framework by performing Granger-causality (Brandt, 2007; Freeman, 1983; Granger, 1969) and

cointegration tests (Engle and Granger, 1987; Pfaff, 2008; Phillips and Ouliaris, 1990). In the Granger-causality framework, the effects of past applications on present rates, and of past rates on present applications are estimated simultaneously. The approach allows us to ascertain for each country of destination whether applications lead or lag in the association with rates (and whether such an association exists in the first place). But Granger-causality tests can be misleading if one or both variables are non-stationary (Granger and Newbold, 1974). Therefore, we conduct a series of country-level integration and cointegration tests (Pfaff, 2008) which investigate the possibility that asylum applications and rates drift together over time, implying an equilibrium between the levels of the two variables.

Empirical findings

Part A: Asylum applications

The baseline 'complete pooling' model (MA1) includes only the five lagged exogenous variables (recognition rates, GDP per capita, unemployment, government positions, and population) and a lagged dependent variable. The second (MA2) model adds fixed country and year intercepts. The third model (MA3) is a non-nested (crossed) multilevel model[6] with fixed effects for lagged asylum application shares, recognition rates, GDP per capita, population, unemployment, and government positions (all lagged) and random intercepts for countries and years. The fourth model (MA4) is a multi-level model of the origin-specific asylum data that adds random intercepts for the country of the origin of the asylum seekers as well.

Figure 1 shows the results by plotting the regression coefficients and the 95% confidence intervals for each of the four exogenous variables of interest (the effects of the lagged dependent variable and population are not plotted; the table with the details of the regressions can be found in the appendix).

[Figure 1 here]

The lagged **recognition rate** has a positive effect on asylum applications and the effect is statistically significant when fixed country intercepts are not included in the model (MA1 vs. MA2). This implies that the association between lagged recognition rates and current applications is stronger at the between-

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[6] The completely pooled analysis (MA1) ignores completely country- and year- level variation beyond the one captured by the covariates. On the other hand, the no-pooling model (MA2) overstates such variation. The partial-pooling approach of multi-level (mixed effects) models offers a compromise between these two extremes (Gelman and Hill, 2007). The major advantages of multi-level models are that they allow for variation between groups (Gelman and Hill, 2007, p.270), they offer the possibility to 'model variation among *individual-level* regression coefficients' (Gelman and Hill, 2007, p.246) and that they provide reasonable estimates for groups with small sample sizes, which is difficult using classic regression' (Gelman and Hill, 2007, p.246).

country rather than within-country level[7]. According to the multilevel models, the effect is significant as well (MA3), although smaller in the case of the origin-specific data (MA4). The size of the effect is not straightforward to interpret as both variables are logit-transformed. Using the coefficients from MA1 and holding all other variables constant at their means, we can compute that a 15% (one standard deviation) increase in the recognition rate from the mean would result into a 0.001 increase in the shares of asylum applications received by a country in a year, which is small compared to the standard deviation in application shares (0.08). For example, assuming a total of 380 000 applications in EU-29 as a whole in a particular year, a country is supposed to receive 550 additional asylum application in the year following the increase in its recognition rate. 550 asylum applications are not negligible but the number is small relative to the standard deviation in asylum applications (16 000) and to the median of 5900 applications[8]. Another way to gain an insight into the scale of the effect of recognition rates is to plot the predicted number of asylum applications for a change in recognition rates from 0.01 to 0.99 (while holding the other variables at their means). Figure 2 shows the result – even if a country changed its recognition rate from 1% to 99%, the model predicts an increase of only 3000 applications[9]. In short, even if statistically significant, the effect is substantively small.

[Figure 2 here]

Turning to the interpretation of the remaining coefficients, we note that the marginally-significant positive effect of **GDP per capita** disappears once we include fixed country intercepts, meaning that wealth is not related to the residual within-country variation. The other economic indicator – **unemployment** levels does not appear to be systematically related to the outcome variable[10]. The final variable included in these models – **government positions** on immigration/multiculturalism – has the expected positive effect but the effect is only significant in the complete pooling model. Therefore, if there is an effect of government positions, it is more likely to be present at the cross-country level

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[7] When the analysis is replicated for each country separately, the positive effect of lagged recognition rate on application shares is significant in the cases of Italy, Belgium, the UK, Switzerland, and the Netherlands. For details see the appendix.

[8] Using alternative specifications of the dependent variable and the measure of recognition rates, the estimated expected change in the number of received asylum applications for a standard deviation change in recognition rates ranges from 550 to 2415. For details see the Appendix, Table A2.

[9] These estimates should be handled with care since they are contingent on the model's assumptions and some of the combinations of model parameters for which values are plotted might not have been observed in the data at all.

[10] According to the separate country-level regressions, in Sweden, the Netherlands, UK, and Ireland the effect of unemployment is negative and statistically significant. However, in Hungary, Lithuania and Portugal the effect is positive. It would appear that the EU states are rather heterogeneous with respect to the effect of unemployment on asylum application shares, and that the heterogeneous effects cancel each other in the pooled dataset.

(hence, related to structural differences between the destination states rather than dynamic policy-related changes within countries).

Part B: Recognition rates

The main results of the models of asylum recognition rates (B1:B4) are presented in Figure 3 which plots the estimated regression coefficients and associated 95% confidence intervals for the four main variables of interest – (logit-transformed) asylum applications shares, GDP per capita, unemployment and government positions (all lagged). The models also include a lagged dependent variable and a control for population. As in the previous section, the first model (MB1) pools all observations, the second (MB2) includes fixed effects for destination countries and years, the third one (MB3) is a multi-level model with random effects at the country and year levels, and the fourth one (MB4) uses the origin-specific dataset and includes an additional random effect for the country of origin of the asylum seekers (for details of the regressions, see Table A3 in the Appendix).

[Figure 3 here]

As visible from Figure 3, the lagged values of **asylum applications** are negatively and significantly associated with the current levels of recognition rates: recognition rates go down when the share of asylum applications that a country gets goes up. The effect is significant in all four specifications and actually gets bigger when fixed or random effects for countries and years are included – hence, the association is due both to within- and between- country variation[11]. The size of the effect is rather small according to the no-pooling model (MB1) and moderate according to the complete pooling one (MB2). Figure 4 plots the predicted recognition rates according to the estimates of MB1 (top) and MB2 (bottom) (all other variables held at their means). When the asylum applications share that a country receives from all applications lodged in that year moves from 0.001 to 0.999, the recognition rate is supposed to drop from 8% to 2% (according to MB1) or from 25% to 2% (MB2 with separate country and year intercepts). Note however that the observed variation in yearly applications shares is much smaller than the full range plotted in the Figure 4. The observed maximum at 62% is very unusual – the mean is 4% with a standard deviation of 7%; the third quantile is at 5%. So, in fact, the realistic response of recognition rates to changes in asylum applications is quite smaller. Increasing the asylum applications share with a standard deviation of application shares is expected to lead to 133 fewer recognized asylum seekers (according to the estimates of model MB.3 and assuming the observed country/year applications mean of 16 135 applications)[12].

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[11] According to the separate country-level regressions, in Slovenia, Spain, Ireland, Switzerland, the UK, the Netherlands, Hungary and Italy the effect of lagged asylum application shares is negative and statistically significant (see the Appendix).

[12] Using alternative specifications of the dependent variable and the measure of application shares, the estimated expected change in the number of recognized asylum seekers for a standard deviation change in application shares ranges from 72 to 180. For details see the Appendix, Table A4.

[Figure 4 here]

GDP per capita is positively associated with recognition rates, and the effect is significant in models B1 and B3. The effect is related mostly to the between-country variation in recognition rate rather than temporal changes within countries (as Figure A10 from the Appendix also makes clear). Similarly, in the pooled analysis lagged **unemployment** seems to be negatively associated with the recognition rates. Once separate country and year intercepts are included however, the estimated size of the effect drops, and its significance disappears. In other words, countries with structurally higher unemployment levels have lower recognition rates, but changes in unemployment levels within a country might not lead to changes in the country's recognition rate. Looking at the separate country-level regression (see the Appendix), it would appear that the effect of unemployment is rather heterogeneous with some countries exhibiting positive and other countries negative effects. There is no significant association between lagged **government positions** towards immigration and multiculturalism and asylum recognition rates.

The summary of the empirical results can be seen in the following table:

[Table 1 here]

Part. C: Time-series analysis

If the inferences suggested above are correct, asylum applications and recognition rates could be entangled in a dynamic relationship. The evidence for positive effects of rates on applications and for negative effects of applications on rates suggests that asylum applications and recognition rates might be in equilibrium so that deviations from the equilibrium level are corrected and the two are brought back in line. But an equilibrium relationship does not *need* to exist as an implication of the findings in Table 3. It could be that the associations between the two gains strength only from cross-country variation. Alternatively, it could be that the effect of asylum applications on rates is present only in some of the countries, and the effect of rates on applications is present in another set of countries. In the aggregate, we would find evidence for each of the two inferences, but an equilibrium relationship might not exist for any of the countries. Time series analysis provides a more convenient framework to analysis the dynamic relationship between rates and applications. Co-integration tests in particular can investigate the possibility that the two time series drift together over time at the same rate and whether departures from the equilibrium level are corrected. Furthermore, Granger causality tests can examine which series leads and which series lags if a dynamic relationship exists.

[Table 2 here]

Table 2 reports the results of the time series analysis. For each of the major destination countries, I conducted univariate integration tests for both the applications and rates variables (columns 2 and 3, a Granger causality test for each possible direction of the relationship (columns 4 and 5), and a cointegration test (column 6). In the time-series framework the analysis works with the untransformed versions of the two variables.

Columns 2 and 3 report the findings from the augmented Dickey-Fuller unit root tests (Pfaff, 2008) for each of the two variables. Detecting unit roots (non-stationary) processes is important for the subsequent modeling. Non-stationarity can arise both from trends in the data and from auto-regressive drifts, and both these hypotheses have been tested. In none of the countries we find evidence for unit roots in the series of asylum applications. Only in three of the countries the test statistics suggests unit roots in the series of recognition rates. Altogether, the conclusion is that we can proceed with the Granger-causality tests.

The Granger-causality models test whether the past values of the exogenous variables are useful in predicting the current values of the outcome variables once we take into account the past values of the outcome variables. This is quite similar to the regressions with lagged dependent variables that we reported in the previous sections of this article, but the main (and important) difference is that the two equations for Applications and Rates are estimated simultaneously. We include single lags in the system after conducting the appropriate tests and taking into account the small number of observations. The results are reported in columns 4 and 5 of Table 2. There is evidence that Recognition rates Granger-cause Applications in Belgium, Italy, Switzerland and the Netherlands, and that Applications Granger-cause Recognition rates in the cases of Switzerland and Ireland (these conclusions are based on the test statistic for each country having a p-value smaller than 0.05). So in four out of sixteen countries the past recognition rate is useful in predicting the current share of applications that a country gets, and only in two out of sixteen countries the application share is useful in predicting the recognition rate one step ahead. (Curiously, one of these countries is Switzerland, which has been one of the most-closely studied countries.). In summary, there is hardly any compelling evidence that in Europe during the last 25 years, asylum recognition rates and applications have been responsive to recognition rates and some evidence that recognition rates have been responsive to applications.

But more importantly, in none of the countries, the two time series appear to be in equilibrium. The sixth column of Table 2 reports the results of the Phillips & Ouliaris Cointegration tests conducted for each of the countries. In none of the sixteen cases, the test statistic suggested that we should reject the hypothesis of no-cointegration. The implication is that the two time series are not related in an equilibrium relationship in which the two series drift together over time.

Conclusion

This article has analyzed the relationships between asylum applications, recognition rates, government positions on immigration/multiculturalism, and economic indicators like GDP per capita and unemployment using a range of statistical models and techniques. The share from the European pool of asylum applications that individual countries get seems to be weakly related to the full status recognition rates that these countries have. Higher recognition rates in the past are related to higher applications shares now, and higher asylum shares in the past are related to lower recognition rates now. Both sides of this reciprocal relationship are statistically significant but the effects are mostly due to cross-sectoral variation *and* are rather small in terms of substantive size. It is important to underscore

these last points because they have several important implications. First, using recognition rates as a policy instrument would most likely have no discernable (or just negligible) effects on the asylum application flows that a country receives. The distribution of asylum applications to the 29 European countries is rather stable and changing parameters of national asylum policy (like the recognition rates) affects asylum flows only at the margin. Even drastic changes in asylum recognition rates would produce modest decreases in the number of applications received in the future, according to the estimates of the models. In the aggregate, countries with lower rates receive fewer applications but this might be due to a host of other structural factors which the statistical models cannot capture.

That being said, the within-country link from applications to rates is stronger compared to the reciprocal influence from rates to applications. It seems as if countries have tried to respond to rising application shares by lowering the recognition rate, but as explained above, the effects have been minimal. It could be that by focusing on the full status recognition rate, we are looking at the wrong indicator of attractiveness of destination countries. The EU states differ considerably in how rejected applications are dealt with. In some states, rejected refugees can be offered alternative protection on humanitarian grounds, or even if that is refused, they could still be allowed to remain in the country. Furthermore, the organization (duration, facilities provided, etc.) of the asylum application review process might have an influence as well. In short, recognition rates (and the economic and political indicators that we use in the models) might be a rather imperfect proxy for the desirability of certain destination countries, so that, if more valid data were available, a stronger relationship between applications and rates would exist.

If applications influence rates which influence applications, why haven't we observed a race-to-the-bottom in which recognition rates plummet? Is there an implicit equilibrium between application flows and rates that binds the two variables together over time? The race-to-the-bottom scenarios haven't realized precisely because the effects of applications shares on recognition rates are small, and because applications *do* adjust to a small degree to falling rates. There is no evidence that this dynamic gives rise to an equilibrium error-correction relationship, however. It could be that the time horizons over which we are looking in this article are too short, or that a different set of measures would uncover an equilibrium, but for the moment we have to conclude that none exists.

The message of the empirical analysis is somewhat convoluted because, on the one hand, a focus on statistical significance leads one to believe that asylum applications and recognition rates *are* related, but, on the other hand, once we look into *how much* of a difference the relationships make, we have to conclude that the answer is – not much. This ambiguity of interpretation has characterized the recent literature on asylum policy and can account for some of the differences of opinion expressed. In a way, both the proponents of a link between applications and rates (and policy changes more generally), and the opponents of the idea are right. But the statistical models presented in this article, which we claim are based on more appropriate assumptions about the distribution of the outcome variables, suggest that the both applications and rates produce 'effects' which while discernable from pure noise in the data, are so small to be of little practical relevance.

Turning back to the theoretical perspectives outlined in this article, we have to conclude that there is little evidence of strategic behavior by asylum seekers, and by the governments as the main agents of national asylum policy. To some extent, it is surprising that there are any traces of strategic adjustment of asylum seekers to policy and economic and politic context at all. It is hard to imagine that relatively small changes in recognition rates can make their way to the calculus of claim submission by individual asylum seekers. It is more plausible that middlemen act as aggregators of this information and that their 'help' in channeling asylum flows translates the effects of changing recognition rates and national economic and political circumstances. But again, custom, tradition, convenience of access, hearsay, and stereotypes seem to play a much bigger role in the choice of destination countries than strategic adaption to national asylum policies.

These policies themselves appear to be to a considerable degree insulated from the political rhetoric advocating their use as a tool to control migration flows. National patterns of recognition are rather stable, and although in the long term they change, the changes are only in small part driven by the observed asylum flows. Of course, what they might be reacting to is *perceived* increases in asylum flows.

It is instructive that we found no evidence that government positions on immigration/multiculturalism influence recognition rates. The heated anti-immigration rhetoric endorsed by some parties in Europe (some of which also made they way to government at one time or another) would lead us to believe that such parties have had an impact on the recognition rates as the main output of asylum policy. No such impact was found. However, asylum seekers themselves have reacted to the expressed positions of governing parties on immigration by lodging their applications in countries with higher expressed support for immigrants and multicultural policies. So, indirectly, party positions have made an impact. But, again, we have to be careful to distinguish the statistical significance of this effect from its substantive significance (which appears to be rather small in view of the estimated effect sizes).

Somewhat surprisingly, the economic variables have much smaller and uncertain effects than expected. GDP per capita is positively and significantly associated with asylum application shares, but the estimate of the effect overlaps with zero in some of the models (more specifically when we control for the unmodeled country differences with fixed effects for the countries). This implies that, once we take into account the other covariates (including population), the wealth of a nation hardly has any impact on the asylum applications that a country gets. In fact, GDP per capita seems to have a stronger effect on recognition rates. The effect of unemployment on recognition rates remains highly uncertain, losing and gaining significance depending on the exact model specification. In any case, significant or not, the impact is likely to be small in substantive terms. And, while in several countries rising unemployment has been associated with fewer asylum applications, overall the effect is too heterogeneous across countries to be significantly different from zero in the aggregate analysis.

What is also remarkable in its absence is the effect of European integration on asylum applications shares and recognition rates. Despite the slow institutionalization of a common European asylum space since the late 1990s, there is no evidence of any time-trends that transform the flows of asylum applications, the distribution of recognition rates, and their reciprocal relationships. It could be that the effects of EU policy need more time to filter through to the member states' policies, but the absence of

evidence for a European effect fits into the picture of relatively insulated national asylum systems that the rest of the analysis suggests.

The article also highlights the variety of conclusions one can reach about the determinants of asylum applications and recognition shares depending on the country under investigation. In some states, like the Netherlands and Switzerland, a picture of highly strategic asylum seekers and responsive governments would find empirical support. In others, strong effects of economic variables are present. In the majority of the countries, however, time series analysis would reveal no patterns at all. So the choice of empirical setting for the analysis matters a lot, and we should be careful *generalizing* findings from single destination country studies. At the same time, delving in more detail into the experiences of one county of asylum destination, or tracing the pattern of applications from one source country has an advantage when it comes to isolating truly *causal* effects and revealing the mechanisms that shape the past and future of asylum policy.

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Figure 1. Regression coefficients and 95% confidence intervals for the effects of four exogenous variables on the logit-transformed yearly country shares of asylum applications. MA1 – complete pooling. MA2 – fixed Country and Year intercepts, MA3 – multilevel model (random intercepts for Country and Year), MA4 – origin-specific multilevel model (random intercepts for Origin, Country and Year). All models include a lagged dependent variable and a control for population.
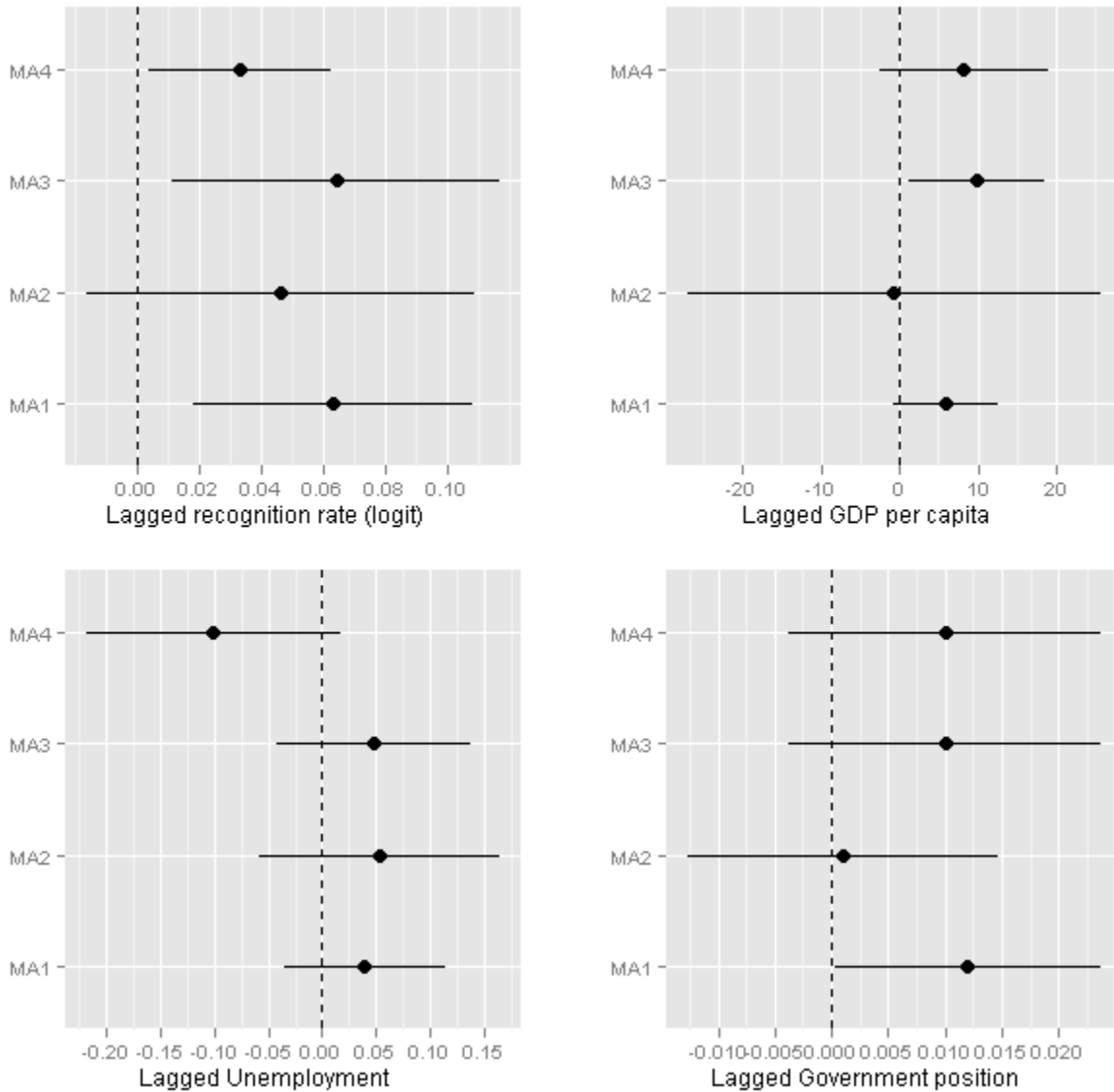
Figure 2 Predicted number of asylum applications according to the estimates of MA.1 for different values of the asylum recognition rate (all other variables held at their means).
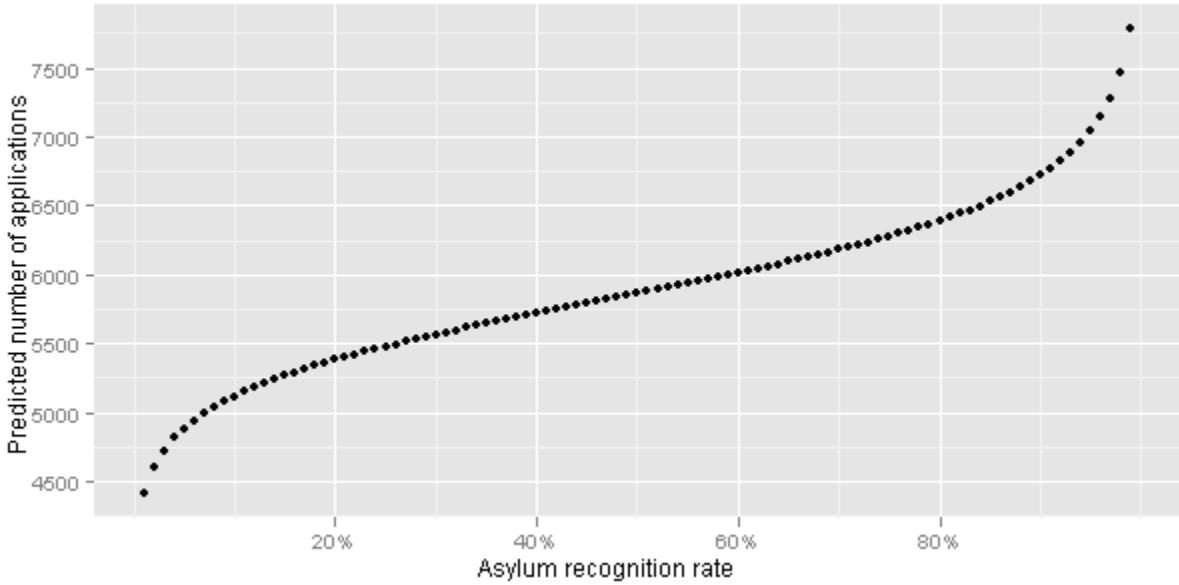
Figure 3. Regression coefficients and 95% confidence intervals for the effects of four exogenous variables on the logit-transformed asylum recognition rates (country/year). MB1 – complete pooling. MB2 – fixed Country and Year intercepts, MB3 – multilevel model (random intercepts for Country and Year), MB4 – origin-specific multilevel model (random intercepts for Origin, Country and Year). All models include a lagged dependent variable and a control for population.
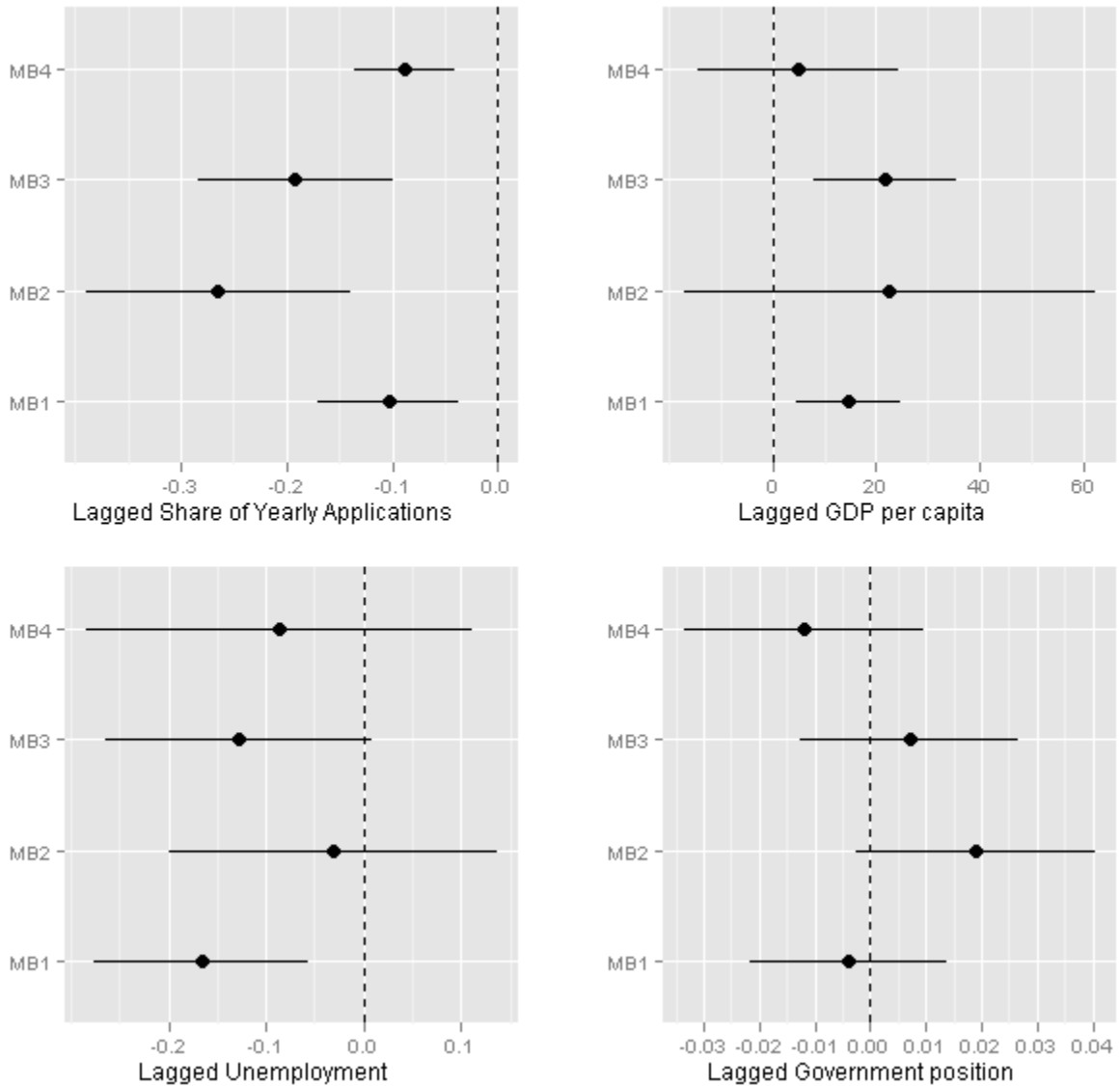
Figure 4. Predicted asylum recognition rate for different values of asylum applications shares according to the estimates of model MB.1 (top panel) and MB.2 (bottom panel). All other variables held at their means.
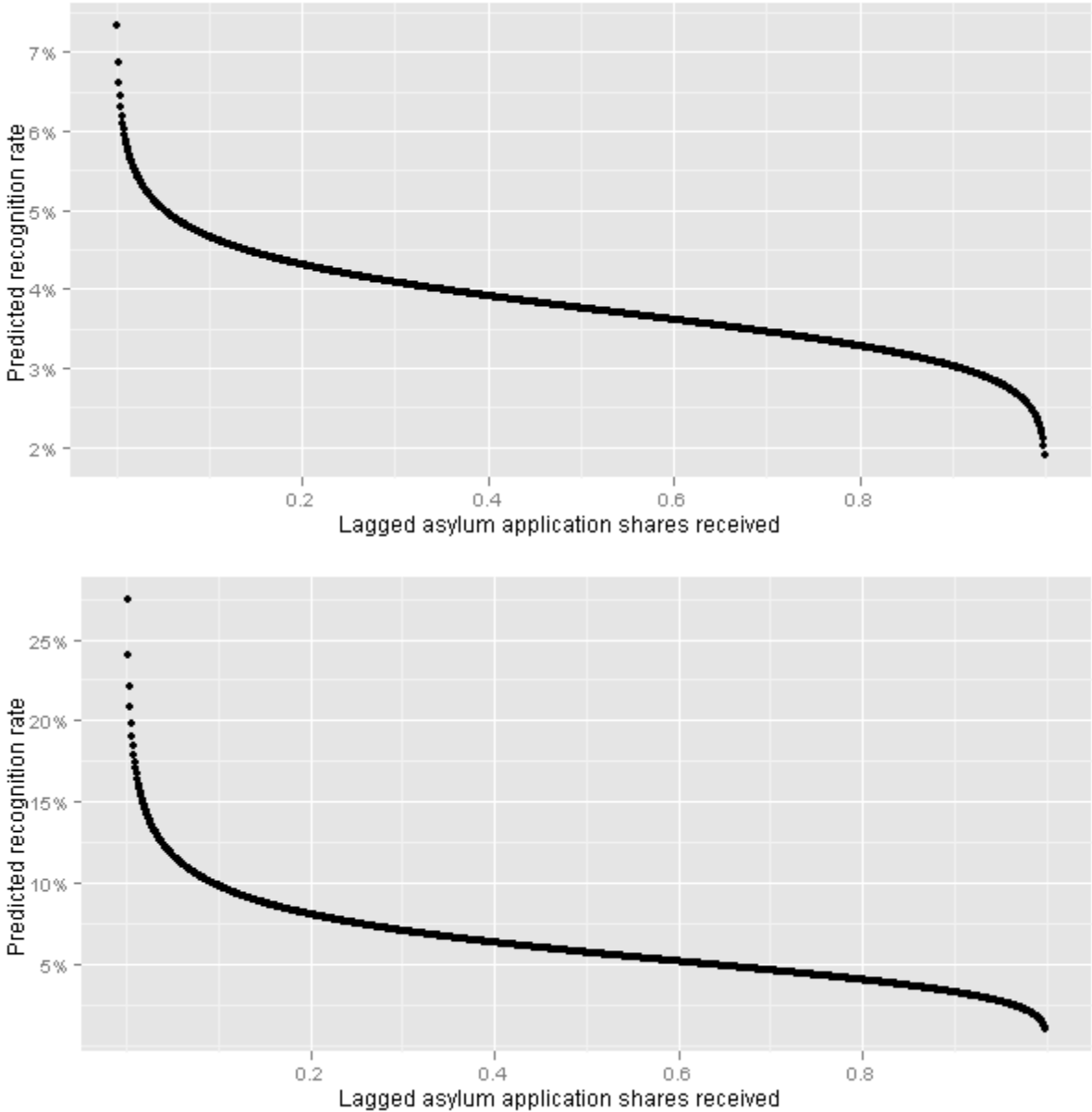
Table 1. Summary of findings: presence and direction of the effects and association of the effects to different levels of variation

OUTCOME	EFFECT Recognition rate	Applications shares	Unemployment	Government positions	GDP per capita
Applications shares	Positive, *between- & within- country*	/	No effect	No effect	Positive, *between- country*
Recognition rate	/	Negative, *between- & within- country*	Negative (?), *between- country*	No effect	Positive, *between country*

Table 2. Results from the time-series analysis of the relationship between asylum applications and recognition rates. ADF= augmented Dickey-Fuller unit root test. GRANGER=bivariate Granger causality tests (the outcome variable in parentheses); COINT= Phillips & Ouliaris Cointegration tests; N=Number of observations (years).

Country	ADF (Appl)	ADF (Rates)	GRANGER (Appl)	GRANGER (Rates)	COINT	N
Austria	no	no	no	no	no	22
Belgium	no	no	**positive**	no	no	22
Denmark	no	no	no	no	no	15
Finland	no	no	no	no	no	19
France	no	no	no	no	no	23
Germany	no	no	no	no	no	23
Greece	no	no	no	no	no	22
Ireland	no	**yes**	no	**negative**	no	18
Italy	no	**yes**	**positive**	no	no	23
Norway	no	no	no	no	no	20
Portugal	no	**yes**	no	no	no	22
Spain	no	no	no	no	no	22
Sweden	no	no	no	no	no	17
Switzerland	no	no	**positive**	**negative**	no	23
the Netherlands	no	no	**positive**	no	no	23
UK	no	no	no	no	no	23