Preferences for migrants

An empirical analysis of explanatory variables

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Abstract

This paper investigates what factors influence the preferences for migrants. Lately, European countries are obliged to accept migrants due to EU policy, making this a relevant topic to examine. The study is focused on the Netherlands and analyzes data over a time span of 12 years. The analyses show that a higher level of education, a higher satisfaction about the state of the economy and belonging to a minority lead to higher preferences for migrants. Moreover, preferences for right-wing political parties negatively influence the attitude. Contrary to previous literature, we do not observe a significant effect of income on the preferences for migrants.

I. Introduction

Over the last few years, the debate on the topic of migration has been fueled. As countries in Africa suffer from a lot of problems, a large group of people tries to reach Europe via the Mediterranean Sea. Moreover, since the civil war in Syria started in 2011, more and more people from the Middle-East are seeking for a better place to live in Europe too. These flows of refugees are causing of trouble for Europe as they have to divide the refugees among the countries and decide who is allowed to stay and who is not. As of March 2016, more than 4.8 million Syrian people fled their home country which led to 1.3 million asylum claims in Europe (OCHA, 2016; BBC, 2016). Currently, the European Union is trying to manage the situation as best as possible and ministers of all the member states are discussing how to solve the problems, both internally and with the other states involved such as Turkey.

The inflow of migrants to European countries effects different parts of the society. As stated above, migrants need to be divided among the different European countries. After they received the news that they are allowed to stay, a lot of things need to be arranged. Migrants need, among others, proper housing, an income, sufficient healthcare and the children need education. Some natives are more willing to provide these goods to migrants and refugees than others. At this time, there is a debate going on what to do with migrants and how many of them the Netherlands can handle (Toonen & Outeren, 2015).

A lot of research has been conducted on the topic of migrants and the preferences for them. O'Rourke and Sinnott (2006) conducted research in 24 countries with data from 1995 and found evidence that the attitude towards migrants depends, among others, on the level of education and age. Besides, they conclude that the attitude reflects some kind of nationalism. Dahlberg, Edmark and Lundqvist have also researched how the preferences for migrants change and focused on the effect of more migrants moving into different municipalities in Sweden (2012). They found evidence that the preference for redistribution declines when more migrants arrive. Furthermore, the first round of the European Social Survey with data of the year 2002 from 21 countries has been used before to research the effect of different factors on the preferences for migrants. This research has been conducted by Card, Dustmann and Preston (2005) and found that the preferences are linked to different ages, levels of education and the urban or rural location of the residence of the respondent.

In this study, we add to the existing literature by combining different parts of the studies mentioned above and conducting the research for the Netherlands. We want to find the different variables that determine the preferences for migrants. The first study by O'Rourke and Sinnott also included the Netherlands, but the data of this paper is newer (2002 until 2014 instead of

1996 only), and they did not include variables such as income. Also the data of the paper from Card et al. (2005) is older than the data used in this paper and we try to go more in-depth on the Netherlands. Finally, the study by Dahlberg et al. (2012) did not research the Netherlands at all and only measured the attitude indirectly by researching the preferences for redistribution. As the topic of immigrants is currently very relevant, we want to investigate what factors may influence the way people think about migrants. Therefore, we come up with the following research question:

What are important factors that influence the preferences for migrants in the Netherlands and how do these factors change over time?

In this research, ten different objective and subjective variables will be analyzed to explain the preferences of respondents towards migrants. The research will be focused on the Netherlands with a timespan of twelve years, ranging from 2002 until 2014. As our data from the European Social Survey does not distinguish between refugees and migrants, this distinction is absent in our paper too. However, we should note that there may be differences between preferences for migrants and refugees. Furthermore, we do not study the preferences for emigrants, thus referring to immigrants and refugees only when writing 'migrants'.

The research conducted in this paper shows that a higher level of education and satisfaction about the economy lead to significant more positive preferences for immigrants. Moreover, preferences for right wing political parties are negatively linked to a generous attitude towards immigrants. Contrary to the discussed literature, we do not observe a significant effect of income on the preferences for migrants. Belonging to a minority seems to have a positive effect on the attitude towards migrants, possibly due to the in-group bias described by Dahlberg et al. (2012) and further explained in Shayo (2009). Living in the Randstad, the most densely populated area of the Netherlands possibly has a small positive effect on the preferences.

The rest of the paper is organized as follows. First of all, we will briefly discuss the previous literature on the topic of migrants and the influence of different characteristics on the attitude of natives. Then, we discuss the data used, coming from the European Social Survey. In the data section, we explain the selection process, the variables used and we will provide some descriptive statistics too. Moreover, the transformations to the dataset are discussed. Thereafter, we describe the methodology used and the different tests performed. Afterwards, the results of the research are provided together with robustness checks. The last section ends with conclusive remarks and a discussion.

II. Theoretical Framework

For some native Dutch people, the inflow of migrants is causing trouble. Opponents of the idea of letting migrants into their country and providing them with the necessary goods mention a few arguments. Some argue they are free-riders and did not need to leave the country they came from. Others state that the government, in this case the Dutch, would do a better job if the government spends the money on the natives who do not have job anymore or need more healthcare. And then there is the argument concerning the culture in the Netherlands and the safety. Some people are afraid that there might be terrorists among the migrants or that the Islam may undermine the culture of the Netherlands (Parre & Vries, 2016).

On the other hand, there are also supporters of the help for migrants. Some people argue that we have to take care of migrants, just as countries did in the Second World War. Others believe that there is plenty of money, looking at the things the Dutch government spends money on. For example, they cite the renewing of the Golden Coach the King uses at some events and the business trips the prime minister makes. There are also people that see migrants as a welcome addition to the Dutch culture and labor force (Parre & Vries, 2016).

When we look solely on the economic impact of migrants, the literature is mixed. Card (1997) finds evidence that an inflow of migrants leads to lower employment rates and a small decline in the wages for natives in the United States (U.S.). Furthermore, Borjas' study from 1987 (also performed in the U.S.) suggests that the effect differs per ethnic group. In general, there is a small negative effect on the wages of natives. However, there is a large impact on the wage of other immigrants, which means that they are competing with each other. In 2003 he conducted research again on the impact of migrants and found that the wage impact is negative for natives, and that this effect differs among different education groups. The wage of high school dropouts was falling by 8.9 percent, while it was 4.9 percent for college graduates and 2.6 percent for high school graduates. The wage of workers with some years of college was barely changing in the U.S. (Borjas, 2003).

All in all, the effect of migrants on the countries' economy is not clear. In addition, there are many factors that influence the way natives think about migrants moving to their country. It is for this reason that we will analyze different characteristics of respondents in this paper to explain the preferences of natives. In the next paragraphs we will briefly discuss previous results of studies on the preferences for migrants.

The first factor that seems to influence the attitude towards migrants is education. The study by O'Rourke and Sinnott (as mentioned in the introduction) found that the attitude towards

migrants is positively linked to the level of education (2006). As a result, high-skilled respondents are more generous towards migrants. Mayda (2006) concludes the same and Scheve and Slaughter find evidence that low-skilled workers are more likely to prefer limiting immigrant inflows (2001).

Another factor that perhaps influences the view on migrants is the level of income of the respondent. However, studies on the effect of income on the preferences are not consistent. Dahlberg et al. conclude that the preferences for redistribution decline when the number of migrants increases (2012). This effect is stronger for high-income groups, which may indicate a negative link between the income group and the preferences. Contrary, Shayo describes the pattern that lower income groups identify more with nationalistic parties and have lower preferences for redistribution (2009).

O'Rourke and Sinnott (2006) are also talking about this 'nationalistic sentiment' and the link with the preferences for redistribution. Therefore, it seems interesting to investigate the effect of different political preferences on the attitude towards migrants.

Based on the literature discussed above, we will investigate the effect of different levels of education and income and the political preferences on the attitude of respondents. Several other characteristics of the respondents will also be included in the analysis, such as their age, gender, level of health, happiness and satisfaction about the state of the economy. Furthermore, we will check if the region of the residence of the respondents and belonging to an ethnic minority matter for the preferences. According to the studies of Dahlberg et al. (2012) and Shayo (2009), there may be an in-group bias and therefore minorities may be more generous towards migrants than natives. We will further elaborate on how these variables are measured in the next section.

III. Data

In this research the data from the European Social Survey (ESS) will be used. The ESS is an academically driven cross-national survey conducted every two years. The data comes from face-to-face interviews and every time span a new sample is chosen. The sampling ensures that the respondents are representative for each country by using the ESS sampling guidelines and therefore the data seems reliable. We focus on the years 2002 until 2014, with data from every other year. Data before 2002 is not available for the Netherlands and the data of 2016 is not ready to use yet. As explained in the introduction, we focus only on the Netherlands because, among others, education systems differ across countries. Moreover, we believe it is not possible to measure the attitude towards migrants of different countries together, because of cultural

differences and other important factors such as the level of prosperity. The dataset consists of around 1,850 observations for each year.

To measure the preferences for migrants, we use three dependent variables: *immigrationcountry*, *immigrationeconomy* and *immigrationcultural*. The first variable, *immigrationcountry*, measures whether the respondent thinks the country will be a better or worse place to live when people from other countries arrive, ranging from worse to better on an 11-point scale. The variable *immigrationeconomy* measures what people think the effect of migrants on the economy is. The answers ranges from 'bad for the economy' until 'good for the economy', again on an 11-point scale. The last dependent variable *immigrationcultural* measures whether the respondent thinks the cultural life in his or her country is undermined or enriched by migrants, stated on an 11-point scale as well.

As we will explain later in the methodology, we include the independent variables *education, income, gender, age, happiness, political preferences, the opinion about the current state of the economy, health, region* and *minority*. Only people with responds to all the control variables are included in the regressions. The variable *education* is a categorical variable, starting from 1 for not completed primary school until 13 for PhD education. In appendix 1, a detailed overview of the levels of education can be found. *Income* is measured per month, also on a categorical 6-point scale, stating to which income category the respondent belongs. The overview of the different categories can also be found in appendix 1. *Gender* is a dummy variable with the value 0 for a man and 1 for a woman. The variable *age* is continuous and ranges from 15 until 96. Happiness is measured with the variable *happy* on a 10-point scale, while subjective *health* is measured on a 5-point scale, ranging from very bad to very good. This can be found in appendix 1 too. The political preferences are also measured with the categorical variable *politics* denoting the political scale, outcomes ranging from 0 (left) to 10 (right). The satisfaction about the current state of the economy is a categorical variable too, denoted as *satisfiedeconomy*, with outcomes between 0 (extremely dissatisfied) to 10 (extremely satisfied). *Region* is a dummy variable, denoting 1 for respondents living in the Randstad and 0 otherwise. We defined the Randstad as the region between Rotterdam, Amsterdam and Utrecht. This variable was not available in the years 2010 and 2012 and therefore left out of the regressions and analyzes performed for these years. *Minority* is also a dummy variable, with value 1 for respondents that belong to an ethnic minority and 0 otherwise.

Because the measurements of the level of education were not the same for all years, some transformations have been made. The data of the last three years (2010, 2012 and 2014)

was more detailed than the years before and therefore we had to combine several categories in these years. The different levels of mbo are taken together in the last two datasets, as used to be the case in the earlier years. Furthermore, the different levels of hbo are also combined. The completion of the first year of university ('propedeuse') and the completion of the pre-university education are also considered as equal. Lastly, the completion of a hbo masters and the completion of a bachelor's degree are considered the same. Unfortunately, by combining these variables the estimation will be less precise. However, the transformations are necessary in order to compare the different years. The exact transformations can be found in appendix 2.

Besides the variable *education*, we made transformations to the income variables as well. The years 2002 until 2006 use a different method of interviewing than the years 2008 until 2014. The last four years of study use more accurate thresholds and in order to compare the different years we had to regroup some categories. We end up with six different income groups. The exact transformations can be found in appendix 3. Because we made larger changes in the variable *income* than *education* and the transformations in the former variable may influence the results, a robustness check will be added at the end of the results section. This way we are able to make sure that the changes did not influence the most important results.

Also the variable *region* has been transformed. The original dataset contained detailed information about the region the respondent belongs too. However, as will be explained in the robustness checks section, these type of measurement did not lead to significant results. Therefore, the answers have been compressed into two values: 1 for living in the Randstad and 0 otherwise. The exact transformation can be found in appendix 4.

In table 1 on the next page, the descriptive statistics of the seven different years can be found. In the top three rows, the means and standard deviations of the dependent variables are given. The other rows show the means and standard deviations of the independent variables. The table shows some interesting facts. As we see in the first two rows, the average preferences for migrants in general (*immigrationcountry)* and on the topic of the economy changed in a positive way over the years. While the average preference was 4.66 on an 11-point scale in 2002, the mean in 2014 was 5.26. The way people think about the effect of migrants on the economy rose from 4.82 in 2002 to 5.25 in 2012 and then dropped again to 4.87 in 2014.

Besides the preferences for migrants, the level of education and the age changed considerably as well. Education rose from an average of 6.04 to 6.83 whereas the average age rose with three years from 48 in 2002 to 51 in 2014. As we expect the level of education to be positively correlated with the attitude towards migrants the rise in both variables could show a relation already. If the education significantly influences the preferences will be tested later.

Table 1: means of the variables over seven different years, standard deviations in parentheses

	2002	2004	2006	2008	2010	2012	2014
immigrationcountry	4.66	4.77	5.10	5.17	5.25	5.40	5.26
	(2.02)	(2.04)	(1.81)	(1.94)	(1.84)	(1.82)	(1.85)
immigrationeconomy	4.82	4.61	5.20	5.34	5.23	5.25	4.87
	(1.99)	(2.01)	(1.92)	(1.93)	(1.94)	(2.04)	(1.99)
immigrationcultural	6.03	5.86	6.13	6.14	6.13	6.26	6.05
	(2.10)	(2.09)	(1.93)	(1.98)	(1.90)	(1.96)	(2.03)
education	6.04	6.05	6.18	6.40	6.45	6.53	6.83
	(3.05)	(3.14)	(3.08)	(3.10)	(3.33)	(3.40)	(3.31)
income	3.84	3.79	3.81	3.84	3.58	3.72	3.69
	(1.76)	(1.80)	(1.82)	(1.67)	(1.65)	(1.69)	(1.68)
age	48.07	49.43	48.87	49.31	50.42	51.17	50.74
	(17.12)	(17.40)	(17.71)	(17.78)	(17.49)	(17.99)	(18.25)
happy	7.79	7.68	7.64	7.71	7.79	7.81	7.78
	(1.42)	(1.43)	(1.43)	(1.36)	(1.38)	(1.42)	(1.37)
politics	5.30	5.16	5.12	5.15	5.30	5.31	5.12
	(2.03)	(2.00)	(2.06)	(1.99)	(2.00)	(2.12)	(1.91)
satisfiedeconomy	5.33	4.98	6.17	5.47	5.70	5.16	5.27
	(1.89)	(1.88)	(1.67)	(1.92)	(1.64)	(1.84)	(1.77)
health	3.87	3.78	3.81	3.84	3.78	3.82	3.82
	(0.78)	(0.76)	(0.74)	(0.73)	(0.74)	(0.79)	(0.82)
N	2364	1881	1889	1778	1829	1845	1919

Furthermore, we can see the average number of observations moving around 1,850, with a peak in 2002 and a low in 2008. This variation in the number of observations is probably due to changing numbers of interviews. The means of income, age, happiness and health do not change considerably over the years. Also the political preferences and the satisfaction about the state of the economy do not change substantially. Moreover, the standard deviations do not change a lot in the seven different years.

The variables gender, region and minority are not included in the table, as these are dummy variables. The deviation of these variables does not fluctuate a lot over the different years. In all waves, 55% of the respondents is female and around 7% of the respondents belongs to a minority. In the years 2002 until 2008, between 35% and 40% of the respondents lived in the Randstad, while this was 45% in 2014. This could be explained by the fact that more people are moving towards the Randstad and the population growth is larger inside the Randstad than outside of the Randstad (PBL and CBS, 2011).

IV. Methodology

To measure the impact of the different variables on the dependent variables, we use an ordered logit model. Because the dependent variables are ordinal, a normal ordinary least squares regression is inappropriate. For that reason, an ordered logistic regression is performed and only the sign and significance of the outcomes can be interpreted. For actual predictions of the changes in preferences, we need the cut-off points. Because we will not make actual predictions in this paper, the cut-off points are not included in this paper. However, to interpret the results more in-depth, we compute the marginal effects for the independent variables that were significant in every year (except for the dummy *minority)*. By fixing these variables on the median, the marginal effect of *education*, *politics* and *satisfiedeconomy* are estimated.

To see if the independent variables actually influence the preferences, we test on three different dependent variables. If the variables are significant in two thirds of the models, we interpret the results as influential. We run the ordered logit models for the attitude on migrants in general (*immigrationcountry*), the thoughts about the effect of migrants on the economy (*immigrationeconomy*) and the culture in the country of the respondent (*immigrationcultural*). This will be done for all seven years from 2002 until 2014. We chose these three variables, because they contribute to a broad view on the preferences for migrants. The dataset featured some other variables on the topic of migrants too, such as questions specified per ethnic group and minorities. However, we believe the chosen three are the most relevant ones and using more than three dependent variables would make the paper complicated. While the first variable captures the general opinion, the other two reflect two relevant fields of interest for almost everyone: the economy and cultural life. Together, the three variables provide clear results on the thoughts of respondents.

In all the three ordered logit models, we will include several control variables. As we expect the gender and age to have an effect on the attitude as well, these variables will be included. Furthermore, the happiness of the respondent will be included too, measured by the variable *happy* and we expect happier people to be more positive towards migrants. Besides, political preferences are included, because right-wing people are expected to have more negative preferences for migrants. This can be explained by the party preferences on the right side of the political scale, which are often more restraint towards migrants. The satisfaction about the state of the economy is included, because those who believe the economy is doing well could be more generous towards people moving in from other countries. Next, the subjective state of health of the respondent is included. We do this because we expect a correlation between health and the attitude as a lower health requires more redistribution in

terms of healthcare. Migrants demand redistribution too and therefore a low state of health can lead to negative preferences for migrants, as both groups compete for redistribution via the welfare state. Furthermore, the dummy variable with the residence of the respondent is included. In this way, we can check if living inside or outside of the Randstad matters for the preferences for migrants. At last, another dummy variable is added to see if respondents belonging to an ethnic minority think different about migrants. As mentioned in the theoretical framework, there may be an in-group bias leading to higher preferences for migrants among people from an ethnic minority.

As stated above, first we make an ordered logit model for the dependent variable *immigrationcountry* and show the results for the seven different years. Afterwards, we do the same for *immigrationeconomy* and *immigrationcultural* for all seven years. Below, the three regression models can be found:

Regression 1:

$$immigrationcountry = \beta1 * education + \beta2 * income + \beta3 * gender + \beta4 * age + \beta5 * happy + \beta6 * politics + \beta7 * satisfiedeconomy + \beta8 * health + \beta9 * region + \beta10 * minority$$

Regression 2:

$$immigrationeconomy = \beta1 * education + \beta2 * income + \beta3 * gender + \beta4 * age + \beta5 * happy + \beta6 * politics + \beta7 * satisfiedeconomy + \beta8 * health + \beta9 * region + \beta10 * minority$$

Regression 3:

$$immigrationcultural = \beta1 * education + \beta2 * income + \beta3 * gender + \beta4 * age + \beta5 * happy + \beta6 * politics + \beta7 * satisfiedeconomy + \beta8 * health + \beta9 * region + \beta10 * minority$$

For all the models, we use a significance level of 5%, and significances of 1% and 10% will be shown too. If the results are above a significance level of 5%, we will not reject the null-hypotheses that there is no influence of the variable, because there is not enough evidence to say something about the relation. However, a p-value above 5% does not necessarily means that there is no relation at all. By setting the limit at 5%, there is just a five percent chance of a wrong interpretation of the value.

As all statistical tests are subject to some assumptions, the used method in this paper is too. The two main assumptions for the ordered logistic model are 1) the absence of multicollinearity and 2) proportional odds. The first assumption, the absence of (perfect) multicollinearity, means that two or more independent variables should not be highly correlated, because this may lead to less accurate results. Intuitively, two of the independent variables income and education are correlated; the higher the level of education, the higher the income. Therefore, we expect that the problem of multicollinearity may arise when including these two variables simultaneously in the model. On the other hand, because the variables are measured on an 11-point scale rather than a continuous scale, we think the correlation will be lower. To be sure, we check for possible multicollinearity by calculating the correlations and the variance inflation factors (VIF). In table 7 in appendix 5, the correlations are shown. The correlation between income and education fluctuates over the years between 0.37 and 0.43. This correlation can be labeled as considerable, but still does not indicate a possible threat for multicollinearity, since the rule of thumb describes that a correlation should be greater than 0.8. Besides correlations, we calculate the VIF to be even surer. The VIF investigates to what extent an independent variable is explained by all other independent variables. In table 8 (appendix 5), these calculations are shown. The VIFs fluctuate between 1.01 and 1.37, which again does not cause a threat for multicollinearity, since the rule of thumb describes that the VIF should be greater than 5 for multicollinearity. In the end, we are confident that the assumption of absence of multicollinearity holds in the model.

The second assumption of the model is the proportional odds assumption. This means that each independent variable has an effect that is proportional across the different thresholds of the outcome variable. In order to easily and straightforward interpret the coefficients, it is assumed that the effect of the independent variable is linear across the categories. If this assumption does not hold, we would have to estimate the effects of each independent variable per category of the dependent variable. To test this assumption, two methods are applicable: a likelihood ratio test and a Brant test. The first test assesses whether there is a violation of the proportional odds assumption in the model overall. To investigate the assumption more in-depth, a Brant test is performed. The results of the likelihood test displayed in table 9 (appendix 6) confirm that the proportional odds assumption is violated, since the test for the overall model is significant in every year. The Brant test, displayed in table 10, indicates the violation of the assumption per independent variable. Solely *satisfiedeconomy* is significant in every year, except for 2010. To overcome the problem of non-proportional odds, a generalized ordered logistic model needs to be performed, which will be done later. This test partially relaxes the

assumption of proportional odds. Independent variables that violate the assumption will be investigated per category separately. Independent variables that do not violate the assumption, will simply be investigated with one coefficient, as in the 'normal' ordered logistic regression.

However, we believe that the main results, despite the fact that they violate the proportional odds assumption, are still interpretable and make sense. This believe is grounded on the arguments that the assumption is generally violated quickly when 1) the number of explanatory variables is large (Brant, 1990) and 2) the sample size is large (Allison, 1999; Clogg and Shihadeh, 1994), as is the case in our model. Therefore, the main results of this paper display the results of the 'normal' ordered logistic regression. At the end of the results section, we perform a generalized ordered logistic regression as a check for robustness. This is done for the dependent variable *immigrationcountry* only because this variable measures the general opinion on migrants. The results of this check are used as a proxy for the other two dependent variables.

Besides the assumptions, there is also a bias that may occur, specifically the *extreme responding bias.* This bias is likely to be present among surveys using a Likert scale (answers scaling from disagree to agree), as is the case in the data set. The problem may rise that respondents give answers to the subjective questions containing extreme values, while in fact they do not have such extreme preferences. For instance, a respondent marks value 10 in the question about their happiness, even though he or she is not 'extremely happy' with his or her life. This bias may occur when the question is phrased in a way that pushes the respondents to the extreme values or when the survey length is long (Kalton & Schuman, 1982). The social desirability of the answer can also influence the respondent (Nederhof, 1985; Furnham, 1986) and he or she can be biased as well when the respondent is willing to please the investigator and answers in a way that he or she thinks the researcher wants the answer (Orne, 1962).

However, for the following reasons we believe this bias is not present in our case. First of all, the questions relating to personal preferences are open and not indicating a certain preference from the researchers. Furthermore, the data is only from the Netherlands, which is a developed country in Europe. In the research from Meisenberg and Williams it is stated that this bias is less likely to occur in European, developed countries with few corruption (2008). Also the average level of education is relatively high in the Netherlands, compared to other countries. In the Human Development Report of the United Nations, the Netherlands ranked at the 5th place with 17.9 years of schooling on average (table 1, page 208) (UNDP, 2015). According to the paper of Meisenberg and Williams, the level of education is also an important factor that influences the extreme response bias (2008). Moreover, the correlation between

immigrationeconomy and *satisfiedeconomy* is 0.26 on average, which does not indicate a serious problem (table 2). These two variables were most likely to be correlated because of the extreme response bias, as both indicate a subjective preference related to the same topic. Because of the reasons mentioned above, we believe the data does not suffer from this bias.

Table 2: correlation between *immigrationeconomy* and *satisfiedeconomy*

Year	2002	2004	2006	2008	2010	2012	2014	Average
Correlation	0.21	0.30	0.22	0.25	0.28	0.32	0.27	0.26

V. Results

This section will present the results of regression 1, 2 and 3. The outcomes of an ordered logit model are not easy to interpret directly and therefore we will discuss the sign and significance of the coefficients only. In order to analyze the magnitude of the coefficients, the marginal effects of several independent variables will be discussed later.

As stated in the methodology, we will start with an ordered logit model with the dependent variable *immigrationcountry* to measure the effect of different factors on the general opinion of respondents about the effect of migrants on a country. The results of regression 1 on *immigrationcountry* can be found in table 3 on the next page. *Education* turns out to be significant in the whole time period (2002-2014), as well as *politics, satisfiedeconomy* and *minority*. All these three variables are significant on a 1% level, indicated by the three stars. The variable *happy* is significant at a 5% level in every year, except for 2006 and 2014. The variable *income* is not significant at all and *age* is significant in only one year (2014). Furthermore, *gender, health* and *region* show mixed results. *Gender* is significant in three out of seven years, whereas *health* is significant in two years. *Region* is only significant in 2002.

The effect of education on the preferences seems to be positive, as the coefficients vary from 0.05 to 0.09 over the years. Therefore, a higher level of completed education implies a generous mindset towards migrants. Also the effect of happiness and the satisfaction about the state of the economy seem to positively influence the belief. Because *happy* is insignificant in just two years and significant at a high level in the others, we interpret the effect as significant. On the other hand, higher values for *politics* (right-wing preferences) seem to be linked with a more restrained attitude towards foreigners moving in. A higher satisfaction about the current state of the economy positively influences the view on migrants, indicated by the significant positive sign. At last, belonging to a minority also appears to positively influence the preferences. The other variables cannot be interpreted as they lack significance in a majority of the years.

Table 3: results *immigrationcountry*

	2002	2004	2006	2008	2010	2012	2014
education	0.09***	0.05***	0.08***	0.08***	0.07***	0.08***	0.09***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
income	-0.02	0.04	0.03	-0.03	-0.02	-0.02	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
gender	0.04	-0.05	0.27***	0.07	0.19**	-0.11	0.27***
	(0.08)	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.09)
age	-0.00	-0.00	0.00	-0.00	0.00	0.00	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
happy	0.08**	0.14***	0.05	0.15***	0.13***	0.22***	0.05
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
politics	-0.15***	-0.18***	-0.16***	-0.20***	-0.20***	-0.15***	-0.17***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
satisfiedeconomy	0.18***	0.29***	0.20***	0.22***	0.20***	0.24***	0.26***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
health	0.02	-0.02	0.08	0.09	0.22***	0.13**	0.09
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
region	-0.16*	0.07	-0.06	-0.14			0.04
	(0.08)	(0.09)	(0.09)	(0.09)			(0.09)
minority	0.73***	1.12***	1.50***	0.80***	0.83***	0.67***	0.93***
	(0.22)	(0.22)	(0.20)	(0.19)	(0.24)	(0.20)	(0.24)
N	1933	1538	1562	1496	1392	1499	1607

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regarding the outcomes of the ordered logit model on *immigrationeconomy* (table 4, next page), the following results are determined. Once more, the coefficients of *education, politics, satisfiedeconomy* and *minority* are significant for the whole time period. Surprisingly, *gender* is significant in every year too, except for 2006. Women seem to be more negative about the impact of migrants on the economy. Contrary to the last model, the variable *happy* is only significant at a 5% level in 2008 and 2012. *Age* also seems significant, but as the value is almost zero, we do not interpret the results. The variables *health* and *income* are insignificant in most years. Finally, living inside of the Randstad seems to have a positive effect on the views on migrants, although not convincing. The variable is significant in three out of five years and one of the significant years is only at a 10% level. Similarly to the results of the previous regression, the effects of a higher level of education and a higher satisfaction about the current state of the economy are positively correlated with the thoughts about the effect of migrants on the economy. Again, right-wing political preferences influence the dependent variable in a negative way, leading to a more negative attitude. Also belonging to a minority has a positive effect on the preferences for migrants.

Table 4: results *immigrationeconomy*

	2002	2004	2006	2008	2010	2012	2014
education	0.12***	0.12***	0.14***	0.12***	0.14***	0.15***	0.14***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
income	0.01	0.04	0.04	0.04	-0.02	0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
gender	-0.27***	-0.26***	-0.13	-0.31***	-0.27***	-0.38***	-0.21**
	(0.08)	(0.09)	(0.09)	(0.10)	(0.10)	(0.09)	(0.09)
age	0.00	0.01***	0.01**	0.00	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
happy	0.01	0.06*	0.04	0.18***	0.06	0.18***	-0.02
	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
politics	-0.17***	-0.20***	-0.15***	-0.15***	-0.18***	-0.17***	-0.16***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
satisfiedeconomy	0.19***	0.30***	0.22***	0.23***	0.30***	0.27***	0.28***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
health	0.08	-0.04	-0.10	-0.06	0.16**	0.02	0.06
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
region	0.07	0.25***	0.18**	0.18*			0.11
	(0.08)	(0.10)	(0.09)	(0.09)			(0.09)
minority	0.91***	0.69***	1.02***	0.42**	0.66***	0.45**	0.46**
	(0.23)	(0.24)	(0.21)	(0.19)	(0.24)	(0.21)	(0.23)
N	1913	1529	1558	1492	1389	1489	1597

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The third estimated ordered logit model assesses the question whether immigrants enrich or undermine the cultural life of the native's country. Table 5 on the next page shows the results. Again, the variables *education, politics, satisfiedeconomy* and *minority* are significant in the whole time period from 2002 until 2014. Moreover, the variable *age* is significant but again we do not interpret the results. Similar to the first two models are the variables *income* and *health*, which are insignificant in most years. Also *gender* is only significant at a 5% level in 2006 and 2008. *Happy* is significant again in five of the seven survey waves (all years except from 2002 and 2006). Living in the Randstad seems to have a small positive effect on the way of thinking, being insignificant in just two of the five years, while one of the significant years is just on a 10% level. And once again, we see the education and satisfaction of the economy positively influencing the results. A place on the right side of the political line again implies a more negative attitude towards migrants. In this regression, it means that the respondent thinks that the cultural life is undermined by the inflow of migrants, if he or she favors a right-wing party. Belonging to a minority positively influences the way of thinking about the cultural impact of migrants too.

Table 5: results *immigrationcultural*

	2002	2004	2006	2008	2010	2012	2014
education	0.13***	0.14***	0.15***	0.15***	0.15***	0.17***	0.16***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
income	0.02	0.07**	0.03	-0.02	0.01	0.02	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
gender	0.06	0.00	0.28***	0.23**	0.19*	-0.11	0.04
	(0.08)	(0.09)	(0.09)	(0.10)	(0.10)	(0.09)	(0.09)
age	-0.01***	-0.01***	-0.00	-0.01***	-0.01**	-0.01***	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
happy	0.05	0.09***	0.03	0.15***	0.16***	0.13***	0.10**
	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
politics	-0.18***	-0.23***	-0.21***	-0.23***	-0.29***	-0.24***	-0.21***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)
satisfiedeconomy	0.14***	0.18***	0.20***	0.19***	0.16***	0.18***	0.16***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
health	0.10*	0.01	0.03	0.04	0.06	0.11*	0.21***
	(0.06)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
region	-0.00	0.28***	0.16*	0.17*			0.14
	(0.08)	(0.10)	(0.09)	(0.09)			(0.09)
minority	0.97***	0.95***	0.83***	0.80***	0.70***	0.91***	0.63***
	(0.22)	(0.23)	(0.21)	(0.19)	(0.24)	(0.20)	(0.23)
N	1930	1540	1559	1502	1388	1497	1600

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Based on the results of the previous three models we conclude the following. It seems that education has a positive effect on the attitude towards migrants in general. Both on the topic of the country, the economy and the culture the preferences for migrants becomes more positive if the level of completed education rises. This is in line with the studies of O'Rourke and Sinnott (2006), Mayda (2006) and Scheve and Slaughter (2001) as discussed in the theoretical framework. The satisfaction about the current state of the economy has the same effect: a higher satisfaction leads to more generous preferences for foreigners moving in. Also the happiness of the respondent matters, as happier people are thinking more positive about migrants. On the other hand, a preference for right-wing parties is in all models associated with a more negative attitude. This is consistent with the literature too, as right-wing parties are more nationalistic and nationalists tend to be less generous regarding redistribution (Shayo, 2009; O'Rourke & Sinnott, 2006). Respondents who belong to a minority are clearly more generous towards migrants, confirming the studies of Dahlberg et al. (2012) and Shayo (2009). At last, the residence of the respondent appears the affect the preferences in a positive way, although the evidence is not convening.

As it is hard to interpret the signs in an ordered logit model, in this section we make predictions of the effect of changes in the different levels of education, political preferences and satisfaction of the economy. Because the dependent variable *immigrationcountry* is the comprehensive approximation for the attitude towards migration, we will investigate the marginal effects on this variable only. We will measure the change in preferences, if one of the variables changes substantially and the others stay the same. For the variables that remain the same, we take the value of the median, because we use ordinal and dummy variables in our regression. First, we measure the effect of a change in the level of education from 6 (mbo) to 11 (university). Next, the effect of a change from a political preference of 3 (slightly to the left) to 8 (middle right) will be measured. At last, we will measure the change in satisfaction about the economy from 3 (not so satisfied) to 8 (satisfied). The median values we use can be found in table 11 of appendix 7. Note that all the effects are estimated for women, because the median value of gender is 1. The detailed marginal changes over the years can be found in tables 12 to 14 of appendix 8. As the marginal effects do not fluctuate a lot over the years, we calculate the average marginal effects. The table below shows the effects of a change in education, political preferences and satisfaction of the economy on the attitude towards migrants.

Table 6: Average marginal effect on *immigrationcountry* of an upward change in education, a political change to the right and an upward change in satisfaction about the economy

	Education change	Political change	Satisfaction change
Pr(y=Worse_plx):	-0.005	0.014	-0.019
Pr(y=1x):	-0.004	0.012	-0.017
Pr(y=2x):	-0.011	0.030	-0.040
Pr(y=3x):	-0.021	0.053	-0.068
Pr(y=4x):	-0.030	0.065	-0.084
Pr(y=5x):	-0.026	0.024	-0.033
Pr(y=6x):	0.018	-0.051	0.065
Pr(y=7x):	0.041	-0.083	0.109
Pr(y=8x):	0.027	-0.047	0.063
Pr(y=9x):	0.007	-0.011	0.015
Pr(y=Better_px):	0.004	-0.007	0.010

Table 6 provides some interesting insights. When the level of education goes up from 6 (mbo) to 11 (university), we see the probability for a more positive attitude rise. On the other hand, the probability to fall into one of the lower categories goes down, shown by the negative signs for categories 0 to 5. The largest changes are for categories 4, 7 and 8. Whereas the probability to fall into category 4 falls with 3.0%, the probability to fall in one of the higher categories 7 and 8 rise with respectively 4.1% and 2.7%. If we look at the change in political preferences, the effects are reversed. A shift in political preferences from 3 (slightly to the left) to 8 (middle right) results in higher probabilities for low preferences and lower probabilities for the more generous preferences. The largest changes for this political shifts are in the middle categories. The probability to fall into categories 3 and 4 rose with 5.3% and 6.5%. Contrary, the probability for more positive preferences for migrants fall sharp in categories 6 (-5.1%), 7 (-8.3%) and 8 (-4.7%). Finally, we measured the change of the satisfaction about the economy from 3 (not so satisfied) to 8 (satisfied). The table above shows that this change leads to a more generous attitude towards migrants, as the probability to fall in one of the higher categories rise and the for the lower categories fall. These changes are especially large for categories 3, 4, 6, 7 and 8. The probability for the lower categories 3 and 4 falls with respectively 6.8% and 8.4% whereas the probability for categories 6, 7 and 8 rose with 6.5%, 10.9% and 6.3%.

In the data section we showed that the preferences for migrants change in a positive way over time. However, when we look at the frequency tables shown in appendix 9, we do not see a large change in the political preferences and satisfaction through the years, even though the general view on migrants does change in a positive way (table 15). The political preferences of the respondents (table 16) stay rather constant and, despite from the economic crisis between 2007 and 2011, we do not observe a change in the satisfaction about the economic situation too (table 17). In the levels of education, a slight increase is visible from 2002 to 2014 (table 18). Therefore, either the rise in the level of education explains the higher preferences for migrants, or other factors that are not included in the model influence the preferences.

VI. Robustness Checks

In this section the main result will be checked for their robustness. First, the applied transformation for the income variable will be assessed. Subsequently, as stated in the methodology, we will check several independent variables for non-linearity and we will look deeper into the income and region variable. At last, a generalized ordered logistic regression is performed in order to relax the assumption of proportional odds for some independent variables.

Two transformations in the dataset were made in order to estimate similar models for all the years. The transformation of *education* includes only a few minor changes. The data of the years 2010, 2012 and 2014 is compressed at four points (appendix 2). Because this is only a compression and leads to less detailed results, the order of the categories is not changed over time. Thus, since we believe this transformation does not influence the results, it will not be checked on robustness.

However, the transformation of the income variable will be assessed, since we made changes in the categories. In order to compare different years, we had to regroup some categories, due to a different way of interviewing in 2002 until 2006 than in 2008 until 2014. To check whether the applied transformation did lead to different estimates, we perform an ordered logistic regression for all the years with the initial variable categories, which are different for 2002-2006 and 2008-2014. The results are shown in appendix 10, table 19. Solely minor changes can be determined, of which most in the variable of income itself. However, all of the changes are very small and do not change the significance or signs of the main results. Therefore, we believe that the transformation of income does not bias the results.

In the main regressions we performed, all the variables used were linear. However, some variables could also affect the dependent variable in a non-linear way. Therefore, we tested several variables on non-linearity for all the three dependent variables and all seven years. These results were not included in the outcomes described above, because the values were all insignificant in the majority of the years. The variables tested in a quadratic form were *age, politics, satisfiedeconomy* and *income.* All the regressions are checked twice; once with the quadratic variable as an addition to the normal one, and once with the quadratic variable replacing the normal variable. The variable *age* being non-significant shows that elder people do not think differently about migrants in a disproportionate manner. The same holds for the other variables. Preferences for parties on the right border of the political spectrum do not lead

to disproportionate outcomes in the attitude towards migrants and neither do extreme responds for the *satisfiedeconomy* variable. Also belonging to a very high income group does not imply extreme preferences in favor or against migrants. In addition, the variable income has also been changed into a dummy variable, with value 1 for belonging to a high income group (for values 5 and 6), and value 0 for the low and medium income groups. This dummy variable was insignificant too.

As the lack of significant results for the variable *income* was in contradiction with previous literature such as the study of Dahlberg et al. (2012), we investigated the economic background of the respondents in more detail, to make sure the regression did not suffer from an omitted variable bias. The study of Dahlberg et al. suggested that belonging to a higher income group would lead to more negative preferences for migrants. As the normal regression and the quadratic form of the variable *income* did not give any significant results, we added other control variables to the regression. We checked for the current status in the labor market, with the variables *employed, unemployed, disabled* and *retired*. However, these variables turned out to be insignificant for most of the years for all the three regressions.

Also the variable *region* has been tested in multiple ways. When taking the values for all provinces as different dummies, almost all dummies are insignificant. Splitting the values in such a way that a dummy for Amsterdam and Rotterdam combined is generated, with the rest of the Netherlands as reference group, does not lead to significant results either. Solely grouping the regions of the Randstad and taking the other parts of the Netherlands as references groups, leads to significant results.

The background of the respondent has been checked in multiple ways too, with the aim of investigate the in-group bias as discussed by Dahlberg et al. (2012) and Shayo (2009). We ran the main regressions with extra control variables for the background of the father and the mother of the respondent. These variables provided information whether the parents were born in the Netherlands too, or in a foreign country. However, these variables did not lead to any significant results and therefore they were left out in the main results section. On the other hand, the variable *minority* which indicates if the respondent belongs to an ethnic minority does lead to a result, as described in the previous section.

The third robustness check is on the assumption of the parallel odds. To check for this assumption, a generalized ordered logistic regression is performed of which the results can be found in the appendix 11, table 20. This generalized ordered logit is again only performed for the variable *immigrationcountry,* because this variable reflects the general opinion on migrants

and can be seen as a proxy for the other two dependent variables. The variables that do not violate the assumption can be interpret in the same way as is done in the ordered logistic model. Hence, for 2002 the variable minority (0.70***) is positively influencing the attitude towards migration. Compared to the main results, the coefficient is almost identical, as is the case with the non-significant variables income and health as well. Furthermore, all variables are violating the assumption for the year 2014. This is probably due to the low number of observations in the last group of the dependent variable, and therefore we combine the two groups at the end (9 and 10) and estimate the results again. In general, we can state that the main estimations of the variables *income, health, minority* and *politics* are robust for the parallel odds assumption, as they do not violate in more than 50% of the years (table 20).

The violating variables, however, should be interpreted differently. The effects of these variables are, due to the violation of the parallel odds assumption, divided into ten series of output (one for each category minus one because of the reference group). Each coefficient asks for a different interpretation, since the first series displays category 0 versus categories 1 until 11, the second series category 0 and 1 versus 2 until 11, and so forth. A positive coefficient indicates that an increase in the independent variable makes it more likely that someone will be in a higher category of the dependent variable. Similarly, a negative coefficient indicates that an increase in the independent variable makes it more likely to belong to the current category or a lower one. Again, we start by interpreting the results of 2002 in order to be clear about the interpretation. In 2002, for example, the coefficient of the violating variable *education* is 0.13** for the first series, which displays category 0 versus category 1 until 10. This means that a person who shifts to a higher level of education, is more likely to be in a current category of the dependent variable or higher. The coefficients for the rest of the series are quite similar, and ranges from 0.07 to 0.13, except from the last two categories. In these two categories the values are much lower, indicating that a higher level of education leads to an answer probably in a lower category than 8 or 9. Although the effects are not exactly equal per category of the dependent variable, the overall intuition is similar to the observed coefficient in the main results, except for the last two. We can see from the explanation above that the generalized ordered logit provides more specific insight in the preferences of the respondents.

The coefficient of the violating variable *politics* is negative for all categories, indicating that a person who shifts to the right side of the political spectrum, is more likely to be in a current or lower category of the dependent variable. With regard to the variable *satisfiedeconomy,* it can be observed that the coefficients are the highest for the lowest series,

but decline when moving to the higher series. The series for categories 8 and 9 are even negative. This means that people who are more satisfied about the economy, are more likely to be in a higher category for the series 0 until 7, but are more likely to be in the current or a lower category for the series 8 and 9. We thus observe that people are pushed away from the extreme positive side of the category of *immigrationcountry.*

The effect of *age* is very small, which is similar to the base line results. Also, again at the most extreme positive side of the category of *immigrationcountry* we observe a significant negative coefficient, which indicates that especially older people are unlikely to have very negative preferences for migration. This effect on the extreme ends of the spectrum is determined for most variables, which is in line with the expectations since there are few observations for these extreme values. The variable *gender* does not yield surprising results either and is non-significant, apart from the described effect on the extreme positive end. However, the variable *happy* is positive over the whole spectrum and even has a coefficient of 1.35*** at the end, which indicates that happier people are more likely to fall into one of the higher categories 9 or 10. The results for *region* are variable across the different categories and not significant for the majority. Therefore, we are not able to interpret these results. Overall, all the variables of the year 2002 yield, apart from the last category, quite similar results in terms of sign and significance compared to the main results.

When we look at table 20 in appendix 11, we can see that in general the variables *satisfiedeconomy*, *education* and *region* are the ones we need to worry about. In the case of *satisfiedeconomy,* we observe that in the higher more satisfied people are pushed away from the extreme positive values. Moreover, this effect holds for most variables, but is not as big as for the variable *satisfiedeconomy*. Therefore, it seems that the violation of the second assumption is caused by a low number of observations for the extreme positive value towards migration. Furthermore, this indicates that we do not have to worry about the so-called *extreme response bias,* as mentioned in the methodology section. This bias would induce people to respond more extremely to the subjective questions as is the case with *satisfiedeconomy,* which clearly is not the case. With regard to the variable *education*, the violation is caused by people belonging to a higher level of education being less likely to come up with an extremely positive answer, as was the case with *satisfiedeconomy* too. The violation of *region* is probably because of the variable results over the different categories. This means that we should be cautious with interpreting the results and more research is probably needed on this factor. Overall, we can argue that the main results presented in the previous section are robust for the parallel odds assumption and that we are able to explain the few violent cases.

VII. Conclusion and Discussion

In this paper, we have examined the explanatory variables for the preferences for migrants in the Netherlands. Lately, the European countries are facing a large inflow of migrants, making this a relevant topic to study. We use data from the Netherlands coming from the European Social Survey, ranging from 2002 until 2014. We add to the existing literature by studying a broader time-span and combining different variables such as education, income and political preferences and personal factors like subjective health, happiness and satisfaction about the state of the economy. The preferences for migrants are measured in three different ways: in general, with respect to their economic impact and with respect to their impact on the culture in the Netherlands. By analyzing the data from seven different years, the possible changes over time could be analyzed as well.

We have found that the level of education, political preferences, satisfaction about the state of the economy and belonging to a minority significantly influences the preferences for migrants. A higher level of completed education leads to a more generous attitude, just as a higher satisfaction about the economy and belonging to a minority does. Right-wing political preferences on the other hand lead to lower preferences for migrants. Moreover, these results seem to be robust for the assumptions of the logistic function we used. Only small violations occur at the upper border of the categories, which shows that respondents were not willing to give extreme responses.

The variables *income, gender, age* and *health* did not show any significant results, while *happy* and *region* demonstrated mixed results. The variable denoting the happiness of the respondent showed significant results in such a large number of years that it should not be ignored. More research in the field of behavioral economics is needed to come up with solid conclusions about the influence of this factor on the preferences for migrants. *Region* showed mixed results, indicating that more research is necessary on this topic too. People living inside the Randstad are possibly more generous towards migrants than people living in other parts of the country.

The coefficients of the variables did not change considerably over time, while the general preferences for migrants become a little more positive over the years (table 1). However, in table 1 we also see a small rise in the average level of education of the respondents. This could indicate that the higher preferences for migrants are explained by the rise in the level of education, or that other factors are influencing the preferences which are not included in our model.

Our results are partially in line with the existing literature. O'Rourke and Sinnott (2006) and Mayda (2006) found that education was positively linked with the preferences too, and Scheve and Slaugther (2001) concluded that low-skilled workers had lower preferences towards immigrants. The results for the income factor are in contradiction with the previous literature, as Dahlberg et al. (2012) concluded that this factor was negatively linked with the preferences. However, we did not find any results, possibly because the effect was captured in the education level. The results for the *politics* variable are in line with the majority of the perspectives of parties in the Netherlands. In general, right-wing parties such as the PVV, SGP, CU and VVD are less generous towards migrants than parties on the left like PvdA, D66 and SP. The *minority* variable probably shows the in-group bias, as described in previous literature (Dahlberg et al., 2012; Shayo, 2009).

The results explain to some extent why people think differently about migrants. The satisfaction about the state of the economy appears to play a significant role as well and this could be used by, for example, governments who want to gain more support for their migrant policy imposed by Europe. If the economy performs poorly, the attitude towards migrants could change in a negative way and the government will have to invest more in the image formation regarding migrants in order to compensate for this. Moreover, if the government wishes to positively change the attitude in general, they should focus on (low) education groups and provide information on schools, sport clubs or youth centers. Ethnic minorities are less of a focus group, as their preferences in general have been more positive. On the other hand, age, different income groups and gender are not necessary to focus on, as these factors do not influence the perceptions significantly.

A new study in two or four years could provide interesting insights as well, since the Syrian civil war started only in 2011 and this effect is seen in 2014 solely. The preferences for migrants slightly declined in the last year of study (table 1), possibly indicating a negative shift in the attitude due to the rise of the inflow of migrants, as described in Dahlberg et al. (2012). In addition, it remains to be explored in what way the region of the residence of the respondent matters, and why factors such as education and belonging to a minority influence the preferences.

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Appendix 1 – Independent variables

Variable *education*

Value	Description
1	Not completed primary school
2	Primary school or first stage of basic education
3	Lower secondary school, technical training (lbo)
4	Lower secondary school, theoretical training (mulo,mavo)
5	Short upper secondary professional education (kmbo, vhbo)
6	Upper secondary professional education (mbo)
7	Post-secondary, non-tertiary education (mbo plus)
8	Higher secondary school (mms, havo)
9	Pre-scientific secondary school (hbs, vwo)
10	Tertiary professional education (hbo)
11	Tertiary scientific education, university
12	Tertiary post-scientific education (teachers, doctors)
13	Second stage of tertiary education, Ph.D. education

Variable *income*

Value	Description
1	Less than €1,000
2	€1,000 - €1,500
3	€1,500 - €2,000
4	€2,000 - €2,500
5	€2,500 - €3,000
6	More than €3,000

Variable *health*

Value	Description
1	Very bad
2	Bad
3	Fair
4	Good
5	Very good

Appendix 2 – Transformations *Education*

Education (2002 – 2008)		Education (2010 - 2012)			
Variable	Description	Old 2010 & 2012	Old 2014	New	Description
1	Not completed primary school	1	1	1	Basisschool niet afgemaakt
2	Primary school or first stage of basic education	113	2	2	Alleen basisschool afgemaakt
3	Lower secondary school, technical training (lbo)	212	3	3	lbo, vbo, leao, lts ambachtsschool, huishoudschool, lhno, vmbo
4	Lower secondary school, theoretical training (mulo,mavo)	213	4	4	mulo, ulo, mavo, vmbo (niveau 4; theoretische leerweg); havo
5	Short upper secondary professional education (kmbo, vhbo)	229	5 and 8	5	kmbo, leerlingwezen, mbo niveau 1, meao, mts afgemaakt (duur 4 jaar)
6	Upper secondary professional education (mbo)	321	6	6	mbo niveau 2 en 3 afgemaakt (duur 2-3 jaar)
		322	7	6	mbo niveau 4 afgemaakt (duur 4 jaar)
7	Post-secondary, non-tertiary education (mbo plus)	412	9	7	mbo-plus voor havisten
8	Higher secondary school (mms, havo)	312	10	8	havo, mms, msvm afgemaakt
9	Pre-scientific secondary school (hbs, vwo)	313	11	9	vwo, hbs, atheneum, gymnasium afgemaakt
		510	12	9	propedeuse wo, ou-certificaat
10	Tertiary professional education (hbo)	520	13	10	korte hbo-opleiding einddiploma (2 of 3 jaar), kweekschool
		610	14	10	bachelor hbo afgemaakt
11	Tertiary scientific education, university	620	15	11	bachelor universiteit afgemaakt
		710	16	11	hbo: master`s degree, tweede fase opleidingen; post hbo-opleiding
12	Tertiary post-scientific education (teachers, doctors)	720	17	12	wo/universiteit: master`s degree, tweede fase opleidingen
13	Second stage of tertiary education, Ph.D. education	800	18	13	doctoraat/gepromoveerd

Appendix 3 – Transformations *Income*

Income 2002 until 2006

Old value	New value	Description
1	1	Less than €150
2	1	€150 - €300
3	1	€300 - €500
4	1	€500 - €1,000
5	2	€1,000 - €1,500
6	3	€1,500 - €2,000
7	4	€2,000 - €2,500
8	5	€2,500 - €3,000
9	6	€3,000 - €5,000
10	6	€5,000 - €7,500
11	6	€7,500 - €10,000
12	6	€10,000 or more

Income 2008 until 2014

Old value	New value	Description
1	1	Less than €900
2	2	€ 900 - € 1,150
3	2	€ 1,150 - € 1,400
4	3	€ 1,400 - € 1,650
5	3	€ 1,650 - € 1,950
6	4	€ 1,950 - € 2,250
7	4	€ 2,250 - € 2,650
8	5	€ 2,650 - € 3,100
9	6	€ 3,100 - € 3,850
10	6	€ 3,850 or more

New categories income 2002 until 2014, measured per month

Value	Description
1	Less than €1,000
2	€1,000 - €1,500
3	€1,500 - €2,000
4	€2,000 - €2,500
5	€2,500 - €3,000
6	€3,000 or more

Appendix 4 – Transformations *Region*

Old value	Description	New value	Description
310	Utrecht	1	Randstad
323	IJmond		
324	Agglomeratie Haarlem		
325	Zaanstreek		
326	Groot-Amsterdam		
331	Agglomeratie Leiden en Bollenstreek		
332	Agglomeratie`s-Gravenhage		
333	Delft en Westland		
334	Oost-Zuid-Holland		
335	Groot-Rijnmond		
336	Zuidoost-Zuid-Holland		
111	Oost-Groningen	0	Other
112	Delfzijl en Omgeving		
113	Overig Groningen		
121	Noord-Friesland		
122	Zuidwest-Friesland		
123	Zuidoost-Friesland		
131	Noord-Drenthe		
132	Zuidoost-Drenthe		
133	Zuidwest-Drenthe		
211	Noord-Overijssel		
212	Zuidwest-Overijssel		
213	Twente		
221	Veluwe		
222	Achterhoek		
223	Arnhem\Nijmegen		
224	Zuidwest-Gelderland		
230	Flevoland		
321	Kop van Noord-Holland		
322	Alkmaar en Omgeving		
327	Het Gooi en Vechtstreek		
341	Zeeuwsch-Vlaanderen		
342	Overig Zeeland		
411	West-Noord-Brabant		
412	Midden-Noord-Brabant		
413	Noordoost-Noord-Brabant		
414	Zuidoost-Noord-Brabant		
421	Noord-Limburg		
422	Midden-Limburg		
423	Zuid-Limburg		

Appendix 5 – Correlations and Variance Influence Factors

Table 7: Correlations between *income* and *education*

Year	2002	2004	2006	2008	2010	2012	2014
Correlation	0.336	0.368	0.363	0.405	0.430	0.407	0.366

Note that we estimated the correlations for all variables, but only include the variables *income* and *education* in this table, because these are the ones with potential multicollinearity

Table 8: VIF and R-Squared for all variables, for all years, dependent variable *immigrationcountry*

	2002		2004		2006		2008		2010		2012		2014	
Variable	VIF	R^2	VIF	R^2	VIF	R^2	VIF	R^2	VIF	R^2	VIF	R^2	VIF	R^2
education	1.22	0.18	1.33	0.25	1.30	0.23	1.26	0.21	1.33	0.25	1.31	0.23	1.28	0.22
income	1.21	0.17	1.26	0.21	1.28	0.22	1.32	0.24	1.37	0.27	1.36	0.26	1.35	0.26
gender	1.04	0.03	1.05	0.05	1.05	0.05	1.06	0.06	1.04	0.04	1.03	0.03	1.04	0.04
age	1.14	0.12	1.17	0.14	1.17	0.15	1.15	0.13	1.13	0.11	1.16	0.14	1.14	0.12
happy	1.16	0.14	1.21	0.17	1.14	0.12	1.23	0.19	1.25	0.20	1.24	0.19	1.22	0.18
politics	1.04	0.04	1.06	0.06	1.07	0.06	1.05	0.05	1.05	0.05	1.05	0.05	1.09	0.09
satisfiedeconomy	1.11	0.10	1.17	0.14	1.25	0.20	1.12	0.10	1.15	0.13	1.11	0.10	1.16	0.13
health	1.23	0.19	1.20	0.17	1.24	0.19	1.25	0.20	1.25	0.20	1.24	0.19	1.26	0.21
region	1.02	0.02	1.03	0.03	1.03	0.03	1.02	0.02					1.01	0.01
minority	1.04	0.04	1.02	0.04	1.06	0.06	1.07	0.06	1.05	0.05	1.03	0.03	1.06	0.06

Appendix 6 – Likelihood test and Brant test

Table 9: Likelihood tests for all years

Year	2002	2004	2006	2008	2010	2012	2014
Significance	0.000***	0.000***	0.009***	0.001***	0.000***	0.000***	0.000***

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

Table 10: Brant tests ($p>chi^2$) for all years

	2002	2004	2006	2008	2010	2012	2014
education	0.391	0.005***	0.327	0.157	0.072*	0.984	0.029**
income	0.220	0.525	0.465	0.969	0.087*	0.250	0.463
gender	0.063*	0.185	0.285	0.274	0.789	0.000***	0.149
age	0.003***	0.697	0.350	0.848	0.000***	0.013**	0.000***
happy	0.059*	0.003***	0.114	0.047**	0.016**	0.094*	0.001***
politics	0.001***	0.083*	0.174	0.006***	0.060*	0.044**	0.892
satisfiedeconomy	0.000***	0.000***	0.003***	0.000**	0.075*	0.002***	0.005***
health	0.726	0.414	0.598	0.399	0.241*	0.003***	0.035**
region	0.272	0.108	0.048**	0.362			0.332
minority	0.742	0.000***	0.023**	0.002***		0.058*	

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

Note that for the year 2006, we combined the categories 10 and 9 for the variable *immigrationcountry*. The data was spread too thin in order to carry out the Brant test with all categories.

Appendix 7 – Medians

Table 11: medians of all variables

	2002	2004	2006	2008	2010	2012	2014	Average
Education	6	6	6	6	6	6	6	6
Income	4	4	4	4	4	4	4	4
Gender	1	1	1	1	1	1	1	1
Age	46	49	47	49	50	51	52	49
Happy	8	8	8	8	8	8	8	8
Politics	5	5	5	5	5	5	5	5
Satisfiedeconomy	6	5	7	6	6	5	6	6
Health	4	4	4	4	4	4	4	4
Region	0	0	0	0	-	-	0	0
Minority	0	0	0	0	-	-	0	0

Appendix 8 – Marginal effects

Table 12: marginal effect on *immigrationcountry* of a change in education from 6 to 11

	2002	2004	2006	2008	2010	2012	2014	Average
Pr(y=Worse_plx):	-0.0094	-0.0081	-0.0038	-0.0041	-0.0022	-0.0023	-0.0037	-0.0048
Pr(y=1x):	-0.0063	-0.0051	-0.0054	-0.0045	-0.0021	-0.0032	-0.0035	-0.0043
Pr(y=2x):	-0.0158	-0.0119	-0.0090	-0.0093	-0.0085	-0.0111	-0.0098	-0.0108
Pr(y=3x):	-0.0325	-0.0188	-0.0210	-0.0203	-0.0163	-0.0201	-0.0159	-0.0207
Pr(y=4x):	-0.0350	-0.0197	-0.0317	-0.0282	-0.0310	-0.0319	-0.0310	-0.0298
Pr(y=5x):	-0.0121	0.0028	-0.0326	-0.0288	-0.0316	-0.0330	-0.0435	-0.0255
Pr(y=6x):	0.0248	0.0201	0.0220	0.0140	0.0119	0.0175	0.0132	0.0176
Pr(y=7x):	0.0428	0.0261	0.0474	0.0382	0.0411	0.0452	0.0450	0.0408
Pr(y=8x):	0.0294	0.0098	0.0252	0.0275	0.0304	0.0296	0.0351	0.0267
Pr(y=9x):	0.0077	0.0025	0.0058	0.0099	0.0061	0.0063	0.0076	0.0066
Pr(y=Better_px):	0.0064	0.0022	0.0032	0.0056	0.0021	0.0029	0.0065	0.0041

Table 13: marginal effect on *immigrationcountry* of a change in political preferences from 3 to 8

	2002	2004	2006	2008	2010	2012	2014	Average
Pr(y=Worse_plx):	0.0205	0.0330	0.0096	0.0145	0.0080	0.0059	0.0098	0.0145
Pr(y=1x):	0.0133	0.0199	0.0136	0.0155	0.0077	0.0079	0.0089	0.0124
Pr(y=2x):	0.0321	0.0441	0.0218	0.0307	0.0303	0.0270	0.0247	0.0301
Pr(y=3x):	0.0588	0.0628	0.0475	0.0620	0.0539	0.0457	0.0376	0.0526
Pr(y=4x):	0.0500	0.0520	0.0620	0.0728	0.0881	0.0628	0.0649	0.0647
Pr(y=5x):	-0.0135	-0.0336	0.0342	0.0394	0.0532	0.0340	0.0542	0.0240
Pr(y=6x):	-0.0452	-0.0649	-0.0556	-0.0521	-0.0511	-0.0447	-0.0408	-0.0506
Pr(y=7x):	-0.0616	-0.0742	-0.0817	-0.0930	-0.1053	-0.0797	-0.0836	-0.0827
Pr(y=8x):	-0.0374	-0.0264	-0.0382	-0.0585	-0.0674	-0.0453	-0.0550	-0.0469
Pr(y=9x):	-0.0094	-0.0068	-0.0084	-0.0202	-0.0130	-0.0093	-0.0113	-0.0112
Pr(y=Better_px):	-0.0076	-0.0059	-0.0047	-0.0111	-0.0044	-0.0043	-0.0095	-0.0068

Table 14: marginal effect on *immigrationcountry* of a change in satisfaction about the economy from 3 to 8

	2002	2004	2006	2008	2010	2012	2014	Average
Pr(y=Worse_plx):	-0.0256	-0.0450	-0.0151	-0.0166	-0.0079	-0.0076	-0.0171	-0.0193
Pr(y=1x):	-0.0165	-0.0276	-0.0210	-0.0177	-0.0076	-0.0103	-0.0154	-0.0166
Pr(y=2x):	-0.0395	-0.0623	-0.0328	-0.0349	-0.0300	-0.0356	-0.0420	-0.0396
Pr(y=3x):	-0.0715	-0.0937	-0.0669	-0.0698	-0.0533	-0.0619	-0.0619	-0.0684
Pr(y=4x):	-0.0593	-0.0921	-0.0757	-0.0807	-0.0871	-0.0909	-0.1014	-0.0839
Pr(y=5x):	0.0181	0.0117	-0.0140	-0.0418	-0.0529	-0.0770	-0.0731	-0.0327
Pr(y=6x):	0.0545	0.0947	0.0779	0.0581	0.0506	0.0526	0.0640	0.0646
Pr(y=7x):	0.0741	0.1339	0.0935	0.1033	0.1042	0.1239	0.1283	0.1087
Pr(y=8x):	0.0452	0.0536	0.0405	0.0652	0.0667	0.0811	0.0858	0.0626
Pr(y=9x):	0.0114	0.0143	0.0087	0.0225	0.0129	0.0175	0.0178	0.0150
Pr(y=Better_px):	0.0092	0.0126	0.0048	0.0124	0.0043	0.0081	0.0151	0.0095

Appendix 9 – Frequency tables

All variables denote percentages

Table 15: Effect of migrants on the country in general

	2002	2004	2006	2008	2010	2012	2014
Worse place to live	4.53	4.36	1.67	2.00	1.72	1.26	1.81
1	2.20	2.69	2.37	2.40	1.33	1.43	1.65
2	6.48	6.19	3.83	4.40	4.12	3.79	4.15
3	12.56	10.33	9.48	8.97	8.01	7.20	6.86
4	15.50	15.50	14.17	13.65	14.57	11.60	12.87
5	29.75	26.75	28.77	27.58	27.53	29.30	32.32
6	11.14	14.37	17.78	15.53	16.18	16.22	14.89
7	10.15	12.76	14.17	15.13	16.57	17.65	15.15
8	5.40	4.63	5.87	6.91	8.00	8.74	7.44
9	1.17	1.35	1.19	2.28	1.39	1.98	1.44
Better place to live	1.12	1.08	0.70	1.14	0.83	0.82	1.44

Table 16: Political preferences

	2002	2004	2006	2008	2010	2012	2014
Left	1.55	1.46	2.24	2.11	1.55	2.37	2.01
1	1.82	1.69	1.85	1.70	1.32	2.20	1.51
2	5.68	6.52	6.94	5.86	5.75	5.81	5.14
3	9.14	11.47	10.53	11.14	10.69	9.19	11.06
4	12.38	11.53	13.27	11.61	11.84	11.33	11.78
5	27.02	27.22	24.13	25.62	24.20	24.18	29.54
6	12.78	13.10	12.93	14.89	14.02	12.57	13.62
7	16.06	14.96	16.24	15.83	17.24	16.85	15.13
8	9.18	8.44	8.40	8.62	9.89	11.10	7.82
9	1.86	1.80	1.90	1.47	2.07	2.65	1.79
Right	2.53	1.80	1.57	1.17	1.44	1.75	0.61

Table 17: Satisfaction about the state of the economy

	2002	2004	2006	2008	2010	2012	2014
Extremely dissatisfied	2.40	2.64	1.07	1.88	0.89	1.96	1.84
1	1.67	2.53	0.75	1.53	0.83	1.47	1.58
2	3.68	4.79	1.77	4.83	2.61	4.73	3.27
3	8.08	10.39	3.97	6.94	5.88	10.55	9.01
4	13.22	15.82	6.48	11.77	9.93	15.13	14.65
5	19.50	20.51	12.59	18.19	18.15	17.57	18.18
6	22.03	22.23	23.26	21.49	27.30	23.23	26.19
7	19.97	14.48	31.62	21.26	24.47	18.12	18.76
8	7.74	5.71	15.81	9.89	9.00	6.31	5.58
9	1.24	0.75	2.25	1.82	0.61	0.76	0.63
Extremely satisfied	0.47	0.16	0.43	0.00	0.39	0.16	0.32

Table 18: Education

	2002	2004	2006	2008	2010	2012	2014
Not completed primary school	0.80	1.23	1.43	0.45	1.43	1.09	0.79
Primary school or first stage of basic education	9.90	12.04	10.33	9.68	7.41	8.59	7.03
Lower secondary school, technical training (lbo)	18.45	16.46	15.15	14.52	16.62	17.39	15.38
Lower secondary school, theoretical training (mulo,mavo)	13.58	14.01	11.86	12.94	13.88	11.41	10.66
Short upper secondary professional education (kmbo, vhbo)	1.65	1.07	3.44	1.69	5.65	3.75	1.63
Upper secondary professional education (mbo)	17.44	15.50	16.84	17.11	16.18	17.23	19.42
Post secondary, non-tertiary education (mbo plus)	5.97	5.91	7.10	5.35	0.99	1.74	1.78
Higher secondary school (mms, havo)	4.27	4.64	5.19	7.37	3.84	4.08	7.30
Pre-scientific secondary school (hbs, vwo)	4.49	4.48	3.87	4.11	3.51	3.91	3.67
Tertiary professional education (hbo)	16.00	16.68	15.57	16.88	15.47	14.78	13.70
Tertiary scientific education, university	5.97	6.45	7.68	7.54	7.13	6.30	10.66
Tertiary post-scientific education (teachers, doctors)	0.97	1.01	1.11	1.63	7.24	8.64	7.19
Second stage of tertiary education, Ph.D. education	0.38	0.53	0.32	0.73	0.66	1.09	0.79

Appendix 10 – Robustness check transformation *income*

Table 19: differences in outcomes *immigrationcountry*, by comparing the *income* variable before and after the transformations

	2002	2004	2006	2008	2010	2012	2014
education	0	-0.01 (0)	0	0	0	0	0
income	0 (+0.01)	0 (+0.01)	0 (+0.01)	0 (+0.01)	-0.01 (+0.01)	-0.01 (+0.01)	-0.02 (+0.01)
gender	0	+0.01 (0)	0	+0.01 (0)	0	0	0
age	0	0	0	0	0	0	0
happy	0	0	0	0	0	0	+0.01 (0)
politics	0	0	0	0	0	-0.01 (0)	0
satisfiedeconomy	0	0	0	0	0	0	0
health	0	0	0	0	0	0	0
region	0	0	0	0			0
minority	0	0	0	0	0	0	-0.01 (0)
N	1933	1538	1562	1496	1392	1499	1607

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 11 – Robustness check parallel odds assumption

Table 20: Violating and non-violating variables

Variable	2002	2004	2006	2008	2010	2012	2014	Violation percentage
income	0	0	0	0	1	0	0	0.14
health	0	0	1	0	0	1	0	0.29
minority	0	0		1				0.33
politics	1	0	1	1	0	0	0	0.43
age	1	0	0	0	1	1	1	0.57
happy	1	1	0	0	1	0	1	0.57
gender	1	1	1	0	0	1	0	0.57
region	1	1	1	0			0	0.60
education	1	1	1	0	1	0	1	0.71
sat.econ	1	1	1	1	0	1	1	0.86

Value 1 denotes a violation, 0 denotes no violation.
In several years, the variable *minority* is left out.
Violation percentage is calculated by dividing the number of violations by the total number of years.