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Examining the 'Pull Effect' Hypothesis in the Context of Migrant Regularisations

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Executive Summary

This study examines whether Ireland's 2022 regularisation scheme exerted a "pull effect" on asylum migration flows. Using Generalized Synthetic Control Methods (GSCM) applied to monthly asylum application data from Eurostat (2017-2025), we find no statistically significant evidence that the regularisation program increased asylum applications to Ireland.

Research Context and Motivation

The "pull effect" hypothesis claims that regularisation programs attract additional irregular migration. This claim appears often in policy debates, but empirical evidence remains limited and geographically concentrated, with most studies focusing on the United States (1986 IRCA) and Spain (2005 amnesty). Existing quantitative research suffers from methodological limitations, such as reliance on annual migrant stock data that lacks the temporal precision needed to capture immediate migratory responses to policy.

Ireland's 2022 scheme offers a suitable case for testing if a pull effect exists. The program comprised two strands: one for long-term undocumented residents (open January 31st - July 31st, 2022) and another for asylum seekers in prolonged procedures (open February 7th - August 7th, 2022). The scheme received 6,548 submissions covering 8,311 people, with a 97% approval rate among decided cases.

Methodology

We employ GSCM to construct a synthetic counterfactual for Ireland using a donor pool of comparable EU/EFTA countries (Austria, Switzerland, Belgium, Netherlands, Luxembourg, Denmark, Finland, Iceland, Norway, Sweden). The method uses interactive fixed effects to model time-varying confounders and estimate average treatment effects. We analyze asylum applications in two specifications: inverse hyperbolic sine (IHS) transformation and raw counts. Control variables include GDP per capita, unemployment rates, non-EU migrant stocks, asylum recognition rates, and COVID-19 travel restrictions, all lagged by three months.

Main Findings

The analysis produces null results across both specifications. The IHS specification estimates an average treatment effect on the treated (ATT) of 1.092 units (SE = 0.673, p = 0.105), while the count specification yields an ATT of 1,081 applications (SE = 751.7, p = 0.150). Neither estimate achieves conventional statistical significance. Time-varying ATT estimates show no consistent pattern of positive effects in the immediate post-treatment period. Some marginally significant positive effects appear around March-May 2024, likely reflecting confounding factors such as the UK's Rwanda asylum scheme rather than delayed regularisation effects.

Robustness checks restrict analysis to non-Ukrainian flows, limit the study period to 2023, and exclude Austria from the donor pool, respectively. All checks confirm the null finding.

Limitations and Interpretation

The findings demand cautious interpretation given severe identification challenges. Ireland's regularisation scheme opened not long before Russia's full-scale invasion of Ukraine, a

massive shock that substantially altered European migration patterns. The near-simultaneous relaxation of COVID-19 travel restrictions created additional "catch-up effects" as migration resumed in the aftermath of the pandemic. The UK-Rwanda asylum scheme announcement in April 2022 may have diverted flows toward Ireland through the Common Travel Area. These events violate the synthetic control method's core assumption.

The null results therefore admit multiple interpretations: (1) no pull effect exists; (2) an effect exists but is masked by contemporaneous shocks; or (3) effects operate on populations or timescales our data cannot capture.

Implications

For policymakers, this study demonstrates that the empirical basis is weak for regularisation's pull effects. The hypothesis remains intuitively straightforward, but rigorous causal testing proves difficult in practice. Migration policies operate within complex political, economic, and geopolitical environments that confound clean identification of policy effects.

For researchers, this exercise illustrates when quantitative methods for causal inference encounter their limits: technically valid estimation procedures can yield substantively ambiguous results when core identifying assumptions are violated by real-external shocks beyond researchers' control.

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ACRONYMS

ATT	Average Treatment effect on the Treated
EU	European Union
GSCM	Generalized Synthetic Control Method
UK	United Kingdom

THE MIRREM PROJECT

MIrreM examines estimates and statistical indicators on the irregular migrant population in Europe as well as related policies, including the regularisation of migrants in irregular situations.

MIrreM analyses policies defining migrant irregularity, stakeholders' data needs and usage, and assesses existing estimates and statistical indicators on irregular migration in the countries under study and at the EU level. Using several coordinated pilots, the project develops new and innovative methods for measuring irregular migration and explores if and how these instruments can be applied in other socio-economic or institutional contexts. Based on a broad mapping of regularisation practices in the EU as well as detailed case studies, MIrreM will develop 'regularisation scenarios' to better understand conditions under which regularisation should be considered as a policy option. Together with expert groups that will be set up on irregular migration data and regularisation, respectively, the project will synthesise findings into a Handbook on data on irregular migration and a Handbook on pathways out of irregularity. The project's research covers 20 countries, including 12 EU countries and the United Kingdom.

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1. INTRODUCTION

The regularisation of irregular immigrants is a controversially discussed topic. Debates on regularisation go back to the 1970s when first explicit measures to regularise irregular immigrants were adopted, often targeting labour migrants who lost their legal residents or who encountered difficulties in regularising their stay after entering on tourist visa (Böhning, 1983). Initially discussed mainly as a 'technical' instrument – as a corrective mechanism to address gaps and unintended outcomes in labour migration systems, it became more controversially discussed especially after the 2000s and an issue of contention between different EU Member States.

One of the most central objections against the implementation of regularisation measures has been the claim that regularisations exert a pull-effect and thus function as a driver of irregular migration and conversely, undermine the deterrent effect of enforcement policies such as return (Czaika et al., 2024). The claim of a pull effect is not the only objection against regularisation: other objections are that regularisations are not sustainable and many migrants fall back into irregularity; that regularisation rewards unlawful behaviour, sending an unwanted message to both the population and migrants and undermining the integrity of migration management as such; that regularisation disadvantages migrants who respect migration rules and enter a territory only when they obtained or hold the required permissions and that it leads to "immigration into the welfare state" (Cyrus and Kraler, 2025).

This paper focuses on the pull argument as the most widely held objection against regularisation. The popularity of the pull effect hypothesis arguably stems from its intuitive, easily understandable and suggestive formulation (Kohlenberger, 2025). Another aspect of the 'pull factor talk' (Stierl, 2021) is that it can be invoked in relation to a wide range of different issues – the pull factor of liberal, or for that matter, the deterrent effect of restrictive asylum policies (Hatton, 2020), the welfare state as a magnet for migration (Giulietti, 2014; Müller, 2025), or Search and Rescue operations by NGOs as a driver of irregular migration (Rodríguez Sánchez et al., 2023), to name but a few instances when the 'pull factor' argument has been invoked.

Formulated in the most general way, the pull factor hypothesis is about the "(perceived) image of openness of a receiving country" as a pull-factor for migration (Hadj-Abdou, 2014, p. 647). In relation to regularisation, the debate is about, on the one hand, the perceived openness of a given country's migration policy towards irregular migrants in general, for example because of the availability of permanently available regularisation mechanisms, on the other hand, it is about the effects of specific programmes – or policy changes liberalising access to a legal status for irregular immigrants.

This paper examines these policy debates on the pull effect of regularisation, takes stock of the existing academic literature, and in the empirical core of the paper undertakes an empirical assessment of regularisation using the Irish regularisation of 2022 as a case study.

Before going into detail, a clarification of the term regularisation is required. Regularisation can be defined as "an official, state-defined process that grants a residence status to individuals who were previously in an irregular situation" (Ahrens and Kraler, 2025: 25). Limiting regularisation to 'state-definied processes' specifically meant to grant a residence status to migrants who previously did not have one distinguishes it from other policies or processes that result in a legal residence status, for example individual refugee status determination processes, or obtaining some other permission to stay available from within the country or by briefly returning to the country of origin. Regularisation is also distinct from collective changes of residence status as an effect of large-scale policy changes , for example the 2004 wave of EU enlargement that de facto regularised many migrants from Eastern European new EU Member States or Temporary Protection in the case of Ukrainian citizens (Cf. Kraler, 2009). Yet the distinction between regularisation as defined here and other policies that enable formerly irregular migrants to acquire legal residence is blurred, and ultimately an analytical question.

What is more, also the definition of migrants in an irregular situation needs qualification. Often some migrants' targeted by regularisation are not irregularly staying sensu strictu, but also include other migrants in a precarious legal situation, such as persons obliged to leave whose return was suspended, long-term asylum seekers and others.

The remainder of the paper is structured as follows: in the next section (section 2), we review the existing literature on the effects of regularisation. Section 3 describes and justifies the choice of the Irish case study; section 4 describes the methodology, chapter 5 presents results, which are discussed in section 6.

2. THE EFFECTS OF REGULARISATION – A LITERATURE OVERVIEW

This section, partially based on Czaika et al. (2024), reviews the scientific literature on the effects of regulariSation measures.

2.1 THEORETICAL PREDICTIONS

Migration theories predict that regularisation policies might affect future migration flows. According to rational choice and cost-benefit frameworks (Riosmena, 2024), regularisation policies should signal reduced migration risks and increased benefits, thereby leading to a "pull effect" of immigration. People may interpret regularisation programs as evidence that the destination country will eventually accept and integrate unauthorized migrants, even if their initial entry or stay violates immigration law (Baldwin-Edwards & Kraler, 2009). This expectation could shape prospective migrants' timing and destination choices, encouraging them to undertake journeys or select countries based on expectation of regularisation opportunities (De Haas et al., 2019).

Social network theory suggests a complementary mechanism: regularisation grants formal legal status to previously undocumented migrants, which may enhance their capacity to facilitate migration through family reunification, remittances, information flows, and material assistance to network members in origin countries (Riosmena, 2024). The combination of individual expectations and network effects could amplify migration flows following regularisation announcements or implementations.

The claims about pull effect have influenced policy discourse. For example, Spain's 2005 large-scale regularisation drew criticism from other EU states, who feared it would lead to secondary migration and place pressure on their welfare systems (Finotelli & Arango, 2011). This concern was reflected in the 2008 European Pact on Immigration and Asylum, which discouraged mass regularisations in favor of individualized assessments for humanitarian or economic reasons (ibid.).

2.2 LIMITED EVIDENCE FOR PULL EFFECT

Empirical evidence on pull effects suggests more muted or context-dependent impact than theory predicts. First, the information assumption underlying the pull effect logic may be questionable. Neumayer (2004) frames asylum applications as rational choices based on expected benefits, including economic conditions, welfare access, policy strictness, and existing migrant networks. Yet his findings also reveal that economic downturn conditions in destination countries do not deter asylum seekers, possibly due to limited or distorted prior knowledge and perceptions (Neumayer, 2004). Boland and others (2024) document that asylum seekers arriving in Spain usually learned about protection opportunities and procedures after arrival, rather than gaining such knowledge pre-departure for decision-

making. Their interviews illustrate that destination choices were often driven by cultural familiarity or affective connections (such as football fandom) instead of informed assessment of asylum policies and conditions (Boland et al., 2024). If potential migrants similarly lack prior knowledge about regularisation programs, then their responses may be weaker, delayed, or even absent compared to prediction from rational choice models.

Research suggests that migrants' decisions may value economic opportunities more than regularisation policies alone. Studies show the primacy of employment factors: In their panel regression, Matsui and Raymer (2020) find that lower unemployment rates in destination countries predict higher asylum inflows. In a survey in Senegal, Beber et al. (2024) find that potential migrants rank "good income generation opportunities" among the top considerations in destination choice (p. 7); Many of them lack "knowledge of European asylum procedures" (p. 18). Kubal (2013) further demonstrate the primacy of economic factors, showing that migrants regularised in one EU country may move to another for better economic conditions, even at the risk of becoming irregular again. Therefore, the rights to employment granted by regularisation may carry more weight than the legal status change itself.

What Regularisation Actually Achieves: Labor Market Outcomes

Studies on large-scale regularisations reveal that legalisation can significantly improve migrants' labor market participation. Fasani et al. (2022) show that regularised migrants tend to experience higher employment rates, better wages, and contribute more to public finances – largely because legal status reduces vulnerability and allows access to formal employment. These findings are supported by a range of studies (Chassambouli & Peri, 2015; Fasani, 2015; Amuedo-Dorantes & Bansak, 2011; Kaushal, 2006; Kossoudji & Cobb-Clark, 2002), which report sustained improvements in employment outcomes following regularisation.

Bansak et al. (2015) argue that legal status significantly affects immigrants' employment prospects, while Constant & Zimmermann (2013) emphasize that when regularisation is combined with broader integration strategies, long-term economic inclusion improves. Reyneri (2001) adds context by showing how informal labor markets in Southern Europe affect both the opportunities and vulnerabilities faced by undocumented workers. Ottaviano & Peri (2012) find that integrating undocumented migrants has neutral or even positive effects on native wages, countering fears of job displacement.

Other research, such as that by Lozano & Sorensen (2011), quantifies the economic benefits of legal status, while Pan (2012) shows that legalisation also supports skill development. Several studies (OECD, 2000; Baldwin-Edwards & Kraler, 2009, Ahrens et al. 2025) highlight administrative obstacles and variations in how regularisation policies are applied across Europe that render an assessment of the policy impact more challenging, considering the gap between policies on paper and policies in practices.

Overall, evaluating regularisation's pull effect remains challenging due to contradictory research findings and methodological hurdles. The next subsection discusses the methodological challenges therein.

2.3 METHODOLOGICAL CHALLENGES

It is difficult to measure the impact of regularisation policies because the observed outcomes result from multiple interacting forces. Like other migration policies, regularisation programs operate in environments influenced by economic cycles, political environments, enforcement regimes, and existing migration networks (Czaika & de Haas, 2013; Massey & Pren, 2012). An endogeneity problem arises: regularisation programs and structural factors influence each other, thereby complicating causal attribution.

Besides, the focus differs based on (1) analysing macro- versus micro-level outcomes and (2) evaluating permanent regularisation mechanisms versus temporary regularisation programs.

Macro-level vs micro-level approaches

Macro-level analyses typically examine aggregated migration indicators such as asylum applications, irregular border apprehensions, and stocks of irregular residents, combined with aggregated contextual factors like GDP growth, unemployment rates, and enforcement intensity (Wehinger, 2014; OECD, 2000). These approaches facilitate cross-country comparisons and the detection of broad trends, such as the generally limited "pull effects" of amnesty programs (Brick, 2011; Orrenius & Zavodny, 2012). However, macro analyses cannot observe the mechanisms of individual decision-making.

Micro-level analyses use survey or administrative microdata to study regularised populations (see Amuedo-Dorantes & Bansak, 2011; Kossoudji & Cobb-Clark, 2002). These approaches reveal heterogeneity in outcomes by skill, gender, and legal history, and illuminate behavioral mechanisms such as the role of expectations and social capital. However, they are often case-specific and limited in scope. In a similar vein, there are also a variety of studies examining the impact of regularisation, or expected regulariation on migration aspirations surveying prospective migrants (Wong and Kosnac, 2017; Lafleur and Marfouk, 2025).

Permanent versus temporary regularisation measures

Temporary one-off regularisations, such as Spain's 2005 amnesty program, are easier to evaluate because they create clear before-after periods and distinct treatment groups. Event studies, difference-in-differences, and synthetic control approaches can credibly estimate their impacts on both regularised migrants and irregular inflows (see Devillanova et al., 2018; Kaushal, 2006; Orrenius & Zavodny, 2003). For example, Larramona and Sanso-Navarro (2016) adopt synthetic control method to examine Spain's 2005 amnesty program constructing a synthetic counterfactual to isolate the policy effect from concurrent trends.

Permanent regularisation mechanisms are harder to evaluate. Ongoing pathways lack a discrete start date, and their effects diffuse over time. Moreover, permanent schemes are often endogenous to existing migration pressures that complicate causal analysis (Baldwin-Edwards & Kraler, 2009). Comparative or synthetic control methods using countries without

such policies as comparators are sometimes employed, but results remain sensitive to unobserved confounders.

3. EMPIRICAL CASE

This section introduces why we choose to study Ireland's 2022 regularisation scheme, its timeline and outcome.

3.1 CASE RATIONALE

Several gaps exist in the literature on the relationship between regularisation and migration flow that limit our understanding of policy effects. First, qualitative studies illustrate how individual migrants respond to regularisation opportunities (Boland et al., 2024; van Meeteren, 2014), but these studies cannot demonstrate the scale or magnitude of migration flow attributable to regularisation programs. The aggregate flow responses remain underexplored. Second, quantitative studies' geographic coverage is limited, with most empirical work concentrated on the United States (the 1986 Immigration Reform and Control Act) and Spain (the 2005 amnesty program) (Elias et al., 2025; Orrenius & Zavodny, 2003). This geographic concentration is not generalizable to smaller European countries and more recent times. Third, existing synthetic control applications suffer from data limitations: Larramona & Sanso-Navarro (2016) rely on migrant stock data derived from the annual EU Labor Force Survey, which introduces substantial temporal lag and limited precision for capturing short-term flow responses to policy interventions.

We address these gaps by analyzing Ireland's 2022 regularisation scheme using Generalized Synthetic Control Methods applied to high-frequency asylum application data. Ireland represents an understudied European context and a relatively small but rapidly growing asylum system; These characteristics differ meaningfully from previously examined cases. The temporal precision of Eurostat's monthly asylum application data allows us to capture immediate responses that annual stock measures would miss. This is important given that pull effects – should they exist – manifest relatively quickly following program announcement and implementation.

3.2 IRELAND'S 2022 REGULARISATION SCHEME

In December 2021, the Irish government announced a regularisation scheme to address the status of long-term undocumented migrants residing in the country. The scheme comprised two strands with different eligibility criteria and timelines (Polakowski & Quinn, 2022).

Strand 1: Long-Term Undocumented Migrants

The primary strand opened for online applications on January 31st, 2022 and closed on July 31st the same year. Applicants must demonstrate continuous residence in Ireland for at least four years prior to the scheme's launch (i.e., since January 31st, 2018), or three years for families with children under 18. Applicants could include their spouse or partner, as well as eligible children living with them. Successful applicants received a Stamp 4 immigration

permission granting full access to the labor market for an initial two-year period. This residency time counts toward naturalization eligibility.

Strand 2: International Protection Applicants

A separate strand for asylum seekers opened on February 7th, 2022 and closed on August 7th the same year. This strand targeted asylum seekers who had been in the application process for at least two years prior to the opening date, with continuous residence on a Temporary Residence Certificate. Unlike Strand 1, this strand required individual applications. Successful applicants similarly received Stamp 4 permission with unrestricted labor market access.

Outcomes and Scale

By the end of the scheme, the authorities received 6,548 submissions covering 8,311 people, of which 86% were individual applications and 14% family applications. The largest applicant groups by nationality were Brazilian (1,495), Pakistani (1,290), Chinese (1,157), Filipino (752), Nigerian (440), Indian (312), and Bangladeshi (280). As of February 2023, 5,368 people had received decisions, with a 97% approval rate (5,197 positive and 97 negative decisions, as well as 74 withdrawn applications).

4. METHODOLOGY

This section documents the generalized synthetic control method, its identification assumptions, and the underlying data.

4.1 GENERALIZED SYNTHETIC CONTROL ANALYSIS

To estimate the effect of Ireland's 2022 regularisation program on asylum application flows, we employ the Generalized Synthetic Control Method (GSCM) developed by Xu (2017). GSCM extends traditional synthetic control by deploying an interactive fixed effects framework that can better accommodate time-varying confounders and treatment effects. (Blair & Solodoch, 2025) adopted this method to examine the effect of the 2017 Italy-Libya agreement on asylum related migration flow to Italy.

In our scenario, GSCM constructs a counterfactual for Ireland through the following step: First, fitting a latent factor model on control countries during the pre-treatment period; Second, estimating Ireland-specific factor loadings by projecting Ireland's pre-treatment outcomes onto the learned factor space; and third, imputing Ireland's counterfactual post-treatment outcomes using these loadings and post-treatment factors from controls. The method yields average treatment effects on the treated (ATT) along with parametric bootstrap standard errors (S.E.) clustered at the country level. The procedure includes cross-validation to optimally select the number of latent factors (Xu, 2017).

Identifying Assumptions and Threats

To establish causality, synthetic control method requires the following identifying assumptions (Adhikari, 2022; Blair & Solodoch, 2025).

1. No Anticipation

This assumes that prior to the regularisation program, migrants did not anticipate the regularisation opportunity and therefore did not change migration timing or routes. The scheme, announced in December 2021 and opened February 2022, should allow for a clean pre-treatment window (2017-2021). While applications in December 2021 and January 2022 could reflect anticipatory behavior, visual inspection of the pre-treatment trends suggests no obvious anticipatory surge.

2. No Contemporaneous Shocks

This assumes that without the regularisation program, the asylum flow to Ireland would have evolved according to the same latent factor structure as control countries. Several external shocks may violate this assumption.

Ukraine crisis (February 2022): Russia invaded Ukraine on a full scale 24 days after Ireland's regularisation scheme opened. The observed changes in asylum flows around February 2022

include Ukrainians who were channeled into the asylum system before the temporary protection's implementation (Eurostat, 2025e).

COVID-19 restriction relaxation (Q1 2022): EU countries began lifting COVID-19 restrictions around the same time when Ireland launched regularisation scheme. This relaxation likely gave rise to a "catch-up effect": people who delayed travel during the pandemic resumed movement, which might have inflated asylum applications independent of the regularisation policy. In addition, countries relaxed travel restrictions on different timelines. We attempt to control for this with stringency indices.

UK Rwanda asylum scheme (April 2022): 2.5 months after Ireland's regularisation scheme opened, the UK government announced that it would remove asylum seekers arriving "illegally" after January 1st, 2022 to Rwanda for processing. This announcement potentially diverted asylum seekers from the UK to Ireland via the Common Travel Area, even if the first scheduled deportation flight (June 14th, 2022) was cancelled pending legal challenges. Concerns about UK-to-Ireland asylum flows became more pronounced in 2024 after the Safety of Rwanda Act passed.

3. No Interference or Spillovers

This assumes that Ireland's regularisation did not affect asylum flows to control countries. In our case, the regularisation most directly affected Ireland itself, but spillovers might have induced spatial diversion, i.e., asylum seekers who would have applied elsewhere redirected to Ireland, thereby reducing control country applications. Information spillover might also be possible: News of Ireland's program could have suppressed applications to control countries if migrants hoped for potential similar programs elsewhere. Considering Ireland's small size in the EU asylum system (typically less than 2% of total EU applications), large spillovers seem unlikely.

4.2 DATA AND SOFTWARE

Our unit of analysis is country-month observations from January 2017 to June 2025. The treatment is defined as a binary indicator equal to 1 for Ireland in February 2022 onwards (when the regularisation scheme opened) and 0 otherwise.

The dependent variable is the first-instance asylum applications per country-month, obtained from Eurostat (2025). We analyze this outcome in two specifications. One is count specification, namely raw application counts; The other is inverse hyperbolic sine (IHS) transformed specification, which approximates log transformation while handling zeros.

We follow recent quantitative studies of migration policy effects (Blair & Solodoch, 2025; Tjaden & Heidland, 2025) in using asylum data to measure the outcome. This approach does not measure irregular migration flow directly but only serves as a proxy. Asylum applicants are legally present during processing and only become irregular after rejection if they remain.

Pragmatically, asylum applications represent the only migration flow indicator that is high frequency, consistently measured, and publicly available across our study period. Alternative measures lack temporal precision or introduce additional confounding factors: border

apprehensions vary with enforcement intensity; rejected asylum applications vary with administrative capacity and policy restrictiveness; overstay estimates are unavailable in high frequency; and total immigration flows are too aggregated to isolate regularisation's effects.

The donor pool is restricted to EU/EFTA countries with similar institutional conditions and no major regularisation programs during the study period: Austria, Switzerland, Belgium, the Netherlands, Luxembourg, Denmark, Finland, Iceland, Norway, and Sweden. We exclude Southern European countries of Italy, Greece, and Spain because they conducted contemporaneous or recent large-scale regularisations. We also exclude large West European countries of the UK, France, and Germany due to their more complex migration inflows.

To capture potential pull factors and confounding influences, we include the following control variables. They are all lagged by a quarter to reflect information availability for migration decisions:

- GDP per capita chain-linked to 2020 Euro prices, IHS-transformed, and interpolated from quarterly to monthly (Eurostat, 2025c)
- Unemployment rate (Eurostat, 2025d)
- Non-EU migrant population, IHS-transformed (OECD, 2025)
- Asylum recognition rate, interpolated from quarterly to monthly (Eurostat, 2025b)
- COVID-19 travel restriction stringency index, imputed as zero before 2020 and after 2022 (Hale et al., 2023)

Table 1 below summarizes the dataset.

Table 1 Descriptive Statistics

Variable	Mean	SD	Min	Median	Max	Histogram
Regularisation	0.0	0.2	0.0	0.0	1.0	
Asylum application	1012.4	1413.9	0.0	475.0	18210.0	
…IHS	6.9	1.3	0.0	6.9	10.5	
Recognition rate	0.6	0.2	0.1	0.5	1.0	
GDP per capita	104.3	6.4	81.1	104.3	131.2	
…IHS	5.3	0.1	5.1	5.3	5.6	
Unemployment	5.5	1.5	2.6	5.2	10.0	
Non-EU migrant stock	416731.2	258839.3	5593.0	487038.0	888641.0	
…IHS	13.2	1.3	9.3	13.8	14.4	
Travel restriction	0.6	1.1	0.0	0.0	4.0	

For the analysis, we adopted R (R Core Team, 2025) and the following packages: eurostat (Lahti et al., 2023), OECD (Persson, 2021), tidyverse (Wickham et al., 2019), countrycode (Arel-Bundock, Yetman, et al., 2025), imputeTS (Moritz et al., 2025), fect (Liu et al., 2025), modelsummary (Arel-Bundock, Gassen, et al., 2025).

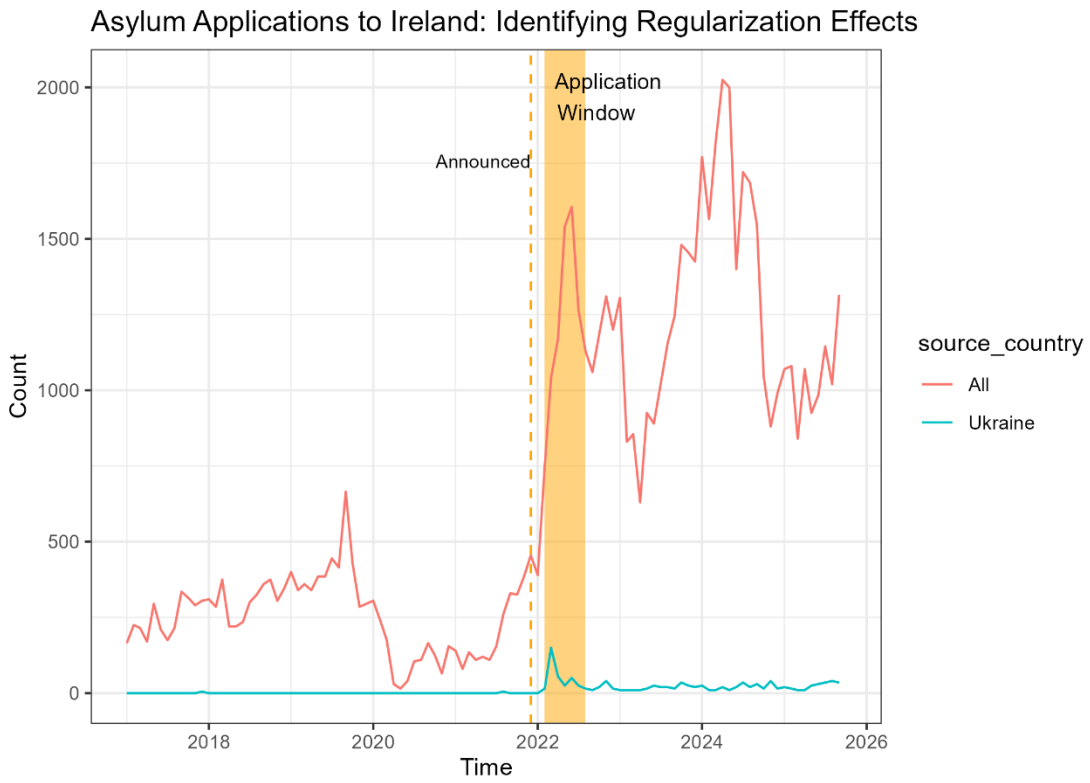
5. RESULTS

This section evaluates Ireland's real-world and counterfactual trends before presenting the main findings.

5.1 TRENDS AND COUNTERFACTUAL

Figure 2 displays how many first-instance asylum applications Ireland received each month between 2017 and 2025. Monthly applications averaged 200-400 throughout 2017-2019, dropped to around 100 during COVID lockdowns in 2021, then surged beginning in early 2022. Applications exceeded 1,500 per month during the regularisation window, peaked at 2,000 in early 2024, and remained elevated (800-1,300 monthly) through 2025. In this surge, Ukrainian asylum seekers played virtually no role except a brief spike in March 2022 (reaching about 150 applications).

Figure 1 Monthly Asylum Application to Ireland



Figures 3-4 show that the GSCM analysis produces reasonable pre-treatment fit. Across specifications, Ireland's trajectory and the GSCM-predicted counterfactual one both float closely, experience similar COVID-induced disruptions, and recover comparably through the pre-treatment period. Post-treatment, Ireland diverges upward above the counterfactual.

The exception was April 2022 when the GSCM counterfactual surged briefly above that of Ireland.

Figure 2 GSCM Counterfactual Asylum Trend based on IHS-transformed Level

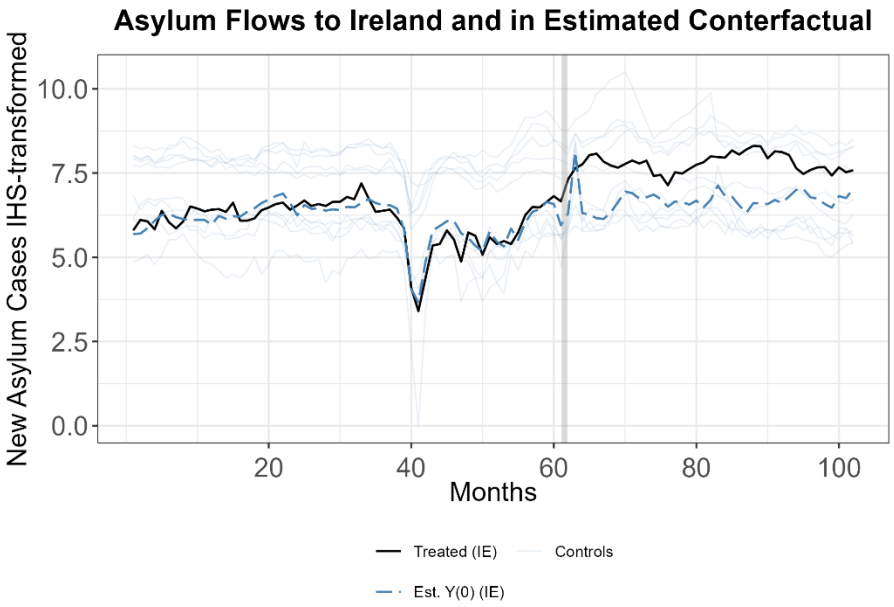
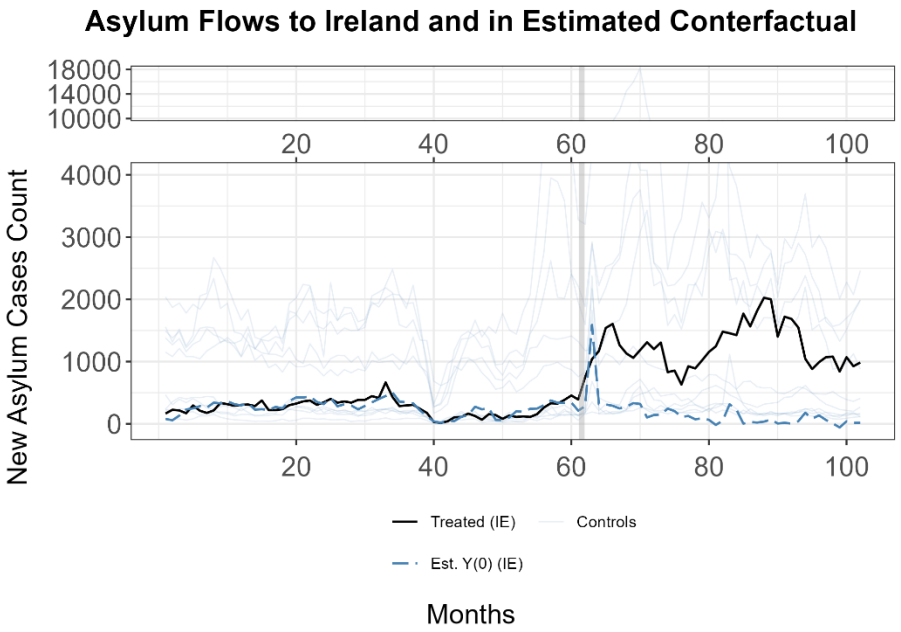


Figure 3 GSCM Counterfactual Asylum Trend based on Count Level



5.2 MAIN FINDINGS

The generalized synthetic control analysis produces null results across both outcome specifications. When asylum applications are analyzed using IHS transformation, the average treatment effect on the treated (ATT) is 1.092 units (SE = 0.673, p = 0.105), while the count specification estimates an ATT of 1,081 applications (SE = 751.7, p = 0.150). Neither estimate reaches conventional statistical significance, which offers no credible evidence of a pull effect from Ireland's regularisation scheme.

The two specifications differ in precision. The IHS specification achieves tighter confidence intervals (95% CI: -0.23 to 2.41) compared to the count specification's huge uncertainty (95% CI: -392 to 2,555). The latter result indicates the scale mismatch between Ireland's relatively small asylum system and those of the donor countries. However, both specifications converge on the same substantive conclusion – the analysis do not support the hypothesis that regularisation led to additional asylum flows.

Table 2 Generalized synthetic control analysis results (2017-01 to 2025-06)

Variable	M1: IHS	M2: Count
Regularisation	1.09	1081
S.E.	0.67	751.70
Asylum recognition rate	-0.16	14.55
S.E.	0.36	1028.30
GDP per capita (IHS)	1.13	654.57
S.E.	1.11	2187.80
Unemployment rate	-0.10	52.25
S.E.	0.08	160.9
Non-EU migrant stock (IHS)	0.54	245.17
S.E.	1.07	1135.30
COVID travel restriction	-0.00	-6.05
S.E.	0.08	208.00
Country FE	X	X
Month FE	X	X
Observations	1122	1122

Note: All p-values > 0.1; Standard errors (S.E.) are based on parametric bootstraps (blocked at the country level) of 1,000 times.

The time-varying ATT estimates largely support the null finding. In the IHS specification (Figure 5), the immediate post-treatment period of February-April 2022 sees no consistent pattern of positive effect. Months 4-8 post treatment (June-October 2022) observe positive effects. Around months 25 to 28 (March-May 2024), there were marginally significant positive effects that likely reflects other confounding factors, especially the UK's push-through of Rwanda asylum scheme. All these effects do not replicate in the count specification (Figure 6), where no coefficients were statistically significant.

The pre-treatment period shows one troubling sign. Statistically significant negative effects appear in the IHS specification of months -15 and -14 (November-December 2020), which coincides with COVID-19 restrictions. This suggests that, at times, the model may be capturing pandemic-induced disruptions that differ between Ireland and the donor pool.

Figure 4 Estimated Effect and 95% confidence interval by month based on IHS specification

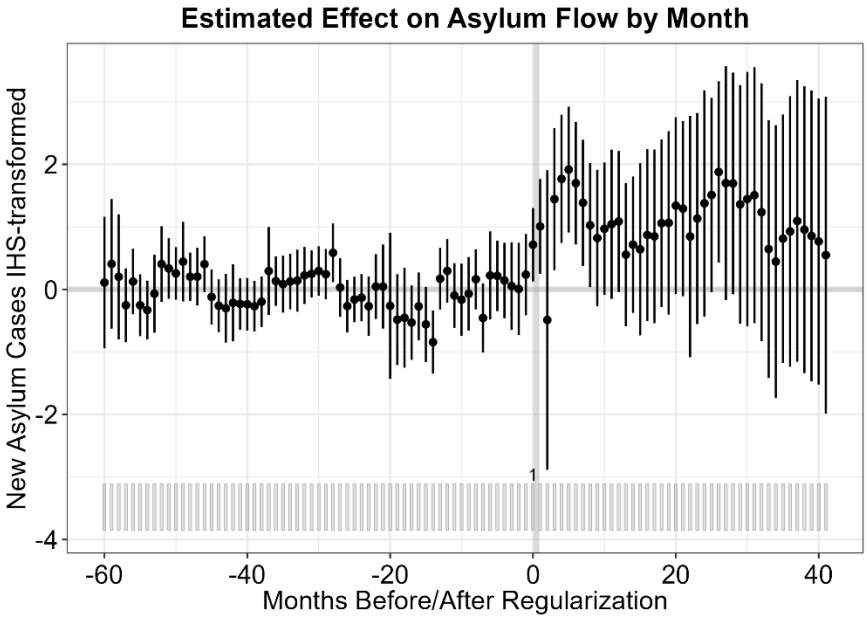
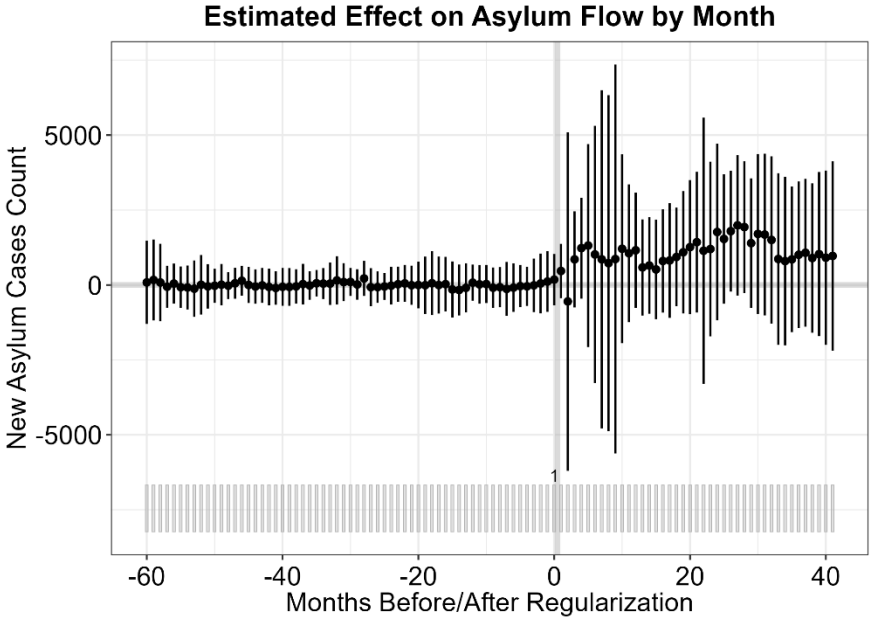


Figure 5 Estimated effect and 95% confidence interval by month based on count specification



5.3 ROBUSTNESS CHECK

We performed three robustness checks. First, we analyze non-Ukrainian asylum flows to isolate the shock of the Russia-Ukraine war. This specification's asylum applications and recognition rates pertain to non-Ukrainians. Second, we restrict the study period until the end of 2023 to avoid the potential spillover induced by the UK's *Safety of Rwanda (Asylum and Immigration) Act* which were proposed in December 2023 and passed in April 2024. Third, we drop Austria from the donor pool due to its extreme outcome values. After this exclusion, the outcome variable's highest value of 18,210 applications decrease to 5,000.

The alternative specifications' results are similar to the main results; Neither the IHS-based nor the count-based model identify statistically significant treatment effects. When modeling on non-Ukrainian flow, the ATT estimation is 0.898 (SE = 0.724, p = 0.214) for IHS specification and 1046 (SE = 759.2, p = 0.168) for count specification. When restricting the study period until 2023, IHS specification estimates an ATT of 1.092 (SE = 0.672, p = 0.104) and count specification an ATT of 1081 (SE = 751.7, p = 0.150). When excluding Austria, the IHS model estimates an ATT of 1.247 (SE = 0.807, p = 0.122) and the count model an ATT of 989.6 (SE = 738.9, p = 0.180). The robustness checks reinforce the core finding: the estimated effect is likely due to chance, i.e. not statistically significant.

6. DISCUSSION AND CONCLUSION

We find no statistically significant evidence of pull effect.

6.1 CONCLUSION: NO PULL-EFFECT OBSERVED

This study examined to what extent Ireland's 2022 regularisation scheme affect subsequent asylum flow to that country. Based on Generalized Synthetic Control analysis of monthly Eurostat asylum application data from January 2017 to June 2025, we find no statistically significant evidence of a pull effect. Instead, we observe null results across model specifications.

6.2 LIMITATIONS AND STRENGTHS

The study faces severe identification challenges that statistical method cannot fully resolve. Ireland's regularisation scheme started on January 31st, 2022, just 24 days before Russia's full-scale invasion of Ukraine triggered a huge displacement crisis in Europe. This coincidence means that any observed changes in Ireland's asylum flows after February 2022 could reflect the Ukraine crisis, the regularisation policy, or both. The synthetic control method assumes that without treatment, Ireland would have evolved similarly to the donor pool. This assumption becomes questionable when a massive external shock affects EU countries differently based on their geographic location, existing diaspora connections, and policy responses to Ukrainian displacement.

The relaxation of COVID-19 travel restrictions compounds this problem. EU countries dismantled pandemic restrictions on different timelines throughout 2022, giving rise to catch-up migration effects that varied across countries. Although we included the Oxford stringency index as a control variable, it showed no significant relationship with asylum flows in either specification. This null coefficient could indicate measurement problems, absorption by fixed effects, or the absence of a linear relationship. Regardless of the explanation, the control does not adequately address the confound.

The UK-Rwanda asylum announcement on April 14th, 2022 also occurred within the treatment window. This announcement could have confounded the regularisation effect by diverting asylum seekers from the UK to Ireland via the Common Travel Area. Our robustness check restricting analysis to 2023 attempts to exclude later Rwanda-related spillovers but cannot address the initial announcement effect.

Apart from identification challenges, the donor pool also presents difficulties. Ireland differs from other European countries in ways that may violate parallel trends assumptions. The island's geography limits arrival routes. The Common Travel Area with Northern Ireland is a unique migration corridor unavailable to other EU countries. The Irish asylum system is much

smaller than most donor countries; the scale mismatches may explain the enormous uncertainty in count-level estimates (95% CI: -392 to 2,555 applications).

Therefore, the null finding is subjected to several interpretations. The null results could indicate that no pull effect exists, that an effect exists but is masked by contemporaneous shocks, or that the effect operates on populations or timescales our data cannot capture. The wide confidence intervals in the count specification leave considerable room for effects in either direction.

Against these limitations, the study possesses several strengths. We employ monthly asylum application data, which offers much greater temporal precision than the annual migrant stock measures used in prior synthetic control studies of regularisation. The GSCM approach with cross-validation is a methodologically appropriate choice because it can estimate time-varying effects and accommodate time-varying confounders. The null findings are unlikely a statistical artefact as the results converge across IHS-transformed and count specifications, time-period restriction, and donor pool modification.

6.3 IMPLICATIONS

For policymakers, this study offers a cautionary tale about the empirical basis for the pull effect claims. “Regularisation attracts more migrants” may be an intuitive and catchy claim, but empirical testing proves difficult. Additionally, a broader challenge is that migration policies are embedded in other changes in the political, economic, and geopolitical environment, as shown in the confluence of shocks in early 2022. Policymakers who invoke or dismiss pull effects should acknowledge that the empirical evidence remains weak in either direction.

For researchers studying regularisation’s effect, case selection is important for causal inference. Ireland’s case illustrates that programs that coincide with multiple confounding events may produce results that are methodologically defensible but substantively inconclusive. Future studies should prioritize regularisation programs implemented during relatively stable periods without major contemporaneous shocks.

This study contributes to understanding when causal inference fails as much as what the causal effect is. The synthetic control requires a clean pre-treatment fit without contemporaneous shocks. Our exercise illustrates what happens when these conditions are not met: technically valid estimation procedures yield substantively ambiguous results. This exercise may prove valuable for future researchers facing similar identification challenges.

7. REFERENCE AND APPENDIX

7.1 ESTIMATED REGULARISATION EFFECT OVER TIME

Table 3 ATT of regularisation on asylum flow (IHS) by month before and after regularisation opened

Month	ATT	S.E.	CI.lower	CI.upper	p.value
-60	0.11	0.54	-0.94	1.16	0.84
-59	0.41	0.53	-0.63	1.44	0.44
-58	0.20	0.51	-0.80	1.20	0.69
-57	-0.25	0.30	-0.85	0.34	0.40
-56	0.12	0.27	-0.40	0.65	0.64
-55	-0.25	0.25	-0.75	0.24	0.31
-54	-0.33	0.24	-0.80	0.14	0.17
-53	-0.07	0.32	-0.69	0.55	0.83
-52	0.40	0.31	-0.20	1.01	0.19
-51	0.33	0.25	-0.15	0.82	0.18
-50	0.25	0.21	-0.17	0.67	0.23
-49	0.44	0.32	-0.19	1.08	0.17
-48	0.20	0.20	-0.18	0.59	0.31
-47	0.20	0.24	-0.26	0.67	0.39
-46	0.40	0.23	-0.04	0.85	0.08
-45	-0.12	0.23	-0.56	0.32	0.59
-44	-0.26	0.22	-0.69	0.16	0.22
-43	-0.30	0.28	-0.85	0.25	0.28
-42	-0.21	0.31	-0.83	0.40	0.50
-41	-0.23	0.21	-0.65	0.18	0.27
-40	-0.24	0.21	-0.66	0.18	0.27
-39	-0.27	0.21	-0.67	0.13	0.19
-38	-0.20	0.21	-0.60	0.21	0.34
-37	0.29	0.36	-0.41	1.00	0.41
-36	0.13	0.20	-0.26	0.53	0.51
-35	0.08	0.23	-0.37	0.54	0.72
-34	0.13	0.23	-0.32	0.57	0.58
-33	0.14	0.25	-0.36	0.63	0.58
-32	0.22	0.23	-0.23	0.68	0.34
-31	0.25	0.19	-0.13	0.62	0.20

-30	0.29	0.20	-0.10	0.69	0.15
-29	0.24	0.21	-0.16	0.65	0.24
-28	0.58	0.24	0.11	1.05	0.01
-27	0.03	0.24	-0.44	0.50	0.90
-26	-0.27	0.21	-0.69	0.15	0.21
-25	-0.16	0.19	-0.53	0.20	0.38
-24	-0.13	0.19	-0.51	0.25	0.49
-23	-0.27	0.24	-0.75	0.20	0.26
-22	0.05	0.26	-0.47	0.56	0.86
-21	0.04	0.34	-0.63	0.72	0.90
-20	-0.26	0.60	-1.43	0.90	0.66
-19	-0.48	0.37	-1.21	0.24	0.19
-18	-0.45	0.41	-1.25	0.34	0.26
-17	-0.53	0.30	-1.13	0.07	0.08
-16	-0.27	0.28	-0.82	0.27	0.33
-15	-0.56	0.31	-1.16	0.04	0.07
-14	-0.84	0.26	-1.35	-0.34	0.00
-13	0.17	0.25	-0.32	0.66	0.50
-12	0.29	0.26	-0.21	0.80	0.26
-11	-0.10	0.26	-0.62	0.42	0.71
-10	-0.17	0.29	-0.74	0.41	0.57
-9	-0.07	0.30	-0.66	0.52	0.81
-8	0.16	0.25	-0.32	0.64	0.51
-7	-0.46	0.28	-1.01	0.10	0.11
-6	0.22	0.36	-0.48	0.93	0.54
-5	0.22	0.29	-0.35	0.78	0.45
-4	0.14	0.31	-0.46	0.75	0.64
-3	0.05	0.36	-0.65	0.75	0.88
-2	0.01	0.38	-0.73	0.75	0.99
-1	0.24	0.33	-0.42	0.89	0.48
0	0.71	0.30	0.13	1.30	0.02
1	1.01	0.39	0.25	1.77	0.01
2	-0.49	1.22	-2.89	1.91	0.69
3	1.44	0.58	0.31	2.58	0.01
4	1.77	0.52	0.74	2.79	0.00
5	1.92	0.51	0.91	2.92	0.00
6	1.70	0.50	0.72	2.68	0.00
7	1.38	0.51	0.38	2.39	0.01
8	1.02	0.51	0.03	2.02	0.04
9	0.82	0.56	-0.27	1.91	0.14
10	0.97	0.54	-0.09	2.03	0.07
11	1.04	0.61	-0.15	2.23	0.09

12	1.09	0.58	-0.04	2.21	0.06
13	0.56	0.58	-0.59	1.70	0.34
14	0.71	0.56	-0.38	1.81	0.20
15	0.64	0.70	-0.74	2.02	0.36
16	0.87	0.70	-0.51	2.24	0.22
17	0.85	0.71	-0.54	2.24	0.23
18	1.06	0.68	-0.28	2.40	0.12
19	1.06	0.75	-0.40	2.53	0.16
20	1.34	0.72	-0.08	2.75	0.06
21	1.29	0.71	-0.11	2.69	0.07
22	0.85	0.99	-1.09	2.78	0.39
23	1.13	0.86	-0.56	2.82	0.19
24	1.38	0.92	-0.43	3.18	0.14
25	1.51	0.79	-0.05	3.06	0.06
26	1.88	0.74	0.43	3.33	0.01
27	1.70	0.95	-0.17	3.57	0.08
28	1.69	0.90	-0.08	3.47	0.06
29	1.36	0.97	-0.55	3.27	0.16
30	1.44	1.04	-0.59	3.48	0.16
31	1.51	1.05	-0.54	3.55	0.15
32	1.23	1.05	-0.83	3.30	0.24
33	0.64	1.05	-1.42	2.71	0.54
34	0.44	1.11	-1.74	2.63	0.69
35	0.81	1.01	-1.17	2.80	0.42
36	0.93	1.10	-1.24	3.09	0.40
37	1.09	1.15	-1.16	3.35	0.34
38	0.95	1.17	-1.34	3.25	0.41
39	0.85	1.19	-1.47	3.18	0.47
40	0.77	1.17	-1.52	3.06	0.51
41	0.55	1.29	-1.99	3.08	0.67

Table 4 ATT of regularisation on asylum flow (count) by month before and after regularisation opened

Month	ATT	S.E.	CI.lower	CI.upper	p.value
-60	86.09	706.67	-1298.95	1471.14	0.90
-59	168.11	688.62	-1181.56	1517.78	0.81
-58	83.39	658.95	-1208.13	1374.92	0.90
-57	-60.40	357.18	-760.45	639.66	0.87
-56	46.85	339.42	-618.41	712.11	0.89
-55	-74.05	352.65	-765.24	617.14	0.83
-54	-84.17	374.23	-817.65	649.31	0.82
-53	-124.09	480.71	-1066.27	818.09	0.80
-52	6.38	506.93	-987.19	999.96	0.99
-51	-47.09	377.06	-786.12	691.93	0.90
-50	-25.75	290.24	-594.61	543.11	0.93
-49	9.21	353.94	-684.49	702.91	0.98
-48	-23.07	228.38	-470.68	424.54	0.92
-47	57.65	263.15	-458.12	573.42	0.83
-46	140.37	253.18	-355.84	636.59	0.58
-45	-0.43	307.48	-603.09	602.23	1.00
-44	-52.57	292.66	-626.17	521.04	0.86
-43	-13.10	296.99	-595.19	568.99	0.96
-42	-65.89	312.16	-677.71	545.94	0.83
-41	-99.78	286.55	-661.40	461.84	0.73
-40	-62.48	322.15	-693.88	568.92	0.85
-39	-65.15	320.97	-694.24	563.94	0.84
-38	-47.33	291.31	-618.29	523.63	0.87
-37	29.28	345.02	-646.95	705.51	0.93
-36	-16.46	243.88	-494.47	461.54	0.95
-35	58.43	224.74	-382.05	498.91	0.79
-34	46.65	263.85	-470.47	563.78	0.86
-33	45.72	362.96	-665.66	757.11	0.90
-32	152.73	410.71	-652.25	957.72	0.71
-31	96.88	323.31	-536.80	730.56	0.76
-30	100.63	238.54	-366.89	568.15	0.67
-29	16.44	259.27	-491.71	524.59	0.95
-28	218.35	298.62	-366.94	803.64	0.46
-27	-73.17	323.29	-706.80	560.46	0.82
-26	-71.29	267.28	-595.15	452.58	0.79
-25	-51.24	228.79	-499.65	397.17	0.82
-24	-23.35	320.68	-651.86	605.17	0.94
-23	24.05	298.16	-560.34	608.44	0.94
-22	53.65	313.09	-560.01	667.30	0.86
-21	-8.98	333.79	-663.20	645.23	0.98

-20	-2.15	395.98	-778.26	773.97	1.00
-19	-8.88	487.99	-965.33	947.56	0.99
-18	59.94	542.56	-1003.45	1123.34	0.91
-17	-2.80	485.62	-954.60	949.01	1.00
-16	27.52	464.23	-882.35	937.39	0.95
-15	-149.97	478.31	-1087.43	787.49	0.75
-14	-167.29	433.23	-1016.40	681.82	0.70
-13	-95.37	416.88	-912.44	721.70	0.82
-12	77.24	307.72	-525.88	680.35	0.80
-11	20.23	327.97	-622.59	663.04	0.95
-10	31.00	324.11	-604.24	666.24	0.92
-9	-92.51	344.04	-766.82	581.80	0.79
-8	-72.73	342.41	-743.85	598.39	0.83
-7	-130.64	457.70	-1027.71	766.42	0.78
-6	-89.69	412.37	-897.91	718.54	0.83
-5	-39.02	358.98	-742.62	664.57	0.91
-4	-45.81	331.98	-696.47	604.86	0.89
-3	-13.18	455.05	-905.05	878.69	0.98
-2	50.97	508.71	-946.09	1048.03	0.92
-1	113.94	515.60	-896.62	1124.49	0.83
0	178.13	436.25	-676.91	1033.17	0.68
1	466.37	462.66	-440.43	1373.18	0.31
2	-549.78	2882.72	-6199.81	5100.25	0.85
3	854.34	817.98	-748.87	2457.56	0.30
4	1228.86	859.69	-456.10	2913.82	0.15
5	1315.23	1727.08	-2069.78	4700.24	0.45
6	1018.15	2189.29	-3272.78	5309.09	0.64
7	856.32	2878.46	-4785.36	6498.00	0.77
8	727.19	2858.96	-4876.26	6330.65	0.80
9	865.61	3309.70	-5621.28	7352.50	0.79
10	1208.10	1606.24	-1940.08	4356.28	0.45
11	1058.45	1172.06	-1238.75	3355.66	0.37
12	1157.47	982.00	-767.22	3082.15	0.24
13	585.35	818.47	-1018.81	2189.52	0.47
14	650.09	821.55	-960.11	2260.29	0.43
15	518.59	847.94	-1143.35	2180.53	0.54
16	799.37	878.45	-922.36	2521.09	0.36
17	817.09	976.71	-1097.22	2731.39	0.40
18	932.48	839.00	-711.92	2576.89	0.27
19	1091.08	1041.92	-951.04	3133.19	0.30
20	1263.15	1140.21	-971.63	3497.93	0.27
21	1428.89	1197.53	-918.23	3776.01	0.23

22	1141.22	2265.98	-3300.01	5582.45	0.61
23	1198.59	1486.46	-1714.81	4111.99	0.42
24	1766.62	1502.64	-1178.49	4711.73	0.24
25	1535.69	1103.35	-626.84	3698.21	0.16
26	1794.96	1028.94	-221.73	3811.66	0.08
27	1989.84	1193.21	-348.82	4328.49	0.10
28	1931.75	1121.17	-265.71	4129.21	0.08
29	1395.04	1103.48	-767.74	3557.83	0.21
30	1703.56	1361.74	-965.39	4372.52	0.21
31	1681.69	1376.08	-1015.37	4378.75	0.22
32	1502.74	1423.59	-1287.44	4292.92	0.29
33	866.81	1460.55	-1995.82	3729.44	0.55
34	797.39	1434.11	-2013.42	3608.20	0.58
35	854.24	1238.26	-1572.71	3281.18	0.49
36	1008.16	1248.39	-1438.65	3454.97	0.42
37	1074.00	1258.38	-1392.39	3540.38	0.39
38	898.33	1270.83	-1592.44	3389.10	0.48
39	1029.69	1396.72	-1707.84	3767.21	0.46
40	909.83	1482.26	-1995.34	3815.01	0.54
41	967.49	1612.22	-2192.40	4127.38	0.55

7.2 REFERENCE

Adhikari, B. (2022). A Guide to Using the Synthetic Control Method to Quantify the Effects of Shocks, Policies, and Shocking Policies. *The American Economist*, *67*(1), 46–63. https://doi.org/10.1177/05694345211019714

Ahrens, J. Kraler, A. , Legarda, I. and Levoy, M. (eds) (2025), Handbook on Regularisation Policies: Practices, Debates and Outcomes. Krems: University of Krems Press. https://doi.org/10.48341/chqk-ey86.

Ahrens, J.; Kraler, A. (2025). Regularisation as a policy tool: defining scope, purpose and limits. In: Ahrens, J., Kraler, A., Legarda, I., Levoy, M., Handbook on Regularisation Policies: Practices, Debates and Outcomes. University of Krems Press. 23-31, University of Krems Press, Krems. https://doi.org/10.48341/chqk-ey86.

Amuedo-Dorantes, C., & Bansak, C. (2011). The impact of amnesty on labor market outcomes: A panel study using the Legalized Population Survey. *Industrial Relations: A Journal of Economy and Society*, 50(3), 443–471. https://www.econbiz.de/Record/the-impact-of-amnesty-on-labor-market-outcomes-a-panel-study-using-the-legalized-population-survey-amuedo-dorantes-catalina/10009389279.

Arel-Bundock, V., Gassen, J., Eastwood, N., Huntington-Klein, N., Schwarz, M., Elbers, B., McDermott, G., & Wallrich, L. (2025). *modelsummary: Summary Tables and Plots for Statistical Models and Data: Beautiful, Customizable, and Publication-Ready* (Version 2.5.0) [Computer software]. https://cran.r-project.org/web/packages/modelsummary/

Arel-Bundock, V., Yetman, C. J., Enevoldsen, N., Bacher, E., & Meichtry, S. (2025). *countrycode: Convert Country Names and Country Codes* (Version 1.6.1) [Computer software]. https://cran.r-project.org/web/packages/countrycode/

Baldwin-Edwards, M., & Kraler, A. (2009). Study on practices in the area of regularisation of illegally staying third-country nationals in the Member States of the EU. In M. Baldwin-Edwards & A. Kraler (Eds.), *REGINE Regularisations in Europe*. Pallas Publication.

Bansak, C., Simpson, N. & Zavodny, M. (2015). The Economics of Immigration. Oxford: Routledge.

Beber, B., Ebert, C., & Sievert, M. (2024). *Is Intent to Migrate Irregularly Responsive to Recent German Asylum Policy Adjustments?* (No. 4759862). SSRN. https://doi.org/10.2139/ssrn.4759862

Blair, C. W., & Solodoch, O. (2025). *Offshoring Migration Policy: Migrant Responses to Restrictive Policies in Transit Countries* (No. 5236161). Social Science Research Network. https://doi.org/10.2139/ssrn.5236161

Böhning, W. R. (1983). Regularising the Irregular. *International Migration*, *21*(2), 159–173. https://doi.org/10.1111/j.1468-2435.1983.tb00454.x

Boland, C., Morente, D., & Sanchez-Montijano, E. (2024). “Knowledge is confused”: Rethinking pull factors in light of asylum and refugee integration policies. *International Migration*, *62*(5), 237–253. https://doi.org/10.1111/imig.13303

Brick, K. (2011). Regularizations in the European Union: The Contentious Policy Tool. Migration Policy Institute. https://www.migrationpolicy.org/research/regularizations-european-union-contentious-policy-tool.

Chassambouli, A. & Peri, G. (2015). The labor market effects of reducing the number of illegal immigrants. *Review of Economic Dynamics*, 18(4): 792–821. https://doi.org/10.1016/j.red.2015.07.005.

Constant, A.F. & Zimmermann, K.F. (2013). International Handbook on the Economics of Migration. Cheltenham: Edward Elgar.

Cyrus, N. & Kraler, A. (2025). Are objections against regularisation justified? An ethical,political and pragmatic appraisal of regularisation. MIrreM Briefing Paper. Krems: University for Continuing Education Krems (Danube University Krems) https.//doi.org/10.5281/zenodo.17060895

Czaika, M., & de Haas, H. (2013). The Effectiveness of Immigration Policies. *Population and Development Review*, *39*(3), 487–508.

Czaika, M., Gu, J., Kraler, Albert, & Rössl, L. (2024). *Migration responses to (non-)enforcement* (Working Paper No. D2.2). https://fair-return.org/working-paper-migration-responses-to-non-enforcement/

De Haas, H., Czaika, M., Flahaux, M., Mahendra, E., Natter, K., Vezzoli, S., & Villares-Varela, M. (2019). International Migration: Trends, Determinants, and Policy Effects. *Population and Development Review*, *45*(4), 885–922. https://doi.org/10.1111/padr.12291

Devillanova, C., Fasani, F., & Frattini, T. (2018). Employment of Undocumented Immigrants and the Prospect of Legal Status: Evidence from an Amnesty Program. *ILR Review*, *71*(4), 853–881. https://doi.org/10.1177/0019793917743246.

Elias, F., Monras, J., & Vázquez-Grenno, J. (2025). Understanding the Effects of Granting Work Permits to Undocumented Immigrants. *Journal of Labor Economics*, *43*(3), 763–802. https://doi.org/10.1086/730122

Eurostat. (2025a). *Asylum applicants by type, citizenship, age and sex—Monthly data* [Dataset]. Eurostat. https://doi.org/10.2908/MIGR_ASYAPPCTZM

Eurostat. (2025b). *[migr_asydcfstq] First instance decisions on applications by type of decision, citizenship, age and sex—Quarterly data* [Dataset]. https://doi.org/10.2908/MIGR_ASYDCFSTQ

Eurostat. (2025c). *[Namq_10_pc] Gross domestic product (GDP) and main components per capita* [Dataset]. https://doi.org/10.2908/NAMQ_10_PC

Eurostat. (2025d). *[une_rt_m] Unemployment by sex and age—Monthly data* [Dataset]. https://doi.org/10.2908/UNE_RT_M

Eurostat. (2025e, October 21). *Reference metadata: Applications (migr_asyapp)*. https://ec.europa.eu/eurostat/cache/metadata/en/migr_asyapp_esms.htm

Fasani, F. (2015). Understanding the role of immigrants' legal status: Evidence from policy experiments. CESifo Economic Studies, 61(3–4): 722–763. https://doi.org/10.15185/izawol.430.v2.

Fasani, F., Frattini, T., & Minale, L. (2022). (The Struggle for) Refugee Integration into the Labour Market: Evidence from Europe. Journal of Economic Geography, 22(2): 351–393. https://doi.org/10.1093/jeg/lbab011.

Finotelli, C., & Arango, J. (2011). Regularisation of unauthorised immigrants in Italy and Spain: Determinants and effects. *Documents d'Anàlisi Geogràfica*, *57*(3), 495–515.

Giulietti, C. (2014). Back to Articles The welfare magnet hypothesis and the welfare take-up of migrants. *IZA World of Labor*. https://doi.org/10.15185/izawol.37

Hadj-Abdou, L. (2014). Immigrant Integration and the Economic Competitiveness Agenda: A Comparison of Dublin and Vienna. *Journal of Ethnic and Migration Studies*, *40*(12), 1875–1894. https://doi.org/10.1080/1369183X.2014.887462

Hale, T., Petherick, A., Anania, J., Mello, B. A. de, Angrist, N., Barnes, R., Boby, T., Cameron-Blake, E., Cavalieri, A., Folco, M. D., Edwards, B., Ellen, L., Elms, J., Furst, R., Green, K., Goldszmidt, R., Hallas, L., Kira, B., Luciano, M., … Hale, T. (2023). *Variation in government responses to COVID-19* [Working Paper]. http://www.bsg.ox.ac.uk/research/publications/variation-government-responses-covid-19

Hatton, T. J. (2020). Asylum Migration to the Developed World: Persecution, Incentives, and Policy. *Journal of Economic Perspectives*, *34*(1), 75–93. https://doi.org/10.1257/jep.34.1.75

Kaushal, N. (2006). Amnesty programs and the labor market outcomes of undocumented workers. *Journal of Human Resources*, 41(3), 631–647. https://ideas.repec.org/a/uwp/jhriss/v41y2006i3p631-647.html

Kohlenberger, J. (2025, February 17). Pull Faktor. *FluchtforschungsBlog – Beiträge Zu Flucht, Asyl Und Zwangsmigration*. https://fluchtforschung.net/fluchtforschung-gegen-mythen-9/#Kohlenberger

Koser, K. (2010). Dimensions and dynamics of irregular migration. *Population, Space and Place*, *16*(3), 181–193. https://doi.org/10.1002/psp.587.

Koser, K., & Kuschminder, K. (2016). *Understanding irregular migrants' decision making factors in transit* (Research 21; Occasional Research Series). Australian Goverment. Department of Immigration and Border Protection. https://www.homeaffairs.gov.au/research-and-stats/files/occasional-paper-21.pdf.

Kossoudji, S. A., & Cobb-Clark, D. A. (2002). Coming out of the shadows: Learning about legal status and wages from the legalized population. *Journal of Labor Economics*, 20(3), 598–628. http://dx.doi.org/10.1086/339611.

Kraler, A. (2009). Regularisation: A misguided option or part and parcel of a comprehensive policy response to irregular migration?. IMISCOE Working Paper No.24. https://doi.org/10.5281/zenodo.17770539

Kubal, A. (2013). Conceptualizing Semi-Legality in Migration Research. Law & Society Review, 47(3), 555–587. https://doi.org/10.1111/lasr.12031

Kuschminder, K., & Waidler, J. (2020). At Europe's frontline: Factors determining migrants decision making for onwards migration from Greece and Turkey. *Migration and Development*, *9*(2), 188–208. https://doi.org/10.1080/21632324.2019.1601829.

Lafleur, J.-M., Marfouk, A. (2025) : Effects of Information Provision on Undocumented Migration to Europe: Evidence from a Survey Experiment, GLO Discussion Paper, No. 1655, Global Labor Organization (GLO), Essen. https://hdl.handle.net/10419/324488

Lahti, L., Huovari, J., Kainu, M., Biecek, P., Antal, D., Hernangomez, D., Lehtomaki, J., Briatte, F., Stauffer, R., Rougieux, P., Vasylytsya, A., Reiter, O., Kantanen, P., & Spinielli, E. (2023). *eurostat: Tools for Eurostat Open Data* (Version 4.0.0) [Computer software]. https://cran.r-project.org/web/packages/eurostat/index.html

Larramona, G., & Sanso-Navarro, M. (2016). Do Regularization Programs for Illegal Immigrants Have a Magnet Effect? Evidence from Spain. *The Manchester School*, *84*(2), 296–311. https://doi.org/10.1111/manc.12099

Liu, L., Liu, Z., Wang, Y., Xu, Y., Qin, T., Hu, S., & Lipkovitz, R. (2025). *fect: Fixed Effects Counterfactual Estimators* (Version 2.0.5) [Computer software]. https://cran.r-project.org/web/packages/fect/

Lozano, F.A. & Sorensen, T. (2011). The Labor Market Value to Legal Status. Bonn: IZA. https://repec.iza.org/dp5492.pdf.

Massey, D. S., & Pren, K. A. (2012). Unintended consequences of US immigration policy: Explaining the post-1965 surge from Latin America. *Population and Development Review*, 38(1), 1–29. https://doi.org/10.1111/j.1728-4457.2012.00470.x.

Matsui, N., & Raymer, J. (2020). The Push and Pull Factors Contributing Towards Asylum Migration from Developing Countries to Developed Countries Since 2000. *International Migration*, *58*(6), 210–231. https://doi.org/10.1111/imig.12708

Matsui, N., & Raymer, J. (2020). The Push and Pull Factors Contributing Towards Asylum Migration from Developing Countries to Developed Countries Since 2000. *International Migration*, *58*(6), 210–231. https://doi.org/10.1111/imig.12708.

Moritz, S., Gatscha, S., Wang, E., & Hause, R. (2025). *imputeTS: Time Series Missing Value Imputation* (Version 3.4) [Computer software]. https://cran.r-project.org/web/packages/imputeTS/

Müller, T. S. (2025). Evidence for the welfare magnet hypothesis? A global examination using exponential random graph models. *Social Forces*. https://doi.org/10.1093/sf/soaf048

Neumayer, E. (2004). Asylum Destination Choice: What Makes Some West European Countries More Attractive Than Others? *European Union Politics*, *5*(2), 155–180. https://doi.org/10.1177/1465116504042444.

OECD (2000). Some lessons from recent regularisation programmes. In OECD, Combating the Illegal Employment of Foreign Workers (pp. 53-69). OECD Publishing. https://www.oecd.org/en/publications/2000/07/combating-the-illegal-employment-of-foreign-workers_g1gh21af.html.

OECD. (2025, November 3). *International migration database*. https://data-explorer.oecd.org/vis?pg=0&bp=true&snb=26&df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_MIG_F%40DF_MIG_POPF&df[ag]=OECD.ELS.IMD&df[vs]=1.0&dq=.AUS.A..._T...&pd=2012%2C&to[TIME_PERIOD]=false&isAvailabilityDisabled=false&tm=International%20migration%20database

Orrenius, P. M., & Zavodny, M. (2003). Do amnesty programs reduce undocumented immigration? Evidence from Irca. *Demography*, *40*(3), 437–450. https://doi.org/10.1353/dem.2003.0028

Orrenius, P. M., & Zavodny, M. (2012). Economic consequences of amnesty for unauthorized immigrants. *Cato Journal*, 32, 85–106. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2245015.

Ottaviano, G. & Peri, G. (2012). Rethinking the effect of immigration on wages. *Journal of the European Economic Association*, 10(1): 152–197. https://doi.org/10.1111/j.1542-4774.2011.01052.x.

Pan, Y. (2012). The impact of legal status on immigrants' earnings and human capital: Evidence from the IRCA 1986. *Journal of Labor Research*, 33(2): 119–142. https://doi.org/10.1007/s12122-012-9134-0.

Persson, E. (2021). *OECD: Search and Extract Data from the OECD* (Version 0.2.5) [Computer software]. https://cran.r-project.org/web/packages/OECD/

Polakowski, M., & Quinn, E. (2022). *Responses to irregularly staying migrants in Ireland* (Research Report No. 140). Economic and Social Research Institute (ESRI). https://doi.org/10.26504/rs140

R Core Team. (2025). *R: A Language and Environment for Statistical Computing* (Version 4.5.1) [Computer software]. https://www.r-project.org/

Reyneri, E. (2001). Migrants' Involvement in Irregular Employment in the Mediterranean Countries of the European Union. University of Milan – Bicocca Working Paper.

Riosmena, F. (2024). Worlds in Motion Redux? Expanding Migration Theories and Their Interconnections. *Population and Development Review*, *50*(3), 677–726. https://doi.org/10.1111/padr.12630

Stierl, M. (2021, December 21). Migration Magnets, Migration Myths: The pull factor mirage. *FluchtforschungsBlog – Beiträge Zu Flucht, Asyl Und Zwangsmigration*. https://fluchtforschung.net/migration-magnets-migration-myths-the-pull-factor-mirage/

Tjaden, J., & Heidland, T. (2025). Did Merkel's 2015 decision attract more migration to Germany? *European Journal of Political Research*, *64*(1), 389–405. https://doi.org/10.1111/1475-6765.12669

Van Meeteren, M. (2014). *Irregular migrants in Belgium and the Netherlands: Aspirations and incorporation*. Amsterdam University Press. https://library.oapen.org/handle/20.500.12657/33370

Wehinger, F. (2014). Do amnesties pull in illegal immigrants? An analysis of European apprehension data. *International Journal of Migration and Border Studies*, *1*(2), 231. https://doi.org/10.1504/IJMBS.2014.066312

Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., Grolemund, G., Hayes, A., Henry, L., Hester, J., Kuhn, M., Pedersen, T. L., Miller, E., Bache, S. M., Müller, K., Ooms, J., Robinson, D., Seidel, D. P., Spinu, V., … Yutani, H. (2019). Welcome to the Tidyverse. *Journal of Open Source Software*, *4*(43), 1686. https://doi.org/10.21105/joss.01686

Wong, T.K. and Kosnac, H. (2017), Does The Legalization of Undocumented Immigrants in the US Encourage Unauthorized Immigration from Mexico? An Empirical Analysis of the Moral Hazard of Legalization. Int Migr, 55: 159-173. https://doi.org/10.1111/imig.12319

Xu, Y. (2017). Generalized Synthetic Control Method: Causal Inference with Interactive Fixed Effects Models. *Political Analysis*, *25*(1), 57–76. https://doi.org/10.1017/pan.2016.2

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