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European Attitudes Towards Immigrants: An Analysis by Occupational Groups

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Abstract

Humans have migrated towards locations with more prosperity since the start of humanity. The last decades, immigration to Europe has steeply increased. However, many Europeans are not welcoming towards these immigrants. Simultaneously, the European population is aging, and labor shortages are increasing. Labor shortages can hamper economic growth and immigration is needed to fill up labor shortages and counteract the continent's rapid aging process. European voters influence the size of immigrant inflows. Therefore, it is important to study and understand the challenges related to attitudes towards immigration to create potential solutions regarding the immigration issues. This thesis studies the relationship between Europeans' occupations and their attitudes towards immigrants. Occupation is divided into ten groups based on the ISCO-88 system. According to theory (Mayda, 2006; Scheve and Slaughter, 2001), there is a negative correlation between one's attitudes towards immigrants and one's skill level. However, this thesis finds that the lowest-skilled natives are not the least tolerant towards immigrants. The least tolerant towards immigrants are "skilled agricultural and fishery workers" (group 6) and "craft and related trades workers" (group 7). Even when education, economic, and cultural fears are held constant. "Professionals" (group 2) are the most tolerant towards immigrants. Furthermore, a fear of cultural change and economic worries also negatively impact attitudes towards immigrants.

Keywords: Immigration, attitudes towards immigrants, occupation, labor market.

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Occupation Groups and the Relationship between Attitude Towards Immigrants for Europeans

Humans and animals have moved towards locations with more prosperity since the beginning of days. Since the 1970s, the migration of people to Europe has steeply increased (Mayda, 2006). But in previous centuries, the Europeans where the emigrants and left their continent in search of prosperity elsewhere. Around the world migration levels are constant around 3% (De Haas, 2021) and as long as the benefits of migration exceed the cost, migration will continue to happen. Navigating immigration influxes to Europe sparks conflicting opinions. Europe's immigration issue is paradoxical: Europe struggles to accommodate the large influx of immigrants, but Europe also needs this influx in the labor market to counteract the continent's rapid aging process. The share of people in the total population over the age of 65 will increase from 20 percent in 2023, to about 30 percent in 2050 (Eurostat, 2023). European countries could benefit from the influx of young, well-educated immigrants in the labor market (De Haas, 2021), Germany actively recruits them for example. However, varying successes of the integrating of migrants across Europe underscores the difficulty of effective immigration and Europeans have different views on the immigration inflow. The public views on immigration matter because it shapes the size of immigrant inflows: voters elect a government, and the government shapes immigration policies. By understanding and influencing the attitudes towards immigrants of voters, governments can create widely accepted policies. Furthermore, understanding European perspectives offers insight into challenges related to immigration and create potential solutions. The research question of this thesis is:

What is the relationship between the occupation group Europeans have and their attitudes toward immigrants?

Through a literature review and data from the European Social Survey I study the relationship between occupational group and attitudes towards immigrants. Attitudes towards immigrants, referred to by the abbreviation ATI, is measured as an answer to the question: "Allow many or few immigrants from poorer countries outside Europe?" The answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*. In a regression the effect occupation group has on attitudes towards immigrants is estimated. Several control variables are used related to education, cultural and economic fears because of immigration in the regression. Control variables are used to isolate the correlation between occupation groups and ATI. Through a literature review mechanisms or uncontrolled confounders that influence the correlation are explained. This thesis does not investigate casual effects because it considers that immigration is a complex and multifaceted matter which cannot be summarized through estimating a causal relation.

Occupation groups are classified according to the ISCO-88 system, developed by the International Labor Organization (ILO). The ISCO-88 system divides occupations into 10 major groups based on skill level and tasks. The ten major groups are: 1, legislators, senior officials and

managers; 2, professionals; 3, technicians and associate professionals; 4, clerks; 5, service workers and shop and market sales workers; 6, skilled agricultural and fishery workers; 7, craft related trades workers; 8, plant and machine operators, and assemblers; 9, elementary occupations; 10, armed forces occupations. See Appendix Table B1 for the definitions of the major groups.

Theory suggests that skill level is negatively related to ATI (Scheve & Slaughter, 2001; Mayda 2006). However, my research finds no proof that the lowest skilled workers are the least tolerant towards immigrants. “Skilled agricultural and fishery workers” (group 6) and “craft and related trades workers” (group 7) are significantly the least tolerant towards immigrants, even when education and cultural and economic concerns are constant for Europeans. “Professionals” (group 2) are significantly the most tolerant towards immigrants. Nevertheless, a fear of cultural change and economic concerns because of immigration have a significant negative effect on ATI.

Although the effect of occupation for groups 2, 6, and 7 is significant, the effect of occupation group on ATI is not causal. There are several explanations that account for the correlation between occupation group and ATI. Firstly, unskilled workers generally do not financially benefit from immigration (De Haas, 2005; Dustmann et al., 2008; Card, 2001). Another confounder could be the feeling of lost class and status because of economic modernization and globalization. This feeling can fuel negative immigration attitudes for agricultural and craft related workers (groups 6 and 7) (Bornschieer & Kriesi, 2013; Dancygier & Donnelly, 2013). On top of that, anti-immigration sentiments persist because they are transmitted between generations (Kovačič & Orso, 2023). Another factor that explains why occupation is related to attitudes towards immigrants, is that workers typically choose jobs that match their characteristics. Empathic people tend to choose jobs like teachers or related to social sciences that require empathy, empathy is positively related to ATI (Weeden & Grusky, 2005). Furthermore, Europeans fear their wages reduce because of immigration. Based on the Heckscher-Olin model, the relative wage for unskilled labor decreases when many unskilled immigrants enter the labor market (Scheve & Slaughter, 2001). Empirical studies however suggest no significant wage reduction because of immigration (Friedberg & Hunt, 1995; Card, 2001; Amuedo-Dorantes & De La Rica, 2008; Gonzalez & Orteg, 2011).

With data from the European Social Survey (ESS), round 2002, the attitudes towards immigrants from poorer countries outside Europe (ATI) is studied. In the ESS the attitudes towards other types of immigrants are also described. My research finds that Europeans are most tolerant towards immigrants of the same ethnicity, then towards immigrants from richer countries outside Europe (e.g. United States). Europeans are less tolerant towards immigrants from poorer countries outside Europe, and the least tolerant towards immigrants with a different ethnicity as the majority. For Europeans’ attitudes towards immigrants, the ethnicity of an immigrant is more important than an immigrant’s home country’s wealth.

This thesis is organized in the following way. Section I is the literature study. Section II presents the employed data and relevant descriptive statistics. Section III outlines the empirical strategy and the assumptions the data should meet. The results are detailed in section IV. Lastly, section V provides concluding remarks.

Section I. Literature Review

In the past decades, many studies have been conducted that correlate attitude towards immigrants with economic and non-economic variables. To build an understanding of why people differ in their attitudes towards immigrants (ATI), I study what economic and cultural factors influence attitudes towards immigrants. In the regressions the effects of economic and cultural fears on ATI are isolated. Therefore, the effect occupation has on ATI works primarily via the occupation group.

Cultural Factors and Attitude Towards Immigrants

According to Hainmueller and Hiscox (2007), cultural fears are more important than economic factors when predicting attitudes towards immigrants (ATI). A reason to resent immigrants is the fear of cultural change immigrants bring (Sides & Citrin, 2007). Racial prejudices also play a role (Dustmann and Preston, 2007). Education enhances individuals' openness and appreciation for diverse cultures and beliefs. Higher-educated people are more tolerant towards immigrants (Hainmueller & Hiscox, 2007). But even when controlling for cultural fears, the skill level of natives remains a significant factor in shaping attitudes toward immigrants (Dancygier & Donnelly, 2013; Mayda, 2006). Social trust and social capital have been positively correlated to ATI by Herreros and Criado (2009). Economically weak natives, or natives who are dissatisfied with the economy, still show positive attitudes towards immigration when cultural openness (Sides & Citrin, 2007) or social trust (Herreros & Criado, 2009) are present.

Another factor that explains resentment towards immigrants is a perceived loss in class and status because of immigration. During the 70's many industrial laborers or "blue-collar" guest workers arrived from North Africa and Turkey. Most of the foreign guest workers stayed in Europe and brought their families. Native male blue-collar manual workers faced competition and saw their working environment change (Bornschiefer & Kriesi, 2013). Furthermore, natives lost prestige and job certainty when economies focused more on information technologies and the service industry. Also traditional male blue-collar workers have experienced a social shift in post-war society, because of the emancipation of women, gays, and ethnic minorities. Adjustment is required when the social status quo changes. Immigration, a shifted social structure, and a service industry-focused economy can fuel resentment towards immigrants for native workers. By distancing yourself from immigrants, a sense of identity within one's group is created that elevates self-esteem (Burke, 2004; Bornschiefer & Kriesi,

2013). Moreover, Kovačič and Orso (2023) argue that negative attitudes towards immigrants are transmitted between generations.

Economic Factors and Attitude Towards Immigrants

An influx of unskilled immigrants increases the relative supply of unskilled labor versus skilled labor. Based on the Heckscher-Olin model, the relative wage for unskilled labor decreases (Scheve & Slaughter, 2001; Mayda, 2006). Empirical studies however suggest no significant wage reduction because of immigration (Card, 2001; Friedberg & Hunt, 1995; Amuedo-Dorantes & De La Rica, 2008; Gonzalez & Ortega, 2011). Economic concerns natives have because of immigration can negatively influence ATI. Immigrants entering a new labor market often commence as unskilled workers, even if they are well educated. Adjusting to a new language and performing at the desired skill level requires time and effort. Furthermore, converting a foreign diploma to the new country's diploma system is difficult. This results in a temporary increase in unskilled labor supply in European countries that host immigrants. Natives can fear that immigrants take their jobs, or that immigrants bring wages down.

On the other hand, immigration can boost economic productivity and fill up labor shortages. On average, skilled workers are more tolerant towards immigrants than unskilled workers. The reasons are that skilled workers financially benefit more from immigration than unskilled workers (De Haas, 2005). Because of globalization a lot of products are manufactured in low-wage countries overseas. People who do not gain from economic modernization and globalization can blame immigrants for their weak economic position (Dancygier, 2015). Becchetti et al., (2010) find a positive relationship between household income and attitude towards immigrants. Dancygier and Donnelly (2013) argue that working in a declining economy and/or sector fuels resentment people have towards immigrants. This can explain ATI on a sectoral level. Ortega and Polavieja (2012) found that working in jobs that require a lot of human capital and communication with colleagues and external stakeholders, has a positive relationship with tolerance towards immigrants. The degree of manual labor is negatively related to tolerance towards immigrants. Therefore, it is expected that manual production workers resent immigrants. The occupational groups that benefit from immigration and require a lot of human capital are occupation groups 1 and 2. Therefore I expect that people in these occupation groups are the most tolerant towards immigrants.

Wage Effects Because of Immigration

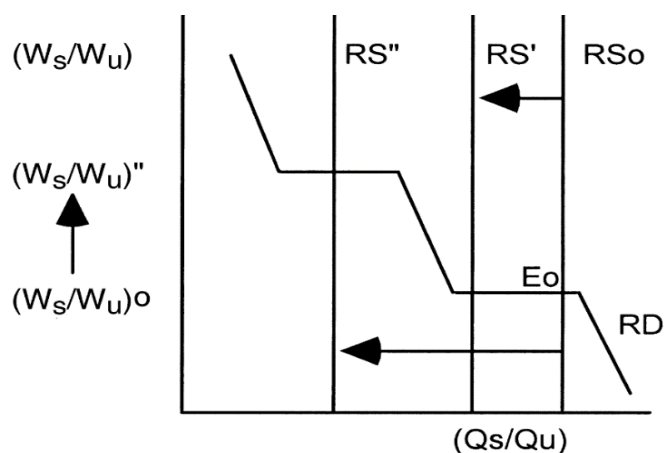
Because of an increase in unskilled labor supply, unskilled native workers may face competition and fear a wage reduction. The perceived negative economic effect of immigration influences occupation groups and ATI. In the regressions, I control for the perceived wage effect to isolate the effect the occupation group has on ATI. The understanding of the legitimacy of wage concerns for Euro-

pean workers is enhanced by studying wage effects. Theory suggests that the relative wages of unskilled workers decrease compared to the wages of skilled workers (Scheve and Slaughter, 2001). However, empirical research does not support this claim (Card, 2001; Friedberg & Hunt, 1995; Amuedo-Dorantes & De La Rica, 2008; Gonzalez & Ortega, 2011). First, I present theoretical models that predict wage effects in a country when immigrants enter the labor market. After, I research empirical studies because theoretical models do not always accurately reflect reality.

Model 1: The Heckscher-Ohlin Model. According to the Heckscher-Olin model, the wage effect of immigration on the host country's wage structure depends on 1) the relative supply of skilled and unskilled workers; and 2) the relative wages of skilled and unskilled workers. The size of the immigrant influx and whether the country is small or large (influencing world prices or not) also determines the wage effect. The insensitivity of national wages to changes in national factor (labor) supplies is called the Factor Price Insensitivity (FPI), named by Leamer and Levinsohn (1995). When the FPI holds, relative wages of unskilled labor and skilled labor do not change. In Figure 1, the horizontal parts of the stairs-like slope of the relative labor demand (RD), is where the FPI holds. When the FPI does not hold, the relative wages of unskilled labor compared to wages of skilled labor decrease.

The initial labor-market equilibrium is point E_0 (Figure 1). The relative labor supply of skilled labor is RS_0 , and the relative wage of skilled to unskilled labor is $(W_s/W_u)_0$. After a small immigration shock, the relative supply of skilled labor to unskilled labor changes a bit (RS_0 to RS'). After this small immigration influx, relative wages of skilled and unskilled labor do not change: $(W_s/W_u)_0$. The FPI holds because wages do not change. The country will produce more in the unskilled intensive sectors, assuming capital is elastic and is available to expand unskilled labor industries.

When the immigration shock is large, the relative labor supply of skilled workers (RS) changes from RS_0 to RS'' . The relative wages of skilled to unskilled labor rises from $(W_s/W_u)_0$ to $(W_s/W_u)''$. The Factor Price Insensitivity does not hold. If the FPI does not hold, unskilled (skilled) natives should resent (favor) immigration because the relative increase in unskilled labor supply decreases (raises) their relative wages.

Figure 1*Heckscher-Olin Model.*

Source: Scheve and Slaughter, 2001

Model 2: Technological Change Model. A change in output mix like in the previous model does not have to be the case. Technological change is a more obvious mechanism to absorb increases in unskilled labor. When unskilled labor is abundant, industries will select the production technology that uses unskilled labor. That does not have to alter the local output mix or the local wage structure. Evidence from studies found that most of the absorption of immigrants comes from changes in production technology (two-thirds), and not output mix. A change in output mix accounts for only one-third of the absorption of immigrants (Hanson and Slaughter, 2002; Lewis, 2004; González and Ortega, 2007).

Model 3: The Area-Analysis Model. The area-analysis model assumes a local labor market in countries. Gateway cities are where immigrants enter a new country. According to this model, low-skilled wages temporarily decrease in gateway cities when the supply of unskilled labor increases. In other areas of the country, the wage effect is less prominent. Only over short periods the model with area-segmented labor market is accurate because of the information and time cost of immigrants spreading over a country (Scheve & Slaughter, 2001).

Empirical Findings Wage Effects

Models can theoretically predict how immigrants are absorbed into a local job market and how this affects the wage structure in a country. However, theoretical models do not necessarily reflect reality. Amuedo-Dorantes and De La Rica (2008) found that immigration to Spain does not have a negative effect on low-skilled natives' wages. When many unskilled immigrants enter a labor market, manual natives tend to switch to more service-related jobs that require more communication with the public and external stakeholders. Leaving jobs as "crafts and related trades" (group 7), "machine operations and assembly jobs" (group 8) and searching for more clerical support jobs

(group 4), and service jobs (group 5). This corresponds with the findings by Ortega and Polavieja (2012). The switching of jobs highlights the elasticity of substitution between different skill categories (Card, 2001).

The Area-Analysis model was tested by Friedberg and Hunt (1995). A 10-percentage point increase in the share of immigrants in the population, reduced natives' wages by 0-1% in gateway city Miami. Even the most economically weak natives did not suffer significantly from large immigrant inflows. Card (2001) built on this literature but found a bigger wage reduction for unskilled labor. Enormous immigrant inflows in Miami and Los Angeles caused a reduction in the employment rates of youngsters and low-skilled natives in those cities by 1-3 percentage points. The reason natives' wages do not suffer significantly is because it is easy to shift between occupations (Card, 2001; Amuedo-Dorantes & De La Rica, 2008). But switching jobs has a cost. Easily replaceable native laborers feel resentment towards immigrants when they must change occupations (Card, 2001; Dancygier & Donnelly, 2013).

Gonzalez and Ortega (2011) also researched the Area-Analysis Model but found no wage effects in gateway regions in Spain. The paper exploited a significant increase in Spain between 2001 (6% foreign-born) and 2006 (13% foreign-born). The incoming unskilled immigrants did not affect the wages or employment rates of the native unskilled workers in gateway regions. Gateway regions produced more unskilled labor-intensive goods compared to regions that hosted few immigrants. This corresponds to the Technological Change Model.

To conclude, immigration to Europe leads to an increase in unskilled workers in the European labor market. The literature provides evidence both in favor and against the statement that immigration has a negative wage effect on immigrants receiving economies. Large significant wage reductions because of immigration have not been found.

The aim of this thesis is to study the relationship between occupation group and attitudes towards immigrants. Relating the literature review to the main research question, a few things are expected. 1) Unskilled manual working natives who are easily replaceable switch to more communication-intensive working environments. This need for adjustment can fuel negative immigration attitudes of unskilled manual workers (Card, 2001; Amuedo-Dorantes & De La Rica, 2008; Ortega & Polavieja, 2012; Dancygier & Donnelly, 2013). 2) Manual workers can feel negative towards immigration because of their loss in relative wages and class, and shifted social structure (Scheve & Slaughter, 2001; Bornschier & Kriesi, 2013; Dancygier & Donnelly, 2013; Burke, 2004; Sides & Citrin, 2007). 3) People working in declining sectors feel negative towards immigration (Dancygier & Donnelly, 2013). 4) Skilled workers who benefit from economic modernization and immigration probably favor immigration (Mayda, 2006; De Haas, 2005; Card, 2001).

Section II. Data and Descriptive statistics

The research question is: *What is the relationship between the occupation group Europeans have and their attitudes toward immigrants?* In a regression I search for effects of occupation group on attitudes towards immigrants (ATI). The dependent variable is attitudes towards immigrants (ATI) and the independent variable is the occupation group. There are several control variables that I use in the regression models. Control variables are used to minimize the bias of confounding variables that might influence ATI and occupational group. The controls are held constant to isolate the effect occupational group has on ATI.

Data

The data source used to answer the research question is the first round of the European Social Survey (ESS), conducted in 2002. Every round of the ESS has a rotating module with detailed questions regarding a specific topic. The ESS round of 2002 focuses on immigration. Even though the data is from 2002, it remains relevant how attitudes are formed for different occupational groups. The insights can still enhance our understanding of why some people resent immigrants. The data is cross-sectional and 42,044 individuals from twenty-two countries participated. The countries are Austria, Belgium, Czechia, Germany, Greece, Denmark, Israel, Italy, Luxembourg, Spain, Finland, France, the United Kingdom, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Sweden, Slovenia, and Switzerland. The control variables are gender, age, whether the respondent belongs to a minority group and education. Furthermore, the belief that immigrants fill jobs where there is a shortage of workers, the fear of decreasing wages because of immigration, and the perceived cultural threat by immigrants are control variables.

Dependent Variable: Attitudes Towards Immigrants (ATI)

Attitudes towards immigrants (ATI) is based on the question: “Allow many/few immigrants from poorer countries outside Europe.” The answer is coded as follows: 1, *allow many*; 2, *allow some*; 3, *allow a few*; 4, *allow none*. However, not all immigrants come from poorer countries outside Europe. Three other types of immigrants are briefly described as well: “Allow many/few immigrants of different race/ethnic group as majority” (Different race), “allow many/few immigrants from richer countries outside Europe” (Richer countries), and “allow many/few immigrants of same race/ethnic group as majority” (Same race). The questions are asked consecutively in the survey. I did not want to use the variable that focuses on different race/ethnic groups than the majority in the regression models. It is not the racial preferences I want to explore, but rather labor-related variables regarding immigrants. Labor-related factors are more related to the variables “Richer countries” and ATI (Poorer countries). I choose immigrants from poorer countries outside Europe as ATI, rather than “Richer countries”, because mostly immigrants from poorer countries fuel conflicting opinions related to the

immigration crisis (Hainmueller & Hiscox, 2007). Typically, these immigrants start in the labor market as less skilled than the average native. Immigrants from richer countries outside Europe are probably associated with immigrants equally or more skilled than the average native. For the dependent variable “ATI”, the respondents answered this question: The answer code 1, *allow many*; 2, *allow some*; 3, *allow a few*; 4, *allow none* is the same for variables “Richer countries”, “Same race”, and “Different race”.

Independent Variable: Occupation Group

This thesis explores the relationship between occupation groups and attitudes towards immigrants. The independent variable is the occupation group, classified by the ISCO-88 system. The International Labor Organization of the United Nations (ILO) developed the ISCO occupation system to match occupational titles across countries. The ISCO-88 definitions are in the Appendix. In the regression, the occupation major group is used as a categorical variable. In this way, I can specifically predict the effect of each occupation group on ATI. The first version of the occupation classification system was developed in 1957. Three more versions have been released in 1968, 1988, and 2008. The data used in this thesis is from 2002, and the employed occupational classification system stems from 1988. A disadvantage is that some job descriptions are not entirely up to date for 2002 and not all newly emerged jobs are well specified. Possibly, not every respondent might have had a job description he or she could match with. The major groups remain the same for every ISCO version. Therefore, I do not think the use of the ISCO-88 system is problematic. The ISCO system divides jobs into major occupation groups (Table 1, column 1), sub-major groups, minor groups, and unit groups. In total, there are 436 job descriptions (436 unit groups) spread out over ten major groups. In the data set 36,711 individuals are employed out of the 42,022 respondents. The ten major occupational groups correspond to the skill level needed to execute that job (Table 1, column 2). The four skill levels match with an educational level from the International Standard Classification of Education (ISCED) (Table 2). The ISCED system was developed by UNESCO and serves as a tool to compare educational levels internationally.

Table 1

ISCO-88 Major Groups and Corresponding Skill Level

ISCO-88 Major groups	Skill level
1. Legislators, senior officials, and managers	3, 4
2. Professionals	4
3. Technicians and associate professionals	3
4. Clerks	2
5. Service workers and shop and market sales workers	2
6. Skilled agricultural and fishery workers	2

7. Craft and related workers	2
8. Plant and machine operators and assemblers	2
9. Elementary occupations	1
10. Armed forces	1, 4

Source: International Labor Office

Table 2

Skill Level and Corresponding Education Level

Skill level	Corresponding education qualifications
1	Primary education (begun at ages 5-7 and lasting approximately 5 years)
2	Secondary education (begun at ages 11-12 and lasting 5-7 years)
3	Tertiary education (begun at ages 17-18 and lasting 3-4 years, but not being equivalent of university degree)
4	Tertiary education (begun at ages 17-18 and lasting 3-6 years and leading to university degree or equivalent)

Source: International Labor Office (ILO) and United Nations Educational, Scientific Organization (UNESCO)

Control variables

I use control variables to isolate the effect occupation group has on ATI. I control for four individual characteristics: gender, age, whether someone belongs to a minority ethnic group, and education. Furthermore, I control for economic factors (Fill jobs, Wages down) and cultural factors (Cultural threat) that may influence ATI and occupation group.

Ethnic minorities. There are no specific ethnicity variables in the European Social Survey. Except for the United Kingdom and a handful of nations in Eastern Europe, almost no European country collects data on race and ethnicity. A positive answer to the question, if one belongs to a minority ethnic group, is how I filter ethnic minorities. Other questions in the ESS regarding ethnicity are: if one is born outside the country; or if one is a member of a group discriminated against. There were too few respondents not born in the country, and the second-generation immigrants are not considered in the variable 'born in country'. Being part of a group discriminated against could also include people with disabilities. Therefore, I choose to belong to an ethnic minority group as an indicator of ethnicity. The estimates are biased when Minority is not controlled for, because ethnic minorities are more tolerant towards immigrants based on my descriptive data, and ethnic minorities tend to work in unskilled jobs.

Education. Receiving education makes individuals more open and receptive to unfamiliar cultures (Hainmueller & Hiscox, 2007). I control for education in the regression because it is a

confounding variable that influences attitudes towards immigrants (ATI) and occupation. The estimates are biased when education is not controlled for. For the education variable respondents must indicate their highest education level in the measurement system presented in Table 3. The education system, ES-ISCED, is the International Standard Education Classification developed by UNESCO. Almost 25% of the respondents were not able to harmonize their highest level of education with the ES-ISCED system. Therefore, education is not a very solid variable. Based on the regressions, occupation group also has an effect of ATI with constant education.

Table 3

Education variable

Highest level of education, ES - ISCED	N	Percent
Not possible to harmonise into ES-ISCED	17,141	40.8
1: Less than lower secondary	2,229	5.3
2: Lower secondary	5,182	12.3
3: Lower tier upper secondary	6,662	15.9
4: Upper tier upper secondary	4,533	10.8
5: Advanced vocational, sub-degree	1,882	4.5
6: Lower tertiary education, BA level	2,406	5.7
7: Higher tertiary education, >= MA level	2,009	4.8
Total	42,044	100

Source. European Social Survey, classification system by UNESCO.

Economic variables. Attitudes toward immigrants can be influenced by economic and cultural factors. First, I will describe two economic variables that may influence ATI, and after a cultural variable will be described. The economic variable “Fill jobs” explains whether the respondent is convinced that immigrants help strengthen the labor market where there is a shortage. The belief that immigrants bring down wages, is captured in the variable “Wages down”. I control for the perceptions people hold on the influence of immigrants on the economy to isolate the occupation effect on ATI. The “Fill jobs” variable is an answer to the following question: “Immigrants help to fill jobs where there is a shortage of workers.” The “Wages down” variable is an answer to: “Average wages/salaries are generally brought down by immigrants.” Both questions are answered as follows: “Using this card, please say how much you agree or disagree with each of the following statements: 1, *agree strongly*; 2, *agree*; 3 *neither agree nor disagree*; 4, *disagree*; 5, *disagree strongly*.”

Cultural variable. The attitude towards immigrants is determined by economic factors and cultural factors. Native Europeans may perceive immigration as a cultural threat because they want to conserve the social and cultural status quo in their country. According to Hainmueller and Hiscox (2010), cultural factors are more important than economic factors to explain attitudes towards immigrants. Other studies rejected this finding (Dancygier & Donnelly, 2013; Mayda, 2006). I include a cultural control variable to control for the perceived cultural threat people may have because of immigrants. In this way, the effect of occupational groups on *ATI* is not influenced by the cultural threat natives feel because of immigration. The survey question is phrased in the following way: “Using this card, would you say that [country]’s cultural life is generally undermined or enriched by people coming to live here from other countries?”. The answer is coded ranging on a scale of 0, *cultural life undermined*; to 10, *cultural life enriched by immigrants*.

Descriptive Statistics

The average attitude towards immigration is 2,5, exactly between 3, *allow a few*; and 2, *allow some*. The average age of the respondent is around 46 years old. The dataset consists of 42,359 individuals. Other descriptive statistics for the variables are presented in Table 4.

Table 4

Descriptive Statistics

Variable	Mean	Min	Max
ATI	2.5 (0.83)	1	4
Women	1.5 (0.00)	1	2
Age	42 (18.28)	14	110
Minority	1.96 (0.20)	1	2
Education	2.1 (2.19)	0	7
Wages down	2.9 (1.13)	1	5
Fill jobs	2.5 (1.00)	1	5
Cultural threat	5.8 (2.47)	0	10
Occupation group	4.8 (2.52)	1	10
42,044 observations			

Note. Standard deviations are in parentheses. For the variable “ATI”, the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; 4, *allow none*. “Education” ranges from 1, *lower secondary*; to 7, *>= MA level*. Variables “Wages down” and “Fill jobs” are rated on a scale from 1, *agree strongly*; to 5, *disagree strongly*. “Cultural threat” is rated from 0, *cultural life undermined*; to 10, *cultural life enriched by immigrants*.

Table 5 shows the relative size of every major occupation group based on the data from the ESS 2002. Not every individual who took the survey is employed. Out of 42,044 respondents, 36,711 individuals have an occupation. Overall, most respondents work in the third occupation group, as technicians and associate professionals (5,682 individuals). It is worth noting that the 10th group (the armed forces occupations) is the smallest (183 individuals). Therefore group 10 may not provide a reliable basis for conclusions. Table 5, column 3, displays the percentage of ethnic minorities working in every major group. The occupation groups with the biggest share of ethnic minorities involve unskilled manual labor: occupation group 9 (elementary occupations) and group 8 (plant and machine operators and assemblers). This aligns with previous research in the literature review (Ortega & Polavieja, 2012). Furthermore, the least number of ethnic minorities work in major group 6, which is a potential mechanism for the low ATI in group 6.

Table 5

Descriptive Statistics Occupation Group and Percentage of Ethnic Minorities

Occupation group	N	Percentage total	Percentage ethnic minorities
1 Legislators, senior officials and managers	2,970	8.1	3.2
2 Professionals	5,000	13.6	3.7
3 Technicians and associate professionals	5,682	15.5	2.9
4 Clerks	4,205	11.5	2.8
5 Service workers and shops and market sales workers	5,292	14.4	3.8
6 Skilled agricultural and fishery workers	1,661	4.5	2.8
7 Craft and related trades workers	4,928	13.4	4
8 Plant and machine operators. and assemblers	2,870	7.8	4.5
9 Elementary occupations	3,920	10.7	5.2
10 Armed forces occupations	183	0.5	2.8
Total	36,711	100	3.6

In Table 6 the correlations between the variables are presented. “Cultural threat” and “Wages down” have the strongest correlation with the dependent variable ATI (-0.42). The correlation of occupation group with the dependent variable “ATI” is (0.17). The variable “Wages down” also does

not correlate strongly with the independent variable occupation group (-0.18). “Cultural threat” does not have a high correlation with the independent variable (-0.18). Occupation group does not have a problematic high correlation with any of the other variables. Because the literature suggests that lower-skilled workers experience a greater relative wage reduction, I expected that “Wages down” would correlate more strongly with the occupation group.

Table 6

Correlation Matrix

	ATI	Women	Age	Minority	Education	Fill jobs	Wages down	Cultural threat	Occupation group
ATI	1								
Women	-0.01	1							
Age	0.15***	0.04***	1						
Minority	0.00	-0.02**	-0.06***	1					
Education	-0.13***	-0.05***	-0.08*	-0.05**	1				
Fill jobs	0.17*	0.00	-0.04*	-0.01***	-0.02***	1			
Wages down	-0.42***	-0.00	-0.05*	0.03***	0.03***	0.15***	1		
Cultural threat	-0.42***	0.01	-0.10***	-0.02***	0.04***	-0.17***	0.32***	1	
Occupation group	0.17***	-0.08***	0.04***	-0.03***	-0.26***	0.07***	-0.18***	-0.18***	1

Note. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

This thesis does not only summarize attitudes towards immigrants from poorer countries outside Europe (ATI). In Table 7 the descriptive statistics of attitudes towards different types of immigrants are described (ATI, Richer countries, Same race, Different race). The results show that people resent immigrants more when they are from a different ethnic group than from poorer countries outside Europe. Europeans are the most tolerant when immigrants are from the same race as the majority (Same race = 2.24). Europeans are the least tolerant when immigrants are of a different race or ethnic group as the majority (Different race = 2.53).

Women are slightly more tolerant than men towards immigrants from poorer countries outside Europe. Men are more tolerant when immigrants are from richer countries outside Europe. An explanation for women being more tolerant towards ‘poor’ immigrants than men, could be that women are more empathic than men (Greenberg et al., 2022; Löffler and Greitemeyer, 2021).

Column 3 of Table 7 shows descriptive statistics for ethnic minorities. A notable difference is that ethnic minorities are more tolerant towards immigrants from a different ethnic group than average. However, ethnic minorities agree more with the statement that immigrants generally bring wages down.

Table 7

Attitudes Towards Different Types of Immigrants per Gender and for Ethnic Minorities

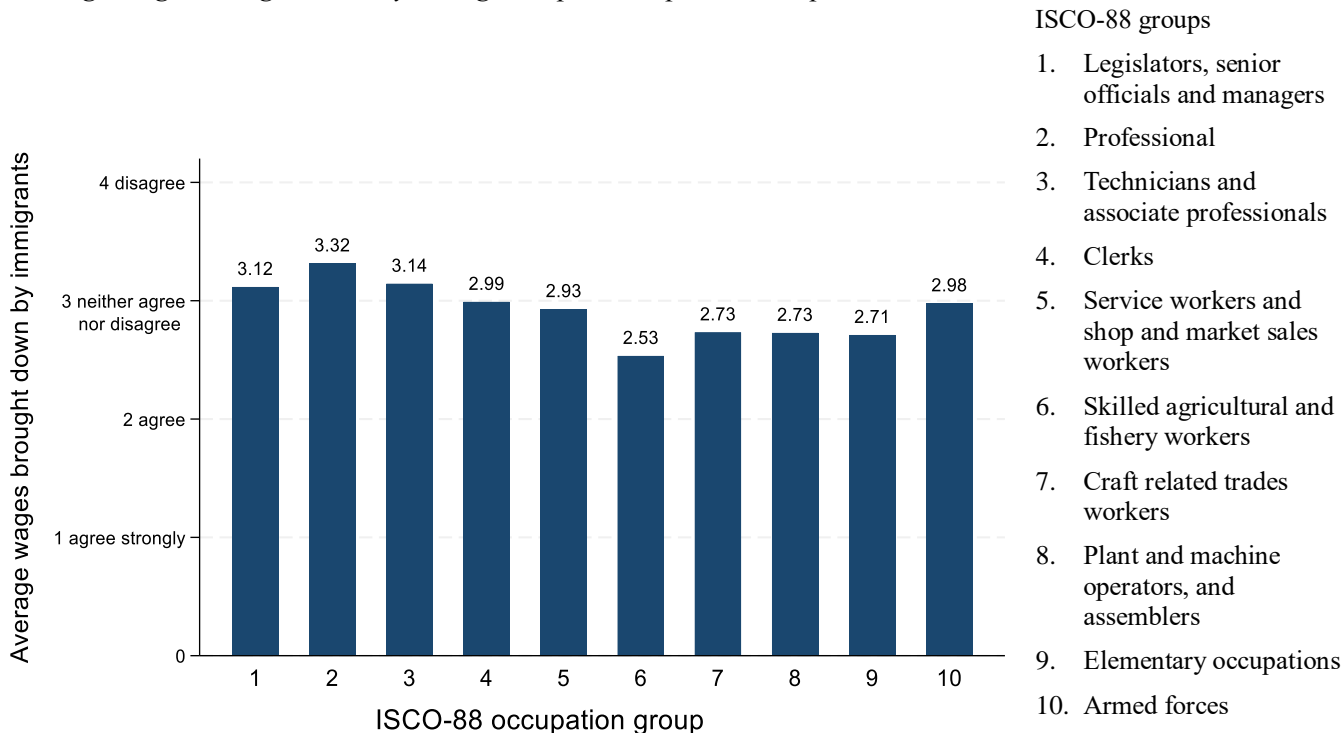
Variable	Men	Women	Ethnic Minorities	Total	Min	Max
ATI	2.51 (0.83)	2.50 (0.84)	2.50 (0.92)	2.51 (0.83)	1	4
Same race	2.23 (0.82)	2.26 (0.83)	2.26 (0.90)	2.24 (0.83)	1	4
Richer countries	2.41 (0.85)	2.49 (0.86)	2.41 (0.91)	2.45 (0.86)	1	4
Different race	2.53 (0.83)	2.53 (0.83)	2.46 (0.89)	2.53 (0.82)	1	4
Education	2.21 (2.23)	2.01 (2.14)	2.27 (2.17)	2.12 (2.19)	0	7
Fill jobs	2.49 (1.01)	2.49 (0,10)	2.42 (1.08)	2.49 (1.00)	1	5
Wages down	2.93 (1.14)	2.94 (1.12)	2.80 (1.24)	2.93 (1,13)	1	5
Cultural threat	5.74 (2.47)	5.78 (2.47)	6.03 (2.74)	5.77 (2.47)	0	10
Occupation group	5.05 (2.67)	4.64 (2.35)	5.19 (2.63)	4.83 (2.52)	1	10
N	19,897	22,110	1,660	42,044		

Note. Standard errors are in parentheses. For the variables “ATI”, “Different race”, “Same race”, and “Richer countries”, the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*. Education ranges from 1, *lower secondary*; to 7, *>= MA level*. Variables “Wages down” and “Fill jobs” are rated on a scale from 1, *agree strongly*; to 5, *disagree strongly*. “Cultural threat” is rated from 0, *cultural life undermined*; to 10, *cultural life enriched by immigrants*.

If a person believes that average wages are brought down by immigrants, that can be a reason to resent immigrants. Figure 2 shows that group 6 agrees the strongest with the statement. Major groups 7, 8, and 9, also agree strongly to the statement that immigrants generally bring average wages down.

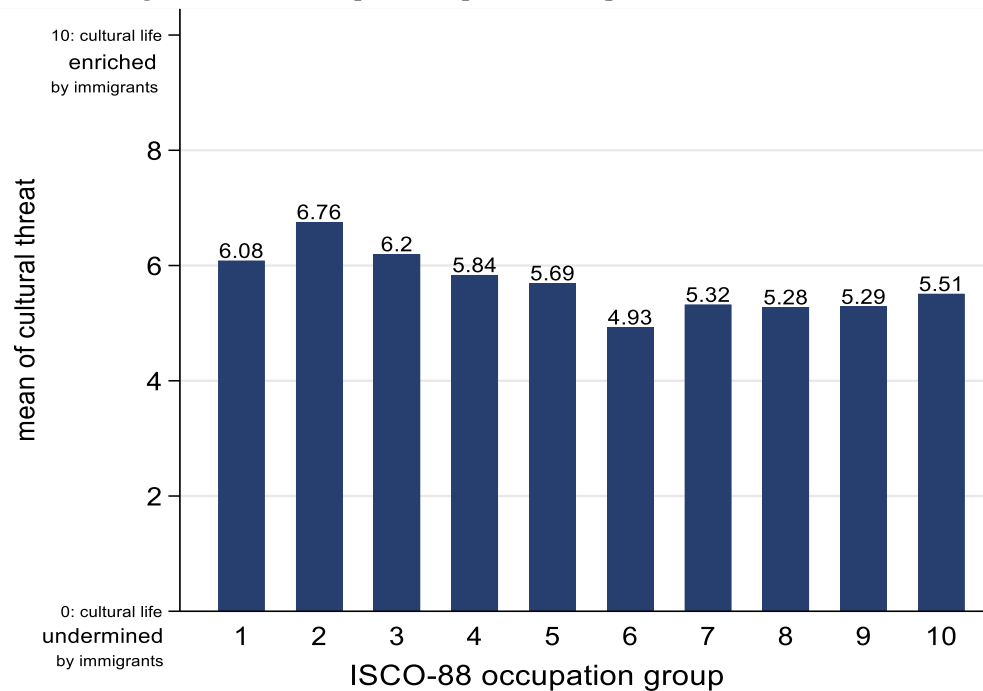
Figure 2

Average Wages Brought Down by Immigrants per Occupation Group



Note. Data from the European Social Survey, 2002

The cultural threat people feel because of immigration also significantly ($p < 0.00$) influences the tolerance toward immigrants. Figure 3 shows that “skilled agricultural and fishery workers” agree the most with the statement that their country’s cultural life is undermined by immigrants.

Figure 3*Influence Immigrants on Culture per Occupation Group*

Note. Data from European Social Survey, 2002

Section III. Empirical Strategy

The research question is: What is the relationship between the ISCO-88 occupation group and attitudes toward immigrants? The dependent variable is the occupation group. The independent variable is the attitude towards immigrants (ATI). To answer the research question, I regress the estimates of the independent variable on the dependent variable (ATI). With control variables, I hold confounding factors constant, so the effect from the independent variable “Occupation group” on the dependent variable (ATI) is isolated. I use robust standard errors and a 5% significance level, indicated by two asterisks. I estimate four models. Every model contains more control variables to isolate the effect of “Occupation group” on attitudes towards immigrants. The first model uses only the independent variable as categorical variable of occupation group. The second model uses the occupation category and four individual characteristics control variables: Women, Age, Minority, and Education. In the third model, I also use economic variables that influence ATI (Fill jobs and Wages down). In the fourth model, I add the perceived cultural threat because of immigration (Cultural threat). Two individuals who equally perceive the effect of immigration on culture, and have the same education, still differ in their ATI based on occupation. The four equations that will be estimated are:

$$\text{Model 1 : } ATI = \beta_0 + \beta_2ISCO_2 + \beta_3ISCO_3 + \beta_4ISCO_4 + \beta_5ISCO_5 + \beta_6ISCO_6 + \beta_7ISCO_7 \\ + \beta_8ISCO_8 + \beta_9ISCO_9 + \beta_{10}ISCO_{10} + \epsilon$$

$$\text{Model 2 : } ATI = \beta_0 + \textit{Women} * a1 + \textit{Age} * a2 + \textit{Minority} * a3 + \textit{Education} * a4 + \beta_2ISCO_2 \\ + \beta_3ISCO_3 + \beta_4ISCO_4 + \beta_5ISCO_5 + \beta_6ISCO_6 + \beta_7ISCO_7 + \beta_8ISCO_8 + \beta_9ISCO_9 \\ + \beta_{10}ISCO_{10} + \epsilon$$

$$\text{Model 3 : } ATI = \beta_0 + \textit{Women} * a1 + \textit{Age} * a2 + \textit{Minority} * a3 + \textit{Education} * a4 + \textit{Filljobs} \\ * \mu_1 + \textit{Wages down} * \mu_2 + \beta_2ISCO_2 + \beta_3ISCO_3 + \beta_4ISCO_4 + \beta_5ISCO_5 \\ + \beta_6ISCO_6 + \beta_7ISCO_7 + \beta_8ISCO_8 + \beta_9ISCO_9 + \beta_{10}ISCO_{10} + \epsilon$$

$$\text{Model 4 : } ATI = \beta_0 + \textit{Women} * a1 + \textit{Age} * a2 + \textit{Minority} * a3 + \textit{Education} * a4 + \textit{Filljobs} \\ * \mu_1 + \textit{Wages down} * \mu_2 + \textit{Cultural threat} * \mu_3 + \beta_2ISCO_2 + \beta_3ISCO_3 \\ + \beta_4ISCO_4 + \beta_5ISCO_5 + \beta_6ISCO_6 + \beta_7ISCO_7 + \beta_8ISCO_8 + \beta_9ISCO_9 + \beta_{10}ISCO_{10} \\ + \epsilon$$

The constant is β_0 . The individual characteristics are $a1$, $a2$, $a3$, $a4$; *Women*, *Age*, *Minority*, and *Education*. The variables $\mu_1 + \mu_2$ are economic factors explaining ATI. μ_1 : “Immigrants help to fill jobs where there is a shortage of workers” (Fill jobs). μ_2 : “Average wages/salaries generally brought down by immigrants” (Wages down). μ_3 is a cultural factor explaining ATI. μ_3 : “Country's cultural life undermined or enriched by immigrants” (Cultural threat). β_nISCO_n is a categorical variable for every occupation group. The ATI scale ranges from one to four. One is the most positive and four is the most negative ATI: 1, *allow many*; 2, *allow some*; 3, *allow a few*; and 4 *allow none*.

First, I test the assumptions the data should met. After I regress the models and with literature is explored why occupation groups differ in their ATI.

Assumptions

To make a good estimation of the regression coefficients, the data must meet five assumptions. The assumptions are: 1 random sample selection; 2 Conditional Independence Assumption; homoscedasticity; 4 normality; 5 no multicollinearity.

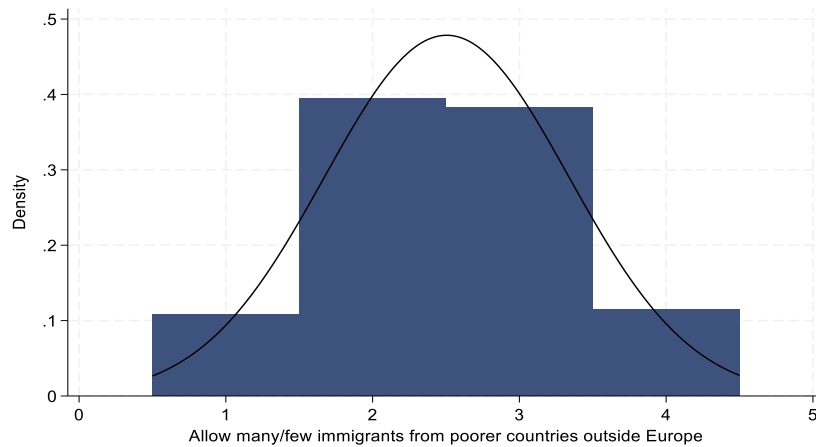
The first assumption to test is random sample selection. The European Social Survey (ESS) gathers data from a diverse range of individuals spanning Europe, making it an accurate representation of the European population. Nevertheless, higher-educated people tend to respond

more frequently to the survey than lower-educated people. To compensate for that flaw, poststratification weights are used. Because education is correlated with occupation group, not every ISCO-88 major group might have the same number of original inputs.

The second assumption is the Conditional Independence Assumption. It means that after controlling for the control variables, the attitude towards immigrants only depends on the occupation group. If the Conditional Independence assumption is met, there is a causal effect of occupation group on attitudes towards immigrants (ATI). However, the Conditional Independence Assumption does not hold. A causal effect of the occupation group on attitudes towards immigrants cannot be concluded. Endogeneity is present in the regressions. Endogeneity occurs when there is omitted variable bias, reverse causality, or measurement errors. In regressions there will always be omitted variable bias. An example in my study is that individual characteristics and values influence the type of job people choose, and the attitude towards immigrants. In some jobs, a lot of empathy is needed. Empathy can increase the tolerance towards immigrants (Weeden & Grusky, 2005). This creates omitted variable bias. Another omitted variable bias occurs because negative attitudes towards immigrants are passed down between generations (Kovačič & Orso, 2023). The ATI of a worker's parents is not controlled for and could influence ATI of a worker. Moreover, the living location influences ATI and influences occupation group (Kalantaryan et al., 2021). Reverse causality can also occur. Hiring managers typically choose workers that match the status quo in their organization (Weeden & Grusky, 2005). The values, and thus ATI, of a person can be formed by colleagues in a certain occupation group. Lastly there are measurement errors. Almost 25% of the respondents could not match their education level with the system used in the survey and the occupation system stems from 1988. It is possible that job descriptions were not up to date for everyone when the survey was held in 2002.

The third assumption is homoscedasticity. It assumes equal or similar variances in different groups being compared. When the opposite, heteroskedasticity is present, the standard errors of the regression output is not reliable. To test if heteroskedasticity is present in the data, I conduct a Breusch-Pagan test. First the regression of Model 3 and 4 is run. The null hypothesis is that constant variance is present in the regressions. The null hypotheses cannot be rejected in Model 4 ($X^2 = 0.23$, $p = 0.63$) and Model 3 ($X^2 = 0.18$, $p = 0.28$). Therefore, I conclude that there is no problem of heteroskedasticity in Model 3 and Model 4. For models 1 and 2 there is a problem of heteroskedasticity. The null hypotheses of constant variance cannot be rejected for Model 2 (12.8, $p = 0.000$) and Model 1 ($X^2 = 25.28$, $p = 0.000$). See Appendix Table B10 for all the Variance Inflation Factors.

Next, the normality is tested. Normality assumes that the residuals in the model are normally distributed. Because the dependent variable is categorical, it is hard to test for normality. In Figure 4 a histogram is shown with the categories. As far as possible, the data represents a normal distribution.

Figure 4*Normality*

The last assumption is that there should be no multicollinearity. To test multicollinearity, the Variance Inflation Factor (VIF) and the correlation matrix are used. A high VIF ($VIF > 5$) means that there is multicollinearity problem, which leads to erratic coefficient estimates in the regression models. For none of the independent variables is the VIF above five, concluding that the no multicollinearity assumption is met in the most elaborate model. See Appendix Table B10 for the Variance Inflation Matrix. Furthermore, the correlations are not above 0.5 in the correlation matrix of Table 6.

Section IV. Results

Table 8 shows the regression results for the four models with the dependent variable attitudes towards immigrants (ATI) and independent variable occupation group. In all four models, “professionals” (group 2) have the most positive attitudes towards immigrants. “Skilled agricultural and fishery workers” (group 6) are the least tolerant in all four models. Because the answer scale of ATI ranges from 1, *allow many*; to 4, *allow none*, a negative coefficient indicates a more tolerant ATI, because the coefficient is closer to 1, *allow many*. The influence of occupation groups on ATI also survives also when considering cultural and economic fears towards immigrants. Occupation has a significant effect in the fourth model on occupation groups 2, 6, and 7, *ceteris paribus*.

Table 8*Regression Models Attitudes Towards Immigrants.*

Dependent variable: Attitude towards immigrants from poorer countries outside Europe (ATI)				
Variable	Model (1)	Model (2)	Model (3)	Model (4)
Women		0.018 (0.01)	0.005 (0.01)	0.008 (0.01)
Age		0.006 *** (0.00)	0.006 *** (0.00)	0.004 *** (0.00)
Minority		-0.033 (0.024)	-0.016 (0.03)	-0.037 (0.02)
Education		-0.014 *** (-0.00)	-0.019 *** (0.00)	-0.013 *** (0.00)
Fill jobs			0.123 *** (0.00)	0.086 *** (0.00)
Wages down			-0.198 *** (0.00)	-0.133 *** (-0.00)
Cultural threat				-0.106 *** (0.00)
Occupation group				
	2	-0.269 *** (0.02)	-0.229 *** (0.02)	-0.183 *** (0.02)
	3	-0.085 ** (0.02)	-0.064 ** (0.02)	-0.054 * (0.02)
	4	0.028 (0.02)	0.036 (0.02)	0.007 (0.02)
	5	0.033 (0.02)	0.048 (0.02)	0.007 (0.02)
	6	0.364 *** (0.03)	0.284 *** (0.03)	0.180 *** (0.03)
	7	0.237 *** (0.02)	0.232 *** (0.02)	0.139 *** (0.02)
	8	0.196 ***	0.177 ***	0.089 ***

	(0.02)	(0.02)	(0.02)	(0.02)
9	0.198***	0.175***	0.094***	0.033
	(0.02)	(0.02)	(0.02)	(0.02)
10	0.163**	0.221***	0.153*	0.086
	(0.06)	(0.06)	(0.06)	(0.06)
Constant	2.45***	2.25***	2.56***	3.18***
	(0.02)	(0.0)	(0.06)	(0.06)
Observations	35,044	34,243	32,388	31,457
R2	0.04	0.06	0.160	0.24

Note. Standard Errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. For the dependent variable “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*. Education ranges from 1, *lower secondary*; to 7, \geq *MA level*. Variables “Wages down” and “Fill jobs” are rated on a scale from 1, *agree strongly*; to 5, *disagree strongly*. The cultural threat is rated from 0, *cultural life undermined*; to 10, *cultural life enriched by immigrants*. The ISCO-88 major occupation groups are: 1, legislators, senior officials and managers; 2, professionals; 3, technicians and associate professionals; 4, clerks; 5, service workers and shop and market sales workers; 6, skilled agricultural and fishery workers; 7, craft related trades workers; 8, plant and machine operators, and assemblers; 9, elementary occupations; 10, armed forces occupations. See Appendix for definitions of occupation groups.

Occupation groups 6 and 7 are the least tolerant towards immigrants ($p < 0.001$). Group 10 is too small to make hard claims about their ATI ($N = 183$, Table 5), which is why I do not further research group 10. Workers in group 6 “require the knowledge and experience to produce farm, forestry and fishery products” (ILO). The main task of workers in group 7 consists of “extracting raw materials, constructing buildings and other structures and making various products as well as handicraft goods” (ILO). “Clerks” (group 4) and “service workers and shop and market sales workers” (group 5) are more tolerant towards immigrants. Even though these jobs require the same skill level and thus the education of groups 6 and 7 (Table 1, Table 2). The tasks in groups 4 and 5 involve more workplace communication and interactions with colleagues and external stakeholders, which could relate to their attitude towards immigrants (Ortega and Polavieja, 2012).

Workers in occupation group 6 resent immigrants the most according to the models (0.103). However, group 6 does not experience the biggest economic losses from economic modernization and technological change (Dancygier, 2015). Apart from the communication intensity of a job, resentment towards immigrants can also be class and cultural-related. A perceived decline in prestige and a shifted social structure (emancipation of women, gays and ethnic minorities) may fuel resentment toward immigrants, passed on between generations (Bornschieer & Kriesi, 2013; Kovačić & Orso, 2023). A group identity can increase people's self-esteem (Burke, 2004). However, more research must be done on the effect of perceived loss in prestige on ATI. However, the estimates of group 6

may be biased because of their living location. Agricultural workers (group 6) are likely to work in rural areas. Anti-immigration views may persist when people see few cases of successful, well-integrated first- or second-generation immigrants in rural areas (Kalantaryan et al., 2021). In future studies, controlling for living location can address the influence living location has on ATI that simultaneously relates to occupation.

Occupation groups 8 (plant and machine operators, and assemblers) and 9 (elementary occupations) are less skilled, but more tolerant than groups 6 and 7 (Table 1, Table 8). However, the results for groups 8 and 9 are not significant in Model 4. Therefore, I conclude that for workers in groups 8 and 9, cultural and economic fears influence ATI stronger than their occupation. For workers in groups 4 and 5, cultural and economic factors also influence the attitude towards immigrants more significantly than their occupation.

“Professionals” (group 2) are significantly the most tolerant (-0.137) towards immigrants in all models ($p < 0.001$). Their main tasks consist of “increasing the existing stock of knowledge, applying scientific and artistic concepts and theories to the solution of problems, and teaching about the foregoing in a systematic manner” (ILO). “Professionals” are also more tolerant than workers from group 1 (legislators, senior officials and managers). The ILO describes that group 1 “plans, directs and coordinates activities”. Based on this description, an analytical and efficiency-oriented skill set is needed to succeed for workers group 1. An explanation for the different ATI of these skilled workers is self-selection of jobs. Workers do not only choose an occupation based on their skill set, but individual characteristics and beliefs also play a role (Weeden & Grusky, 2005). For example: empathic people are likely to self-select as social workers or teachers. Financial traders probably self-select on analytical skills and empathy is not crucial. This allocation bias is primarily described in sociological research, but less in economic research. Empathic (analytical) characteristics can positively (negatively) influence attitudes towards immigrants. The supply side of labor is also biased by personal characteristics and individual beliefs. Hiring managers typically hire workers that match the status quo in their company or organization. Acknowledging the allocation bias increases the understanding of how ATI is formed and persists in occupation groups.

Not only did I research ATI on a major group level, I also investigated ATI on a sub-major group level. This is done to discover relationships of different fields (production, agriculture, sales, engineering), on the same major group level. For example, managers (group 1) can work as sales-related managers, or production-related managers. And clerks (group 4) can work as sales-office assistants, or production-office assistants. Because ATI significantly relates to the occupation groups 2, 6, and 7, I briefly describe the differences within these major groups on sub-major group-level ($p < 0.001$). See Table 9 and Appendix Table B6 and B7 respectively for the detailed sub-major group ATI descriptions. Furthermore, the ATI of sub-major groups in major groups 1, 3, 4, 8, and 9 are presented in Appendix Table B2, B3, B4, B8, and B9 respectively.

For managers in group 1, managers of small enterprises (ATI = 2.37, N = 1166) are less tolerant towards immigrants than other type of managers (ATI = 2.58, N = 1663) (Appendix Table B2). I believe this could be because large companies work with more international clients and employees. Furthermore, in group 3 (associate professionals) teaching associate professionals (ATI = 2.23, N = 508) are more tolerant than engineering associate professionals (ATI = 2.42, N = 1240) (Appendix Table B3). Another notable difference is for elementary workers (group 9). Sales and services elementary workers are slightly more tolerant (ATI = 2.62, N = 2,165) than agricultural elementary workers (ATI = 2.76, N = 339) and mining and construction workers (ATI = 2.69, N = 1087) (Appendix Table B9). On a sub-major group level, I find that being exposed to a bigger public and more external stakeholders in one's job, is roughly associated with more tolerant towards immigrants (Ortega and Polavieja, 2012). Engineering and agricultural related sub-major groups are less tolerant towards immigrants than other workers on the same major group level.

In detail: Professionals

The “professionals” group is the most tolerant towards immigrants out of all 10 major groups (Table 9). Among professionals, sub-major group 24 is the most tolerant towards immigrants. Their tasks consist of doing research on subjects as history, religion, languages, social sciences, arts and writers (ATI = 2.15, N = 1552). Professionals within the technical and engineering field (sub-major group 21) are the least tolerant of all professionals (ATI = 2.23, N = 960). The difference can be explained by Weeden & Grusky (2005): character traits influence occupation choice and ATI. Probably people that choose to study social sciences, are also more open to new cultures and people with different backgrounds and beliefs.

Table 9

Attitudes Towards Immigrants for Workers in Group 2: Professionals

Title	Sub-major Group	N	ATI
Physical, mathematical, and engineering science professionals	21	960	2.23
Life science and health professionals	22	614	2.22
Teaching professionals	23	1,711	2.19
Other professionals	24	1,552	2.15
Not specified	20	17	2.65
Total	2	5,027	2.18

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

In detail: Skilled agricultural and fishery workers

Major group 6 is the least tolerant towards immigrants. This group is divided in eight unit groups. The unit group “field crop and vegetable growers” are the least tolerant towards immigrants (ATI = 3.0, N = 454). The unit group “Market-oriented animal producers and related workers” are the most tolerant towards immigrants (ATI = 2.4, N = 85). See appendix Table B6 for the ATI of all unit groups in major group 6. The number of observations is quite small, so the ATIs possibly do not provide a reliable foundation to draw conclusions or search for explanations.

In detail: Craft related trades workers

For workers from major group 7, the sub-major group relating to extraction and building workers are slightly less tolerant than other sub-major groups major group level 7. The most positive view towards immigration can be appointed to sub-major group 73: “precision, handicraft, craft printing and related trades workers” (ATI = 2.56, N = 1581). Agricultural and fishery process workers (sub-major group 74) exhibit the least tolerant ATI (ATI = 2.86, N = 85), similar to the trend of skilled agricultural workers (major group 6). Possibly the agricultural process workers (sub-major group 74) are influenced by the skilled agricultural workers (group 6). See Appendix Table B7 for the ATI of sub-major groups within major group 7. Other detailed major group ATI comparisons can also be found in the Appendix.

Section V. Conclusion

It is important to understand and research Europeans’ attitudes towards immigrants because voters influence the size of immigrant inflows. Immigrants are needed to fill up labor shortages of the demographically aging European continent. Labor shortages will hamper economic growth of Europe. Effective integration of immigrants is needed to ensure continued shared prosperity (De Haas, 2021). By understanding and influencing the ATI of voters, governments can create policies that are accepted by a majority of the voters and create potential solutions for the immigration issues.

This thesis researched the relationship between Europeans’ occupational groups and their attitudes towards immigrants (referred to by ATI). Occupation groups are classified into ten major groups based on skill level and tasks according to the International Standard Occupation Classification (ISCO-88). With the European Social Survey, round 2002, I measured attitudes towards immigrants (ATI). ATI is an answer to the question how many immigrants a respondent allows from poorer countries outside Europe. The answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Based on the regressions in my research, the workers with the least tolerance towards immigrants are: “skilled agricultural and fishery workers” (group 6), followed by “craft and related trades workers” (group 7), even when education, cultural fears, and economic concerns are held constant in

the regressions. “Professionals” (group 2) are significantly the most tolerant towards immigrants, *ceteris paribus*. Nevertheless, the cultural fears and economic concerns Europeans have, like wage decrease, are strong predictors of ATI, which is also found in previous studies (Mayda, 2006; Scheve & Slaughter, 2001). However, empirical research has not found significant wage reductions for unskilled workers in immigrant-receiving countries or regions (Friedberg & Hunt, 1995; Card, 2001; Amuedo-Dorantes & De La Rica, 2008; Gonzalez & Ortega, 2011).

Several factors explain the attitudes towards immigrants for certain occupational groups. Firstly, advanced economies need fewer manual production workers because of technology and globalization. When many practical skilled immigrants enter, this could feel like labor market competition for manual natives. Job uncertainty can fuel negative sentiments toward immigrants, even when individuals do not fear the cultural change immigrants can bring (Card, 2001; Mayda, 2006; Dancygier, 2015; Dancygier & Donnelly, 2013). Another reason why occupation group and attitudes towards immigrants are correlated, is that unskilled workers financially benefit less from unskilled immigrant inflows than skilled workers who employ these laborers, e.g., employers and directors (De Haas, 2005; Mayda, 2006; Card, 2001; Scheve & Slaughter, 2001; Dustmann & Preston, 2007; Dancygier & Donnelly, 2013). Moreover, unskilled manual natives sometimes must shift to occupations that require more workplace communication when unskilled immigrants enter the labor market. Manual working natives have the competitive advantage that they know the language and culture of a country. Switching jobs can include costs of retraining and adapting to new environments. This job change can foster resentment towards the unskilled immigrants, assumed to have taken their original roles by accepting lower salaries (Amuedo-Dorantes & De La Rica, 2008; Card, 2001).

A potential mechanism for the negative attitude towards immigrants for “skilled agricultural workers” (groups 6) and “craft and related workers” (group 7), is a perceived loss of class and status. Resentment towards immigrants among blue-collar workers grew in the '70s when many workers from North Africa and Turkey arrived in Europe (Bornschiefer & Kriesi, 2013). This influx, combined with an economical shift towards tech and services and changes in social dynamics (like the rise of women's and ethnic minorities' rights), led for some native workers to feel displaced. Distancing from immigrants became a way to reinforce one's identity. (Dancygier & Donnelly, 2013; Burke, 2004; Sides & Citrin, 2007). Lastly, anti-immigrant views are passed down through generations (Kovačič & Orso, 2023).

The ISCO system divides jobs into ten major groups. These major groups are classified into sub-major groups, minor groups and unit groups. To further understand differences in ATI of workers, I also researched ATI for all sub-major groups. In that way sector differences for workers on the same job level are described in detail. Regardless of major group level, a pattern is found. Sub-major groups related to production, agriculture and engineering are less tolerant towards immigrants than other workers on the same major group level. Sub-major groups related to teaching, sales and personal ser-

vices, are more tolerant towards immigrants than workers in other sub-major groups on the same major group level. For example, of all the associate professional workers in group 3, teaching associate professionals (ATI = 2.23, N = 508) are more tolerant towards immigrants than engineering associate professionals (ATI = 2.42, N = 1240). Another interesting observation is that managers of small companies are less tolerant towards immigrants than managers of large companies.

ATI is based on the question how many immigrants one allows from poorer countries outside Europe. However, not all immigrants enter from poorer countries outside Europe, that is why attitudes towards different types of immigrants are also described. When it comes to ranking positive attitudes towards immigrants, the sequence is as follows, from positive to negative:

1. Immigrants with the same ethnic background
2. Immigrants from richer countries outside Europe
3. Immigrants from poorer countries outside Europe
4. Immigrants with a different ethnic background.

For Europeans' attitudes towards immigrants, the ethnicity of an immigrant is more important than an immigrant's home country's wealth.

Policy recommendations

The European Union pays transit countries, from where illegal immigrants enter Europe, hundreds of millions to prevent immigrants from reaching Europe. Turkey was paid (6 billion, (Eu, 2023)) to limit immigration inflow. Tunisia is to be paid 60 million (Sorgi, 2023). Tightened border controls increase the prices of human smugglers, who are experts at evading law enforcement. But immigration will not stop and economic growth in countries outside Europe will only stimulate immigration to Europe (De Haas, 2021). Potential policy recommendations are:

1. Regulating immigration and prioritizing highly skilled immigrants who can contribute the host economy. Furthermore, European economies benefit when immigrants can work at their desired level soon after arrival. Immigrants should be allowed to work during their residence permit application process. This speeds up the integration process for immigrants and they will start to contribute to national economies sooner.
2. When politicians communicate their policies related to immigration, they should consider how people's attitudes towards immigrants differ. A high skilled electorate is more tolerant towards immigrants than practical skilled. Moreover, workers related to agriculture are the least tolerant towards immigrants.
3. Politicians should position immigration in a historical context and emphasize that immigrants contribute to our present prosperity.
4. Knowing that the attitudes towards immigrants with comparable ethnic background is much more positive towards immigrants from a different ethnic background, politicians could promote intercultural understanding to increase social cohesion.

Bias

The effect the occupation group has on attitudes towards immigrants (ATI) is not causal. It is important to keep in mind that biases may have occurred while collecting and analyzing the data. Self-selecting on jobs that require characteristics that also influence attitudes towards immigrants is a bias (Weeden & Grusky, 2005). Individual character traits like empathy influence occupation choice and ATI, also at constant skill level and education. For example: people that choose to work in the social sciences field, are probably also more open to new cultures and people with different backgrounds and beliefs.

Living location is a confounding variable that introduces bias as well. Agricultural workers likely live in the countryside. In the countryside fewer cases of well-integrated immigrants are present, which negatively influences ATI (Kalantaryan et al., 2021). Another bias is the nonresponse bias, and it occurs in every survey. Higher-educated people more often respond to surveys, which can lead to measurement errors. Also, many individuals did not manage to categorize their education level in the used education measurement. Education is probably not a very solid variable.

Recommendations for further research

For further research, it can be interesting to take different social hierarchy scales into consideration. The perceived loss in cultural class because of economic modernization and globalization may have an impact on ATI (Bornschier & Kriesi, 2013; Dancygier & Donnelly, 2013; Burke, 2004; Sides & Citrin, 2007). By controlling for the perceived loss of class, ATI can be explained further. An example is the Standard International Occupational Prestige Scale (SIOPS) constructed by Treiman (1977). Another example is the continuous prestige scale Socio-Economic Index of occupational status (ISEI), developed by Ganzeboom et al. (1992). An advantage is that the self-employed are better represented with the ISEI scale. Lastly, there is the European Socio-economic Classification (ESeC) (Rose & Harrison, 2007), with a more sociological basis. ESeC is a categorical scale like the ISCO scale. The scale is more sociologically derived and divides society into nine social classes based on employment relations. However, these classifications may not be factual or accurate enough. Still, controlling for a perceived loss in class, could help to explain why some workers resent immigration.

To further estimate why some occupation groups are more tolerant than other, character traits must also be controlled for. My research showed that unskilled workers are less tolerant towards immigrants than skilled workers, previous studies found that as well. But while skill and occupation play a role, individual character traits also matter for occupation and attitudes towards immigrants (ATI) (Weeden & Grusky, 2005). Controlling for character traits like empathy, openness to new cultures, agreeableness, or neuroticism, might explain the variance of ATI for people working in the same occupation group and skill level. Lastly, controlling for the living area can also be taken in consideration in further research.

References

- Amuedo-Dorantes, C., & De La Rica, S. (2008). Complements or Substitutes? Immigrant and Native Task Specialization in Spain. *ResearchGate*. https://www.researchgate.net/publication/23799595_Complements_or_Substitutes_Immigrant_and_Native_Task_Specialization_in_Spain
- Baxter, J. (2023). Modes of spread in social innovation: A social topology case in rural Portugal. *Journal of Rural Studies*, 99, 243–251. <https://doi.org/10.1016/j.jrurstud.2021.04.016>
- Becchetti, L., Rossetti, F., & Castriota, S. (2010). Real household income and attitude toward immigrants: an empirical analysis. *Journal of Socio-economics*, 39(1), 81–88. <https://doi.org/10.1016/j.socec.2009.07.012>
- Berretta, M., & Mayda, A. M. (2009). Does the Welfare State Affect Individual Attitudes toward Immigrants? Evidence across Countries. *The Review of Economics and Statistics*, 91(2), 295–314. <https://doi.org/10.1162/rest.91.2.295>
- Bornschieer, S., & Kriesi, H. (2013). The populist right, the working class, and the changing face of class politics. *ResearchGate*. https://www.researchgate.net/publication/263491955_The_populist_right_the_working_class_and_the_changing_face_of_class_politics
- Bureau of Statistics, work unit of the Policy Integration Department. (n.d.). <https://www.ilo.org/public/english/bureau/stat/isco/isco88/publ4.htm>
- Burke, P. J. (2004). Identities and Social Structure: the 2003 Cooley-Mead Award address. *Social Psychology Quarterly*, 67(1), 5–15. <https://doi.org/10.1177/019027250406700103>
- Card, D. (2001). Immigrant Inflows, Native Outflows, and the Local Labor Market Impacts of Higher Immigration. *Journal of Labor Economics*, 19(1), 22–64. <https://doi.org/10.1086/209979>
- Dancygier, R. M. (2015). *Globalization, Labor Market Risks, and Class Cleavages*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2497406
- Dancygier, R. M., & Donnelly, M. (2013). Sectoral Economies, Economic Contexts, and Attitudes toward Immigration. *The Journal of Politics*, 75(1), 17–35. <https://doi.org/10.1017/s0022381612000849>
- De Haas, H. (2005). International migration, remittances and development: myths and facts. *Third World Quarterly*, 26(8), 1269–1284. <https://doi.org/10.1080/01436590500336757>

- De Haas, H. (2021). A theory of migration: the aspirations-capabilities framework. *Comparative Migration Studies*, 9(1). <https://doi.org/10.1186/s40878-020-00210-4>
- Dustmann, C., Glitz, A., & Frattini, T. (2008). The labour market impact of immigration. *Oxford Review of Economic Policy*, 24(3), 477–494. <https://doi.org/10.1093/oxrep/grn024>
- Dustmann, C., & Preston, I. (2007). Racial and Economic Factors in Attitudes to Immigration. *The B.E. Journal of Economic Analysis & Policy*, 7(1). <https://doi.org/10.2202/1935-1682.1655>
- Eu, I. I. T. (2023). What is the EU-Turkey deal? *The IRC in the EU*. <https://www.rescue.org/en/article/what-eu-turkey-deal>
- Eurostat. (2023). Population structure and ageing. 11 August 2023. (ISSN 2443-8219) https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population_structure_and_ageing
- Friedberg, R. M., & Hunt, J. (1995). The impact of immigrants on host country wages, employment and growth. *Journal of Economic Perspectives*, 9(2), 23–44. <https://doi.org/10.1257/jep.9.2.23>
- Ganzeboom, H. B. G., De Graaf, P., & Treiman, D. J. (1992). A standard international socio-economic index of occupational status. *Social Science Research*, 21(1), 1–56. [https://doi.org/10.1016/0049-089x\(92\)90017-b](https://doi.org/10.1016/0049-089x(92)90017-b)
- Gonzalez, L., & Ortega, F. (2011). How do very open economies adjust to large immigration flows? Evidence from Spanish regions. *Labour Economics*, 18(1), 57–70. <https://doi.org/10.1016/j.labeco.2010.06.001>
- Greenberg, D. M., Warriar, V., Abu-Akel, A., Allison, C., Gajos, K. Z., Reinecke, K., Rentfrow, P. J., Radecki, M. A., & Baron-Cohen, S. (2022). Sex and age differences in “theory of mind” across 57 countries using the English version of the “Reading the Mind in the Eyes” Test. *Proceedings of the National Academy of Sciences of the United States of America*, 120(1). <https://doi.org/10.1073/pnas.2022385119>
- Hainmueller, J., & Hiscox, M. (2010). Attitudes toward Highly Skilled and Low-skilled Immigration: Evidence from a Survey Experiment. *American Political Science Review*, 104(1), 61–84. <https://doi.org/10.1017/s0003055409990372>

- Hainmueller, J., & Hiscox, M. J. (2007). Educated Preferences: Explaining Attitudes Toward Immigration in Europe. *International Organization*, 61(02).
<https://doi.org/10.1017/s0020818307070142>
- Hanson, G. H., & Slaughter, M. J. (2002). Labor-market adjustment in open economies. *Journal of International Economics*, 57(1), 3–29. [https://doi.org/10.1016/s0022-1996\(01\)00138-6](https://doi.org/10.1016/s0022-1996(01)00138-6)
- Herreros, F., & Criado, H. (2009). Social Trust, Social Capital and Perceptions of Immigration. *Political Studies*, 57(2), 337–355. <https://doi.org/10.1111/j.1467-9248.2008.00738.x>
- Hughes, M. D., & Tuch, S. A. (2003). Gender differences in whites' racial attitudes: Are women's attitudes really more favorable? *Social Psychology Quarterly*, 66(4), 384.
<https://doi.org/10.2307/1519836>
- Kalantaryan, S., Scipioni, M., Natale, F., & Alessandrini, A. (2021). Immigration and integration in rural areas and the agricultural sector: An EU perspective. *Journal of Rural Studies*, 88, 462–472. <https://doi.org/10.1016/j.jrurstud.2021.04.017>
- Kovačič, M., & Orso, C. E. (2023). Who's afraid of immigration? The effect of economic preferences on tolerance. *Journal of Population Economics*, 36(3), 1901–1940.
<https://doi.org/10.1007/s00148-023-00947-z>
- Lewis, E. (2004). Local, Open Economies Within the U.S.: How Do Industries Respond to Immigration? *FRB of Philadelphia Working Paper*. <https://doi.org/10.2139/ssrn.494884>
- Löffler, C. S., & Greitemeyer, T. (2021). Are women the more empathetic gender? The effects of gender role expectations. *Current Psychology*, 42(1), 220–231. <https://doi.org/10.1007/s12144-020-01260-8>
- Mayda, A. M. (2006). Who Is Against Immigration? A Cross-Country Investigation of Individual Attitudes toward Immigrants. *The Review of Economics and Statistics*, 88(3), 510–530.
<https://doi.org/10.1162/rest.88.3.510>
- Ortega, F., & Polavieja, J. G. (2012). Labor-market exposure as a determinant of attitudes toward immigration. *Labour Economics*, 19(3), 298–311. <https://doi.org/10.1016/j.labeco.2012.02.004>
- Ottaviano, G. I., Peri, G., & Wright, G. J. (2013). Immigration, Offshoring, and American Jobs. *The American Economic Review*, 103(5), 1925–1959. <https://doi.org/10.1257/aer.103.5.1925>

- Rose, D., & Harrison, E. (2007). THE EUROPEAN SOCIO-ECONOMIC CLASSIFICATION: a NEW SOCIAL CLASS SCHEMA FOR COMPARATIVE EUROPEAN RESEARCH. *European Societies*, 9(3), 459–490. <https://doi.org/10.1080/14616690701336518>
- Scheve, K., & Slaughter, M. J. (2001). Labor Market Competition and Individual Preferences Over Immigration Policy. *The Review of Economics and Statistics*, 83(1), 133–145. <https://doi.org/10.1162/003465301750160108>
- Search European Social Survey*. (n.d.). <https://ess-search.nsd.no/en/study/e83a01d7-f872-4c9a-b1e3-14961ab3c550>
- Sides, J., & Citrin, J. (2007). European opinion about immigration: the role of identities, interests and information. *British Journal of Political Science*, 37(3), 477–504. <https://doi.org/10.1017/s0007123407000257>
- Sorgi, G. (2023, July 14). Meloni, Rutte and von der Leyen head to Tunisia to unlock migrant deal. *POLITICO*. <https://www.politico.eu/article/eu-commission-chief-ursula-von-der-leyen-italian-giorgia-meloni-dutch-mark-rutte-travel-tunisia-on-sunday/>
- Treiman, D. J. (1976). A Standard Occupational Prestige Scale for Use with Historical Data. *Journal of Interdisciplinary History*, 7(2), 283. <https://doi.org/10.2307/202737>
- Weeden, K. A., & Grusky, D. B. (2005). The case for a new class map. *American Journal of Sociology*, 111(1), 141–212. <https://doi.org/10.1086/428815>

Appendix

Table B1. Definitions ISCO-88 Occupation Groups by the International Labor Organization.

ISCO-88		
Major group	Title	Definition
1	Legislators, senior officials and managers.	This major group includes occupations whose main tasks consist of determining and formulating government policies, as well as laws and public regulations, overseeing their implementation, representing governments and acting on their behalf, or planning, directing and coordinating the policies and activities of enterprises and organisations, or departments. Reference to skill level has not been made in defining the scope of this major group, which has been divided into three sub-major groups, eight minor groups and 33 unit groups, reflecting differences in tasks associated with different areas of authority and different types of enterprises and organisations.
2	Professionals	This major group includes occupations whose main tasks require a high level of professional knowledge and experience in the fields of physical and life sciences, or social sciences and humanities. The main tasks consist of increasing the existing stock of knowledge, applying scientific and artistic concepts and theories to the solution of problems, and teaching about the foregoing in a systematic manner. Most occupations in this major group require skills at the fourth ISCO skill level. This major group has been divided into four sub-major groups, 18 minor groups and 55 unit groups, reflecting differences in tasks associated with different fields of knowledge and specialisation.
3	Technicians and associate professionals	This major group includes occupations whose main tasks require technical knowledge and experience in one or more fields of physical and life sciences, or social sciences and humanities. The main tasks consist of carrying out technical work connected with the application of concepts and operational methods in the above-mentioned fields, and in teaching at certain educational levels. Most occupations in this major group require skills at the third ISCO skill level. This major group has been divided into four sub-major groups, 21 minor groups and 73 unit groups, reflecting differences in tasks associated with different fields of knowledge and specialisation.

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| 4 | Clerks | This major group includes occupations whose main tasks require the knowledge and experience necessary to organise, store, compute and retrieve information. The main tasks consist of performing secretarial duties, operating word processors and other office machines, recording and computing numerical data, and performing a number of customer-oriented clerical duties, mostly in connection with mail services, money-handling operations and appointments. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, seven minor groups and 23 unit groups, reflecting differences in tasks associated with different areas of specialisation. |
| 5 | Service workers and shop and market sales workers | This major group includes occupations whose main tasks require the knowledge and experience necessary to provide personal and protective services, and to sell goods in shops or at markets. The main tasks consist of providing services related to travel, housekeeping, catering, personal care, protection of individuals and property, and to maintaining law and order, or selling goods in shops or at markets. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, nine minor groups and 23 unit groups, reflecting differences in tasks associated with different areas of specialisation. |
| 6 | Skilled agricultural and fishery workers | This major group includes occupations whose tasks require the knowledge and experience to produce farm, forestry and fishery products. The main tasks consist of growing crops, breeding or hunting animals, catching or cultivating fish, conserving and exploiting forests and, especially in the case of market-oriented agricultural and fishery workers, selling products to purchasers, marketing organisations or at markets. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into two sub-major groups, six minor groups and 17 unit groups, reflecting differences in tasks associated with differences between market-oriented and subsistence agricultural and fishery workers. |
| 7 | Craft and related trades workers | This major group includes occupations whose tasks require the knowledge and experience of skilled trades or handicrafts which, among other things, involves an understanding of materials and tools to be used, as well as of all stages of the production process, including the characteristics and the intended use of the final product. The main tasks consist of extracting raw materials, constructing buildings and other structures and making various |

products as well as handcraft goods. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into four sub-major groups, 16 minor groups and 70 unit groups, reflecting differences in tasks associated with different areas of specialisation.

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|---|--|--|
| 8 | Plant and machine operators and assemblers | <p>This major group includes occupations whose main tasks require the knowledge and experience necessary to operate and monitor large scale, and often highly automated, industrial machinery and equipment. The main tasks consist of operating and monitoring mining, processing and production machinery and equipment, as well as driving vehicles and driving and operating mobile plant, or assembling products from component parts. Most occupations in this major group require skills at the second ISCO skill level. This major group has been divided into three sub-major groups, 20 minor groups and 70 unit groups, reflecting differences in tasks associated with different areas of specialisation.</p> |
| 9 | Elementary occupations | <p>This major group covers occupations which require the knowledge and experience necessary to perform mostly simple and routine tasks, involving the use of hand-held tools and in some cases considerable physical effort, and, with few exceptions, only limited personal initiative or judgement. The main tasks consist of selling goods in streets, doorkeeping and property watching, as well as cleaning, washing, pressing, and working as labourers in the fields of mining, agriculture and fishing, construction and manufacturing. Most occupations in this major group require skills at the first ISCO skill level. This major group has been divided into three sub-major groups, 10 minor groups and 25 unit groups, reflecting differences in tasks associated with different areas of work.</p> |

10	Armed forces	<p>Members of the armed forces are those personnel who are currently serving in the armed forces, including auxiliary services, whether on a voluntary or compulsory basis, and who are not free to accept civilian employment.</p> <p>Included are regular members of the army, navy, air force and other military services, as well as conscripts enrolled for military training or other service for a specified period, depending on national requirements. Excluded are persons in civilian employment of government establishments concerned with defence issues: police (other than military police); customs inspectors and members of border or other armed civilian services; persons who have been temporarily withdrawn from civilian life for a short period of military training or retraining, according to national requirements, and members of military reserves not currently on active service. Reference to a skill level has not been used in defining the scope of this major group.</p>
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Source: International Labour Organization.

Table B2

Attitudes Towards Immigrants for Workers in Group 1: Legislators, senior officials and managers

Title	Sub-major Group	N	ATI
Legislators and senior officials	11	68	2.31
Corporate managers	12	1663	2.37
Production and operations managers	122	641	2.40
Other specialist managers	123	763	2.33
Managers of small enterprises	13	1166	2.58
Total		2897	2.46

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B3

Attitudes Towards Immigrants for Workers in Group 3: Technicians and Associate Professionals

Title	Sub-major Group	N	ATI
Physical and engineering science associate professionals	31	1,240	2.42
Life science and health associate professionals	32	1,000	2.38
Teaching and associate professionals	33	508	2.23
Other associate professionals	34	2,731	2.37
Not specified	30	4,972	2.61

Total 3 10,451 2.47

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B4

Attitudes Towards Immigrants for Workers in Group 4: Clerks

Title	Sub-major group	N	ATI
Office Clerks	41	3,109	2.48
Customer Services Clerks	42	830	2.49
Not specified	40	85	2.51
Total	4	4,024	2.48

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B5

Attitudes Towards Immigrants for Workers in Group 5: Service Workers and Shop and Market Sales Workers

Title	Sub-major group	N	ATI
Personal and Protective Services Workers	51	3084	2.48
Models, Salespersons and Demonstrators	52	1980	2.5
Not specified	50	3	2
Total	5	5067	2.49

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B6

Attitudes Towards Immigrants for Workers in Group 6: Skilled agricultural and fishery workers

Title	Unit Group	N	ATI
Market-oriented skilled Agricultural and Fishery Workers	6100	85	2.74
Market gardeners and crop growers	6110	24	2.92
Field crop and vegetable growers	6111	454	2.99
Tree and shrub crop growers	6112	243	2.67
Dairy and livestock producers	6121	205	2.86
Poultry producers	6122	21	2.67
Market-oriented animal producers and related workers not classified	6129	38	2.42
Market-oriented crop and animal producers	6130	396	2.78

Forestry workers and loggers	6141	24	2.54
Total	6	1545	2.81

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B7

Attitudes Towards Immigrants for Workers in Group 7: Craft and related workers

Title	Sub-major group	N	ATI
Extraction and building trades workers	71	1,581	2.68
Metal, machinery and related trades workers	72	1,701	2.67
Precision, handicraft, craft printing and related trades workers	73	329	2.56
Other Craft and related workers	74	1,087	2.76
Not specified	70	27	2.59
Total	7	4,961	2.69

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B8

Attitudes Towards Immigrants for Workers in Group 8: Plant and Machine Operators and Assemblers

Title	Sub-major group	N	ATI
Stationary-Plant and Related Operators	81	352	2.52
Machine Operators and Assemblers	82	1,228	2.64
Drivers and Mobile-Plant Operators	83	1,111	2.7
Not specified	80	44	2.45
Total	8	2,735	2.65

Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B9

Attitudes Towards Immigrants for Workers in Group 9: Elementary Occupations

Title	Sub-major group	N	ATI
Sales and services elementary occupations	91	2,170	2.62
Agricultural, fishery and related labourers	92	339	2.76
Labourers in mining, construction, manufacturing and transport	93	1,087	2.69
Not specified	90	50	2.32

Total	9	3,646 2.65
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Note. For the variable attitude towards immigrants “ATI” the answer scale ranges from 1, *allow many*; 2, *allow some*; 3, *allow a few*; to 4, *allow none*.

Table B10

Variance Inflation Factors

Variable	VIF
Women	1.17
Age	1.04
Minority	1.01
Education	1.13
Fill jobs	1.04
Wages down	1.14
Cultural threat	1.18
Occupation group	
	2 2.37
	3 2.47
	4 2.19
	5 2.47
	6 1.43
	7 2.26
	8 1.80
	9 2.01
	10 1.06
Mean Variance Inflation Factor	1.61