Analysis of Socio and Economic Factors that Shape Attitude towards Immigrants: EU Case

The main aim of this paper is to analysis and measure social and economic factors which have the greatest impact on tolerance of population to immigrants in European Union (EU) countries and to figure out how attitudes towards immigrants changed in the period between 2002 and 2016 for 25 European countries. Through the analysis of scientific works are identified macro and personal factors which could affect tolerance. For calculations are used ordinary least and ordered logit econometrical models and calculations are made using Eviews software. The results demonstrated that in general tolerance towards immigrants increased during the period and personal situation is more influencing tolerance than macro factors in hosting country but the significance of factors and direction of relations differ across the countries.

Keywords: tolerance, immigration, economic factors, macro factors, personal factors, attitudes towards immigrants, European Union, ordered logit model.

Šiame straipsnyje analizuojami socialiniai ir ekonominiai veiksniai, darantys didžiausią įtaką vietinių gyventojų požiūriui į imigrantus 25 Europos Sąjungos (ES) šalyse, bei šio požiūrio pokyčiai nuo 2002 iki 2016 metų. Apžvelgiant kitų mokslininkų darbus, išskiriama makro- ir asmeniniai faktoriai, kurie gali turėti įtakos tolerancijai. Skaiciavimams atlikti naudojami „ordinary least“ ir „ordered logit“ ekonometriniai modeliai bei „Eviews“ programinė įranga. Rezultatai atskleidžia, kad tolerancija imigrantams padidėjo nagrinėjamu laikotarpiu ir asmeniniai faktoriai labiau įtakoją toleranciją nei priimančios šalies makrofaktoriai, tačiau faktorių reikšmingumas ir poveikio tarp kintamųjų kryptis, nagrinėjant atskirų šalių atvejus, skiriasi.

Reikšminiai žodžiai: tolerancija, imigracija, ekonominiai veiksmai, makroveiksmai, asmeniniai veiksmai, požiūris į imigrantus, Europos Sąjunga, „ordered logit“ modelis.

JEL Classifications: F22/J15/J6.

Introduction

Migration on a daily basis is increasingly posing a challenge to the world; the population of migratory mobility affects both of these problems – the country’s social life and economic prosperity. The world is becoming even more global, there are plenty of people who think of themselves not as citizens of a particular country...
but as citizens of the world. Countries do not have many tools that could be used as strict control of the migration process itself. However, the examination of the social and economic factors that have a direct or indirect impact on the phenomenon of population mobility could affect the future of economic, social and political development of a country with the adaptation of immigrants from the angle of present-day realities. Many scientists, like Bonfanti (2015), Saraceno (2010), Powell (2014), contribute to the idea about future challenges to EU economy because of socio-economic problems, such as asymmetry of demographic changes, income inequality, healthcare, etc. According to Hayduk (1998), in order to integrate the people coming into a country, it is necessary to reduce the hostility of indigenous populations, immigrants should be more involved in the labor market, economic processes and in the social life of inner society.

Most studies, related to migration processes and tolerance for newcomers, are examining the case of USA; the situation in Europe is not widely studied; Jennissen (2004) discussed the lack of researches considering about migration in the European context. Theoretical explanations are often fragmented, focused on the problems of one country or from a number of countries in comparison with each other. Authors on this field of studies usually examine the influence of immigrants on the country’s welfare (mostly in the labour market). Several investigations (Lyons, Cousey & Kenworthy, 2013; Erisen & Kentmen-Cin, 2017) were done to determine the status of tolerance towards immigrants taking a snapshot in time, but do not consider the dynamics of local tolerance or discrimination in time-lapse change, taking into account the migration-related secondary changes such as GDP per capita, crime and foreign investment, an internal political situation, changes in unemployment. Migration analysis often concentrates on a summary of different theories and concepts of previous research from a theoretical and empirical point of view, but there is a lack of analysis of prospects in the course of time. Based on this, the present work aims to highlight the complexity of international migration and socio-economic indicators for countries of the EU, what affects the migration process. Intension is to study the performance of local residents’ tolerance of immigrants for the period from 2002 to 2016.

Research object: Immigration is a phenomenon with a huge impact to the social life of the host country and its economy. A study would make possible to develop proposals to influence public opinion to the migration situation in the EU. The present scientific problem issues are: 1) What social and economic factors have the greatest impact on tolerance of population to immigrants in EU? 2) How the tolerance towards immigrants changed in a period 2002–2016?

The aim: On the basis of the analysis of the literature review sources, to distinguish between the main economic and the social factors which are exposed in the migration process, explore their impact and figure out how attitudes towards immigrants changed in the EU countries in the period between 2002 and 2016.

The research methods: The first part of the paper consists of the analysis on previous works, already carried out in international migration and tolerance. In the second part, the obtained data is discussed and the methodology is applied according to previous works and empirical research made. At the end of the paper conclusions,
shortages and recommendations for future works are provided.

The objectives of the article: 1) to analyse scientific literature and to find systematic social and economic factors which influence the immigration process; 2) to construct methodology for empirical research, taking into account the availability of data; 3) to examine of changes in the situation about tolerance to immigrants in the EU countries during the period from 2002 to 2016 using econometrical techniques.

The Concept of Migration

According to the United Nations, a migrant is a person, who changes his place of living for no less than 12 months and a new country becomes his place of residence (United Nations, 1998). People migrate because of different reasons and these differences affect the entire comprehensive migration process. The formulation of a theory that could explain the nature of migration flows is a difficult task due to complexity of the concept as well as due to possibility to interpret causes of migration on four different levels: individual, family, country and global (Massey, 1990). Citing O’Reilly (2015, p. 1), “although migration has as a long history as human life itself, there is no doubt that international migration has increased considerably in recent decades.” According to Wimalaratana (2006, p. 14), “the focus of international migration has been influenced by a number of disciplines such as Economy, Sociology, Geography, Commerce, Management, Law, Political Science, Demography, and Psychology, rendering the theorizing of international migration a complex task”. Following a growth model, proposed by Lucas (1988), growth of labour force of the country leads to economic growth and increasing welfare of that country. Therefore, increase in human capital stock, which is primarily related to immigration, should have a positive impact on the economic growth due to its direct involvement in the macroeconomic production function as one of the production factors (Simeonova-Ganeva, 2010).

Migration is primarily driven by rational economic consideration, based on the assessment of relative costs and benefits, mainly financial, as well as psychological and social. In order to assess the decisive factors for individual migrants’ decisions, one needs to look at the broader economic context of sending and receiving migrants. This implies that migration is considered as a process, which shows that countries are inclined to create a unique

### Factors of migration

| Level               | Factors                                                                 |
|---------------------|-------------------------------------------------------------------------|
| Microeconomic level | Age, gender, education, marital status.                                  |
| Macroeconomic level | Salary, unemployment, GDPpc in home and target countries, social security system – the base things everyone needs for life. |
| Non-economic level  | Religion, politics, criminogenic situation, way of life, believes, culture, customs. These factors are the most irrational of all provided, but sometimes can be the main impulse for migration. |

Source: made by authors based on Simeonova-Ganeva (2010).
acts and effects, and are more likely than in the past to consider transnational phenomena.” Following him, broad studies are meaningless without daily life and historical analysis.

**The Impact of Immigrants on Hosting Country**

For the 2006 year data binding, even 12 percent of the Organisation for Economic Co-operation and Development (OECD) countries population was born abroad (Reiche, Stahl, Mendenhall & Oddou, 2016), what represents the size scale of multicultural experience. During migration, it is possible to identify the two major groups of immigrants: 1) the refugees who are escaping from war and 2) economic migrants, that are searching for better economic conditions. Three areas, which are mostly affected by immigration, can be distinguished to: 1) local residents, 2) social life and 3) economic prosperity throughout the country.

| Theory | Features |
|--------|----------|
| Neoclassical | Rational choice of human behaviour mainly focused on economic reasons. |
| New economic and dual/segmented labour market | Role of networks of family and friends basically refers to the dualistic or segmented nature of economies in the developed world. |
| World systems | Focuses on wider systems than on individual agents. Poorer nations provide a cheap labour force to the powerful and wealthy nations. The migration follows from the dynamics of market creation and the structure of the global economy. |
| Migration systems and networks | Focuses on labour migration and on a one-off move to a new destination. Considers migration as a dynamic process where regions and countries are connected by numerous types of linkages. |
| Assimilation and multiculturalism | Examine how migrants became assimilated into the culture and (national) society to which they had moved. |
| Migration flows and mobilities | Non-linear flows, including diverse types of migrant such as affluent migrants and asylum seeking migration. |
| Unifying migration | The study of international migration as a whole. |

Source: made by authors based on the analysis of the scientific works.
One of the major challenges are decreasing birth rates and the aging of the population. This process has direct effect on decline of labour force amount in the future, what possibly will cause many economic challenges. Europe experience a continuing decrease of number of citizens due to low birth rates, so the impact of migration as a phenomenon with a population increase in economically stronger EU countries members is sufficiently significant (Markova, 2019; Hansen, 2016) and in addition to direct effects an aging workforce also hinders productivity and innovation (Bacci, 2017). Coleman (2008) gives the opinion that the successful integration of immigrants is more efficient way to increase population in country, than to intensify birth rate.

According to Dosquier, Ozden and Peri (2011), immigrants are usually unskilled individuals, which is opposed to the investigator. Today, about 20 percent of low-paid workers are immigrants (Capps, Fix, Passel, Ost & Perez-Lopez, 2003). In the scientific literature, there is another problem about the labour market found – where the local training institutions cannot prepare enough sufficiently appropriate specialists for the country, there is the need to bring those areas of workers from other countries. In this case, the government is experiencing the benefits because it does not have to allocate funds for training of these professionals; it gets them already prepared (Afonso & Devitt, 2016). A fall-back mechanism of the shortage of highly qualified workers to deal with the problem could be the appropriate integration of immigrants into the labor market, as well as in other countries, they requisite recognition of their qualifications. In some countries the system creates an educated immigrants adaptations to help them assimilate quickly, to use their experience in the labour market and, at the same time, attract foreign investment (Tomohara, 2017). There are very different opportunities for skilled and unskilled immigrants – a foothold in the labour market created by countries and environments (Dheer & Lenartowicz, 2017). Among skilled people, immigrants are more productive and more inclined to set up businesses so this is the grand total that has a positive effect on the country’s productivity and wages (Peri, 2017). In the brief period that immigrants have a positive impact on the unemployment rate, however, over a long-term period effect disappears (Latif, 2015). According to Fullin (2015), successful integration into the labour market of particular country is affected by the immigrant origin, the country of origin and the immigrant’s similarity to local people. The more similar personality to hosting country immigrant has, the simpler becomes this naturalization.

Afonso and Devitt (2016) adhere the opinion, that the migrants’ economic behaviour is less influenced by local customs and institutions, local stereotypes and social norms that encourage changes in society, innovative solutions. Immigrants tend to accept more flexible employment relationships, lower pay, poorer working conditions, are more mobile. Usually immigrants are entitled to the social system of hosting country and use it to get some benefits, but the same money is returned back into the economy with consumption. In general, increasing consumption has a circle to pay taxes such as value added tax (VAT) (Dustmann & Frattini, 2014) and immigrants’ impact on the economy is adequate for their consumption (Esses, Brochu, & Dickson, 2012). The majority of countries with lower development and
smaller gross domestic product per capita (GDPpc) are experiencing a drain of skilled workers to countries, which lead to higher development and better financial expectations. This effect reduces the number of low-skilled immigrant workers’ salaries and raises high-skilled workers popularity (Audry & Burzynski, 2015). Developing economies seem to be more likely to experience an increase in the GDP growth rate following changes in the degree of diversity (Bove & Elia, 2017). Boubtane, Dumont and Rault (2016) found, that immigration has a positive effect on the GDP of all countries. When examining the impact of immigrants makes a direct foreign investment into the country of immigration, Papadopoulos, Hamzaoui-Essoussi and El Banna (2016) found, that the relations in the flow of skilled immigrants and foreign investment into the country are being positive, but negative in the case of low-skilled workers. High-skilled migrant groups stimulate direct imports from their home country, which is linked to the need for everyday items. According to Tomohara (2017), the brief immigration in short period reduces the flow of foreign direct investment, but increases in a long. During the initial period, immigrants are reluctant to adapt and maintain their usual lifestyle, complicating the life of the host country, but gradually adjusting, increasing its productivity (Powell, Clark & Nowrasteh, 2017).

**Tolerance for Immigrants in Society**

In democratic countries official tolerance to people from another’s nationality, religion, culture, origin, or ethnic minorities are protected by law. However, in reality most of opinions are generally affected not only by the legal bases but by the disseminated information and of the media, political circumstances, rooted stereotypes, personal experience. Differing views in the EU are strongly influenced by different cultural backgrounds and the existing different regulations, so quite often immigrants have excluded from forming groups, which are difficult to assimilate.

In different cultures people develop different value systems. The attitude towards immigrants is like the event of a collision between the individual and the interests of society (Alba & Nee, 1997). As a result of the conflict of the inhabitant’ behaviour and well-being is changing the value system (Janušauskienė, 2013). Tolerance is assumed as a positive individual attitude towards persons with different values when individuals are free to choose how to evaluate the others (positive or negative) (Dobbernack & Modood, 2011). Contact with other races, religions, believes and ethnic groups can have a positive impact on the availability of local tolerance (Doebler, McAreavey & Shortall, 2017). City lifestyle encourages ideas, flexibility and increases tolerance the crack with multi-nationalism, reducing the impact of traditions approach (Janušauskienė, 2013). The reduction of individualism and the non domination of personality cult inside a society increases tolerance to other values and facilitates their assimilation (Dobbernack & Modood, 2011).

Many authors believe that only small population groups are completely against of any migration (around 6–11 percent). According to Tenenbaum, Capelos, Lorimer and Stocks (2018), tolerance is related with inner personal happiness – happy people tend to be more tolerant to others. Helliwell, Layard and Sachs (2018, p. 140) in their study found, that
“subjective well-being measures better incorporate the values people have because values differ across cultures and this subjectivity constitutes an advantage when making cross-cultural assessments of people’s well-being”. Paas and Halapuu (2012) agree, that people who have a more positive expectation of their future well-being and whose attitudes to socio-economic risks are lower are more tolerant towards immigrants. From the other point of view, people who are disappointed with their lives wish to deny opportunities to improve one’s life also to others, including immigrants (Poutvaara & Steinhardt, 2018). Basically, tolerance, as a factor of strategic importance for the successful integration of immigrants, is being able to incorporate them into the life of the hosting country. Authors define different levels of tolerance, which is presented in Table 3.

When trying to classify what qualities of immigrants are preferred, researchers find that for the local population important are: family situation, education, working experience, language, and most important – the ability to adapt to a country lifestyle, culture and customs. This idea was confirmed in Paas and Halapuu (2012), Card, Dustmann and Preston (2005), Kokkonen, Dahlberg et al. (2015), McAllister (2016) and others. Compared to these factors, well-being, religion and race become less important. However, if immigrants belong to the Christian religion and are of the white race, they are more desirable and wanted by society (Card et al., 2005).

As it is found, older people have generally anti-immigrant views (Janmaat & Keating, 2019). It is not fixed at age or belonging to a different generation. Ponce (2017) found, that women are more xenophobic, especially they were more likely to exhibit negative attitudes toward Muslim immigrants. The integration of individuals of both sexes is vital to race (the white race / all others), while religious attitudes only affect women (Fullin, 2015). Religious differences between immigrants and the local population are an important indicator of how a country will accept newcomers (Hellwig & Sinno, 2016). Doebler (2013) found, that more Europeans express intolerance towards Muslims than towards immigrants. It demonstrates that ethnic and religious intolerance are highly correlated. On the other hand, McDaniel, Nooruddin and Faith Shortle (2011) found, that negative attitudes against immigrants are formed because of religious conservativism in a society. Conservativism creates criticism and less tolerance to members, who differ from majority, herewith to immigrants. Fear of radical Muslims rose up especially after the recent ongoing terrorist attacks (Nowrastech, 2016).

### Table 3

| Tolerance level | Definition |
|-----------------|------------|
| Intolerance     | Failure to accept and unwillingness to recognize other values. |
| Tolerance       | Clearly understood and visible differences among societies of individuals, developing a positive approach in private and in public. |
| Recognition     | Other people are taken as an entirely normal phenomenon in society, recognition and identity concept were among members of the public. |

Source: made by authors based on the analysis of the scientific work.
Sometimes Islam is delivered as one of the main obstacles to integration – the indigenous population has a negative attitude to immigrants from the Islamic religion (Foner & Alba, 2008).

Immigrants frequently are linked to the crime situation (Chalfin, 2014) and the political parties often tend to associate foreigners with a crime in their election programmes, with an approach to get anti-immigrant views citizen's support. This can be associated with changes in the political forces in Europe, with proceeded France elections or voting on Brexit results. Yet, Paas and Halapuu (2012) in their work concluded, that if natives would have a better knowledge of immigrants, they would not associate them with crime unless there are proven criminal incidents. Klein, Allison and Harris (2017) in their investigation found, that in rural areas immigrants are not affected or related by crime, but in cities immigrants are linked with criminalization increase. Basically, the rise in the number of immigrants will increase crime, but immigrants tend to congregate in the communities in which crime decreases, so the final amount should be zero effect (Feldmeyer, Madero-Hernandez, Rojas-Gaona & Sabon, 2017). This idea was supported by Graif and Sampson (2009), that homicide rate in immigrants' neighbourhoods' even decreased. On the other hand, crimes, homicides are strongly and positively related with poverty rate (Lee, Martinez & Rosenfeld, 2001) and immigrants usually tend to have lower poverty rate than locals. The main anti-immigrant left-leaning party supporters in Europe are indigenous white working class (Afonso & Devitt, 2016). According to Card et al. (2005), public attitudes towards immigration and immigrant-related issues are important for shaping migration and latent fears of immigration are often exploited in electoral campaigns. The higher the income gap between the rich and poor society becomes, the greater influence of rich society to politics, compared to those in the middle class, the greater become the middle class and poor citizens to resist for immigrants (Iturba-Ormaetxe & Romero, 2016).

The more educated people accept immigrants more liberally what can be associated with keeping track of all novelties bigger broad-based information and superior knowledge of other cultures. In addition, better-educated take better jobs, in which immigrants work rarely (Mayda, 2006). Still, results of researches about education influence on tolerance are controversial. Some of them, like Jensen and Engesbak (2008) conclude, that the highly educated people have a significantly higher conception of rights than the lower educated. It leads to a situation, that well-educated people with high job status experience economic and social stability, they are financially well-off, to compare with others, and most often feel themselves masters of their life situation. These factors influence less tolerant views of the immigrants in a better-educated society. According to Davidov and Meuleman (2012), the more educated adults turned out to be less inclined to keep an ethnic distance from ethnic minorities. Shushanik, Paul and Siedler (2017) found, that an additional year of schooling reduces the likelihood of being very concerned about immigration by around 20 percent, so education could be an important tool to increase tolerance about immigration in a receiving country.

The impact of immigration in Europe depends heavily on the country, though most of the population continues to have
negative approach forms like the basis to the share of social benefits which are guaranteed to immigrants and the reflection of social security loses in GDP (Hatton, 2016). These effects are similar in different socio-economic groups all across countries and it created the opportunity for the EU to assert itself by populist parties during the last recession, there was still plenty of scepticism (Hatton, 2016). Low-income residents are more affected by the process of immigration because the immigrants with expertise in social benefits and increasing social spending in the country reduce the tolerance for immigrants (Jaime-Castillo, Marqués-Perales & Álvarez-Gálvez, 2016). About half of the citizens believe that immigrants take jobs from locals, about 55 percent that takes advantage of the social security system. This public approach is based on a simplistic economic functioning vision. Yet, qualified immigrants are always desirable, but the labourer in dissatisfaction among middle-class is created (Hansen, 2016).

From an economical country’s perspective, the main factors that determine how immigrants will be tolerated are GDP per capita (at purchasing power parity) and the unemployment rate. People who are competing in the same level than immigrants in the labour market (often poorly qualified labour), perceive immigrants negatively, while those who benefit from the services provided by immigrants or buy their production – perceive them positively. According to Tomohara (2017), FDI inflow to the country is highly influenced by unskilled immigration, so it can affect tolerance in a positive way. Lee (2018) in his work concluded, that FDI inflow usually changes the proportion of foreign firms’ employees out of total employees, creating more job opportunities and potential social interactions with foreigners in workplace, what causes positive FDI impact on public opinions towards immigrants.

The fundamental question is – how the attitude is formed. People with different social and economic fundamentals have different looks at migration (Vacca, Solano, Lubbers, Molina & McCarty, 2016). Tolerance to immigration forms the basis of various factors over which immigration is running the economy, culture and social status of indigenous populations (Ward & Masgoret, 2008). Also, socioeconomic homogeneity and social relationships with other members of society are highly considerable (Card et al., 2005).

To summarize previously discussed key points, immigration research can be distinguished in the direction of public opinion examinations. A curious indicator of the society’s attitude about immigrants is how and what local people think about immigrants inside their country, which show the public perception (Card et al., 2005). Analysis of the environment for the integration of immigrants reflects the importance and relevance of this study.

**Data Description**

In general, flows of migration are explained with some widely typical economic macro variables, such as GDPpc, Foreign direct investment (FDI), Unemployment and Crime rate in hosting country. The major problem arises measuring the size of tolerance, treatment of indicator to assess the qualitative evaluation of the interface and to construct the analysis carried out by the experts and the publicly available polls. An essential part of the problem is to measure the level of population's tolerance / the level of discrimination and to find data for this. Data about tolerance is taken from the
European Social Survey (ESS) questionnaire-based surveys. Questionnaires are carried out every 2 years, starting in 2002, interviewing more than 40,000 respondents each time. One of the main purposes of the ESS is to explore the social structure and attitudes of inhabitants. ESS data is collected making a face-to-face interview, using random sampling. For the majority of answers, such as to describe opinion or feelings, Likert’s scale was used, in intervals 0–10, 1–6 or 1–4. While some surveys were discarded from the research because of lack of answers to a particular questions, the total sample size, used in this research, is 271,278 respondents. The main question in this paper is tolerance towards immigrants in general. Because of this intention, as the dependent variable was chosen the answer to the most general question: “Immigrants make a country worse or better place to live”, rated from 0 till 10.

Several macro economic variables, as the unemployment rate, GDPpc, FDI, and Crime are taken from Eurostat, The World Bank and Knoema databases. Unemployment, taken from Eurostat, is considered as a percentage of the total labor force (keeping in mind age from 15 to 64 years) in a country that is not working but looking for a job. Data for FDI is obtained from the World Bank database and is described as the net inflows of investment in an economy other than that of the investor. Annual data of GDPpc is taken from the World Bank database, as a constant is taken data about the USA in 2010 and measured in USA dollars. The crime situation in the country in this research is measured according to the annual homicide rate, obtained using data from Knoema database. The homicide rate is described as a number of unlawful, violent murders of people per 100,000 inhabitants.

| Factor               | Expected relations                                                                 |
|----------------------|------------------------------------------------------------------------------------|
| Unemployment         | Negative, bigger unemployment decrease tolerance                                   |
| FDI inflow           | Positive, bigger FDI inflow increase tolerance                                      |
| GDPpc                | Positive, bigger GDPpc is presumed as bigger economical safety                      |
| Crime                | Negative, more crimes increase fear of immigrants                                  |
| Gender               | Women are expected to be less tolerant                                               |
| Age                  | Negative, younger people are expected to be more tolerant                           |
| Marital status       | Married or living with spouse people are considered to be less tolerant              |
| Children             | People, having children are suspected to be less tolerant                            |
| Education            | Positive, more educated people are supposed to be more tolerant                     |
| Work                 | Working people are supposed to be more tolerant                                     |
| Politics             | Negative, people, interested in politics tend to be less tolerant                    |
| Religious            | Negative, more religious people are expected to be less tolerant                     |
| Traditions           | Negative, people, who declare big importance in traditions are expected to be less tolerant |
| Feeling safe         | Positive, people, feeling safe, are less afraid of others and more tolerant          |
| Satisfaction about the economy | Positive, bigger satisfaction about the country's economy is related to more tolerance to immigrants |
| Satisfaction about life | Positive, bigger satisfaction in life is related to more tolerance to immigrants |
per year. On the strength of World Bank (2007), murder figures are generally considered the most reliable indicator of the violent crime situation in a country, since most murders come to the attention of the police, which is not the case with crimes like robbery and domestic violence.

Concluding literature and data review, expected relations between tolerance towards immigrants and explanatory variables were created, which are presented in Table 4.

Descriptive statistics about already discussed dependent and independent macro variables are shown in Table 5. It can be noticed, that meanings of independent variables vary a lot. For example, the lowest annual size of unemployment is 7.8 percent when highest – 24.8, annual GDPpc from the smallest value 6 108 USD to the biggest 99 778 or FDI, where diapason of changes covers the field from approximately –16 percent of GDP to almost 200 percent.

Other part of independent variables was taken from the European Social Survey database and consists of personal and opinion information of the respondent. To clarify data, variables were divided into 2 parts. 1st part is general information about respondent, like age, gender, marital situation, children, education and employment. 2nd part is opinion information – religiosity, interest in politics, feeling of safety, importance to follow traditions to the respondent, satisfaction about economic situation and satisfaction about life in general. The opinion information was ranked by respondents’ in Likert scale. With the reference to scientific papers review and data discussion three hypotheses were formulated for this research:

- **H1: People, living in safer countries with less unemployment, bigger FDI inflow and bigger GDPpc are more tolerant towards immigrants.**

- **H2: Younger, educated, and working single men with no kids are more tolerant towards immigrants.**

- **H3: Less religious, less following traditions and less involved in politics people, who feel safe and are more satisfied in the country’s economy and life in general, tend to be more tolerant towards immigrants.**

**Methodology**

The pooled cross-section over time data used for this paper is quite specific and it was the main aspect considering the appropriate econometrical model. The first econometric equation was built to figure out the changes in tolerance towards immigrants from the beginning of observations. To examine this variation the

| Table 5 |
|---|
| **Descriptive statistics of macro variables** |
| **Tolerance** | **Unemployment** | **FDI** | **GDPpc** | **Homicide** |
| Mean | 4.856313 | 8.591009 | 7.294337 | 34 818.69 | 1.512770 |
| Median | 5.000000 | 7.800000 | 3.446000 | 39 140.71 | 1.200000 |
| Maximum | 10.000000 | 24.800000 | 198.0740 | 99 778.47 | 7.000000 |
| Minimum | 0.000000 | 0.800000 | -15.98900 | 6 107.707 | 0.400000 |
| Std. Dev. | 2.294108 | 3.968687 | 15.42652 | 16 016.58 | 1.193536 |
| Observations | 271 278 | 271 278 | 271 278 | 271 278 | 271 278 |

Source: created by authors according to collected data.
Ordinary Least Squares (OLS) method was used. Therefore, Tolerance was taken as a dependent variable and time dummies, constructed for every year of observations – as independent. However, OLS is not suitable for analysing and observing relations between variables because of the rating scale form of Tolerance. McKelvey and Zavoina (1975) in their work presented the Ordered Logit Model (OLM) for the analysis of ordered, categorical, no quantitative choices, outcomes and responses. According to them, the regression technique often fails to model with a true, nonlinear relationship in data, with possible cause of underestimating of the impact of independent variables on the dependent variable. Considering the evaluation of the ordered level of the dependent variable as arbitrary, the estimated coefficients in the regression model depend on the particular coding that is chosen. Because of that, for ordered dependent variables as appropriate models were supposed ordered logit or probit models, which take the ceiling and floor effects into account and avoids to use of the subjectively chosen scores assigned to the categories (Hanushek & Jackson, 1977). The ordered logit model is a status-based model, when the dependent variable has more than 2 categories and it requires a significantly distinct ordering in the dependent variable levels (Akkus & Ozkoz, 2016). OLM is an expansion of two-level probability (Liao, 1994) and many authors agree that ordered logit is the most suitable model for ordered dependent variable (Fullerton, 2009; Akkus & Ozkoc, 2016; Long & Freese, 2014; Boes & Winkelmann, 2006).

In the ordered logit models, the ordered response variable Y is viewed as “discrete realizations of an underlying, unobservable latent continuous random variable Y*” (Lu, 1999, p. 271). When υ is considered as the endpoint of the observable category, the relation between observed levels and slopes can be expressed by the set of equations (1).

\[
\begin{align*}
0 & \text{ if } Y^* \leq \mu_1 \\
1 & \text{ if } \mu_1 < Y^* \leq \mu_2 \\
2 & \text{ if } \mu_2 < Y^* \leq \mu_3 \\
& \cdots \\
J & \text{ if } \mu_J < Y^*
\end{align*}
\]

Summarizing, μᵢ indicates after which values of the latent variable (Y*) the observations can change and direct towards other choices coded in the dependent variable. In this model, the dependent variable is discreet and takes values from a countable and finite set of values from 0 to 10, with a defined hierarchy. If assuming that unit i of observation is characterized by one level of tolerance standing, the cumulated logits will be subject to modelling, keeping in mind logarithms of the probability of observation i belonging to a category not higher than j (pᵢⱼ) and the opposite probability (1 – pᵢⱼ). The category of explanatory variables is determined by k – a set of exogenous variables and a random component. In the case of J categories there shall be J–1 logit equations in (2):

\[
\text{logit}(pᵢⱼ) = \ln \frac{Pr(Y ≤ j)}{Pr(Y > j)} = \ln \frac{pᵢⱼ}{1 - pᵢⱼ} = \beta_0 + \beta_1x_1 + \beta_2x_2 + \cdots + \beta_kx_k + \varepsilon
\]

where g = 1, 2, ..., J–1, k is a number of explanatory variables, k = 1, 2, ..., 16, x_k – particular explanatory variable, \( \beta_k \) – coefficient of the explanatory variable. Because of impossibility to estimate the overall intercept \( \beta_0 \) and all the J–1 threshold \( \beta_0 \) “can be counteracted by adding the same constant to each threshold”
ANALYSIS OF SOCIO AND ECONOMIC FACTORS THAT SHAPE ATTITUDE TOWARDS IMMIGRANTS: EU CASE

(Grilli & Rampichini, 2014, p. 1). The parameters $\beta_{0j}$ are thresholds in increasing order ($\beta_{01} < \beta_{02} < \ldots < \beta_{0J-1}$). According to them, “this identification problem is usually solved by omitting constant from the linear predictor” (i.e. $\beta_0 = 0$).

Ordered logit model in linear form is expressed following equation (3):

\[ Y_i^* = (\beta^*')x_i + \epsilon_i^* \]  

(3)

where $(\beta^*')x_i$ – linear predictor $(\beta^*x_i = \beta_0 + \beta_1x_{1i} + \beta_2x_{2i} + \ldots)$, considering that $x_i$ is a vector of $k$ covariates and $\beta$ is vector of key parameters.

**Results**

The first part of the current section discusses analysis of the empirical results and which changes occurred in the distribution of respondents’ tolerance over time. The distribution of tolerance is seen as a frequency (in percent) and its changes from 2002 till 2016 are presented in the Figure 1.

Looking at the Figure 1, the allocation in the distribution is clear and with quite small fluctuations in the different years. In all rounds of ESS about 5 percent of respondents chose the radical option, that immigrants make their country worse place to live (it is marked as 0 in answer scale), contributing to Card et al., (2005) findings and about 2.5 percent chose opposite radical option (marked as 10). Majority of answers, about 30 percent, show average point ballot at point 5, which shapes the general attitude of society. Also, about 20 percent of respondents provided an answer, marked in a scale of 3 or 4, which demonstrates that they consent not totally negative view, but a little bit worse than average.

![Distribution of tolerance as a frequency](image-url)  

*Fig. 1. Division of tolerance frequency by year*

*Source: created by authors according to obtained results.*
In Figure 2 a change in tolerance across time is presented, evaluating the total sample of questionnaires. Solid line demonstrates real data, while dotted one shows general trend. 2002 were taken as a year of reference, evaluating tolerance as 100.

Further calculations were made using Ordered Logit model. Results are provided in Table 6. Using OLM, coefficients cannot be interpreted directly, as measuring the size of impact. Obtained coefficients need to be recalculated into odds ratio. The odds ratio demonstrate how changes of independent variable are likely to make impact into change of level of dependent variable.

Analysing the obtained results, the relations between tolerance and unemployment rate variables surprisingly verified positive interaction, what can be associated with a higher likelihood to have a more positive perception about immigrants, having bigger unemployment level in the country. Also surprisingly, negative but statistically significant relations observed between tolerance and FDI inflow, linking FDI inflow increase with a decrease in tolerance towards immigrants. According to previously analysed studies, the result was supposed to be opposite. In accordance with the results, an increase in GDPpc, measured in total sample, had positive impact in the increase of tolerance. Positive impact was expected following Cantore and Calì (2015), Card et al. (2005), Hatton (2016) and others. Results of homicide were unexpectedly positive, what showed a higher likelihood to have a positive perception about immigrants having a higher homicide rate. The expected negative influence of increasing crime rate in the country to approach towards immigrants, contributing to previously analysed works, was rejected.

Looking at the Table 6 it is visible, that men demonstrated more positive attitude towards immigrants than women. Obviously, variable age had expected negative relation with tolerance. It demonstrates that age is a meaningful factor in the composition of opinion about immigrants, presenting a falling trend in tolerance while the respondent is older. Results of relations
between marital status of respondent and positive attitude towards immigrants are statistically significant and negative. As a benchmark group were taken married or having partner respondents, so it demonstrates that people, living without a partner, had a more positive opinion about immigrants than married or ones with the partner. Respondents with no children were supposed to have more positive provision towards immigrants than respondents with children, so coefficient by independent variable children was supposed to be negative. Looking at the results, expected relationship was confirmed. Education was assumed to have a positive relation with tolerance. The results of Ordered Logit model strongly and positively responded to hypothesis. Working people were expected to be more tolerant towards immigrants, so the relations between variables were likely to be positive, as demonstrated Paas and Halapuu (2012), Card et al. (2005), Kokkonen, Dahlberg, Harteveld and Van der Brug (2015), McAllister (2016) and others. Results represented evidence, that working people were less likely to have positive views towards immigrants than non working ones. While variable politics demonstrated statistically significant results, people with less interest in politics are more likely to have positive attitude towards immigrants. The results, considering about relations between religiosity and tolerance, were statistically significant, but relationship is positive. It

Table 6

| Variable          | Coefficient | Standard error | Pseudo R2 | Probability (LR statistic) |
|-------------------|-------------|----------------|-----------|----------------------------|
| Macro regressors  |             |                | 0.0056    | <0.0000                    |
| Unemployment rate | 0.0168***   | 0.0009         |           |                            |
| FDI               | -0.0050***  | 0.0002         |           |                            |
| GDPpc             | 0.000019*** | 0.0000         |           |                            |
| Homicide          | 0.0248***   | 0.0030         |           |                            |
| Personal regressors|             |                | 0.034851  | <0.0000                    |
| Gender            | 0.14397***  | 0.00724        |           |                            |
| Age               | -0.00806*** | 0.00021        |           |                            |
| Partner           | -0.05526*** | 0.00539        |           |                            |
| Children          | -0.00014    | 0.0076         |           |                            |
| Education         | 0.18255***  | 0.00285        |           |                            |
| Work              | -0.02177*** | 0.00778        |           |                            |
| Politics          | -0.26227    | 0.00414        |           |                            |
| Religious         | 0.03268***  | 0.00126        |           |                            |
| Traditions        | 0.08841***  | 0.00280        |           |                            |
| Safety            | -0.2725***  | 0.0047         |           |                            |
| Economy           | 0.1391***   | 0.00163        |           |                            |
| Life              | 0.05764***  | 0.00177        |           |                            |

Source: created by authors according to obtained results.

Note: ***p<0.01, **p<0.02, *p<0.05.
demonstrates the tendency that more religious people are more tolerant. Evaluating results about the importance of traditions, obtained results were statistically significant, sign of coefficient is positive supporting hypothesis. The hypothesis about safety is also supported – if the respondent is feeling safer, he is likely to be more tolerant towards immigrants. Empirical results demonstrated, that inhabitants’ satisfaction about the situation in economy of a country was positively related with an opinion, that immigrants make a country better place to live. Part of hypothesis about expected positive relations between personal satisfaction in the country’s economy and personal positive attitude towards immigrants is not rejected. The influence of satisfaction in life in total also had a positive impact on tolerance.

Generalizing results, all explanatory variables have statistically significant coefficients, except variable children, but not all directions of relations between variables are as expected. After calculations, for total sample next parts of hypothesis were not rejected:

H1: Positive relation between GDPpc and tolerance.

H2: Negative relation between age, partner and tolerance, positive between education and tolerance.

H3: Positive relation between traditions and tolerance, negative relation between politics, safety and tolerance, positive relation between satisfaction in economy and tolerance, positive relation between satisfaction in life and tolerance.

To sum up total sample results: younger, not working, single and educated men; living in a country with bigger GDPpc, bigger unemployment and crime rate but less FDI inflow; being less traditional, less religious, less interested in politics but feeling safer, more satisfied in country’s economy and life tend to be more tolerant towards immigrants.

**Conclusions**

The migration process is one of the biggest challenges to the nowadays world, affecting many areas of life, as economy, demography, social etc. in personal and on the level of society. The stream of immigration is closely related with tolerance in hosting country and the question is how attitudes towards immigrants are formed. Tolerance towards immigrants in a society can be influenced by various macro and social factors. Many authors have been trying to distinguish key explanatory variables, but since most of the researches were case studies employed variables, estimation methods and obtained results tend to differ between them. This fact reinforces the relevance of the present study developed in the present paper.

First model in this paper was used to determine the changes in tolerance within a period of time. Results presented, that tolerance towards immigrants increased during period from 2002 till 2016. Yet, distribution of tolerance as a frequency remains the same in all years of observations, about 30 percent of respondents’ choosing option 5 in Likert’s scale (middle). Extremes of opinion towards immigrants also remained the same during period, about 5 percent of respondents presenting very negative view and about 2.5 percent – very positive.

Second model was used to measure the impact of macro and personal variables to tolerance towards immigrants. The obtained results demonstrated, that measuring macro variables people are more tolerant towards immigrants, when the
unemployment rate, GDPpc and homicide rate in country is bigger and FDI inflow is smaller. Yet, personal variables were found as more important shaping attitudes towards immigrants. According to results, person, who tends to be more tolerant, could be described as young, single, educated, unemployed, religious man less interested in traditions, but feeling safe and satisfied about the economy of the country and life in general. Some of findings were expected after analysis of scientific works but some are controversial so the theme of this paper should be continuing.

This paper can be taken as a tool for further work, while the limitations of it can be considered: 1) limitation of the data, only 8 periods of data were used; 2) global effects as terrorism or economical crisis were not evaluated; 3) for future researches more economic and socio factors, affecting tolerance could be concluded.

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