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Who feels the pressure? Labor Market Tightness and Anti-Immigrant Sentiment in Austria

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Abstract

This thesis investigates the effect of labor market tightness on the willingness to accept more immigrants in Austria, using regional-level data from four rounds of the European Social Survey (2014 - 2023). The analysis employs pooled ordinary least squares regressions with standard errors clustered at the regional level. The findings suggest that attitudes are more strongly influenced by subjective perceptions than by objective regional labor market indicators or other macroeconomic characteristics. While labor market tightness is statistically significant in some specifications, its direction suggests that more favorable labor market conditions for workers are associated with worse attitudes regarding immigrants, an outcome that contradicts the initial hypothesis of the study.

Zusammenfassung

Diese Arbeit untersucht den Einfluss der Arbeitsmarktknappheit auf die Aufnahmebereitschaft von Zuwanderern in Österreich anhand regionaler Daten aus vier Erhebungswellen des European Social Survey (2014–2023). Die Analyse erfolgt mittels gepoolter OLS-Regressionen mit regional geclusterten Standardfehlern. Die Ergebnisse deuten darauf hin, dass Einstellungen stärker von subjektiven Wahrnehmungen als von objektiven regionalen Arbeitsmarktindikatoren oder anderen makroökonomischen Merkmalen beeinflusst werden. Obwohl die Arbeitsmarktknappheit in einigen Spezifikationen statistisch signifikant ist, deutet ihre Richtung darauf hin, dass günstigere Arbeitsmarktbedingungen für Arbeitnehmer*innen mit einer schlechteren Einstellung gegenüber Zuwanderer*innen einhergehen. Dieses Ergebnis widerspricht der Hypothese der Studie.

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1 Introduction

In 2023, migration to OECD countries reached record levels for the second consecutive year. With this increase in cross-border movement, another trend has emerged: rise in anti-immigrant sentiment and a deterioration in the perception that nationals have of foreign-born individuals. This anti-immigrant sentiment has been accompanied by growing political polarization and an increase in support for right-wing parties around the world. The magnitude of movements across countries has raised concerns about the impact that immigration has on host societies, putting migration management and border control policies as a priority in political agendas and among voters' top concerns in 2024 ([OECD, 2024b](#)).

This master's thesis examines the role of labor market pressure in shaping Austrians' willingness to accept more foreign-born individuals into the country. The main research question is: **How does labor market tightness influence individuals' attitudes toward immigration at the regional level?** In addition, this research investigates whether the relationship between labor market tightness and attitudes varies by individual characteristics, such as age, education, and employment status, in order to explore possible mechanisms behind attitude formation. The idea that labor market tightness might have an impact on perception comes from Realistic Conflict Theory, which suggests that an increase in perceived competition over scarce resources can lead to the deterioration of attitudes toward out-groups ([Sherif et al., 2010](#)), this is explained in further detail in [subsection 2.3](#).

This thesis focuses on Austria due to its long and complex history with immigration, a reality that has often been overlooked both in public discourse and across the population. Historically, Austria has been shaped by migration flows coming from its time as the Austro-Hungarian Empire, where the country saw significant internal and international movement. Furthermore, post World War II, Austria recruited a significant amount of labor migrants, particularly from Turkey and Yugoslavia during the 1960s. More recently, during the refugee crisis of 2015, Austria played a central role in receiving refugees into the country ([Bischof and Rupnow, 2017](#)), bringing migration back to the center of political and public debate.

Despite its extensive migration history, Austria does not rank among the European countries with the highest number of immigrants, those are Germany, Spain, and Italy ([Eurostat, 2022](#)). This discrepancy between moderate immigration figures and a highly salient and often polarized public debate makes Austria a particularly interesting case to study the drivers of immigration attitudes, particularly since there appears to be a mismatch between perception and demographic reality. Austrians consistently express strong concerns about immigration in public opinion surveys, such as the Eurobarometer, and anti-immigration rhetoric has played a central role in the rise of right-wing parties like the FPÖ.

In this research, labor market tightness is defined as the ratio of job vacancies to the number of unemployed

individuals. This measure is obtained from a labor demand perspective, where a higher ratio (meaning a tighter labor market) indicates more job openings per unemployed person. Under this definition, a tighter labor market is generally favorable to workers, as it increases their employment opportunities and bargaining power due to the higher number of vacancies relative to job seekers. However, from the perspective of labor demand, it is less favorable for firms, as they may face greater challenges in filling positions due to the relatively higher number of openings compared to unemployed individuals.

A large and growing body of research has examined the economic impacts of migration, and many studies agree that the medium to long-term effects on native workers are either zero or slightly positive. For instance, [Card \(1990\)](#) found that mass migration from Cuba into the Miami labor market had essentially no effect on the wages or unemployment rates of less-skilled natives and other Cubans living in the area. Similarly, [Dustmann et al. \(2013\)](#) examined immigration's impact on the UK wage distribution and found that, on average, native wages slightly increased. The authors argue that this effect can be explained by the fact that immigrants were paid less than their marginal value product, which allowed firms to capture a surplus that may have benefited native workers.

Given the previously discussed findings on economic and labor market impacts, the continued rise in anti-immigrant sentiment appears difficult to understand. Studying the drivers and factors that influence perception is a crucial step in comprehending sentiment at the country level. Understanding what shapes perception, and whether labor market concerns play a role, is important not only for research but also for policymakers aiming to manage public attitudes, social cohesion, and migration policies effectively.

A significant amount of literature has focused on the factors that shape public perception that locals have on immigrants. For example, [Markaki and Longhi \(2013\)](#) explore how regional characteristics influence attitudes regarding immigration across Europe. They find that areas with a larger proportion of non-EU immigrants and higher immigrant unemployment tend to have more negative views among natives. Interestingly, regions with high unemployment among natives are associated with less anti-immigrant sentiment.

The main contribution of this thesis lies in its focus on within-country regional dynamics over time. While much of the existing literature compares countries across Europe, only a small number of studies focus on variation at the regional level. This thesis focuses on Austria and examines how public perception evolved between 2010 and 2024 using data from the European Social Survey (ESS). Conducting a regional analysis is particularly valuable, as past research suggests that individuals often form their opinions based on their local context rather than national situation ([Markaki and Longhi, 2013](#)). Additionally, this thesis uses labor market tightness as the main variable of interest, and its interaction with individual characteristics. By using tightness, this study aims to capture both labor demand and supply, offering a more comprehensive understanding of the state of the labor

market. Past research has mostly focused on unemployment.

This topic is especially relevant given the growing importance of migration for European countries. On the one hand, economic migration plays a crucial role in sustaining labor markets, particularly in aging societies. As [Münz \(2007\)](#) points out, Europe's demographic profile, characterized by low fertility and increasing longevity, is leading to a shrinking labor force. With employment levels among EU nationals already high, recruiting migrants from third countries has become a key strategy to meet growing labor demands. For European countries to remain competitive in attracting international talent, it is essential to understand public attitudes and address rising anti-immigrant sentiment. In Austria, this issue is particularly salient: between 2010 and 2020, 95% of the country's population growth was due to migration ([The Expert Council for Integration, 2020](#)).

At the same time, forced migrants, term that includes refugees and asylum seekers, constitutes a significant and sensitive dimension of international mobility. European countries are legally bound by the 1951 Refugee Convention and its 1967 Protocol, as well as by EU legal frameworks, to provide protection and access to asylum for those fleeing conflict. While this thesis focuses on public perceptions of migration more broadly, the structure of the available survey data does not allow for a distinction between attitudes regarding migrants and refugees or asylum seekers. Nonetheless, understanding the drivers of public sentiment across all categories of migrants is essential for designing inclusive and evidence-based policies that improve social cohesion and reduce tensions among the population.

The findings of this thesis suggest that labor market tightness is not consistently statistically significant across specifications. Instead, it is only marginally significant when using Ordinary Least Squares and statistically significant when using Ordered Logit for the case when subjects were asked about people that come into Austria from poorer countries outside Europe. Furthermore, the direction of the effect is not what was initially hypothesized. The evidence from this thesis shows that when the ratio between vacancies to unemployment increases, subjects appear to be less open to receiving immigrants from poorer countries. This result contradicts what is expected under the intergroup competition theory that was briefly discussed above.

Additionally, when tightness was interacted with personal characteristics, it was found that only the interaction between tightness and education years became statistically significant. And in the direction that was expected. Showing that when there is an increase in vacancies relative to the amount of unemployment, more educated individuals react more positively to this and become more open to immigration than those that have lower education.

The remainder of the thesis is structured as follows. Chapter 2 reviews the closely related literature. Chapter 3 describes the data used in the analysis and presents descriptive statistics. Chapter 4 outlines the methodology, and Chapter 5 presents the empirical results. Chapter 6 is a discussion of the findings, followed by Chapter 7,

which addresses the limitations of the study. Finally, Chapter 8 concludes the thesis.

2 Literature review

2.1 Context and past research

The body of research that has explored the economic effects of migration is large. In a well-known study, [Card \(1990\)](#) investigated the impact of the Mariel Boatlift, a mass migration event of Cuban workers into Miami, on the local labor market. He found that this sudden inflow of low-skilled workers had practically no effect on the wages or employment of low-skill native workers or other Cuban immigrants in the area.

[Dustmann et al. \(2013\)](#) conducted a similar analysis for the UK, emphasizing the importance of segmenting the labor market when conducting these type of studies. In that research they studied how immigration affected native workers across different points in the wage distribution and found that, when immigrants' skill sets differ from those of natives and capital supply is elastic, immigration tended to have either no effect or a slightly positive one on average native wages.

[Wadsworth \(2010\)](#) also examined the UK labor market and found that most immigrants, despite being highly educated, tend to work in lower-skilled jobs. His analysis, which segmented the labor force into age, skill, and time cohorts, revealed that on average, there is no evidence that immigration displaces native workers or depresses wages. While less-skilled natives may have experienced a bigger downward pressure on wages because of the increased competition, the overall effects appear to be small.

In terms of public attitudes, a rich literature has explored what shapes natives' perceptions on immigrants. Most studies highlight the complexity and multidimensionality of these attitudes, making it essential to analyze them across both individual and contextual factors.

[Moretti and Ahmed \(2024\)](#) identify two dominant theories. The first one is intergroup competition theory. This theory suggest that when economic resources, like jobs or vacancies, are scarce and the immigrant population is large, natives may perceive immigrants as a threat, increasing negative sentiment because of the increase in competition. In contrast, intergroup contact theory argues that increased exposure to immigrants fosters familiarity, trust, and reduce prejudice, which ultimately improves attitudes that locals have to them ([Pettigrew et al., 2011](#)).

[Pichler \(2010\)](#) focuses on perceived group threat across European countries, finding that both economic and cultural fears contribute to anti-immigrant sentiment. These perceived threats vary across time and countries, and are influenced by macroeconomic indicators such as GDP and unemployment. At the individual level, those with lower education, fewer skills, or who are unemployed are more likely to express negative views. At the

country level, high unemployment and low GDP are associated with more negative attitudes. Furthermore, [Scheve and Slaughter \(2001\)](#), analyzed U.S. data and also found that low-skilled workers are more likely to oppose immigration.

[Dustmann and Preston \(2007\)](#) examined the UK case in detail. This research investigated whether it was labor market concerns, welfare worries or cultural prejudice that mattered more in influencing attitudes that locals have over immigrants. They found that welfare concerns were the most significant driver of anti-immigrant attitudes in the UK, particularly among manual workers and those with lower levels of education. Cultural and racial concerns also played a role, especially when immigrants came from ethnically distant backgrounds.

Using data from the European Social Survey, [Card et al. \(2012\)](#) applied a latent factor model to disentangle economic and compositional concerns. They use data from the 2002 round of the survey, which included a special module of questions related to immigration. They found that opinions about immigration policy are shaped by both traditional economic worries, for instance, the effects on wages and taxes, and concerns about the cultural impact on the population. Compositional concerns appear as more influential when considering attitudes on immigrants from poorer countries. Not surprisingly, immigrants themselves expressed more positive views about immigration than natives. While [Card et al. \(2012\)](#) uses subjective concerns as explanatory variables to assess perception on immigrants, this thesis focuses on objective labor market conditions as the main explanatory variable.

[Boateng et al. \(2021\)](#) also used European data to examine how both individual and national-level factors shape native-born citizens' perceptions of immigrants. Their findings support intergroup competition theory, as they find that negative attitudes emerge where there is increased competition over scarce resources. They also found that individuals from wealthier, more educated countries tend to have more favorable views. Surprisingly, they found no significant relationship between unemployment rates or the absolute number of immigrants and public perception.

[Hainmueller and Hiscox \(2007\)](#), using ESS data from 2003, focused on individual level characteristics. This research found that people with higher education levels and more advanced skills tend to support immigration, regardless of the skill level of the incoming migrants. Their results contradict the traditional labor-market competition hypothesis, suggesting instead that cultural values and national identity are more influential in influencing attitudes.

The studies discussed above primarily focus on cross-country comparisons or analyze countries using variables at the national level, [Markaki and Longhi \(2013\)](#) offers a valuable contribution by examining public perceptions of immigrants at the regional level. They find that European regions with a higher share of immigrants from outside the EU and higher levels of immigrant unemployment show more negative attitudes to immigration. This

study highlights the relevance of local conditions in public perception.

2.2 The Austrian case

As highlighted in the previous section, immigrant women have played a crucial role in driving population growth in Austria in recent years. While the Austrian national population faces a demographic decline, with mortality rates exceeding birth rates, the opposite trend is observed among foreign nationals. As of 2019, foreign residents in Austria had a mortality rate of 3.1 per 1,000 residents, compared to a birth rate of 12.2 per 1,000. A similar pattern is observed in fertility rates, with native women having an average of 1.36 children, compared to 1.81 among foreign-born women. Among the latter, women from Afghanistan, Iraq, and Syria have the highest average fertility rate, at 3.14 children per woman ([The Expert Council for Integration, 2020](#)). These demographic dynamics are particularly relevant in the context of an aging society, where migrants are increasingly essential to meeting labor market demands and sustaining economic growth.

In parallel, Austria has also played a central role in responding to forced migration. During the 2015 European refugee crisis, Austria received one of the highest numbers of asylum seekers per capita in Europe. The country has remained an active actor in refugee protection: in 2023, Austria ranked fourth among European countries in terms of the number of asylum recognitions granted ([Statistik Austria, 2024](#)). This sustained influx of refugees has made integration policy a key focus of the national agenda over the past decade ([The Expert Council for Integration, 2020](#)).

Considering these demographic and humanitarian developments, an important question refers to Austria's capacity to accommodate further migration. [Poledna et al. \(2024\)](#) examine the resilience of the Austrian economy to large-scale migration flows using a macroeconomic agent-based model. By simulating a future influx of migrants similar to the 2015 crisis, the authors find that such migration can have positive effects on aggregate consumption and GDP growth. Their findings reinforce earlier literature suggesting that refugee migration does not burden the host economy but, instead supports economic growth.

Following global trends, migration has also become increasingly salient in Austrian public discourse. According to the 2024 Eurobarometer, immigration is the second most frequently cited issue among Austrians when asked to name the most pressing challenges that their country is facing ([European Commission. Directorate General for Communication., 2024](#)). This concern has also been reflected in electoral outcomes. [Halla et al. \(2017\)](#) show that local increases in immigrant inflows are associated with significant rises in support for right-wing parties, in the case of Austria, the Freedom Party of Austria (FPÖ). This finding shows how migration trends can shape public sentiment and have an impact on political dynamics. This thesis seeks to contribute to a better understanding of what drives negative attitudes toward immigrants in Austria, with a particular focus on the role of labor market conditions.

2.3 Theoretical framework and hypotheses

Attitudes on immigration are complex and multidimensional, hence, researchers often build on frameworks that combine theories of social psychology and economics. A foundational theory in social psychology is Realistic Conflict Theory, which suggests that intergroup conflict emerges when groups compete over scarce resources (Sherif et al., 2010). In the context of immigration, jobs, housing, health care and welfare can all be perceived as limited goods. Sherif's experiment demonstrated that such competition and rivalry, increases negative attitudes toward outgroups.

Economic models of attitudes on immigration often build on this theory by identifying labor market competition as a key mechanism. For example, Scheve and Slaughter (2001) apply a model in which immigrants and native workers with similar skill levels can easily substitute each other. Under this assumption, a rise in low-skilled immigration increases the supply of low-skilled labor, reducing wages for native workers with similar skill. As a consequence, low-skilled natives are predicted to exhibit more negative attitudes.

This thesis explores whether labor market tightness serves as a key explanatory factor shaping individuals' openness to receiving more immigrants in Austria. Specifically, it examines whether tighter labor markets, characterized by more vacancies relative to unemployed workers, correspond with greater openness to immigration. Realistic Conflict Theory would predict that when employment is perceived as less scarce, the competition between natives and immigrants diminishes, potentially reducing anti-immigrant sentiment.

Furthermore, the analysis investigates whether this relationship is moderated by individual characteristics such as age, education, and employment status. Previous research has found that these factors are important determinants of attitudes on immigration. However, this thesis adds value by exploring the mechanisms through which labor market vulnerability might drive these patterns. The hypothesis is that certain groups, such as older individuals and those with lower educational attainment, may be more sensitive to labor market conditions due to their relatively weaker position in the job market. The reasoning behind the selection of these characteristics, as well as the mechanisms, will be discussed in more detail in the following paragraphs.

Older workers, tend to face increased disadvantages in the labor market, particularly related to adapting to rapid technological change and the demands of an increasingly digital economy. Limited access to training opportunities also increases this vulnerability, making it harder for older individuals to retain their jobs or secure employment after job loss. In 2018, only around 12% of workers aged 55–64 were newly hired across OECD countries, a number significantly lower than for younger age groups (OECD, 2019). Furthermore, job displacement tends to have more severe and persistent effects on older individuals (Chan and Huff Stevens, 2001). Based on this, it is hypothesized that age moderates the relationship between labor market tightness and openness to immigration.

Education also plays a crucial role in determining labor market resilience. In a world increasingly shaped by automation and digitalization, higher levels of education provide a buffer against job displacement. Workers with higher education are often endowed with skills that are increasingly valuable nowadays, such as problem-solving and digital literacy. Indeed, individuals with higher educational attainment are less likely to work in occupations with high risk of being replaced by computers (Frey and Osborne, 2017). Education is also linked to higher employment rates and lower levels of unemployment and inactivity (OECD, 2024a). These patterns support the hypothesis that individuals with lower education levels may perceive immigrants as a greater threat, especially under conditions of labor market slack.

Employment status is another important factor to consider. Individuals who are unemployed are directly affected by job scarcity and thus may feel most threatened by an inflow of immigrants. Evidence from the UK suggests that job loss can leave long-term “scars”, reducing future earnings and employment prospects (Arulampalam, 2001). Those currently unemployed, especially if at risk of long-term unemployment, may perceive immigrants as intensifying competition for limited opportunities, in contrast to those who are employed or not actively seeking work.

Lastly, even beyond labor market tightness, individuals with lower education levels may be more prone to anti-immigrant sentiment due to occupational downgrading among immigrants. Research has shown that in countries such as Germany, both economic migrants and refugees often work in positions below their qualification levels (Nikolov et al., 2021). This downward occupational mobility may increase perceived competition among low-educated natives, amplifying negative attitudes regardless of the origin or background of the immigrant group.

Building on this body of literature and evidence, this thesis investigates how labor market tightness influences attitudes toward immigration in Austria, using both regional and individual level data. The hypotheses are as follows:

- **Hypothesis 1: Higher labor market tightness is associated with lower anti-immigrant sentiment at the regional level.**

Tighter labor markets (more vacancies per unemployed worker) reduce perceived job competition.

- **Hypothesis 2: The relationship between labor market tightness and anti-immigrant sentiment is stronger among low-educated individuals, regardless of the origin of migrants.**

Low-skilled locals may feel more exposed to competition, especially as migrants often work below their qualification level.

- **Hypothesis 3: The relationship between labor market tightness and anti-immigrant sentiment is stronger among all the unemployed individuals and, separately, among older individuals.**

Unemployed people directly compete for jobs, and older individuals may struggle more to re-enter the labor market.

3 Data and descriptive statistics

This thesis combines individual-level data and regional-level data to analyze the effect of labor market conditions on public attitudes toward immigrants in Austria.

3.1 European Social Survey

The source of individual-level data is the European Social Survey (ESS), a cross-national survey conducted in Europe one time every two years. The ESS captures attitudes, beliefs, and behaviors on a broad range of issues, and its survey design allows for data to be representative of the population.

For the purpose of this thesis, data from ESS Rounds 7, 8, 9, and 11 are used, covering the years 2014 to 2023. Round 10 (2020) is excluded from the analysis, as Austria was not part of that wave. The ESS provides the main outcome variables, attitudes regarding immigrants, as well as a range of control variables including age, education, gender, and political orientation.

Table 1 presents summary statistics at the national level by survey year, including average age, average years of education, the percentage of male respondents, and the average score on the left-right political scale (which goes from 0 = left to 10 = right). All statistics are weighted using the ESS sample design weights, ensuring that results are representative of the Austrian population. The final column displays the number of observations per year, which varies slightly due to differences in the timing of the interview, for instance, 2014 and 2018 have fewer observations, as each ESS round typically spans two years. Thus, 2014 and 2015 together comprise Round 7, while 2018 and 2019 make up Round 9. This means that while the number of observations may vary from year to year, the total sample size within each survey round remains relatively stable.

Over time, the average age of respondents has gradually increased, from 45.7 years in 2014 to 49.2 years in 2023. This trend may reflect either population aging or shifts in the sampling composition. Educational attainment also experienced a modest increase, suggesting a slightly more educated respondent base in recent years. The gender distribution remains relatively balanced throughout the period, with men consistently representing between 48% and 50% of the sample. Political self-placement on the left-right scale also remains stable across rounds, with average responses consistently clustering near the center of the spectrum.

Table 1: Summary statistics at the country level by year

Year	Mean Age	Mean Education	Men (%)	Mean left-right scale	Observations
2014	45,67	12,02	49,88	4,86	271
2015	47,99	13,01	48,33	4,63	1.524
2016	47,04	12,93	48,80	4,89	2.010
2018	47,84	13,14	48,75	4,62	2.323
2019	51,69	13,23	46,56	4,52	176
2023	49,23	13,18	48,69	4,76	2.354

Note: All statistics are weighted using analysis weights.

Because the empirical analysis is conducted at the regional level, it is important to understand the characteristics of respondents across Austria's nine federal states. Table 2 presents descriptive statistics disaggregated by region, including the same key variables as in Table 1: education, age, gender composition, and political orientation. All statistics are weighted using analysis weights to reflect population composition.

Educational attainment is relatively consistent across regions, with mean years of education ranging from 12.2 in Burgenland to 14.7 in Vienna. The average age of respondents varies moderately, with Tyrol (53.5 years) having the oldest sample and Upper Austria (45.8 years) the youngest. In terms of gender distribution, the sample appears balanced across regions, with the share of male respondents ranging from 45% to 54%

Political self-placement is also relatively stable across regions. Most regions cluster near the center of the 0–10 scale, although some regional variation is apparent. For example, Upper Austria (5.16) and Lower Austria (5.02) lean slightly more to the right, while Vienna (4.09) appears as a more left region in the sample.

Table 2: Descriptive statistics per region

Region Name	Mean education	Mean age	Men share	Mean left-right scale
Burgenland	12,20	50,21	0,53	4,88
Carinthia	12,42	50,84	0,45	4,94
Lower Austria	12,42	48,93	0,49	5,02
Salzburg	13,68	47,35	0,48	4,62
Styria	13,18	48,41	0,50	4,75
Tyrol	12,43	53,45	0,47	4,75
Upper Austria	12,56	45,78	0,53	5,16
Vienna	14,71	46,59	0,49	4,20
Vorarlberg	13,02	48,12	0,54	4,80

Note: All statistics are weighted using analysis weights

The outcome variables used in the empirical analysis are also derived from the European Social Survey. Figure 1 illustrates the evolution of public support for immigration at the national level. This figure is based on responses to three ESS questions designed to capture attitudes with respect to immigration, which are used as dependent

variables in the model. The questions used as outcome variable from the [European Social Survey \(2015\)](#) across all rounds are the following:

- ***Allow many/few immigrants of same race/ethnic group as majority (imsmetn)***

“Now, using this card, to what extent do you think [country] should allow people of the same race or ethnic group as most [country] people to come and live here?”

- ***Allow many/few immigrants of different race/ethnic group from majority (imdfetn)***

“How about people of a different race or ethnic group from most [country] people?”

- ***Allow many/few immigrants from poorer countries outside Europe (impctr)***

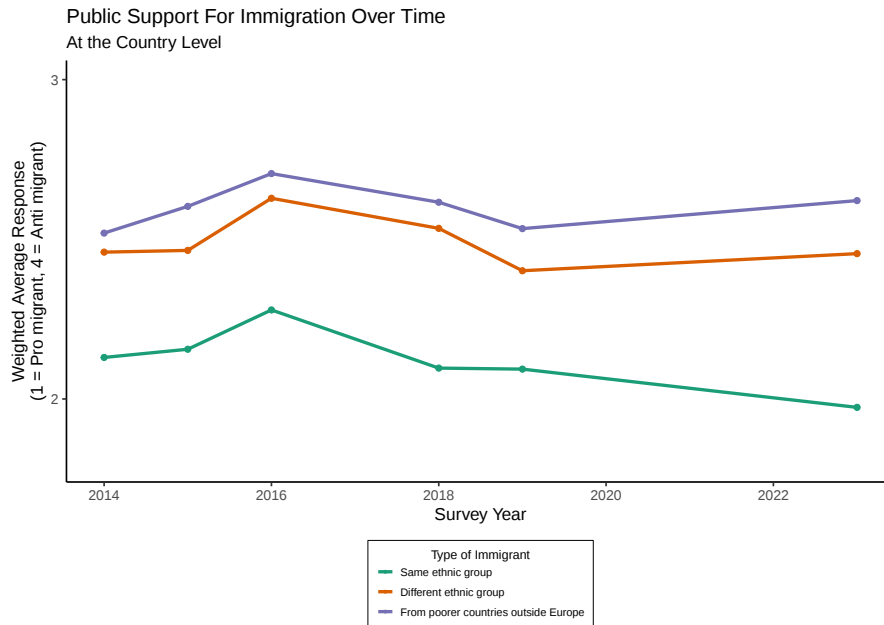
“How about people from the poorer countries outside Europe?”

Where subjects could answer:

- *1 = Allow many to come and live here.*
- 2 = Allow some.*
- 3 = Allow a few.*
- 4 = Allow none.*

Figure 1 shows the average value for each question at the country level over time. Lower values represent a more pro-migrant view (“allow more”) and higher values represent a more anti-migrant view (“allow none”). As shown in the graph, Austrians seem to be more open to receiving immigrants from the same ethnic group. On the other hand, immigrants from poorer countries outside Europe are less welcomed.

Figure 1: Country level support for immigration over time

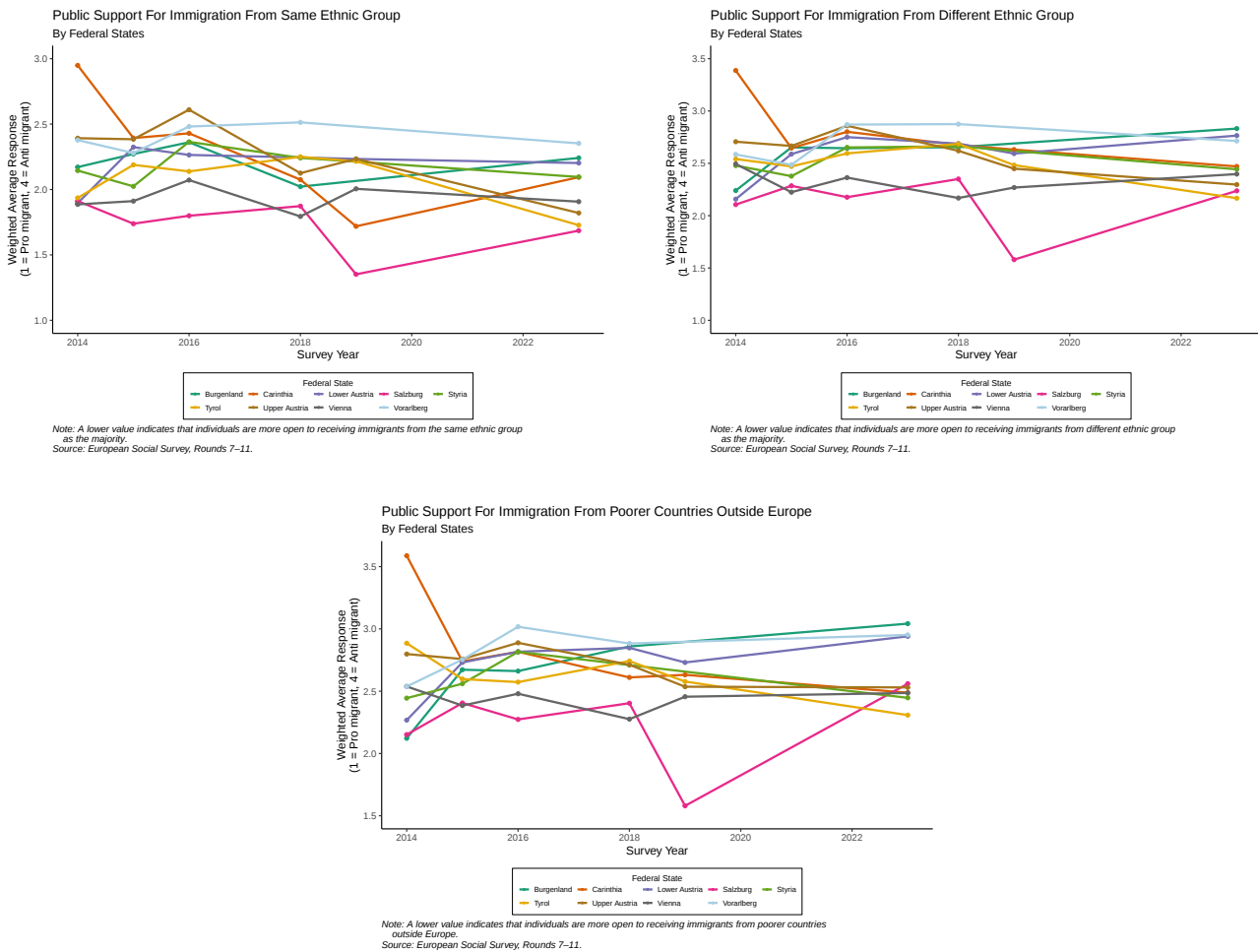


Note: A lower value indicates that individuals are more open to receiving immigrants.
Source: European Social Survey, Rounds 7–11.

While national-level analyses offer valuable insights into overall public attitudes toward immigration, it is important to examine how these attitudes vary at the regional level, given the focus of this study. Disaggregating the data by federal state allows for a more detailed understanding of whether openness to immigration develops uniformly or if certain regions diverge significantly in their views. Figure 2 illustrates the evolution of public support for immigration across Austrian federal states, broken down by type of immigrant.

Figure 2 reveals clear and consistent regional patterns in attitudes on immigration, regardless of immigrant characteristics. Certain federal states, such as Vienna and Tyrol, consistently demonstrate greater openness to immigration, while others, such as, Burgenland, Vorarlberg, and Lower Austria, exhibit more restrictive views across all immigrant types. This consistency suggests that regional attitudes are influenced by some structural factors and go beyond the perceived cultural or economic distance of immigrants.

Figure 2: Public support for immigration by origin group and region.



3.2 Macro level data

In addition to the individual-level data, regional-level data on population, employment, and immigration were also collected. These data were obtained from Statistics Austria and the Austrian Public Employment Service (AMS). Figures 3, 4, and 5 provide an overview of immigration trends in Austria between 2002 and 2023.

Figure 3 illustrates the annual inflow of immigrants into Austria as a percentage of the total population. The inflow rate was approximately 1.3% in 2002 and increased to around 2.1% in 2023. Notable peaks occurred in 2015, following the refugee crisis in Europe, and again in 2022, after the Russian invasion of Ukraine.

Figure 3: Annual Immigration to Austria as a share of total population 2002-2023

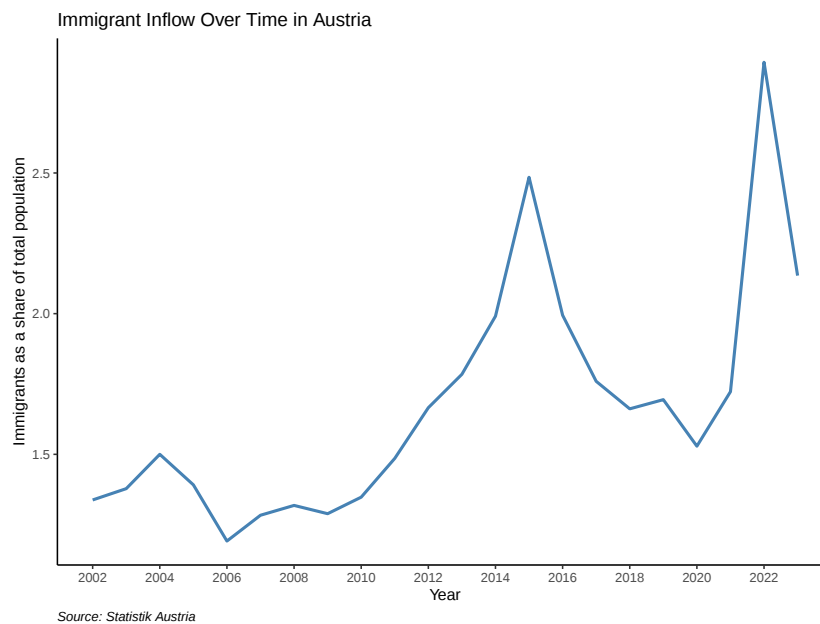


Figure 4 breaks down the immigrant inflow by region of origin, showing the composition of immigrants as a share of the total inflow each year. The graph highlights that the majority of immigrants come from other European countries, with Germany being the most prominent country of origin, followed by Romania (Statistik Austria, 2024). The second largest group consists of immigrants from Asia, with Turkey being the third most common country of origin (Statistik Austria, 2024). Immigration from Asia significantly increased in 2015 due to the influx of refugees from the Middle East, mainly from Syria.

Figure 4: Total immigration to Austria by region of origin 2002-2023

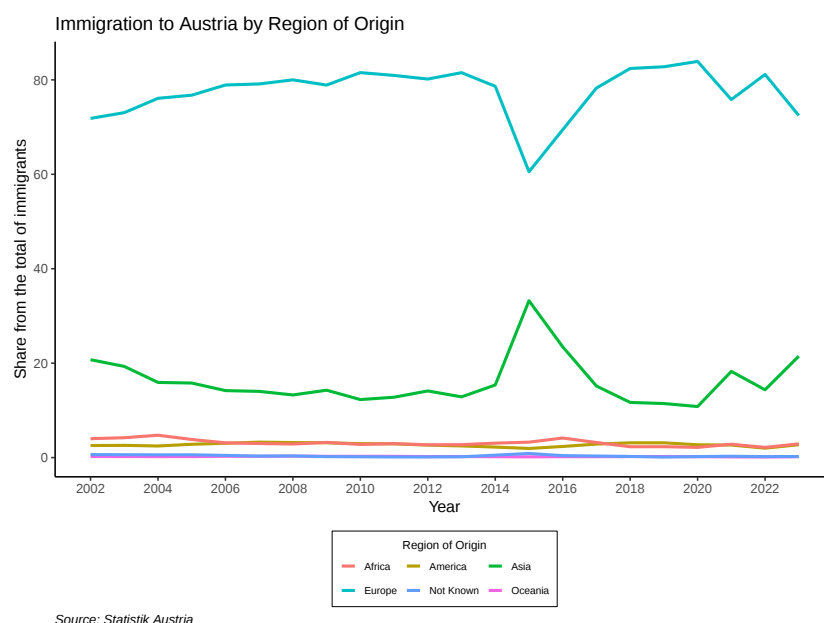


Figure 5 displays the share of the foreign-born population in Austria relative to the total population for each year. This measure captures the stock of individuals residing in Austria who were born abroad, regardless of when they migrated. As such, it reflects both recent and past migration flows. It is therefore plausible that the share of foreign-born individuals from non-EU countries (including Africa, Asia, America, Oceania, and those with unknown or stateless classifications) exceeds that of individuals born in other EU member states.

Figure 5: Foreign-born population at the country level

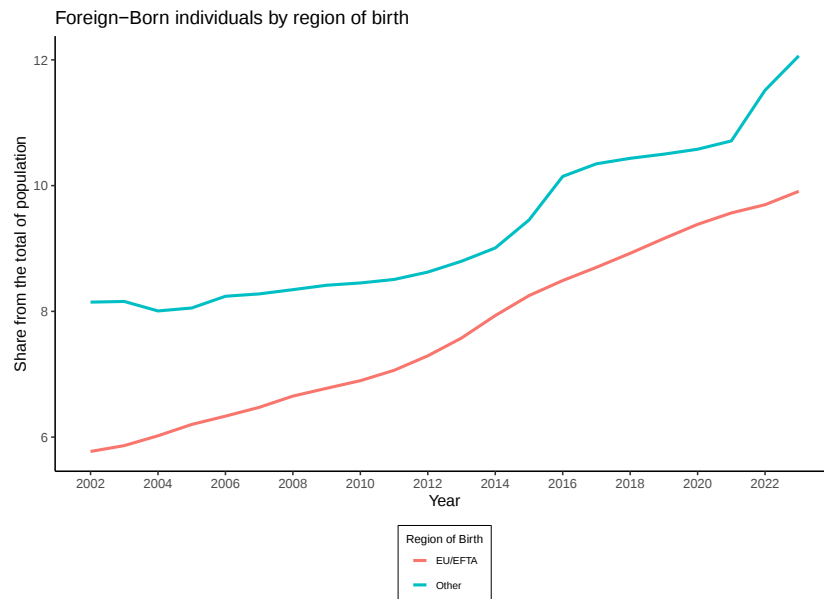


Table 3 provides an overview of average macroeconomic indicators across Austria's nine federal states over the period 2013–2023. Vienna stands out as the economic center, with the highest average gross regional product (GRP) at €96.1 billion and the highest GRP per capita (€51,000). Despite its economic weight, Vienna also records the highest unemployment rate (12.25%). In contrast, Upper Austria and Salzburg display relatively high GRP per capita values with relatively low unemployment rates. The table also includes the unemployment rate for foreigners, which is higher than the overall unemployment rate in nearly all regions, except for Burgenland and Vienna. This difference captures labor market integration challenges faced by immigrants and will be included as a control variable in the regression analysis.

Table 3 also includes real GRP growth, which adjust for inflation using the Consumer Price Index (CPI) from the previous year. Among the regions, Salzburg shows the highest average real GRP growth (1.76%), followed by Upper Austria (1.58%). In terms of migration dynamics, Vienna has the highest average annual share of new immigrants (3.45%) and the largest total number of immigrants, reflecting its role as Austria's main entry point. The share of foreign-born population is also highest in Vienna (35.36%), followed by Vorarlberg (20.45%) and Salzburg (18.57%).

Table 3: Mean of regional macroeconomic variables, 2013–2023

Variable	Burgenland	Carinthia	Lower Austria	Upper Austria	Salzburg	Styria	Tyrol	Vorarlberg	Vienna
GRP (million euros)	8.860	21.204	59.982	66.224	28.159	49.240	33.587	18.641	96.054
GRP per capita	30.154	37.736	35.800	44.809	50.863	39.672	44.772	47.445	51.000
New immigrant share per year	1,14	1,50	1,24	1,53	2,25	1,50	2,06	1,88	3,45
Real GRP change	1,28	1,20	1,06	1,58	1,76	1,08	1,33	0,80	1,04
Unemployment rate foreigners	5,40	13,01	9,27	7,54	11,01	7,32	9,10	17,55	7,56
Unemployment rate	8,13	9,59	7,92	5,30	5,23	7,01	5,86	5,89	12,25
Share of foreign born	11,08	12,18	12,43	15,08	18,57	12,28	17,95	20,45	35,36
Population	293.450	561.433	1.672.148	1.475.152	552.415	1.239.863	748.768	391.762	1.878.899

Source: Statistik Austria and Arbeitsmarktservice.

Note: Data on share of foreign born is only available until 2021.

Figure 6 illustrates the evolution of the foreign-born population across Austria's federal states over time. Vienna consistently records the highest share of foreign-born residents. Figure 7 further disaggregates this population by showing only those born outside the EU, EFTA, or the UK. This distinction is important, as a substantial portion of Austria's foreign-born population originates from European countries. The overall pattern remains consistent, Vienna continues to exhibit the highest share of non-EU/EFTA/UK foreign-born residents, while Burgenland shows the lowest. Both figures display the foreign-born population as a proportion of the total resident population in each region and year.

Figure 6: Total foreign-born share by region

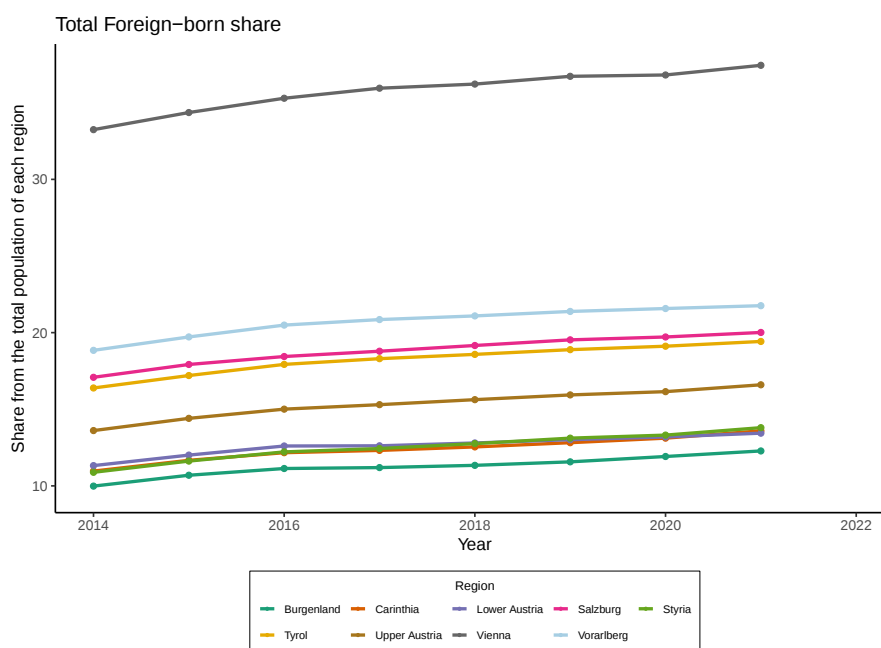


Figure 7: Non-EU/EFTA/UK foreign-born share by region

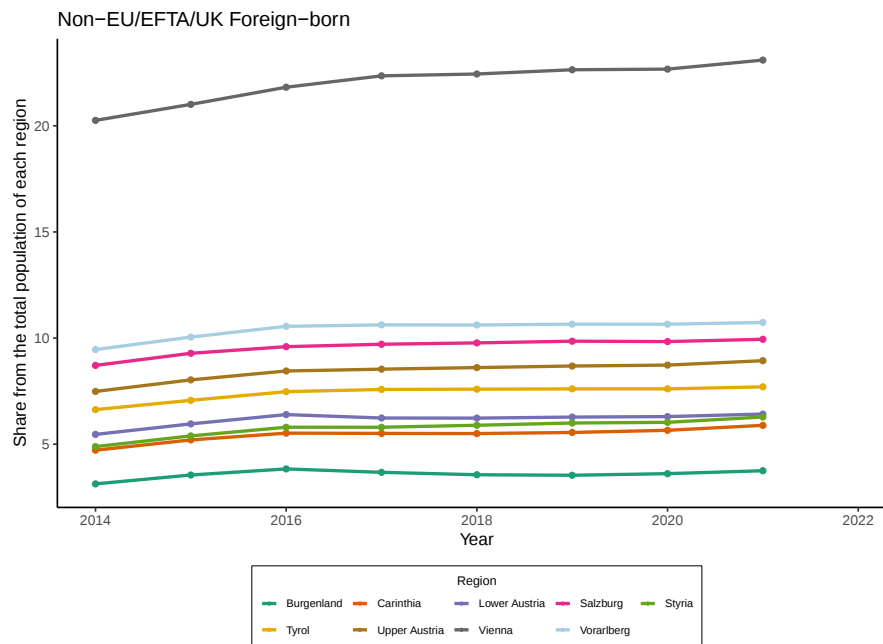
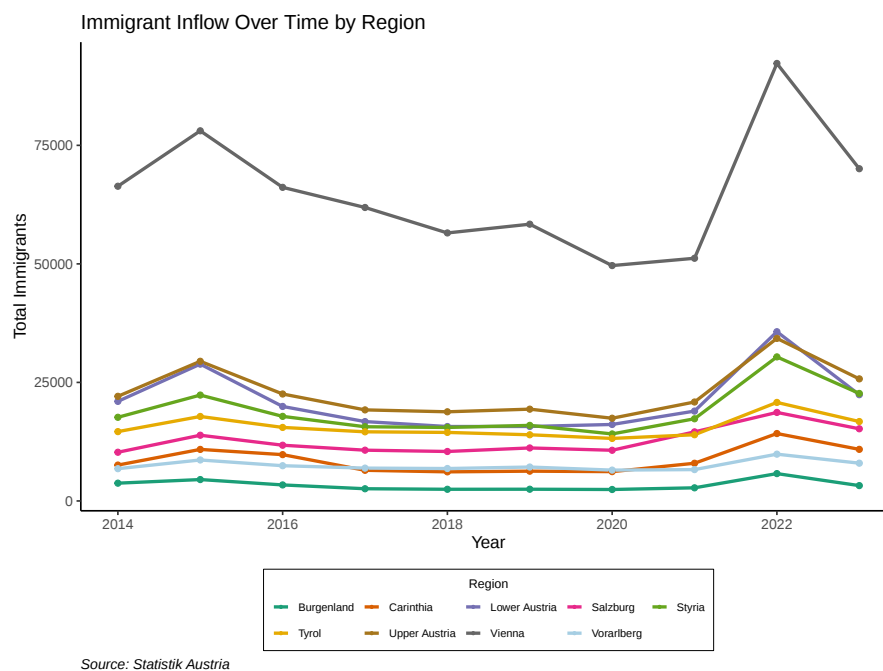


Figure 8 illustrates immigration flows over time, specifically, the number of immigrants received annually by each federal state. At the regional level, trends mirror those observed at the national level. Immigration inflows remain stable throughout the period, with a modest peak around 2015, followed by a more pronounced increase in 2022.

Figure 8: Immigration inflow per year by federal state



Figures 9 and 10 present the evolution of the unemployment rate across Austria's federal states, distinguishing between the total population and individuals born abroad. Across all regions, unemployment peaks in 2020, following the start of the COVID-19 pandemic, and gradually declines in the following years. Notably, the unemployment rate for foreign-born individuals remains consistently higher than that of native-born residents throughout the entire period, highlighting persistent disparities in labor market outcomes between these groups.

Figure 9: Unemployment rate per year by federal state

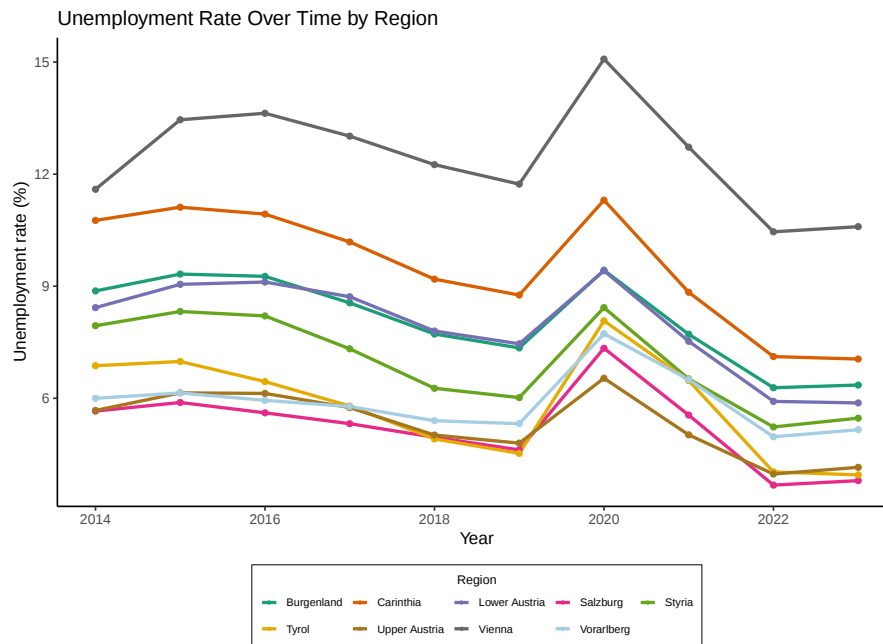
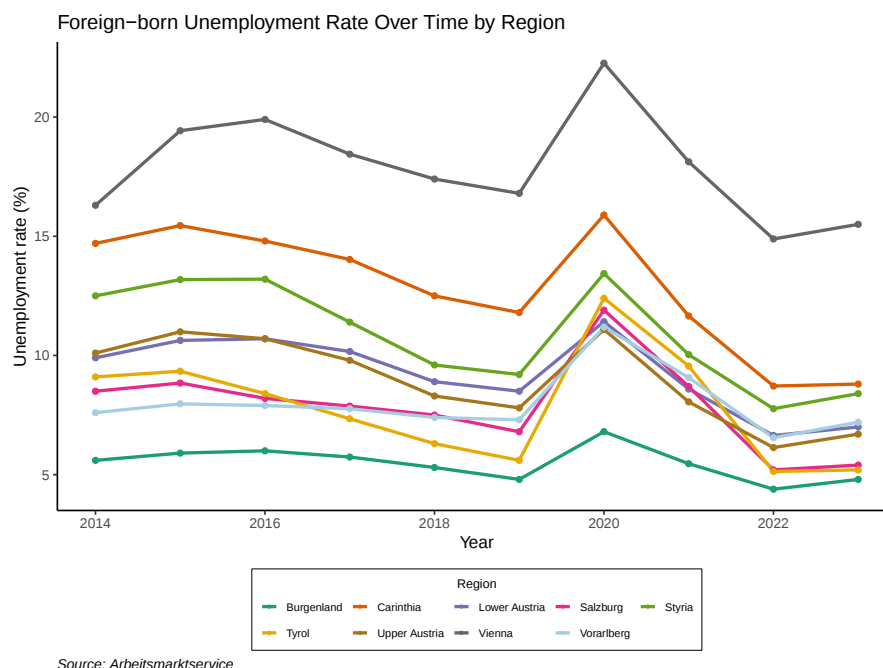


Figure 10: Unemployment rate foreign-born per year by federal state



4 Methodology

4.1 Outcome variable transformation

To measure views on immigrants, the outcome variable is a categorical indicator that takes four possible values: 1 = allow many (most pro-immigration view) to 4 = allow none (most anti-immigration view). These values are derived from the European Social Survey (ESS), and the variables considered are three, which reflect (1) attitudes towards immigrants of the same race/ethnic group as the majority of the people in the country, (2) towards immigrants from different race/ethnic group as the majority and (3) towards immigrants from poorer countries outside Europe. The specific questions and their possible results were explained in detail in [subsection 3.1](#).

To simplify the analysis and interpretation, each of the three categorical outcome variables, was transformed into a continuous variable ranging from 0 to 1 using the following normalization formula:

$$linear\ value = \frac{actual\ value - min}{max - min}$$

This transformation allows the variables to maintain their structure while making them suitable for linear regression. The resulting variable is continuous, not binary, and reflects the intensity of anti-immigrant sentiment, where 0 indicates the most positive attitude and 1 the most negative.

4.2 Estimation Strategy

A pooled Ordinary Least Squares (OLS) regression is conducted, with clustered standard errors at the regional level. The dataset is an aggregated cross-section combining multiple ESS waves that ask the same set of questions to different individuals across survey rounds. This pooling increases the sample size and it is a commonly used method in similar empirical work. Clustering standard errors at the regional level is necessary because the main explanatory variable “labor market tightness” varies only at the regional level. Without clustering, standard errors may be wrongly calculated because of within-cluster correlation. ([Wooldridge, 2013](#)). While some studies propose clustering at the region-year level, this thesis opts for clustering only at the regional level to ensure a sufficient number of observations per cluster and to allow for correlation within regions across time ([Markaki and Longhi, 2013](#)).

Additionally, survey design weights are included to account for sample design elements such as stratification, clustering, and selection probabilities. Following ESS guidelines and recommendations, the analysis weight (anweight) is applied to ensure the results are representative of the population of Austria. Not including the survey weights may result in estimations and statistics that are biased ([Kaminska, 2020](#)).

Given the continuous nature of the outcome variable after transformation, logit or probit models are not appropriate. As those models calculate the likelihood probability of obtaining one of the other value, but do not accommodate for intermediate options (Stock, 2020).

4.3 Model Specification

The general regression model estimated to test hypothesis 1 is as follows:

$$Perception_i = \beta_0 + \beta_1 Tightness + \beta_2 X_i + \beta_3 Z_i + \varepsilon_i$$

Where X_i represents a vector of macro-level (regional) controls and Z_i a vector of individual-level controls.

The model is estimated separately for each of the three outcome variables mentioned above to check whether tightness affects perception differently depending on the source or characteristics of the country of origin of the immigrants.

The macro-level variables aim to capture overall characteristics of the region that based on past research have an impact on the perceptions that individuals have. The exact controls included are the following:

- Tightness: This is the main explanatory variable of interest. It is defined as the ratio of job vacancies to unemployment ($\frac{Vacancies}{Unemployment}$), this definition represents demand-side labor conditions. Where higher values (a tighter labor market), suggest more favorable conditions for job seekers.
- Unemployment rate foreigners: Captures the unemployment rate among foreign-born individuals in each region, potentially influencing attitudes through welfare considerations.
- Real GRP change: Measures economic performance of the region.
- Immigrant share per year: Yearly inflow of immigrants as a percentage of the total population of each region.

The individual-level controls are drawn from the ESS and include both objective demographic characteristics and subjective attitudes relative to immigration.

- Political ideology: Self-placement on a left-right scale, 0 = *left* and 10 = *right*.
- Perception of immigration: Three variables that capture subjective evaluations of immigration were included.
 - Immigrants on economy: Individuals had to report whether they think immigrants are good or bad

for the economy of the country, where 0 = *bad* and 10 = *good*

- Immigrants on culture: Individuals had to report whether they think the country's cultural life is undermined or enriched by immigrants, where 0 = *undermined* and 10 = *enriched*.
- Immigrants on country: Individuals had to report their overall view on if immigrants make the country a better or worse place to live, where 0 = *worse* and 10 = *better*.
- Age of the respondent.
- Education years: Total years of full-time equivalent education completed, including compulsory schooling.
- Foreign background: Two variables were included to account for subjects with foreign background.
 - Born in AT: dummy equal to 1 if the subject was born in Austria, 0 otherwise.
 - Parent born in AT: dummy equal to 1 if at least one parent was born in Austria, 0 otherwise.
- Employment status: Categorical variable based on activity in the past 7 days:
 - 0 = Employed
 - 1 = Unemployed, looking for job
 - 2 = Unemployed, not looking for job
 - 3 = Other (includes students, retired, permanently sick/disabled, caregivers, community or military service).

Furthermore, to test Hypotheses 2 and 3, interaction terms between labor market tightness and personal demographic characteristics were included. These interaction terms were added one at a time:

$$Perception_i = \beta_0 + \beta_1 Tightness + \beta_2 Tightness * Education + \beta_3 X_i + \beta_4 Z_i + \epsilon_i$$

$$Perception_i = \beta_0 + \beta_1 Tightness + \beta_2 Tightness * Age + \beta_3 X_i + \beta_4 Z_i + \epsilon_i$$

$$Perception_i = \beta_0 + \beta_1 Tightness + \beta_2 Tightness * EmploymentStatus + \beta_3 X_i + \beta_4 Z_i + \epsilon_i$$

5 Results

5.1 Main Results

Table 4 presents the results of the main empirical model, a linear regression examining the determinants of individuals' perceptions regarding immigration and their willingness to accept more immigrants into the country. The model includes both regional and individual level control variables, applies survey design weights, and uses standard errors clustered at the regional level to account for within-region correlation.

Column (1) shows estimates based on respondents' views on immigrants of the same ethnic or racial background. Column (2) uses perceptions of immigrants of a different ethnic or racial background from the majority population. Finally, column (3) presents results for individuals' willingness to accept immigrants from poorer countries outside of Europe.

The key variable of interest, labor market tightness, does not have a statistically significant effect in most cases. It becomes marginally significant only in Column (3), where the sign of the coefficient is positive. This indicates that greater labor market tightness, measured as more vacancies per unemployed individual, is associated with increased values in the perception measure, implying more negative views concerning immigration from poorer countries. This result goes against the initial hypothesis, which anticipated that improved labor market conditions for job-seekers would reduce anti-immigrant sentiment.

Most regional-level macroeconomic indicators are also not statistically significant. The exception is real GRP (Gross Regional Product) growth, which is marginally significant in Column (1) and statistically significant in Column (3). In both cases, the relationship is negative, finding that aligns with results from previous research; higher economic growth correlates with more favorable attitudes toward immigration.

At the individual level, several controls are statistically significant in forming attitudes and in the expected direction. Political ideology is significant across all three models, with more right-wing individuals expressing more negative views on immigration. Similarly, individuals' own perceptions of the impact of immigrants on the economy, cultural life, and overall quality of life are all highly significant and in the anticipated direction. Those who believe immigrants benefit the economy, enrich culture, and make the country a better place to live are more supportive of immigration.

Among the demographic variables, both age and years of education are statistically significant. A potentially counterintuitive finding is observed in Column (1), which refers to immigrants from the same ethnic background: in this case, older individuals express more favorable views to them. This pattern does not persist for immigrants from different ethnic backgrounds or from poorer countries outside Europe. These results may reflect a distinction in how individuals define or relate to the "in-group" versus the "out-group". It could be that older individuals

perceive immigrants from ethnically similar backgrounds as less culturally threatening or more easily integrated. On the other hand, younger individuals tend to hold more inclusive views overall, regardless of ethnic similarity.

Regarding education, the expected pattern is observed. Individuals with more years of education are more likely to express pro-immigrant views. This effect is strongest in Column (3), where a one-year increase in education is associated with a 0.8 percentage point decrease in the perception measure, a modest effect that reflects more pro-immigrant views for that group.

Variables capturing foreign background do not show statistically significant effects. Regarding employment status, the baseline category is employed individuals. For this regressor, only the “other” category, which includes students, retirees, those engaged in domestic work, those permanently sick or disabled, people working in community service or military, is statistically different from the benchmark. The direction of the effect suggests that this group is more supportive of immigration than employed individuals. By contrast, unemployed individuals do not differ from employed individuals in their attitudes. Given that this group is supposed to face greater labor market competition, the absence of a significant effect raises doubts about the explanatory power of the labor market threat hypothesis for the case of Austria.

It is important to note that the coefficients across all models are generally small. This could be a consequence of the linearization process used for the outcome variables, which may fail to capture the underlying ordinal nature of the original survey responses. To address this, the robustness tests will include ordered logit model specification in the following section.

Adjusted R^2 is not reported in the regression tables because it is not well defined when using clustered standard errors. Clustering allows for different error structures across groups, meaning that observations no longer contribute equally to the estimation. As a result, the standard interpretation of adjusted R^2 , which relies on equal contribution from each observation, does not apply. In this context, adjusted R^2 would be misleading and is therefore omitted.

Table 4: Linear Regressions Results of Determinants of Perception on Immigration

	(1)	(2)	(3)
	Same Ethnic	Different Ethnic	Poorer Country
Tightness (V/U)	-0.040 (0.027)	0.027 (0.024)	0.046* (0.022)
Unemployment rate of foreigners	0.003 (0.004)	0.001 (0.003)	0.002 (0.003)
Real GRP growth	-0.005* (0.002)	-0.001 (0.002)	-0.004** (0.001)
Share of immigrants received per year	-0.015 (0.015)	-0.006 (0.014)	-0.003 (0.013)
Left-Right ideology (0=Left, 10=Right)	0.011** (0.004)	0.021*** (0.002)	0.022*** (0.002)
Immigrants for economy (0=Bad, 10=Good)	-0.037*** (0.005)	-0.031*** (0.002)	-0.028*** (0.002)
Country's culture by immigrants (0=Undermined, 10=Enriched)	-0.010*** (0.002)	-0.017*** (0.002)	-0.017*** (0.002)
Immigrants make country (0=Worse, 10=Better)	-0.017*** (0.005)	-0.030*** (0.003)	-0.031*** (0.004)
Age	-0.001** (0.0003)	0.001*** (0.0003)	0.002*** (0.0003)
Years of education	-0.010*** (0.001)	-0.007*** (0.002)	-0.008** (0.002)
Born in country	0.032 (0.027)	0.010 (0.024)	0.022 (0.024)
Parent born in country	-0.031 (0.020)	-0.007 (0.021)	-0.031 (0.027)
Employment status			
Unemployed, looking	0.008 (0.022)	-0.009 (0.014)	-0.043 (0.037)
Unemployed, not looking	-0.030 (0.024)	0.007 (0.015)	-0.014 (0.022)
Other	-0.033*** (0.009)	-0.027*** (0.007)	-0.030*** (0.006)
Constant	0.828*** (0.069)	0.841*** (0.041)	0.844*** (0.055)
R^2	0.367	0.495	0.457

Standard errors in parentheses

Number of observations: 7,157

Dependent variable: Perception on immigrants (0 = Pro-immigrant, 1 = Anti-immigrant)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

To test whether labor market tightness influences immigration attitudes differently depending on individuals' labor market vulnerability, interaction terms were added between tightness and selected demographic characteristics. These characteristics were chosen based on theoretical considerations and prior literature, as described in

subsection 2.3. The interactions were added one at a time to the main empirical model.

Table 5 shows that the only statistically significant interaction involving labor market tightness is with years of education, and this holds for both immigrants from different ethnic backgrounds and those from poorer countries outside Europe. Once the interaction is included, the main coefficient for tightness also becomes statistically significant and increases in magnitude. For individuals with no education, an increase in tightness is now associated with a 16 percentage point increase in anti-immigrant sentiment in the case of immigrants from different ethnic backgrounds, and 19.4 percentage points for immigrants from poorer countries.

This change suggests that the previously insignificant effect of tightness was hiding important heterogeneity. The positive and now significant coefficient on tightness reflects attitudes among individuals with lower years of education, who seem to hold consistently more negative views regarding immigrants. Considering that tightness reflects a more favorable environment for workers, individuals with no or low education may not perceive the benefits of that situation, their worse attitudes may instead reflect deeper skepticism or concerns about immigration.

The interaction term itself is negative and statistically significant in both cases, indicating that the association between tightness and anti-immigrant sentiment diminishes as education increases. In other words, more educated individuals tend to respond more favorably to increased labor market tightness, showing more positive views.

Table 5: Effect of Tightness on Attitudes Toward Immigrants with Interactions

	Same Ethnic			Different Ethnic			Poorer Country		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Tightness (V/U)	-0.066 (0.101)	-0.071 (0.039)	-0.064* (0.029)	0.160** (0.062)	0.038 (0.034)	0.007 (0.027)	0.194*** (0.051)	-0.009 (0.049)	0.019 (0.026)
Tightness*Education Years	0.002 (0.007)			-0.011** (0.004)			-0.012** (0.004)		
Tightness*Age		0.001 (0.000)			-0.000 (0.001)			0.001 (0.001)	
Employment status									
Tightness*Unemployed looking			-0.172 (0.112)			-0.019 (0.105)			-0.042 (0.142)
Tightness*Unemployed not looking			0.068 (0.096)			-0.062 (0.090)			-0.101 (0.098)
Tightness*Other			0.062* (0.033)			0.049 (0.031)			0.068** (0.027)

Standard errors in parentheses

Controls are included in all specifications

Number of observations: 7,157

Dependent variable: Perception to immigrants (1 = Anti-immigrant, 0 = Pro-immigrant)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5.2 Robustness check 1

Given the categorical nature of the dependent variable, the first robustness check consists of using an ordered logit model to assess whether the results obtained in the previous section differ when maintaining the original structure of the outcome variable, rather than applying a linear transformation. This is relevant because although the linearized version of the dependent variable used earlier retained all four response categories by assigning scaled values from 0 to 1, this approach implicitly assumes that the distances between categories are equal, for instance, the shift from “allow a few” to “allow none” (0.66 to 1) is the same as from “allow many” to “allow some” (0 to 0.33). In contrast, the ordered logit model does not rely on this assumption. It treats the outcome as a ranking, respecting the ordinal nature of the responses without forcing equal spacing. This distinction is important when modeling subjective attitudes, where the perceived gap between response options may not be linear. Using the ordered logit model as a robustness check is therefore, crucial.

Ordered logit is a commonly used method when dealing with categorical dependent variables. It extends the binary logit model, which is used with dichotomous outcomes. In the binary response model, such as the logit model, the objective is to estimate the probability of observing a 1 or 0 response using a log-likelihood function (Wooldridge, 2013).

Although Table 6 does not allow for interpretation of effect magnitudes due to the characteristics of the ordered logit model, it still provides meaningful insights into the significance and direction of effects. When survey weights are included, labor market tightness is marginally significant for views on immigrants from same ethnic backgrounds, and statistically significant in the case of immigrants from poorer countries. This already marks a deviation from the results obtained in the previous model.

The negative coefficient obtained when asked for individuals from the same ethnic group suggests that improved labor market conditions (meaning higher tightness) are associated with greater openness to receiving more immigrants from that group. In contrast, the negative coefficient for immigrants from poorer countries outside Europe indicates that better labor market conditions are linked to less openness, with respondents more likely to choose the option “allow none.” This counterintuitive result may indicate that labor market competition is not the primary driver of natives’ views on immigration, particularly from poorer countries.

Among the macro-level variables, real GRP growth remains the only one with a significant impact on attitudes toward immigration. Regions experiencing higher economic growth tend to be more open to receiving immigrants. At the individual level, all control variables maintain their significance and direction across specifications, supporting the robustness of those relationships. These results are presented in Table 6.

Table 6: Ordered Logit Results of Determinants of Perception on Immigration Using Survey Weights

	(1)	(2)	(3)
	Same Ethnic	Different Ethnic	Poorer Country
Tightness (V/U)	-0.423* (0.219)	0.271 (0.248)	0.418** (0.197)
Unemployment rate foreigners	0.0237 (0.0320)	0.0104 (0.0276)	0.00973 (0.0259)
Real GRP growth	-0.0422** (0.0185)	-0.0113 (0.0158)	-0.0368*** (0.0126)
Share of immigrants received per year	-0.131 (0.129)	-0.0536 (0.136)	-0.00135 (0.114)
Left-Right ideology (0=Left, 10=Right)	0.0981** (0.0410)	0.202*** (0.0181)	0.206*** (0.0182)
Immigrants for economy (0=Bad, 10=Good)	-0.327*** (0.0397)	-0.312*** (0.0216)	-0.262*** (0.0213)
Country's culture by immigrants (0=Undermined, 10=Enriched)	-0.0929*** (0.0214)	-0.154*** (0.0223)	-0.138*** (0.0188)
Immigrants make country (0=Worse, 10=Better)	-0.157*** (0.0453)	-0.310*** (0.0319)	-0.294*** (0.0413)
Age	-0.00506** (0.00214)	0.00935*** (0.00269)	0.0120*** (0.00287)
Years of education	-0.0924*** (0.00837)	-0.0653*** (0.0148)	-0.0615*** (0.0193)
Born in country	0.255 (0.267)	0.141 (0.227)	0.250 (0.226)
Parent born in country	-0.298 (0.183)	-0.121 (0.215)	-0.332 (0.247)
Employment status			
Unemployed, looking	0.102 (0.196)	-0.0431 (0.123)	-0.317 (0.295)
Unemployed, not looking	-0.233 (0.188)	0.119 (0.151)	-0.0920 (0.231)
Other	-0.278*** (0.0736)	-0.233*** (0.0702)	-0.234*** (0.0496)
Observations	7157	7157	7157
Pseudo - R ²	0.193	0.273	0.240

Standard errors in parentheses

Dependent variable: Perception on immigrants (1 = Allow many, 4 = Allow none)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Given that tightness is now statistically significant for the case of immigrants from poorer countries, it is relevant to analyze its marginal effects. Figure 11 and Table 7 illustrate that as labor market tightness increases, support for more restrictive views on immigration also rises. This finding contradicts the labor market threat/competition hypothesis proposed in this thesis. Specifically, Table 7 shows that a one-unit increase in tightness reduces the probability of choosing “allow many” by 3.2 percentage points and “allow some” by 3.4 percentage points. Conversely, the probability of choosing “allow few” and “allow none” increases by 2.5 and 4.1 percentage points, respectively. All changes are statistically significant as it can be seen in Table 7.

Figure 11: Margins of tightness

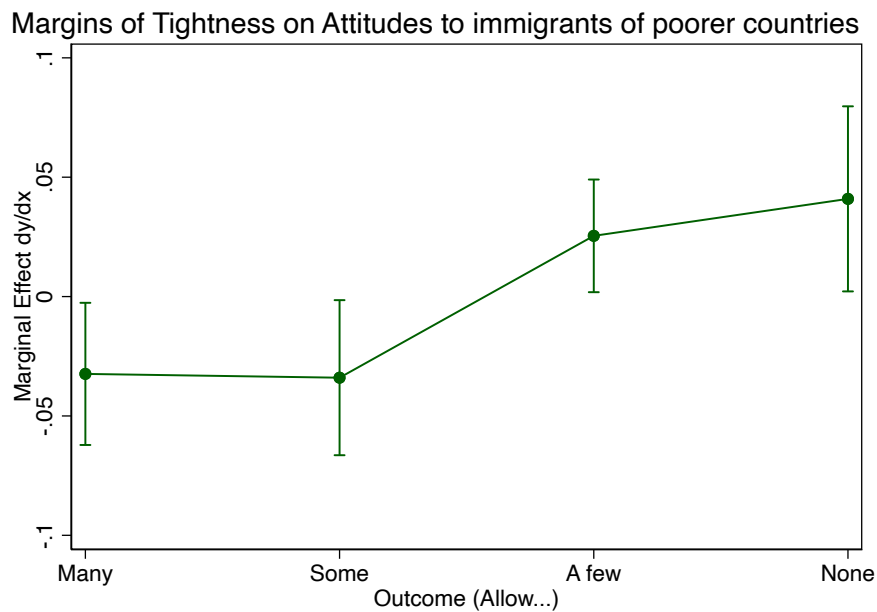


Table 7: Marginal Effects of Tightness on Attitudes Toward Immigrants from Poorer Countries

Outcome Category	dy/dx	Std. Err.	p-value
Allow many (1)	−0.0324**	0.0152	0.033
Allow some (2)	−0.0340**	0.0166	0.040
Allow a few (3)	0.0254**	0.0120	0.035
Allow none (4)	0.0409**	0.0198	0.039

Marginal effects are based on an ordered logistic regression

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Moving on to the interaction results, tightness was interacted with age, years of education, and employment status, following the same procedure used in the main analysis, but applying the ordered logit model.

The results for the regression with interactions is presented in Table 8. Consistent with the main results, the only significant interaction is between tightness and years of education. In this specification, the main coefficient for

tightness also becomes statistically significant. The negative sign on the interaction term suggests that the effect of labor market tightness varies by education level: individuals with higher education react more positively to increases in tightness (higher vacancies to unemployed ratios), expressing more pro-immigration views.

Table 8: Ordered Logit Results of Tightness on Attitudes Toward Immigrants with Interactions

	Same Ethnic			Different Ethnic			Poorer Country		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Tightness (V/U)	-0.421 (0.821)	-0.657** (0.302)	-0.686*** (0.247)	1.607** (0.642)	0.292 (0.418)	0.054 (0.298)	1.666*** (0.517)	-0.016 (0.488)	0.178 (0.244)
Tightness*Education Years	-0.000 (0.055)			-0.106** (0.043)			-0.099** (0.044)		
Tightness*Age		0.005 (0.005)			-0.000 (0.009)			0.009 (0.010)	
Employment status Tightness*Unemployed looking			-1.167 (1.234)			-0.399 (1.095)			-0.253 (1.182)
Tightness*Unemployed not looking			0.930 (0.835)			-0.655 (0.891)			-1.003 (0.940)
Tightness*Other			0.632** (0.296)			0.566* (0.307)			0.619** (0.257)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	7157	7157	7157	7157	7157	7157	7157	7157	7157

Standard errors in parentheses

Dependent variable: Perception on immigrants (1 = Allow many, 4 = Allow none)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

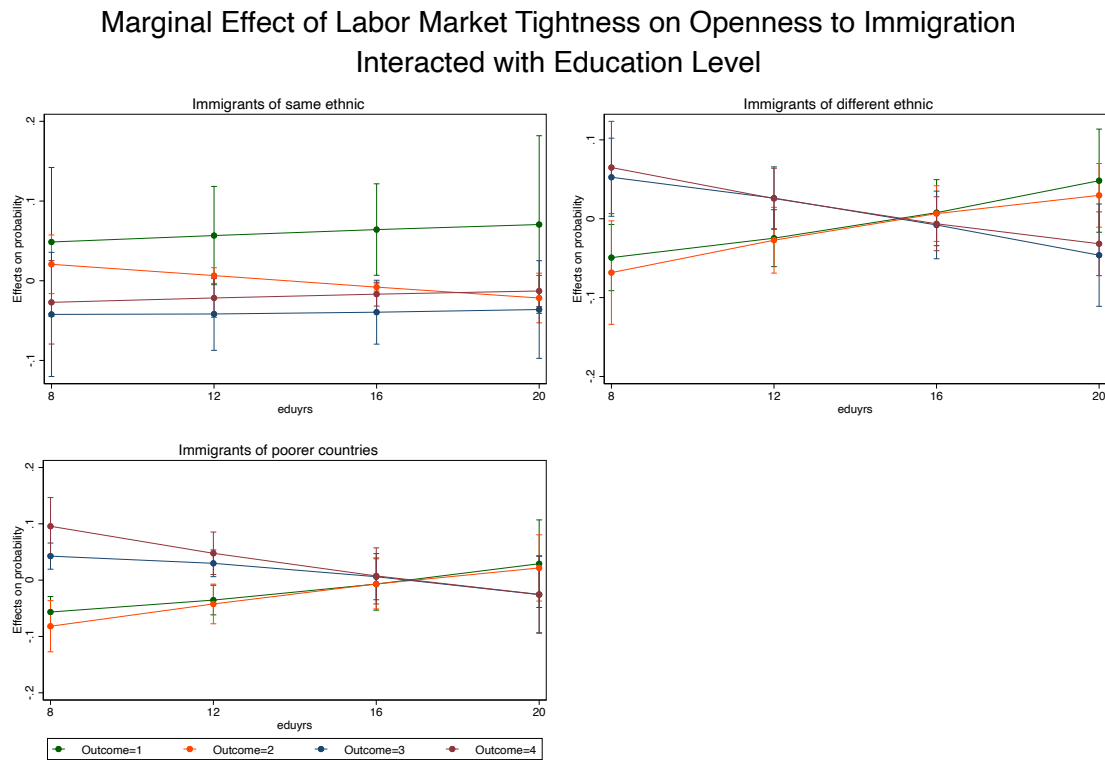
To gain better understanding of the size of the effect and be able to interpret the results, it is necessary to compute marginal effects. Margins translate the model's coefficients, which are in log-odds, into probabilities, providing a more intuitive understanding of how independent variables affect the probability of the outcome.

As shown in Table 8, the coefficient is not statistically significant when it comes to the outcome variable of immigrants from same ethnic, which is also reflected in Figure 12, where it can be noted that the effect of tightness is not statistically significant for immigrants from the same ethnic group, as indicated by the essentially flat marginal effects across all levels of education. When analyzing responses regarding immigrants of different ethnic, and checking the marginal effect at 8, 12, 16 and 20 years of education, it is shown that individuals with lower education are more likely to choose restrictive options, which are outcome 4 and 3, that represent the options "allow none" and "allow few", reflecting the more anti-immigrant view. In contrast, the probability of choosing outcome 1 and 2 decreases, which reflect options "allow more" and "allow some" respectively. This relationship is inverted at around 15 years of education. After that point, the probability of choosing more pro-immigrants options increases. For instance, at 20 years of education, the probability of choosing outcome 1 and 2 increase, and the probability of choosing 3 and 4 decreases.

For immigrants from poorer countries, a similar pattern emerges, although overall support is lower compared to

other groups. The turning point for more open attitudes occurs at around 18 years of education (subjects with a master's degree), and while the pattern is similar, the magnitude of the effect is smaller, indicating a generally more skeptical view toward this group.

Figure 12: Margins of tightness interacted with education



The results from the ordered logit model without interactions (Table 6) reveal a puzzling pattern regarding labor market tightness and attitudes concerning immigration. Specifically, greater tightness, meaning more job vacancies relative to the number of unemployed individuals, is associated with more favorable attitudes toward immigrants from the same ethnic group, but less favorable attitudes toward immigrants from poorer countries. The relationship observed in the first case aligns with the labor market competition hypothesis, as tighter labor markets may reduce perceived economic threat and increase openness to immigration. However, the negative association observed in the case of immigrants from poorer countries contradicts this logic. Rather than becoming more welcoming in periods of economic opportunity, respondents express more restrictive preferences. This asymmetry suggests that attitudes with respect to different immigrant groups are not equally shaped by labor market considerations. Cultural distance or prejudice may play a stronger role in responses towards immigrants from poorer regions.

When labor market tightness is interacted with education, further complexities arise. The interaction term becomes statistically significant for immigrants from both different ethnic backgrounds and poorer countries,

and interestingly, the direct effect of tightness also turns significant in these models. While the sign of the interaction term is negative, indicating that individuals with more years of education become more favorable toward immigration as tightness increases, the direction of the main effect of tightness is positive, suggesting that among those with lower education, tighter labor markets are associated with more anti-immigrant sentiment. This result is somewhat counterintuitive, as periods of economic expansion would theoretically reduce concerns about job competition. The negative interaction, however, aligns with expectations: more educated individuals are less likely to view immigrants as competitors and may interpret labor market improvements as opportunities for inclusion. These mixed effects raise questions about the explanatory power of labor market threat theory. It may be that the significant association with tightness, particularly among the less educated, reflects underlying cultural concerns rather than purely economic reasoning.

6 Discussion

This thesis had as a purpose to investigate in detail what are some drivers of views on immigration in Austrian society and check whether labor market considerations had an impact on it, in order to come with a policy advice. However, from the results of this study it can be seen that labor market considerations, and in general, macro level variables, appear to have only a significant effect when it comes to real GRP growth. Which reflects that perceptions are most likely being driven by subjective characteristics measures rather than by the state of the economy where they live. Furthermore, the share of foreign-born individuals living in the region did not have a significant effect in the regression and due to missing values it significantly reduced the size of the sample. Therefore, the variable was not included in the analysis. But its result also showed that the amount of individuals in the region with a foreign background did not have a significant effect on perception.

The results are quite challenging from a policy perspective, as the initial expectation of the thesis was to find that labor market competition played a central role in affecting perceptions. This would have suggested that improving labor market integration, both for immigrants and locals, might have helped ease tensions and reduce opposition to immigration. However, from the results of this study it is not clear whether labor market tightness is a main driver in shaping perception and willingness to accept more immigrants into Austria.

Instead, the evidence from this study shows that perception is largely driven by individual level characteristics, and strongly linked to how individuals perceive the impact of immigration on the economy, culture, and the country overall. Political ideology also resulted as a statistically significant factor across all model specifications. These variables may be more helpful in explaining the broader patterns observed in the analysis.

Considering the current political context of the country and the rise of the far right party FPÖ, it is important to highlight that the main rhetoric used by this party focuses less on economic concerns, instead, it points out to

culture concerns and emphasizes nationalistic speech. The FPÖ presents immigration, especially from refugee populations, as a threat to Austrian identity, national security, and traditional values. Their emotionally charged speech, rooted in fear and identity, has helped them gain significant popularity in Austrian society, up to the point where they even won the 2024 general parliament election.

These results present a complex scenario from a policy point of view. Tackling integration and increasing social cohesion while reducing tensions between locals and immigrants becomes even more complicated in a political climate where anti-immigrant rhetoric is dominating, as the problem continues to reinforce itself. The findings underline the need to broaden future research beyond economic indicators. Addressing these concerns will likely require long-term investments in education and integration.

7 Limitations

Regarding data availability and the definition of the main variable used for the study, this research presents several limitations, and further work is needed. One of the main issues comes from the European Social Survey question used to capture views and willingness to accept more individuals from abroad. The variable does not clearly distinguish between economic migrants and refugees or asylum seekers. Instead, it asks subjects about “to what extent do you think Austria should allow people of...”, as shown in [subsection 3.1](#), where the exact wording used by the interviewer is presented in quotation marks. The lack of clarity around the source or type of immigrant limits the analysis, since it is not possible to know whether respondents are thinking of refugees or economic migrants when answering the question. It might also be the case that different individuals interpret or classify migrants in different ways, which increases the complexity of interpreting the results.

This ambiguity makes it more difficult to draw strong conclusions about the role of labor market tightness on attitudes. Refugees and economic migrants differ in terms of their cultural characteristics and how they are perceived in terms of their economic impact in the society. This could explain some of the differences in the results. For instance, when respondents are asked about “people from the same race/ethnic background as the majority”, they might be more likely to think of economic migrants, which could help explain why higher tightness is associated with more openness in that case. On the other hand, when asked about “people from poorer countries outside Europe”, it might be that many respondents think of refugees or asylum seekers, which could explain why, regardless of favorable labor market conditions, they are still more reluctant to receive more immigrants from this group.

The European Social Survey and the model performed in this study also present some challenges linked to the nature of the data, as it is a repeated cross-sectional survey that does not follow the same individuals over time. Despite the fact that several controls were included, which, based on past research, have shown that they

influence locals' perceptions of immigrants, it is still not possible to rule out the existence of other relevant omitted variables. Therefore, the relationship identified remains correlational, and no causal interpretation can be drawn from it.

Another issue of the study, regarding the main regressor of interest, is how this variable was defined and obtained. As already mentioned, this variable reflects vacancies over unemployment for each federal state of Austria, however, it is plausible to assume that the variable is too broadly defined and it is not able to capture the real labor market threat that each individual faces. This occurs because due to data availability it was not possible to obtain tightness measures in a more detailed way for example for each industry or sector at which the surveyed individual worked. A more narrowly defined variable that would allow for a specific link between tightness in their industry would allow for a more credible measure of threat component in the labor market.

Finally, one last concern refers to the small number of clusters available in the study. Since the analysis was conducted for Austria, and the main regressor of interest varies at the regional and yearly level, the number of clusters is limited to the 9 federal states of Austria. Clustering was done at the regional level to allow for correlation across years within each state. However, this small number of clusters may bring challenges for statistical inference, as standard errors could be imprecisely estimated. This increases the risk of Type I errors, meaning incorrectly rejecting the null hypothesis and concluding that the regressor is significant when it is not ([Angrist and Pischke, 2009](#)).

8 Conclusion

The development of this master's thesis has contributed to a better understanding of the factors that influence Austrians' willingness to accept more immigrants into the country. The analysis focused on labor market dynamics, specifically labor market tightness, as the main explanatory variable.

Three hypotheses were tested, and a summary of the findings is presented in [Table 9](#). The most relevant finding is that an increase in labor market tightness, measured as the number of vacancies per unemployed person, is only statistically significant under certain specifications and only for some outcome variables. In the OLS specification, tightness becomes significant when interacted with education. In the ordered logit specification, it is significant only when respondents were asked about immigrants from poorer countries. These inconsistencies indicate that the variable is not robust across models, suggesting that the effect is sensitive to specification choices. Additionally, the direction of the effect contradicts the original hypothesis for the case of immigrants from different ethnic and poorer countries. More favorable labor market conditions for workers are associated with more negative attitudes. This unexpected result suggests that labor market concerns may not be the main driver of anti-immigrant sentiment in Austria.

Regarding the two remaining hypotheses, only the interaction between tightness and years of education is statistically significant across both specifications and in the expected direction. Specifically, individuals with higher education levels appear to respond more positively (pro-immigrant) to improvements in the labor market, this occurs when asked about immigrants from different ethnic backgrounds and from poorer countries.

As discussed in [section 6](#), these findings present some important challenges for policymakers aiming to reduce social tensions regarding immigration. The results of this study show that almost all macro-level variables included in the models were found to be statistically insignificant, the only exception was real GRP growth, where regions experiencing higher growth tend to be more open to immigration. This is a key result, as it suggests that, in the Austrian context, subjective perceptions, rather than objective macroeconomic conditions, are the primary drivers of attitudes on immigration.

Another interesting result comes from the ordered logit model; in that case, the labor market threat hypothesis appears to hold when respondents are asked about immigrants from countries similar in ethnic background to Austria, but not when asked about immigrants from poorer or more culturally distant countries. This is reflected by the negative sign of the tightness coefficient from the first column of [Table 6](#) but positive sign in row 2 and 3. This result suggests that more open labor markets may lead to greater openness toward certain types of immigrants, but not all, indicating that public support for immigration is selective and conditional on the source country characteristics.

Future research should aim to capture labor market competition in a more detailed way, ideally by constructing industry specific measures of tightness at the regional level. Matching these with individual-level data on respondents' employment sectors could provide a more realistic and detailed picture of how labor market conditions affect attitudes toward immigration.

Table 9: Summary of findings

Hypothesis	Methodology	OLS Results	Ordered Logit Results
H1: Higher labor market tightness is associated with lower anti-immigrant sentiment at the regional level	Tightness regressor	Not supported	Not supported
H2: The relationship between labor market tightness and anti-immigrant sentiment is stronger among low-educated individuals, regardless of the origin of migrants	Interaction: Tightness*Education	Only supported for: (1) immigrants from different ethnic (2) immigrants from poorer countries	Only supported for: (1) immigrants from different ethnic (2) immigrants from poorer countries
H3: The relationship between labor market tightness and anti-immigrant sentiment is stronger among all the unemployed individuals and, separately, among older individuals.	Interactions: Tightness*Unemployed Tightness*Age	Not supported	Not supported

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