ERASMUS UNIVERSITY ROTTERDAM

**Erasmus School of Economics**
**Master Thesis Behavioral Economics**

# Immigration and Happiness:
## The Influence of Immigration on the Happiness of Natives in the Netherlands


**Abstract**

As immigration in developed European countries increased substantially in the last decade, it is interesting to investigate the impact of immigration on the happiness of natives. This research was conducted to examine this relationship in the Netherlands particularly. For the analysis, a combination of the European Social Survey and an extensive dataset on Dutch immigration numbers are used. A remarkably small, but negative significant effect was found between immigration and the happiness of Dutch natives. *Increasing* immigration however, has a positive significant effect on the happiness of natives. Additionally, this research is the first to investigate whether the effect of immigration on the happiness of Dutch natives depends on their attitude towards immigration. An overall significant effect was found. The impact of immigration on the happiness of natives is essentially dependent on the natives' attitude towards immigration. The positive impact that immigration has on the happiness of natives is greatest especially for natives who favor immigration. Additionally, this impact is negative for natives that have a strong aversion to immigration. Throughout this paper, the magnitude of the effect remains small.



***Keywords:*** *Immigration, Happiness, Subjective well-being, Natives, Attitude towards immigration, Netherlands*



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# 1. Introduction

Currently, 244 million people globally could be called migrants, reflecting roughly 3.3% of the entire world population (International Organization for Migration, 2018). Immigration includes both refugees from rural backgrounds, but also economic migrants from European countries. However, these are just two examples of the different types of immigrants. In 2000, the number of international migrants was estimated at 173 million people (United Nations, 2017). Therefore, a sharp increase of international migrants over the years is clearly visible and it is expected that this number will only increase. Resulting from this strong increase, concerns about immigration have strongly risen among natives. When raising the immigration issues in Western-Countries, it becomes evident that natives question the effect that increasing immigration has on the country, both positively and negatively. It is remarkable that people are extremely opinionated on this subject and that opinions differ widely among the residents of the host countries. Worldwide, more than a third (34%) prefers a decline in immigration while only 21 percent prefers to see an increase in immigration. 22 Percent would rather see that immigration remains at the same level and 23 percent were indifferent or refused to answer (International Organization for Migration, 2015).

Most studies in the field of happiness and immigration have focused on the subjective well-being[1] of immigrants and relatively little research has been done on how immigration affects the subjective well-being of natives. Research in this particular area has only been developed over the last years. Noteworthy, existing literature generally indicates a positive effect on the subjective well-being of natives. However, it is shown that this effect is rather small in practice. Research carried out by Akay, Constant, and Giulietti (2014) in Germany indicated that an increase in the number of migrants results in higher levels of the subjective well-being of natives. An earlier study (Betz & Simpson, 2013) explored this relationship for 26 European countries. This research revealed that in general, increasing immigration flows significantly increase the subjective well-being of natives. Accordingly, research carried out in Germany (Akay, Constant, Giulietti, Guzi, 2017) shows that increasing diversity positively affects life satisfaction of natives. This is in contrast to a study by Longhi (2014), who states that diversity has a negative influence on the subjective well-being of natives in the United Kingdom.

The aim of this research is to investigate the relationship between immigration on the happiness of Dutch natives. As a result, the first research question is posited as follows:

*What is the influence of immigration on the happiness of Dutch natives?*

Investigating this relationship particularly for the Netherlands is interesting as research shows that more than 80 percent of the population growth in the Netherlands comes from foreign migration (CBS, 2018).

[1] The terms *happiness* and *subjective well-being* are to be treated as synonyms throughout this paper

Immigration in the Netherlands, therefore, does not go unnoticed for the native population. Interestingly, opinions about immigration and refugees are strongly divided among Dutch inhabitants, which is highly reflected within different political affiliations. A noteworthy change has become visible in the last years and demonstrates that political parties that have major doubts about the current immigration policy are growing strongly in the Netherlands. Existing research (IPSOS, 2015) demonstrates that nearly a third out of 1147 Dutch respondents would rather close all national borders for all forms of immigration. Immigration, therefore, seems to be a major issue according to a big part of the Dutch population. Accordingly, recent Dutch Lower Chamber elections in 2017 indeed indicate a strong growth for the political party that focuses attention mainly on refugees and the combating of immigration. This party, the '*Partij voor de Vrijheid*', nowadays holds 20 seats, making it the second largest Political party in the country. Another reason for investigating the effect of immigration on happiness in the Netherlands is because this research could have different outcomes in the Netherlands than it did in Europe (Betz & Simpson, 2013) or Germany (Akay et al., 2014; Akay et al., 2017). For example, the distribution of immigration flows towards the Netherlands and country-specific characteristics as culture and integration policy might differ from Europe and Germany.

This research is the first to explore whether this effect depends on the native's attitude towards immigration. Existing literature hardly looked at moderators in the investigation of the relationship between immigration and the happiness of natives. Investigating attitude and immigration as a moderator can provide new insights into the relationship between immigration and the happiness of natives. The moderator analyzes whether or not the effect is different for natives with a certain attitude towards immigration. The second research question can be posited as follows:

*Is the effect of immigration on the happiness of natives more positive or less negative for people who favor immigration more?*

Research on this topic could help to provide a more comprehensive understanding of the consequences that immigration might have for Dutch natives. The scope of this research remains limited on migration towards the Netherlands, but does include all different forms of migration. The findings in this paper could be helpful as a guideline to provide substantiated answers to questions that now mainly are answered based on intuition and personal opinions. Moreover, detailed information and insights on this relationship can, for example, provide a better understanding of political issues in the Netherlands. Based on the findings in this paper it will be possible to determine whether the position of the '*Partij voor de Vrijheid'* can be accepted and that it is indeed beneficial for Dutch natives to focus on combating immigration. Therefore, the findings in this paper could especially be valuable to Dutch policymakers while formulating Dutch policies on immigration. They could present valuable statements and provide advice on this issue to the Dutch government. For example, results presented in this paper might be an indicator to review the existing policy on immigration. Data concerning happiness and the attitude

towards immigration of Dutch natives were obtained from the European Social Survey over several years and data on immigration is received from the Central Bureau for Statistics in the Netherlands. By combining these datasets, this paper seeks to answer the research questions that are stated above.

The remainder of this paper will be structured as follows: Chapter 2 discusses the literature and contains a theoretical framework. Chapter 3 describes the methodology and the data acquirement of this paper. Thereafter, Chapter 4 presents the analysis of the data. Chapter 5 concludes all findings. At last, in Chapter 6 a discussion is presented and the limitations and recommendations of the research are mentioned.

# 2. Literature Review

This literature review has the following structure: first, an explanation of the concept of happiness is provided and subsequently, different types and reasons for migration are discussed. Next, the immigration situation in the Netherlands is highlighted and an overview of existing literature on the relationship between happiness and immigration is provided. Lastly, the influence of attitudes towards immigration on this relationship will be discussed and hypotheses are formulated.

## 2.1 Happiness

Veenhoven (2010, p.611) defines Happiness as*: "the 'overall enjoyment of one's life as-a-whole'. This encompassing judgment is based on both affective and cognitive appraisals of life".* Happiness is part of the broader concept of subjective well-being. Subjective well-being is closely related to overall life satisfaction as it describes to what extent people appreciate their lives (Diener, Suh, & Lucas, 1999) Happiness and subjective well-being, however, are often used interchangeably and are remarkably similar.

Obviously, people tend to aspire to a high degree of happiness, but obtaining these higher levels of happiness or subjective well-being remains complicated. To better understand the concept of happiness, it is useful to first understand how happiness arises. The paper of Lyubomirsky, Sheldon and Schkade (2005) indicates that Happiness consists of three different variables. The first variable is a point in happiness that is unmodifiable. This means that a part of happiness is heritable and is genetically predetermined. However, it seems difficult to give an accurate estimate of this percentage, but several studies succeeded in their attempt to estimate a credible percentage. Lyobomirsky et al. (2005) state that the predetermined genetic part of happiness is estimated at around 50% on average. However, this percentage is an estimate and differs for individuals. Corresponding with these findings, Lykken en Tellegen (1996) estimated that genes and personality account for approximately 50% in the deviation of one's individual level of happiness. Furthermore, De Neve, Christakis, Fowler and Frey (2012), found that one-third of the difference in one's happiness is inheritable and genetically established. Taking this together, it becomes evident that a major part of happiness is stable. In this paper and corresponding with, Lyobomisrky et al. (2005), the assumption is made that this proportion, on average, lies at 50%. In the literature, this is often called the set-point theory, which implies that a part of one's happiness is constant and that this restores to a certain level, even after events that have a major impact in life, both positively and negatively (Brickman, Coates, & Janoff-Bulman, 1978).

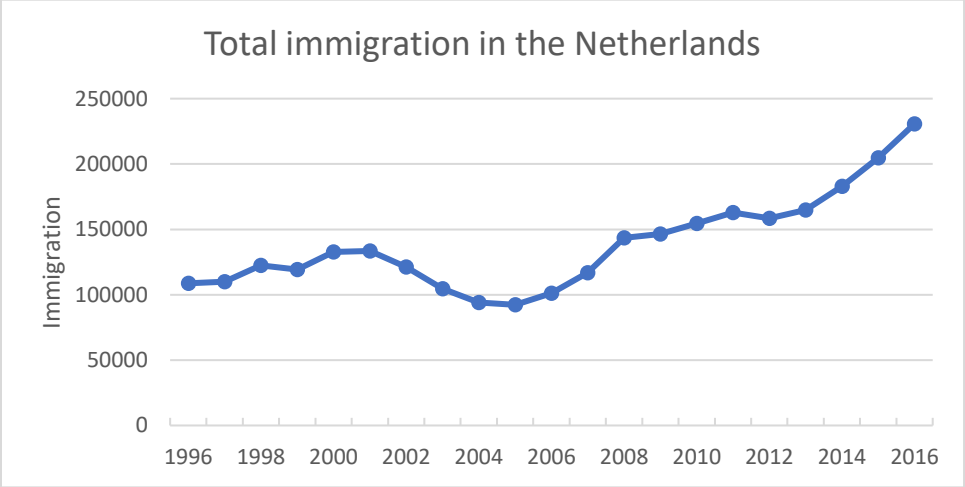
Apart from genes and personality that determine half of one's individual level of happiness, the other 50% can be influenced by circumstances and intentional activities, accounting for approximately 10% and 40% of the variance in happiness levels respectively (Lyubomirsky et al., 2005). Intentional activities can be divided into 'behavioral', 'cognitive' and 'volitional' activities. This includes, for

example, being nice to each other or attempts to achieve personal goals. Additionally, a recent research in Germany showed that spending time on activities like sports, vacation and meeting friends, indeed has a positive impact on happiness (Schmiedeberg & Schröder, 2017).

Circumstances contain both economic and social factors. Research (Diener, Diener and Diener, 1995) revealed that income and hence economic security is a consistent and significant factor that acts as a main predictor of subjective well-being in 55 countries. Happiness, in this study by Diener et al. (1995) was referred to as subjective well-being. In line with this finding, Lelkes (2006) states that income positively influences happiness. An obvious reason why income can be a determining factor for happiness is that more monetary resources make it easier to achieve certain goals, which positively influences the level of one's subjective well-being (Emmons, 1986). Lelkes (2006) also found that involuntary unemployment has a negative impact on happiness.

Besides these economic factors, research shows that social factors also account for happiness. For instance, Social Cohesion, consisting of 'Social Relationships', 'Connectedness' and 'Focus on the Common Good', fosters subjective well-being, especially in wealthy European countries (Delhey & Dragolov, 2016). The study of Pinquart and Sörensen (2000) also highlighted the importance of maintaining social relationships as a contributor to subjective well-being.

## 2.2 Immigrants in the Netherlands




*Graph 1: Total immigration trend in the Netherlands over time.*

Immigration can be defined as the movement of people from their country of origin towards an unfamiliar residence in another country establishing a new living environment (Bamwesigye, Dolgosova, Lahai, & Mahmoud, 2015). In order to give a more concrete and clearer overview of the influx of immigrants in the Netherlands, figures of the past 20 years are reviewed (CBS, 2017). The information in Graph 1 shows the total immigration in the Netherlands over time. From the year 1996 immigration gradually increases, after which it starts to decline in the year 2001. The lowest point is reached in the year 2005, in which only 92,297 immigrants entered the Netherlands. Subsequently, a

strong increase in immigration is visible in the last decade. This corresponds to the changing political situation worldwide and the increasing immigrant 'problem' in Europe. Moreover, it is noteworthy that in the year 2016, the total number of immigrants (230,739) is more than twice as large as the number of immigrants in 2005.

There are several reasons why people decide to migrate. Although the reasons for immigration can vary widely among people, Bartram (2011) indicates that migration depends on certain push and pull factors. The biggest distinction can be made between voluntary and involuntary immigration.

Reasons for voluntary immigration vary widely. People generally migrate because they expect to find more happiness or more (economic) opportunities elsewhere. In addition, better living conditions (Castles, 2010), including economic welfare and political stability, are factors that have great appeal to immigrants (Eurostat, 2017). Family reunification includes bringing a partner and children to the host country and appears to be an important reason for migration, as explained by Rath (2009).

Involuntary immigration reflects a forced move from one country to another and may take various forms that are discussed by Castles (2003). As explained by Castles (2003), forced immigration includes refugees and asylum seekers. Moreover, to this group belong also immigrants that have to leave their country due to environmental reasons such as natural disasters. Conflicts in Syria, Afghanistan and Iraq are a major reason for immigration to Europe. These conflicts contributed to approximately 1.2 million asylum applications in Europe in 2015, which is twice as much as the previous year (Eurostat, 2018). This demonstrates that global political unrest further increases the influx of immigrants towards developed European countries and therefore in the Netherlands.

To expand on the different reasons for migration that were discussed earlier, Table 1 provides detailed information concerning the migration reasons to the Netherlands (CBS, 2018). To be qualified as an immigrant, these persons must be registered in the municipal population registers. Some immigrants however, do not need a reason to migrate. As can be seen in Table 1, this applies to a large group. This group includes, for example, persons of Dutch nationality who settle in the Netherlands again, after a previous departure from the Netherlands to another country. Furthermore, as Rath (2009) already indicated, '*Family reunification'* is another major reason for migrating to the Netherlands. Under the heading '*Other and unknown'* fall those people who, for example, come to the Netherlands for medical treatment.

Focusing on the last decade, and comparing the year 2006 to the year 2016, the distribution of the categories remains relatively the same. However, two large differences are outstanding when comparing these years. On the one hand, a large decrease in immigrants who do not need a migration reason is visible. On the other hand, Table 1 provides strong evidence that the number of asylum seekers and refugees has increased greatly and became a major reason for migration to the Netherlands. In the Netherlands, the largest refugee group have Somali, Syrian Iraqi or Afghan origins (CBS, 2016).

Correspondingly, refugees and immigration take their position at the top of the Dutch political agenda and have become a highly debated topic.

*Table 1: Immigration in the Netherlands: Migration reason*

| | **2000** | **2006** | **2016** |
|---|---|---|---|
| **Labor** | 14,435 | 12,825 | 33,975 |
| | 10.6% | 12.2% | 14.6% |
| **Asylum Seekers** | 14,285 | 1,570 | 33,850 |
| | 10.5% | 1.5% | 14.6% |
| **Family reunification** | 42,410 | 29,280 | 60,200 |
| | 31.3% | 27,9% | 26.1% |
| **Study** | 9,595 | 12,510 | 21,755 |
| | 7.1% | 11.9% | 9.4% |
| **No migration reason** | 44,225 | 36,800 | 48,950 |
| | 32.6% | 35.1% | 21.2% |
| **Other/Unknown** | 10,640 | 12,000 | 32,503 |
| | 7.9% | 11.4% | 14,1% |
| **Total** | 135,595 | 104,985 | 231,225 |
| | 100% | 100% | 100% |

Ethnic diversity and migration are strongly related to each other. Particularly immigration from Non-Western countries increases the ethnical diversity, as many of these migrants bring a different culture to the host country. According to the Central Bureau of Statistics, the largest Non-Western groups come from Turkey, Morocco, Suriname, and the Antilles. Looking at the groups with a Western background, Indonesia, Germany, Poland and Belgium represent the largest groups. The degree of immigration in the Netherlands has been above average in the last years and recent figures representing the population, generation, gender age and migration background for the Netherlands show that the number of people with a migrant background (both first and second generation) has strongly increased in the last decades (CBS, 2018). Overall, this makes the Netherlands well known for its multiculturalism (Entzinger, 2014).

## 2.3 How can immigration affect Happiness?

The academic literature states that the different factors related to immigration can affect the subjective well-being of natives both negatively and positively. Therefore, the following section is subdivided into two different categories namely (2.3.1) the negative factors- and (2.3.2) the positive factors of immigration that might affect the happiness of natives. This section provides an overview of these different factors and debates whether to expect a positive or a negative effect.

### 2.3.1 Negative Factors

The major factors found to have a negative influence on the happiness of natives will be divided into the following three subjects: Labor Market Competition, Sociocultural Factors and Safety and Trust.

#### *2.3.1.a Labor Market Competition*

Existing research (Angrist, & Kugler, 2003) have examined the effects of immigration on native employment rates. This paper suggested that a 10% growth in immigration would decrease the native employment rates with 0.2-0.7 percentage points in European Countries. Moreover, findings in the research of Aydemir and Borjas (2007) in the United States and Canada show that a high availability of migrant workers will bring down wages. This effect is expected to be similar in Europe. In 2012, however, Manacorda, Manning, and Wadsworth found that especially the wages of immigrants who are already in the host country are most affected by the influx of even more migrants. Especially low and secondary educated Europeans experience labor market competition with immigrants and believe that their own economic position is at stake. The International Organization for Migration (2015) reported that 18 percent of low-skilled Europeans have the perception that immigrants thieve available jobs. For Europeans with some secondary education, this percentage stands at 19 percent. This percentage is somewhat lower for highly educated people, namely 16 percent. Particularly for the Netherlands, it turns out that Dutch employees are – especially in times of economic crisis – afraid of displacement on the labor market by migrants. However, research in Germany (Pischke, & Velling, 1997) confirms that immigration does not necessarily lead to the displacement of natives. As has been noted, this problem seems to be smaller in practice and seems to be an issue in the lowest salary grade particularly (Altonji & Card, 1991). However, the belief that job security is at risk could entail greater stress levels for natives, highly affecting their happiness (Schiffrin & Nelson, 2010).

#### *2.3.1.b Sociocultural Factors*

Growing immigration in developed countries enlarges ethnic diversity (Putnam, 2007). By means of integration with immigrants from different cultural backgrounds, the culture of the host country can be modified. Although integration can occur without obstacles, Constant, Kahanec, and Zimmermann (2009) describe that cultural differences can bother the integration process and can result in friction between immigrants and natives. Accordingly, it is reasonable that some immigrants follow different cultural and moral standards that could interfere with Dutch standards. Especially migrants from Non-Western backgrounds are involved in bringing different cultures to Western countries such as the Netherlands. By way of example, different religions have different sets of rules. If one does not understand this, incomprehension arises and opinions may clash. Misunderstanding and communication problems further increase if the immigrants lack certain skills and do not have a command of the language in the host country (Pfaff, 1981). Existing research (Okulicz-Kozaryn, 2010) has looked at whether people experience higher or lower levels of happiness in a society that has different religions. This paper revealed that people experience, on average, lower levels of happiness in societies that are religiously diverse. Besides the negative contributions of immigration in the Netherlands, migrants can also positively influence the socio-cultural environment, for example by introducing foreign cuisines.

Netherlands is considered as a welfare state, meaning that there is a strong social security system which serves as a safety net for its inhabitants. It appears that immigrants are more often unemployed than Dutch natives (CBS, 2017), and that immigrants are relatively easily included in this Dutch social system, often to the annoyance of Dutch natives. Especially low-educated immigrants are eligible for assistance and allowances. Currently, researcher van de Beek, examines the actual costs of increasing immigration in the Netherlands (Duk, 2017). His preliminary results suggest that mass immigration indeed is a major source of costs in the Netherlands. However, his research will be published this autumn. Additionally, Van Oorschot (2006) explains that in Europe, natives consider immigrants as the least deserving of the treatments in the social security system. Therefore, it becomes apparent that natives consider the social support for immigrants as a negative factor. According to natives, elderly, sick and disabled people deserve the social safety more.

#### *2.3.1.c Safety and Trust*

Various studies in the UK discuss the influence that migrants can have on neighborhoods. Because the situation in the UK is comparable to the Netherlands, a similar effect is expected to occur in the Netherlands. Robinson and Reeve (2006) investigated the effect of immigration on experiences in neighborhoods in the UK. Immigrant groups often live at locations that are inferior and where there is relatively low cohesion. Mainly in neighborhoods with a high degree of minority ethnic immigrants, injustice and assaults occur more often (Robinson, & Reeve, 2006). More recently, Letki (2008) has examined the effects of diversity on social capital in neighborhoods in the United Kingdom. This study shows that higher diversity in a certain neighborhood negatively impacts the attitudes towards fellow neighbors. Moreover, these residents have less confidence in their neighbors and experience lower rates of trust-feelings in their living areas. This is a remarkable finding, given the fact that this research did not show that people in highly diverse neighborhoods communicate less or avoid each other. Letki (2008) questions whether this negative effect can be explained by the important role that the media plays nowadays. In regard to the media, Robinson and Reeve (2006) show that media indeed play a crucial role in developing prejudices that can result in increasing the tension between immigrants and natives. Recently, Unnever (2018) investigated the relationship between immigration and crime in the Netherlands. Unnever (2018) collected information from different sources and found that ethnic groups, in comparison with Dutch groups, were more involved with crime. However, this paper also highlights that immigrants in the Netherlands have a higher prevalence of getting involved with the police, due to their lower socioeconomic status in comparison to their Dutch counterparts.

### 2.3.2 Positive Factors

The previous paragraphs emphasized the negative side of immigration for the natives of a country. However, immigrants can also contribute to society and increasing immigration can have a positive influence on the happiness for the residents in the host country. These positive factors can be divided into Altruism and Economic Contributions.

#### *2.3.2.a Altruism*

Immigrants in the Netherlands are often looking for better living conditions and better prospects. By allowing immigrants, Dutch natives may feel that they are helping someone in need. Opportunities are offered and these immigrants can start new lives in the Netherlands. This concept can be described as altruism and includes helping and doing-good behavior. One's happiness, in the next studies referred to as subjective well-being, might be affected by altruism. Post (2005) states that altruism is a factor that can positively predict one's subjective well-being. More specifically, Ricard (2017) reported that altruism is an urgent factor in achieving higher levels of subjective well-being, both for the one who helps, as well as for the one who is helped.

#### *2.3.2.b Economical Contribution*

Existing research (Putman, 2007) states that an increase in the influx of migrants contributes to economical advancements in the host country and even boosts the national income. Research on the influence of A8 immigrants[2] in the UK (Dustmann, Frattini, & Halls, 2010), shows that immigrants can contribute to the fiscal system of a country. This study shows that A8 immigrants have a lower wage position, but that this wage position is increasing over the years. The initial wage position of this group can imply that immigrants contribute little to the fiscal system in comparison with natives. Yet this study presents that this smaller contribution is compensated by a higher degree of participation, employment and lower governmental payments. Eventually, this study reveals that A8 immigrants in the UK have a positive net influence on the Tax System in the United Kingdom.

Looking at cultural diversity in the workplace, one can state that diversity will offer a number of advantages (Jayne & Dipboye, 2004). As a result of the influx of people from other countries in the Netherlands, the Dutch pool of talent is becoming more diverse. Moreover, the range of different qualities and skills is increasing and ensures that this Dutch talent pool has never had greater potential (Cady & Valentine, 1999). Diversity programs, focusing on enhancing diversity in an organization, can facilitate organizations in the acquiring of people who possess the necessary knowledge, talent and skills that were lacking in the workplace.

Moreover, Jayne and Dipboye (2004) also found that diversity increases the integrity of the achievements of the organization. Cady and Valentine (1999) examined the effects of cultural diversity on innovation by gathering information about fifty different teams in an organization. Interestingly, they found that cultural diversity in the workplace increases the quantity of innovation. New ideas arise more often due to a different way of thinking among cultures. Likewise, high diversity also ensures higher levels of creativity (Andersson, Quigley, & Wilhelmsson, 2005). Moreover, ethnic diversity in groups also increases the effectivity and feasibility of new ideas (McLeod, Lobel, & Cox, 1996) and additionally, Saxena (2014) states that multicultural organizations outperform other organizations in

[2] From eight out of the ten countries that were included in the European Union in 2004

problem-solving. Additionally, the broad study of Hu and Kuh (2003) on undergraduate students revealed that being exposed to higher levels of diversity increases the self-reported scores on learning and social development.

Several studies (Saxena, 2014; Trax, Brunow and Suedekum, 2015) investigated the effect of diversity on productivity. Saxena (2014) revealed that a diverse workforce, including cultural diversity, will definitely increase the productivity of an organization conceding that the workforce diversity is managed well. Trax, Brunow and Suedekum (2015) state the following: "*The diversification of the foreign employees with respect to their nationalities, however, increases the total factor productivity in German manufacturing plants. In addition, there are positive and economically significant spillover effects stemming from the regional diversification of the workforce*" (p. 94). More specifically, Peri (2012) examined the effect of immigration on productivity and reported that immigrants significantly increase productivity, consistent with previous findings.

Immigrants hope to find a job in another country relatively fast. However, the Central Bureau of Statistics (2017) reported that 13.2% of the people with a Non-Western migration background in the Netherlands were unemployed in 2016. This unemployment rate is higher for immigrants than for natives. This is comprehensible because of their language proficiency, traumas and long asylum procedures that play key roles in explaining their poor labor market position. As discussed in section 2.3.1.*a*, labor market competition can arise due to increasing immigration, especially in the lowest salary grade (Altonji & Card, 1991), but this does not mean that immigrants lead to the displacement of natives (Pischke & Velling, 1997). Instead, immigrants can even help bridge a gap in the labor market since Dutch people are better positioned in the labor market. As employment is low, immigrants will sooner settle for jobs that are not preferable in the first place. These jobs are often undesired by Dutch natives as well. Figures concerning this phenomenon in Europe show that 38% of the people with lower education believe that immigrants take jobs that natives do not want. For secondary and highly educated Europeans, these percentages stand respectively at 50% and 55% (International Organization for Migration, 2015).

### 2.3.3 The Balance

These factors show that increasing immigration, and thus growing diversity, can have both positive and negative effects on happiness. Some factors are mainly concerned with economic consequences and the workplace whereas the other factors emphasize the differences in culture, religion, values and all that this implies. However, as a considerable amount of literature has been published on these different factors, it is still a challenge to precisely predict the influence of immigration on the well-being of Dutch natives. To make an explicit prediction, one must take stock of these factors and estimate which factor weighs more. In the last years, a strong shift in the political preference of Dutch natives has become visible and especially the discussion on immigration currently is a sensitive issue in the Netherlands.

While discussing the economic factors in detail, it becomes evident that immigrants can contribute to happiness in the Netherlands. The negative economic impact that immigration may cause seems reasonable and appears to be smaller than is generally believed. Considering the non-economic factors, it becomes apparent that increasing diversity might create misunderstandings, but still can have its advantages. Considering the case of Safety issues, it is possible that the role of the media negatively strengthens the perceptions of natives, leading to prejudiced opinions. Moreover, as previously discussed, altruism is perceived as an urgent factor in increasing happiness. Therefore, the expectation was made that Dutch natives highly benefit from doing-good behavior, which is, in this case providing opportunities to immigrants. Taking this together, the expectation is that the positive contributions of immigration outweigh the negative factors. Accordingly, the first hypothesis can be posited as follows:

*H1: Immigration positively affects the Happiness of Dutch Natives*

Though, this prediction will not be substantial for all natives and may vary widely among population groups due to different opinions about immigration. Therefore, the next section discusses the effect of one's attitude towards immigration on this relationship in order to give a better estimate of this prediction.

## 2.4 Attitudes towards Migration

In the previous section, the potential impact that immigration can have on the happiness of natives was discussed extensively. The individual attitudes towards immigration vary widely. There are various causes for this. Hainmueller and Hiscox (2007), for example, examined the determinants of the individual attitudes towards immigration across Europe and revealed that the educational level of natives is very decisive for a person's attitude towards immigrants. Natives with a higher educational level and better professional skills generally have a more favorable attitude towards immigration. This is the case irrespective of the competences of the immigrant. Lower educated natives with fewer skills have a more negative attitude towards immigrants. This can be explained because low-educated natives experience the highest degree of competition with immigrants on the labor market. Therefore, it stands to reason that there is a connection between competition on the labor market that mostly occurs at the lowest education levels and the intensified individual attitude towards immigrants. However, Hainmueller and Hiscox (2007) simultaneously question if the connection is that strong and if further factors play a more substantive role as explained in their research. Meanwhile, O'Rourke and Sinnot (2006) did found proof that natives with a higher level of education have a more favorable attitude towards immigration than their lower educated counterparts. Therefore, it can be considered that natives with a lower educational level feel more threatened by immigrants than those with a higher level of education, using this as an argument to establish their individual attitude.

Not only the perceived labor market competition plays a role, Hainmueller and Hiscox (2007) found evidence that the connection between the attitude towards immigrants and the educational level of

natives is explained by the different perceptions about culture and diversity. Lower educated natives consider cultural diversity to be less important than higher educated natives. Moreover, lower-educated natives are less likely to believe that immigration can be beneficial for the economy of their country in comparison with their high-educated equivalents.

Other than education and cultural beliefs, age is also involved in shaping an individual attitude towards immigration. O'Rourke and Sinnot (2006) found that older natives are more opponent towards immigrant than younger natives. They indicate that there are two different reasons for this: if pension benefits are linked to the wages in a country, then it is possible that the current wages are decreasing as a result of increased immigration. Subsequently, the pension benefits of the elderly will decrease. Another reason for age to be a determinant factor in forming an attitude towards immigration, is that older natives often hold more traditional and cultural values than younger natives. Therefore, it is possible that older natives are more conservative with respect to immigration.

Taking this together, it is expected that natives with a strong attitude towards migration will be somewhat prejudiced, this can occur both positively and negatively. However, the disadvantages of immigration are genuinely more applicable to individuals with a negative attitude. For example, less qualified people hold a negative attitude towards immigration more often, since the drawbacks of immigration regularly apply to this group. On the contrary, the benefits of immigration apply mainly to individuals who favor immigration as is the case with higher educated natives. As a result, it is expected that natives will be somewhat biased in their experiences with immigrants. Therefore, the assumption can be made that this works as a so-called 'self-fulfilling prophecy'. Natives with a negative attitude towards immigration may be tempted to focus more on the downside of immigration, whereas the expected effect for natives with a positive attitude will be reversed. To investigate whether the effect of immigration differs for natives with a certain attitude towards immigration, the second hypothesis is being examined:

*H2: The effect of immigration on the happiness of Dutch natives is stronger for natives with a positive attitude towards immigration*

# 3. Data & Methodology

This section introduces the two empirical models that are used to answer both research questions in this paper. Furthermore, the process of gathering specific data from different surveys is described and a detailed description of all constructs that were included in the empirical models is presented.

## 3.1 Empirical Models

### 3.1.1 Empirical Model 1

To investigate the impact of immigrant flows on the happiness of natives, an Ordinary Least Squares fixed effects regression is used to analyze the dataset. The empirical model that is used to answer the first research question is specified as follows:

*Empirical Model 1:*

$$Happiness_{i,p,t} =$$

$$\alpha + \beta_1(lagged\ immigration_{i,p,t-lag}) + \beta_2(age_{i,p,t}) + \beta_3(age^2{}_{i,p,t}) + \beta_4(D.gender_{i,p,t}) +$$
$$\beta_5(D.education\ level_{i,p,t}) + \beta_6(D.partner_{i,p,t}) + \beta_7(D.children\ at\ home_{i,p,t}) +$$
$$\beta_8(religiosity_{i,p,t}) + (timeFE_t) + (provinceFE_p) + \varepsilon_{i,p,t}$$

In this model, the dependent variable is 'happiness', containing information on the self-reported happiness for respondent *i* in province *p* at time *t*. Time *t* is also referred to as 'year of the interview', representing the relevant survey round. The main independent variable is *lagged immigration*$_{i,p,t\text{-}lag}$, which represents the size of the immigration inflow in (*t-1*) and (*t-2*). Lagged variables are included for two reasons, following Betz and Simpson (2013). First, it allows for identifying causality, i.e., whether a change in immigration in a given year affects the happiness levels of natives in the following year or the year thereafter. Second, a large part of the effect of immigration inflows on the happiness of natives is not immediately visible for natives, but will often only affect natives after a certain period of time has elapsed. For example, it may take a while until an immigrant has found work and will start making any contribution (or an obstruction) to his environment and eventually to the Netherlands as a whole. By introducing two lags, it is possible to identify how immigration inflows affect natives in each of the two following years and to identify differences between the two years.

### 3.1.2 Control Variables

As in similar studies (Betz & Simpson, 2013; Akay et al., 2017), various control variables are included in the empirical model to control for individual characteristics. In the empirical model that is specified earlier, these are the variables $\beta_2$ to $\beta_8$. Including control variables ensures more accurate results, as the goals are to extract the potentially confounding effect that these variables have on happiness. Based on availability in the dataset, it has been decided to include the following seven control variables in both empirical models: age, age², gender, education level, living with a partner, children at home and

religiosity. Another reason why these seven variables are included in particular is that these variables are not strongly influenced by immigration flows, but these variables can lead to differences in the level of happiness between survey rounds.

For example, it can occur that more men than women are available in one survey round. By adding gender to the regression as a control variable, the noise is then removed without blocking an important mechanism by which immigration influences the level of the happiness of natives. Differences in the distribution between males and females are only problematic if there is a difference in happiness between these two sexes.

The paper of Gerdtham and Johanesson (2001) investigated the relationship between happiness and other socio-economic factors and is therefore very useful when discussing these control variables. Age is included in the regression as a continuous variable to declare the relationship between age and happiness. However, Gerdtham and Johanesson (2001) explain that the relationship between age and happiness usually is U-shaped. Therefore, the variable ($age^2/100$) was generated and included in the model. In this sample, natives experience the unhappiest feelings in the age group of 45 to 64, this corresponds with the findings of Gerdtham and Johanesson (2001).

Furthermore, as reported in the paper of Gerdtham and Johanesson (2001), education is positively related to the level of a person's happiness and is therefore included as a control variable with three categories (Primary, Secondary and Tertiary education). Living with a partner and living with children both have a positive effect on the dependent variable, happiness. Therefore, these aforementioned variables are both included as dummy-variables in the model (Gerdtham & Johanesson, 2001; Angeles, 2010). Similarly, as in the research conducted by Betz and Simpson (2013), it has been decided to include the variable religiosity in the model. The research of Ellison (1991) states that the more someone is involved with religiosity, the higher the level of a person's subjective well-being will be.

Other than Betz & Simpson (2013), it was chosen not to include income as a control variable. The reason for this is that the influx of immigrants affects the income of natives. If income were included in the model, an important path from immigration to happiness will be blocked. This mechanism works, for example, in the following way: as immigration flows increase in a country, these immigrants will start looking for a job. Therefore, labor market competition increases as a result of immigration inflows. This can result in the natives' income to be negatively affected by immigration flows. On the other hand, it is also possible that the inflow of immigrants actually ensures economic growth in a country, which in turn leads to increasing wages. Moreover, also health was not included in the base model, in contrast to the empirical strategy of Betz & Simpson (2013). With the robustness checks in chapter 4, both income and health will be included in a more extensive model.

### 3.1.3 Fixed Effects

Lastly, the year of the interview and the province on the NUTS2 level are included as time and region fixed effects in the first empirical model, the year of the survey round is included as time fixed effects, to control for the time trend that applies to the Netherlands while taking the level of happiness into consideration. This can be clarified in the light of a particular example: experiencing an economic crisis for a country. Due to the impact of an economic crisis, modifications in the happiness level of natives may occur. By including the year as time fixed effects, it is possible to control for the impact that an economic crisis can have on the happiness level of Dutch natives over time.

Because only data on the NUTS2 level is available throughout the whole dataset, it has been decided to include regional fixed effects in the model, based on the twelve Dutch provinces. Including region fixed effects allows controlling for differences in the happiness level of natives between provinces in a given year. The strategy in this paper is aimed at isolating the connection between changes in the happiness level of natives and immigration flows within the Dutch provinces.

### 3.1.4 Empirical Model 2

To answer the second research question, "attitude towards immigration" is added to the empirical model. To examine the moderating effect of this variable, (*lagged immigration) * attitude towards immigration* was included as an interaction term (moderator) in the existing model. Subsequently, the second empirical model is specified in the following way:

*Empirical Model 2:*

$$Happiness_{i,p,t} =$$

$$\alpha + \beta_1(lagged\ immigration_{i,p,t-lag}) + \beta_2(attitude\ towards\ immigration_{i,p,t}) +$$
$$\beta_3(attitude\ towards\ immigration_{i,p,t} * lagged\ immigration_{i,p,t-lag}) + \beta_4(age_{i,p,t}) +$$
$$\beta_5(age^2{}_{i,p,t}) + \beta_6(D.gender_{i,p,t}) + \beta_7(D.education\ level\ _{i,p,t}) + \beta_8(D.partner_{i,p,t}) +$$
$$\beta_9(D.children\ at\ home_{i,p,t}) + \beta_{10}(D.religiosity_{i,p,t}) + (timeFE_t) + (provinceFE_p) + \varepsilon_{i,p,t}$$

## 3.2 Datasets

In order to answer the two research questions, data on both happiness, attitude, immigration and all control variables were needed. Data on Happiness, attitude and all control variables come from the results of the European Social Survey. Dutch figures on immigration come from the StatLine dataset provided by the Dutch Central Bureau of Statistics. After inspection of both datasets, the immigration data is merged with the eight survey rounds of the European Social Survey. It was important that both lagged immigration variables were carefully linked to the relevant year and survey round.

### 3.2.1 European Social Survey

The primary source of information in this research is the dataset that is obtained from the European Social Survey. The European Social Survey (ESS) is an academically driven cross-national survey that is launched every two years, starting with the first round in 2002, followed by 8 rounds until the year 2016. The main goal of the ESS is to collect information over more than 20 European countries on various social topics. Since this research is interested in the happiness of Dutch natives, only data that is collected in the Netherlands is being considered. In total, 15.186 Dutch respondents completed the European Social Survey over eight different rounds. An overview of the exact survey questions and more detailed information about all variables are included in Appendix A.

It is hard to develop an accurate measure of happiness since happiness is a subjective variable that cannot be observed. In this paper, happiness is measured by someone filling in their self-reported score on happiness. The following question in the European Social Survey is used:

- Taking all things together, how happy would you say you are?

Respondents answered this question on an 11-point scale (0 represents '*extremely unhappy'* and 10 stands for '*extremely happy'*).

Questions on the attitude towards immigration are also included in the European Social Survey. In particular, the following two questions are involved in constructing this variable:

- To what extent do you think [*The Netherlands*] should allow people of the same race or ethnic group as most [*Dutch*] people to come and live here?
- How about people of a different race or ethnic group from most [*Dutch*] people?"

Both questions can be answered according to the following scale: Allow many to come and live here – Allow some – Allow a few – Allow none – Refusal – Don't know – No answer.

In order to give a complete picture of a natives' attitude regarding immigration, it has been decided to combine these variables in order to provide a complete insight into someone's attitude towards all forms of immigration. These variables use a 4-point scale where 1 is the value: "*allow many to come and live here*" and the value 4 is: "*allow none to come and live here*". As a result of the merge of these two variables, values as 1.5, 2.5 and 3.5 are generated. These three values do not belong to a specific category. Intuitively, the variable was recoded so that the higher the value, the more positive one's attitude towards all forms of immigration is. Moreover, the original 1 to 4 scale of attitude was recoded to a continuous specification of attitude. This continuous variable is used as the comprehensive construct on attitude and now has a scale from 0 to 3. In the analyses, this continuous specification of attitude is being used. The process of recoding this variable is extensively described in Appendix A.

In order not to disrupt the results, it is crucial to guarantee that only information about natives is included and that information about non-natives is filtered out. Unfortunately, the ESS does not contain data asking directly if the respondent is native in the relevant country. Earlier research of Betz & Simpson (2003) uses a suitable strategy to determine whether one is selected to be included in the 'native'-group. This strategy is reproduced in this paper. In their research (Betz & Simpson, 2003), they used the following questions on citizenship to classify one as a native:

- Were you born in [*The Netherlands*]?
- Are you a citizen of [*The Netherlands*]?

In order to be classified as a native, it is required to answer 'yes' to both questions. As a result, 1,337 of the initial 15,186 respondents (8.8%), were classified as non-native and excluded from the dataset. 13,849 respondents remained in the dataset. Moreover, it was necessary to clean the data first before performing any analysis on various variables that were included in this dataset. Respondents who refused to give an answer to questions used in the analyses, or did not know the answer to a question, were excluded from the dataset. Apparently, this was only applicable for a few respondents. Some questions required somewhat personal information and not every respondent is willing to provide this information in a survey. For example, a person's attitude towards immigration can be seen as a private matter for respondents. In total, 462 respondents did not answer, did not know the answer or refused to answer at least once, and therefore were excluded from the dataset. After extensively inspecting the data, a total of 13,387 respondents were kept in the dataset.

Table 2 presents the number of observations, clustered by province (NUTS2) and the survey round. As can be seen in Table 2, the respondents are fairly evenly distribution over the various survey rounds.

*Table 2: Number of observations by province and ESS round*

| NUTS2 | ESS1 2002 | ESS2 2004 | ESS3 2006 | ESS4 2008 | ESS5 2010 | ESS6 2012 | ESS7 2014 | ESS8 2016 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Groningen** | 82 | 66 | 72 | 42 | 48 | 56 | 47 | 45 | 458 |
| **Friesland** | 105 | 81 | 73 | 70 | 76 | 66 | 74 | 85 | 630 |
| **Drenthe** | 59 | 57 | 54 | 53 | 46 | 62 | 65 | 51 | 447 |
| **Overijssel** | 162 | 132 | 119 | 110 | 132 | 115 | 116 | 109 | 995 |
| **Gelderland** | 256 | 206 | 209 | 196 | 205 | 213 | 217 | 216 | 1,718 |
| **Flevoland** | 44 | 33 | 36 | 35 | 22 | 20 | 50 | 28 | 268 |
| **Utrecht** | 157 | 111 | 122 | 129 | 126 | 135 | 116 | 99 | 995 |
| **Noord-Holland** | 308 | 242 | 271 | 245 | 261 | 271 | 253 | 205 | 2,056 |
| **Zuid-Holland** | 415 | 300 | 335 | 304 | 299 | 273 | 327 | 261 | 2,514 |
| **Zeeland** | 58 | 51 | 34 | 40 | 35 | 45 | 46 | 38 | 347 |
| **Noord-Brabant** | 306 | 251 | 219 | 214 | 243 | 259 | 238 | 243 | 1,973 |
| **Limburg** | 158 | 124 | 113 | 113 | 119 | 111 | 135 | 113 | 986 |
| **Total** | 2,110 | 1,654 | 1,657 | 1,551 | 1,612 | 1,626 | 1,684 | 1,493 | 13,387 |

### 3.2.2 StatLine

Data on Dutch immigration trends is obtained by using the StatLine dataset, which is the second main data source of this paper and is provided by the Dutch Central Bureau of Statistics. Extensive information about immigration in the Netherlands is reported over 28 years, starting in 1988 continuing until the year 2016. Since the first round of the European Social Survey starts in 2002, it is suitable to include information on immigration starting in 2000, taking both lagged immigration variables into account. In order to belong to the 'immigrant-group', these persons must be registered in the municipal population registers. An immigrant is registered in the municipal population registers if this immigrant expects to stay in the Netherlands for at least four months. People who do not legally reside in the Netherlands are not included in this dataset.

Information on the origin of immigrants is available on continent-level. Additionally, data is also available for some countries but is not complete. For example, data on immigrants from Morocco as the country of origin is collected precisely whereas the other countries in Africa are not included and are clustered under the general classification: 'Rest of Africa'. This StatLine dataset collected data on Dutch immigration on different regional levels and contains a distribution that is better known as the NUTS classification. NUTS is the abbreviation for the Nomenclature of Territorial Units for Statistics and differs for each individual country in the European Union. Three different NUTS levels are available. The Netherlands can be divided into four major parts of the country at the NUTS1 level. These parts consist of combining two or three existing provinces and are named after the cardinal directions: Northern, Eastern, Western, and Southern Netherlands. The regions at the NUTS2 level consist of the twelve provinces in the Netherlands. The most specific distribution can be found at the NUTS3 level, namely the 40 COROP regions. The classification of the Netherlands in these 40 areas is mainly done for analytical purposes.

It is most desirable to work with data as specific as possible. But based on availability, is decided to use the allocation on the NUTS2 level in this paper and to restrict this research on the 12 Dutch Provinces. In the first four rounds of the European Social Survey, extensive data on the NUTS3 level is available. However, from round 5, only data on the NUTS2 level is included in the survey. Immigration data is also available on all three NUTS levels. Because this research is interested in all eight rounds, it is necessary to include the last four survey rounds into the analysis. Therefore, this research is being forced to opt for a NUTS2 classification for both datasets.

## 3.3 Data Descriptives

Table 3 presents the variation in the average happiness and lagged immigration between the 12 Dutch provinces over eight survey rounds. Table 3 reveals that people are generally the happiest in Friesland (7.89) and Utrecht (7.85) in contrast to Zuid-Holland (7.69) and Flevoland (7.73), where people

experience the lowest levels of happiness. However, the average score on happiness is relatively high (7.78) in the Netherlands and does not differ much between the different provinces.

*Table 3: Average Happiness and Immigration sorted by NUTS2-level (Province)*

| NUTS2 Level | Average Happiness | Average Immigration (*t*-1) | Average Immigration (*t*-2) |
|---|---|---|---|
| **Zuid-Holland** | 7.69 | 36,973 | 36,032 |
| **Flevoland** | 7.73 | 10,962 | 10,606 |
| **Limburg** | 7.75 | 9,388 | 9,128 |
| **Noord-Holland** | 7.76 | 31,092 | 30,340 |
| **Drenthe** | 7.78 | 2,411 | 2,313 |
| **Zeeland** | 7.79 | 2,765 | 2,820 |
| **Noord-Brabant** | 7.80 | 17,922 | 17,070 |
| **Groningen** | 7.81 | 5,474 | 5,284 |
| **Overijssel** | 7.84 | 6,578 | 6,356 |
| **Gelderland** | 7.84 | 3,999 | 3,499 |
| **Utrecht** | 7.85 | 8,515 | 8,318 |
| **Friesland** | 7.89 | 3,388 | 3,643 |
| **Average** | 7.78 | 11,726 | 11,338 |

The right columns present the average lagged immigration for a particular province over the eight survey rounds both for the one-year lagged immigration variable as for the two years lagged immigration variable. There are great differences in the immigration numbers between the different provinces. The largest immigration flow took place in Zuid-Holland (39,973 and 36,032) and Noord-Holland (31,092 and 30,340) respectively, for both lagged variables on average. The provinces with the smallest influx of immigrants on average were Zeeland (2,765 and 2,820) and Drenthe (2,411 and 2,313) as reported in Table 3.

To get a better overview of the cumulative dataset over eight rounds in this paper, Table 4 presents a summary of the statistics of the various variables that are discussed in this paper. More detailed information about these variables, frequencies and their categories can be found in Appendix A.

*Table 4: Summary Statistics*

| **Variable** | **Mean** | **St.dev.** | **Min** | **Max** |
|---|---|---|---|---|
| **Lagged Immigration (*t*-1)** | 11,726 | 14.07 | 1,422 | 50,490 |
| **Lagged Immigration (*t*-2)** | 11,338 | 13.56 | 1,485 | 48,361 |
| **Age** | 50.25 | 17.79 | 14 | 97 |
| **Happy** | 7.78 | 1.36 | 0 | 10 |
| **Religiosity** | 4.62 | 3.07 | 0 | 10 |
| **Male** | 44.9% | 0.50 | 0 | 1 |
| **Educational level** | 1.87 | 0.83 | 1 | 3 |
| *Category 1: Primary Education* | 41.9% | | | |
| *Category 2: Secondary Education* | 29.8% | | | |
| *Category 3: Tertiary Education* | 28.8% | | | |
| **Lives with Partner** | 61.6% | 0.49 | 0 | 1 |
| **Has Children at Home** | 32.7% | 0.47 | 0 | 1 |
| **Wave** | 2008.69 | 4.67 | 2002 | 2016 |
| **Attitude Same Race** | 2.26 | 0.76 | 1 | 4 |
| *Category 1: Allow many* | 12.9% | | | |
| *Category 2: Allow some* | 54.1% | | | |
| *Category 3: Allow a few* | 26.7% | | | |
| *Category 4: Allow none* | 6.3% | | | |
| **Attitude Different Race** | 2.37 | 0.79 | 1 | 4 |
| *Category 1: Allow many* | 10.8% | | | |
| *Category 2: Allow some* | 50.0% | | | |
| *Category 3: Allow a few* | 30.6% | | | |
| *Category 4: Allow none* | 8.6% | | | |
| **Attitude towards Immigration** | 1.68 | 0.74 | 0 | 3 |

# 4. Results

The first research question of this paper investigates whether the level of happiness of Dutch natives is altered when the influx of immigration fluctuates in a given province of the Netherlands. To find the answer to this research question, the first empirical model that was specified in Chapter 3 has been used. In this model, happiness is the dependent variable and lagged immigration variables the independent variables. Three Ordinary Least Square Regressions were run, one on each lagged variable separately and one additional regression when both variables are included in the model at the same time. This enables the possibility to identify differences between the lagged immigration variables. Moreover, the aggregated effect of both lagged variables is examined. After that, the second empirical model addresses the second research question. Lastly, several robustness checks have been performed on both empirical models, to see whether the results remain stable if the models are specified in a different way. In this research, all standard errors in the regressions are clustered by region (province). This is done since the immigration variables only change according to the corresponding province and year, while happiness contains data that varies per individual within provinces over time.

## 4.1 Effect of immigration on the happiness of natives

### 4.1.1 Main Results

Table 5 presents the results of the regressions that include both lagged variables on immigration. However, in the regression, the original immigration number is used and divided by 1000 to consider immigration in thousands and to simplify the interpretation. The results in Table 5 are divided into two different sections: Immigration variables and Individual control variables.

As can be seen in Table 5, both immigration variables hold a positive coefficient. Moreover, the coefficient of the one-year lagged variable is slightly smaller than the two years lagged variable on immigration. However, there is hardly any difference between the two variables. As can be seen in Table 5, an increase of 1000 extra immigrants in the previous year, leads to an increase of 0.0046 on the happiness level of natives today in a given province, ceteris paribus. If the immigration took place two years ago (*t*-2) and when all other factors are kept equal, then the present happiness level of natives will increase with 0.0050. Presumably, the two immigration variables are very similar and do not differ much from each other statistically. However, there is not enough evidence to state that these findings are statistically significant as these values fall just outside the significant area (P-values of *0.14* and 0.*12* respectively).

The rightmost column presents the total two-year effect of immigration in the Netherlands. This effect has been calculated at *0.0027 + 0.0022* = 0.0049. This result is very similar to the findings that were reported in the first two columns. These findings ample reason to suspect collinearity in the immigration variables, meaning that these variables are strongly correlated. By the use of the variance inflation factor (VIF), the collinearity of these variables was confirmed. Both immigration variables have a large VIF

value, 217.2 and 246.9 respectively for the one- and two years lagged immigration variable. As expected, this proves that these variables (partially) overlap, which reduces their reliability. It therefore appears that these variables measure the same. For this reason, the decision has been made to drop the two years lagged variable in the upcoming robustness checks in the next section.

*Table 5: Ordinary Least Squares Regression: Empirical Model 1*

| | **Happiness** | | |
|---|---|---|---|
| **Immigration Variables** | (*t*-1) | (*t*-2) | (*t*-1) + (*t*-2) |
| 1 Year Lagged Immigration | 0.0046 | | 0.0027 |
| | [0.0029] | | [0.0070] |
| 2 Years Lagged Immigration | - | 0.0050 | 0.0022 |
| | | [0.0029] | [0.0068] |
| **Individual Control Variables** | | | |
| Age | -0.0547*** | -0.0546*** | -0.0547*** |
| | [0.0041] | [0.0041] | [0.0041] |
| Age²/100 | 0.0502*** | 0.0501*** | 0.0502*** |
| | [0.0042] | [0.0042] | [0.0042] |
| Male | -0.0473** | -0.0474** | -0.0473** |
| | [0.0176] | [0.0177] | [0.0176] |
| Primary Education | -0.2222*** | -0.2222*** | -0.2222*** |
| | [0.0359] | [0.0359] | [0.0359] |
| Secondary Education | -0.1487*** | -0.1487*** | -0.1487*** |
| | [0.0253] | [0.0254] | [0.0254] |
| Tertiary Education[a] | - | - | - |
| Lives with partner | 0.7922*** | 0.7921*** | 0.7921*** |
| | [0.0310] | [0.0310] | [0.0310] |
| Lives with children | 0.0014 | 0.0013 | 0.0013 |
| | [0.0385] | [0.0386] | [0.0385] |
| Religiosity | 0.0253*** | 0.0253*** | 0.0253*** |
| | [0.0053] | [0.0053] | [0.0053] |
| Region Fixed Effects | ✓ | ✓ | ✓ |
| Time Fixed Effects | ✓ | ✓ | ✓ |
| N | 13,387 | 13,387 | 13,387 |
| R-squared | 0.0866 | 0.0866 | 0.0866 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
[a]= Reference Category
*(Robust Standard Errors in parentheses)*

Considering the size of these effects, these results confirm that the magnitude of the effect that immigration has on the level of happiness of Dutch natives is remarkably small. However, there are no statistically significant results as has already been mentioned. These findings, with regard to the magnitude, are in line with the results of Betz & Simpson (2013) and Akay et al. (2012), who also conducted their research to examine the effect of immigration on the level of happiness of a native population. Likewise, they found remarkably small coefficients.

The second part of Table 5 provides an overview of all control variables that were included in the regression. In all three regressions, all control variables that were included remained identical. The expected effects of the control variables were already discussed in Chapter 3. Table 5 presents results that match the expectations that were made. A higher level of education that is attained, living with a partner, being female, a higher degree of being religious are associated with a boost of happiness levels. All these control variables, except the variable on 'children at home', are statistically significant at least at the 5 percent level.

### 4.1.2 Robustness Checks

In this section, multiple robustness checks were performed on the first empirical model in order to see how certain regression coefficients behave when the baseline model is somewhat adjusted. Typically, this is done by adding, removing or replacing regressors. In the first empirical model, only linear variables were used as lagged immigration variables. Due to the collinearity that has been discussed before, only the 1-year lagged immigration variable is included in the upcoming robustness checks.

#### *4.1.2.a Different specification of the immigration variable (t-1)*

For the first robustness checks, the linear 1-year lagged immigration variable is replaced with the natural logarithm of this variable. In the research of Simpson and Sparber (2013), for example, it has been suggested to treat immigration flows as a natural logarithm. Betz and Simpson (2013) therefore used this logarithmic term in their baseline models. There are several reasons to include the natural logarithm of the immigration variable. One reason is that the numbers on immigration take large numbers. As can be seen in Table 4, the largest value represents the influx of 50,490 immigrants. The smallest immigration value represents 1,422 immigrants. Consequently, by means of this information, this indicates that the values in the linear variables on immigration can indeed be very dissimilar and can be very large. Adding a natural logarithm to the model reduces the variance between the various immigration numbers. Moreover, by doing so, the coefficients of the immigration variables are adapted to a similar magnitude regarding all individual control variables, resulting in variables that are within the same range.

The results of these first robustness checks are presented in Table 6. Three different regressions were conducted. All control variables from the baseline model were included in these new regressions. Since all control variables remained relatively equal to the baseline model that was specified earlier, detailed information about all control variables is not included in Table 6.

As can be seen in Table 6, Robustness Check (1) only includes the logarithmic term for immigration flows in the past year. Contrary to the findings in the baseline model, this term captures an overall negative effect of immigration in the past year that is statistically significant at the 5 percent level. However, this effect is extremely small and almost equal to zero. To illustrate this, if immigration in the past year is increased by one percent, the expectation is that the happiness of natives decreases by

*(-0.0795/100)* ≈ 0.0008, (*p=0.033*). This result is not in line with the existing literature on this subject (Betz & Simpson, 2013; Akay et al., 2017)

Robustness Check (2) includes both the natural logarithm and the squared term in one regression. The reason for doing this is that a nonlinear relationship is considered between immigrant flows and happiness. However, performing Robustness (2) leads to insignificant coefficients. The additional Robustness Check (3) was performed when only the squared term of immigration was added to the baseline model. However, these results did not differ from zero as can be seen in Table 6.

*Table 6: Robustness Checks on Empirical model 1*

| | **Happiness** | | |
|---|---|---|---|
| **Robustness Check** | (1) | (2) | (3) |
| **Immigration Variable** | | | |
| Ln (1 Year Lagged Immigration) | -0.0795** [0.0326] | -0.6711 [0.3901] | - |
| Ln (1 Year Lagged Immigration)$^2$ | - | 0.0350 [0.0219] | - |
| (1 Year Lagged Immigration)$^2$ | - | - | 0.0000** [0.0000] |
| R-squared | 0.0866 | 0.0867 | 0.0867 |
| * Statistically significant at the 10% level<br>**Statistically significant at the 5% level<br>***Statistically significant at the 1% level<br>(*Robust Standard Errors in parentheses)* | | | |

### *4.1.2.b Income and Health as Control Variables*

*Table 7: Summary statistics on feeling about household income and subjective general health*

| **Variable** | **Mean** | **St.dev.** | **Min** | **Max** |
|---|---|---|---|---|
| Feeling about household income | 1.63 | 0.73 | 1 | 4 |
| **Categories:** | | | **Frequency** | **Percent** |
| Living comfortably on present income | | | 6,707 | 50.1% |
| Coping on present income | | | 5,257 | 39.3% |
| Difficult on present income | | | 1,113 | 8.3% |
| Very difficult on present income | | | 310 | 2.3% |

| **Variable** | **Mean** | **St.dev.** | **Min** | **Max** |
|---|---|---|---|---|
| Subjective General Health | 2.17 | 0.76 | 1 | 5 |
| **Categories:** | | | **Frequency** | **Percent** |
| Very good | | | 2,151 | 16.1% |
| Good | | | 7,455 | 55.7% |
| Fair | | | 3,159 | 23.6% |
| Bad | | | 550 | 4.1% |
| Very Bad | | | 72 | 0.5% |

For completeness of the results, this section presents what happens to the results when income and health are included control variables to the first empirical model. Income is an important explanatory factor in determining happiness. Since the European Social Survey did not conduct a usable variable on income in euros in the survey, the variable on how somebody is currently feeling about their income is included in the regression. With regard to the variable Health, Gerdtham and Johanesson (2001) found that the level of one's happiness is highly influenced by a person's health. Therefore, the categorical variable subjective general health is now included as a control variable. Since this is the first time that these variables have been discussed, an overview of the summary statistics regarding this variable is briefly presented in Table 7. The exact survey questions can be found in Appendix A.

Table 8 presents the results after *Feeling about income* and *Health* have been added as control variables to the first empirical model that was specified in 3.1.1 Both control variables were included as Dummy's.

*Table 8: Income and Health as control variables in Empirical Model 1*

| **Happiness** | |
|---|---|
| **Immigration Variable** | (*t*-1) |
| 1 Year Lagged Immigration | 0.0053 |
| | [0.0031] |
| **Feeling about income** | |
| Comfortable | 1.4524*** |
| | [0.1628] |
| Coping | 1.1627*** |
| | [0.1590] |
| Difficult | 0.7610*** |
| | [0.1753] |
| Very Difficult[a] | - |
| **Health** | |
| Very Good | 2.2961*** |
| | [0.1966] |
| Good | 1.9015*** |
| | [0.1906] |
| Fair | 1.5492*** |
| | [0.1830] |
| Bad | 0.8980*** |
| | [0.1905] |
| Very Bad[a] | - |
| Region Fixed Effects | ✓ |
| Time Fixed Effects | ✓ |
| N | 13,387 |
| R-squared | 0.1986 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
[a]= Reference Category
*(Robust Standard Errors in parentheses)*

Since the other individual control variables do not differ much from the first empirical model, data on these variables were not included in Table 8. However, all these other control variables were included in the regression. As can be seen in Table 8, a more comfortable, and therefore probably a higher income, has a strong positive effect on happiness. Similarly, a strong positive effect is also present when looking at the health variable. The higher the self-reported health status, the stronger the effect on happiness is. When income and health are included in the regressions, the R-squared increases strongly. This is due to the fact that income and health explain a big part of the variation in happiness.

Looking at the bigger picture, it is noteworthy that including income and health as control variables has no big impact on the size of the results. Comparing the findings of Table 8 with the initial findings in Table 5, it becomes evident that adding these additional control variables leads to similar effects. The magnitude of the effect is still remarkably small and remains statistically insignificant (*p=0.12*) for immigration in the past year.

### 4.1.3. Increasing Immigration

In this paper, the main interest is to investigate whether the level of happiness is modified as immigration influxes change, both positively and negatively. Therefore, the previous analyses take both decreasing as increasing immigration into account, following the immigration trend. The slope of this trend is first decreasing and subsequently increases after survey round 2. The schematic overview of this trend is presented in Graph 1 in Chapter 1. As immigration strongly increases in the last decade, this research briefly investigates the effect of *increasing* immigration on the happiness of natives. This is done by running the same regression after eliminating the first two rounds from the dataset. This regression includes all control variables of the baseline model.

*Table 9: Increasing Immigration*

| | **Happiness** |
|---|---|
| **Immigration Variable** | |
| 1 Year Lagged Immigration | 0.0077***<br>[0.0025] |
| N | 9,623 |
| R-squared | 0.1614 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
(*Robust Standard Errors in parentheses)*

As can be seen in Table 9, a thousand extra immigrants that came to the Netherlands in the past year, increases the level of happiness of natives with 0.0077 today. This effect is significant at the 1 percent level (*p=0.01)* and this applicable considering the period in which immigration only increases. The magnitude of the effect however, remains small. This result shares many commonalities with the existing literature on the relationship between immigration and the happiness of natives.

## 4.2 Attitude as moderator

In order to answer the second research question, the categorical variable on "attitude towards immigration" was added as an interaction term with both lagged immigration variables in the fixed effects regression. This term is the product of the immigration variables and "attitude towards immigration". Moderation implies that the slope of the relationship between immigration and the level of happiness varies across the different attitudes towards immigration that a Dutch native can have.

### 4.2.1 Main Results

In accordance with the previous findings in Table 5, including both immigration variables separately do not cause major differences between the models. Comparing both models, it became apparent that the moderating effect was found to be identical. Moreover, the net difference between (*t*-1) and (*t*-2) has been calculated at 0.005. The contrast between (*t*-1) and (*t*-2) is therefore negligible. For this reason, we only elaborate on the findings when the one-year lagged immigration variable is included in the Ordinary Least Squares Regression. As can be seen in Table 10, the total moderation effect is significant at the 1 percent level (*p=0.008)*.

Table 10: Ordinary Least Squares Regression: Empirical Model 2

| **Happiness** | |
|---|---|
| **Immigration Variable** | (*t*-1) |
| 1 Year Lagged Immigration | -0.0011<br>[0.0030] |
| **Moderator** Attitude*Immigration | 0.0029***<br>[0.0009] |
| Attitude towards Immigration | 0.0787**<br>[0.0305] |
| **Individual Control Variables** | |
| Age | -0.0554***<br>[0.0041] |
| Age²/100 | 0.0510***<br>[0.0043] |
| Male | -0.0497**<br>[0.0181] |
| Primary Education | -0.1624***<br>[0.0314] |
| Secondary Education | -0.1197***<br>[0.0265] |
| Tertiary Education[a] | - |
| Lives with partner | 0.7953***<br>[0.0309] |
| Lives with children | 0.0094<br>[0.0390] |
| Religiosity | 0.0245***<br>[0.0052] |
| Region Fixed Effects | ✓ |

| | |
|---|---|
| Time Fixed Effects | ✓ |
| N | 13,387 |
| R-squared | 0.0917 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
[a]= Reference Category
*(Robust Standard Errors in parentheses)*

Considering the results in Table 10, the effect of immigration on the happiness of natives is estimated between -0.0011 (attitude score=0) and 0.0076 (attitude score=3) depending on the individual attitudes of natives. Accordingly, these coefficients are still incredibly small. The assumption was made that including attitude as a moderator causes small changes when comparing this model to the first empirical model. However, the expectation is that the largest differences can be found in the most extreme categories. To illustrate this, a categorical specification of this moderator is reported in Table 11.

*Table 11: Attitude*Immigration as Categorical moderator*

| **Happiness** | |
|---|---|
| **Immigration Variable** | (*t*-1) |
| 1 Year Lagged Immigration | 0.0067** |
| | [0.0028] |
| **Moderator** Attitude*Immigration | |
| Category 1: Allow none to come and live here | -0.0075** |
| | [0.0033] |
| Category 2: | -0.0098* |
| | [0.0050] |
| Category 3: Allow a few to come and live here | -0.0042** |
| | [0.0017] |
| Category 4: | -0.0053 |
| | [0.0033] |
| Category 5: Allow some to come and live here | -0.0020* |
| | [0.0009] |
| Category 6: | 0.0067** |
| | [0.0024] |
| Category 7: Allow many to come and live here[a] | - |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
[a]= Reference Category
*(Robust Standard Errors in parentheses)*

While investigating the categorical specification of the moderator, it is important to note that the four initial categories remain the same, and three new intermediate categories have been created by means of merging the two initial attitude variables. It is important to note that the higher the value, the more positive one's attitude towards immigration is. Thus category 7 reflects the most positive attitude towards immigration (Allow many to come and live here) and category 1 reflects the most negative attitude towards immigration (Allow none to come and live here). As a result, the attitude of people that

belong, for example, to category 2 is between allowing a few migrants and allowing no migrants. In this regression, the category "allow many", acted as the reference category.

The results in Table 11 indeed indicate that the most extreme effects of the moderator are present in the cases when the attitude towards immigration is one the one hand strongly positive, or strongly negative on the other. There are hardly any differences between category 3, 4 and 5 and the effects are the smallest in these categories. Immigration has a negative impact on the happiness of natives, however, this occurs only for natives that belong to the most negative attitude categories (1 and 2). The results indicate that the effect of immigration decreases the happiness of natives with -0.0008 and -0.0031 respectively for natives that belong to category 1 and 2. These findings are statistically significant at least at the 10 percent level. For natives that belong to category 7, this indicates that their level of happiness increases with 0.0067 as the immigration influx increases with 1000 in the past year. This effect is significant at the 5 percent level. Furthermore, for natives that belong to category 6, the effect is even higher *(+0.0067)* than the natives in category 7.

Natives included in category 1 and 2 clearly have the strongest aversion to immigrants. The findings demonstrate that natives with a strong negative attitude actually get progressively unhappier as immigration increases. For natives that favor immigration, who are mainly represented in category 6 and 7, this effect is reversed and the positive effect of immigration on happiness becomes greater in these categories.

### 4.2.2 Robustness Checks

By the same token as was done in Section 4.1.2, the second empirical model is exposed to several robustness checks in order to see how the regression coefficients behave when slightly modifying the model.

#### *4.2.2.a Different specification of the immigration variable (t-1)*

In Robustness Check (4), the linear lagged immigration variable is replaced by the natural logarithm of the immigration variable. The results of Robustness Check (4) is presented in Table 12. All control variables were included in the regression that was run and are almost identical to the results in Table 10. Therefore, information on the control variables is not presented in Table 12.

Comparing the results in Table 12 with the main results in Table 10, it occurs that replacing the linear variable with a natural logarithm leads to significant results. Robustness Check (4) reveals that a one percent increase of immigrants in the past year will lead to a *(-0.1489/100)* ≈ 0.0015 decrease in the happiness of a native that scores zero on the attitude scale. Moreover, in this specification of the empirical model, the overall moderating effect remains statistically significant at the ten percent level. These findings are very similar to the main results in Table 10. Considering the Robustness Checks that were conducted throughout this paper, it is noticeable that the replacement of the linear immigration variable with the natural logarithm leads to statistically significant results. Although the initial models

are well specified, these Robustness Checks suggest that the relationship between happiness and immigration is non-linear. This corresponds with the findings of Betz and Simpson (2013) who already assumed that the relationship between immigration and happiness is logarithmic at the beginning of their research.

*Table 12: Robustness Checks on Empirical model 2*

| | **Happiness** |
|---|---|
| **Robustness Check** | (4) |
| **Immigration Variable** | |
| Ln (1 Year Lagged Immigration) | -0.1489**<br>[0.0571] |
| **Moderator** Attitude*Immigration | 0.0378*<br>[0.0187] |
| R-squared | 0.0915 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
(*Robust Standard Errors in parentheses)*

#### *4.2.2.b Income and Health as Control Variables*

For completeness of the results, this section shows what happens when income and health are included as control variables in the second empirical model. Adding income and health as control variables does not lead to major changes, comparing the results to the findings that were presented in Table 10. As can be seen in Table 13, the effect of immigration on the happiness of natives is estimated between -0.0003 and 0.0081, depending on the individual attitude scores of Dutch natives. The moderating effect is statistically significant at the one percent level. An increase in happiness becomes apparent when natives have a more favorable attitude towards immigration. This finding is consistent with the previous models that were specified throughout this paper.

*Table 13: Income and Health as control variables in Empirical Model 2*

| | **Happiness** |
|---|---|
| **Immigration Variable** | (*t*-1) |
| 1 Year Lagged Immigration | -0.0003 |
| | [0.0030] |
| **Moderator** | |
| Attitude * Immigration | 0.0028*** |
| | [0.0009] |
| Attitude towards Immigration | 0.0272 |
| | [0.031] |
| **Income** | |
| Comfortable | 1.4314*** |
| | [0.1606] |
| Coping | 1.1466*** |
| | [0.1578] |
| Difficult | 0.7515*** |
| | [0.1741] |
| Very Difficult[a] | - |
| **Health** | |
| Very Good | 2.2775*** |
| | [0.1976] |
| Good | 1.8860*** |
| | [0.1915] |
| Fair | 1.5332*** |
| | [0.1827] |
| Bad | 0.8912*** |
| | [0.1892] |
| Very Bad[a] | - |
| Region Fixed Effects | ✓ |
| Time Fixed Effects | ✓ |
| N | 13,387 |
| R-squared | 0.2006 |

* Statistically significant at the 10% level
**Statistically significant at the 5% level
***Statistically significant at the 1% level
[a]= Reference Category
*(Robust Standard Errors in parentheses)*

# 5. Conclusion

This research was set up to find out whether the fluctuation in immigration influxes in the Netherlands has an impact on the happiness of Dutch natives. In recent years, a rise in immigration is apparent in European countries especially due to global political unrest. According to the existing literature, we found that the impact of immigration has either positive or negative consequences for the level of happiness of natives. The pros and cons of immigration have been debated and the first research hypothesis was drawn up, indicating that immigration positively affects the Happiness of Dutch natives.

In the analysis, a distinction was made between immigration in the past year and two years before since we expect that immigration needs time before it can affect the happiness of natives. However, we found that both variables measure the same due to their collinearity and therefore the analyses in this research are founded on immigration in the past year. Contrary to the existing literature on the relationship between immigration and happiness, no significant effect was found. This is regardless of whether health and income are included as control variables. An overall positive and significant effect was found only considering the last six survey round in which immigration was increasing. Therefore, it is fair to say that *increasing* immigration has a small positive influence on the happiness of natives.

Replacing the linear immigration variable with a natural logarithm in the Robustness Checks on this model demonstrated a small significant effect that is yielded negatively. Nonetheless, due to the insignificant results in the baseline model and this overall negative effect, not enough evidence has been found to fully support the first research hypothesis that indicated that immigration *(both increasing and decreasing)* positively influences the happiness of Dutch natives. However, a small positive significant effect was found following an additional analysis on *increasing* immigration. Accordingly, hypothesis 1 is partially supported.

Additionally, this research was the first to explore whether the effect of this relationship differs for Dutch natives with a certain attitude towards immigration. In order to test this, a moderator on attitude and immigration was included in the model. This moderator has a statistically significant effect on the relationship between immigration and the happiness of Dutch natives. The results indicate that immigration negatively impacts the happiness of natives if these natives have a strong negative attitude towards immigration. On the contrary, immigration has a positive impact on the happiness of natives if these natives have a positive attitude towards immigration. However, here too, the effects are remarkably small. Here, too, adding income and health does not lead to a big change in the effects that were found. Since the total moderation effect is significant at the 1 percent level, this research has found enough evidence for the second research hypothesis to be accepted, suggesting that the effect of immigration on the happiness of Dutch natives is indeed stronger for natives with a positive attitude towards immigration and vice versa.

Given the small effects that were found throughout this whole paper, this can be a sign that happiness is indeed difficult to change and that happiness, to a certain extent, is fixed. Moreover, we expected that immigration does not play a crucial role in determining someone's level of happiness. The fact that the magnitude of all coefficients is remarkably small is therefore not surprising and is in line with our expectations. Other variables, such as having a partner, or the level of education are more urgent for the advancement of one's level of happiness. The findings of this magnitude are comparable with the results of Betz & Simpson (2013) and Akay et al. (2012), who also conducted their research to investigate the effect of immigration on the level of happiness of a native population.

In conclusion, in the Netherlands, immigration has a small negative effect on the happiness of natives that is close to zero. However, *increasing* immigration in the last decade has a positive significant influence on the happiness of Dutch natives. We found proof that the impact of immigration on the happiness of natives is essentially dependent on the individual attitude on immigration of Dutch natives. This significant effect is strengthened; both negatively and positively, depending on whether someone has a strong negative or positive attitude towards immigration. Lastly, the attitude of natives towards immigration is consistent with their effects on their happiness. On one side, natives who have an aversion towards immigration, are generally becoming slightly less happy caused by immigration. Natives who favor immigrants on the other, typically are getting a bit happier through immigration.

# 6. Discussion

## 6.1 Theoretical Implications

In general, very little research has been done on the relationship between immigration and the happiness of natives. Only two studies examined this specific relationship in Europe and in Germany (Betz & Simpson, 2013; Akay et al., 2017). Both studies found that immigration has a positive significant effect on the happiness of natives. The findings in this paper especially add value to the existing literature, as this research managed to analyze the situation for the Netherlands in particular. The findings are not fully consistent with the existing literature since an overall negative effect was found. This implies that the Dutch mechanism between immigration and happiness differs from Germany and Europe in general. The effect that was found, however, was extremely small. Contrarily, taking only *increasing* immigration into account, an overall significant effect was found, which is in line with the expectations and the literature. The magnitude throughout this paper does correspond to the existing literature since they also found effects that were very close to zero. Taking this together, this implies that the direction of the Dutch immigration trend is an important factor in determining the effect that immigration has on the happiness of natives in the Netherlands.

Furthermore, this research was the first to include a moderator concerning the individual attitude of natives and immigration flows. A quantitative analysis had never been performed before. Thereafter, the findings in this paper are in line with the expectations that were stated in the literature on the attitude of natives. As predicted, the strength of the individual attitude is the greatest determinant of the magnitude of the effect that immigration has on the happiness of natives.

## 6.2 Practical Implications

It is fair to say that immigration is not necessarily influencing the happiness of natives in a negative way. On the contrary, the effect seems to be positive as immigration *increases* and depends more on the individual attitude of natives. Therefore, we can give prudent advice to Dutch policymakers regarding their immigration policy.

Increasing immigration does not have a negative influence on the happiness of natives, although Dutch natives often expect differently built on their political affiliations. Policymakers could reconsider the current border policies or ease the application for asylum. However, drastic changes can lead to unexpected situations. We have to keep in mind that the impact of immigration is remarkably small and that immigration has been steadily increasing for years. We do not know how a sudden, disproportionate increase in immigration is connected to the happiness level of Dutch natives. When immigration suddenly increases enormously, it can occur that natives do indeed notice a considerably negative influence of migrants.

As mentioned in Chapter 2, 50 percent of someone's happiness is inheritable and determined by genes. This means that immigration must affect the other 50 percent, consisting of circumstances (10%) and intentional activities (40%). The expectation is that immigration mainly has an influence on the circumstances of natives. These circumstances can be divided into economic and social circumstances. As mentioned before, the economic impact of immigration can be both contributing as obstructing. Looking at these findings, it is expected that the positive effects outweigh the negative effects since the net effect of *increasing* immigration on happiness is positive. Therefore, we believe that immigration will lead to an improved economic situation for natives. This can have several reasons; immigrants can fill a certain gap in the market, immigrants can also provide a diverse pool of talent and skills, resulting in an improvement of efficiency at the workplace. Moreover, it could also occur that immigration has a positive impact on the prosperity of natives. Looking at the social circumstances, it is possible that Dutch natives attach great value to the feeling of altruism. However, we have to keep in mind that the overall findings are very small and are not crucial for establishing the individual level of happiness.

Moreover, it is especially important that the evidence that is found in this paper is communicated to natives. This allows the Dutch natives to realize that increasing immigration can be beneficial for the Netherlands. It becomes interesting if this communication and transparency cause natives to adjust their attitude towards immigrants. Subsequently, natives who are basically well disposed towards immigration experience higher levels of happiness than their negative counterparts. Furthermore, an improved individual attitude towards immigration of natives can be achieved, for example, as the government devotes a great deal of attention to the integration of immigrants.

Dutch natives in the bottom layer of the Dutch society experience the most negative consequences of immigration. This group, therefore, has the most negative attitude towards immigrants. This is caused by labor market competition, for example. When both immigrants and natives are looking for comparable jobs, both groups may have the feeling that one group is pre-empted. Organizations could, for example, solve this by introducing an equal application procedure, in which no group is involved with preferential treatment. This gives both groups fair opportunities for a job, mitigating the situation.

The Dutch elderly are quite often very conservative people with a negative attitude towards immigration as was explained in Chapter 2. This group regularly is not open to social change, including the case of immigration. Dutch health care institutions or nursing homes can focus on attracting immigrants and getting them involved with the elderly in a positive manner by, for example, supporting them with day to day task. By doing so, the Dutch elderly are able to observe the social importance of immigration at first hand.

## 6.3 Limitations and Future research

The findings in this paper, however, are open to criticism in different respects. For example, it is important to state that it is impossible to know how reliable the immigration data were. The Dutch

Central Bureau of Statistics notes that they include an immigrant in the dataset when this immigrant plans to stay in the Netherlands for more than 4 months. They clearly indicate that people who do not legally reside in the Netherlands are not included in the dataset. It is impossible to know how many immigrants have stayed illegally in the Netherlands in recent years. Since we have no insight on this data and we were not able to cover this in our model, it is possible that the results are distorted because the actual immigration figures do not match the figures reported by the CBS. For future research, it would be interesting to check whether an estimate on immigrants who are staying illegally in the Netherlands is available.

Furthermore, persons of a Dutch nationality who, after a previous departure from the Netherlands to another country settle in the Netherlands again, also belong to the immigrant group in this study. It is possible that this group is not considered as a 'real' immigrant by their own compatriots, modifying the results. In a future study, it might be interesting to investigate what happens when this immigrant-group is eliminated from the dataset.

Research into the construct happiness always remains subjective. In this paper, happiness is the dependent variable that is measured by self-reported measures. Happiness itself is a complicated construct because it is difficult to measure and is not observable. This may, for example, result in people that are exaggerating to the extent that they are happy, or people will try to respond in a way that is socially desirable.

In order to create the variable *attitude towards immigration,* two different constructs were combined. In this study, we were indeed interested in the attitude of natives towards all different forms of immigration. But given the refugee problem that is taking place nowadays in Europe, it might be interesting for a future study to only include the attitude towards voluntary and involuntary immigrants to address this issue.

Examining the mechanisms through which immigration affects the happiness of natives is outside the scope of this paper. Nevertheless, based on the literature review, we speculate that the positive effect of *increasing* immigration is mainly due to economic contributions. However, it is difficult to exactly estimate where the positive effect that was found comes from. Including different variables on these topics can help to explain the relationship. For example, the research of Betz and Simpson (2013) controls for topics as unemployment and gross domestic product. However, including more control variables on these topics was not within the scope of this research.

After conducting the analyses in this paper, we expected that the initial empirical models would be better specified when immigration is treated as a natural logarithm. Including the natural logarithm leads to statistically significant findings more often. This logarithmic connection was previously suspected in the existing literature and carried out by Betz & Simpson (2013). As has been mentioned before, very little research has been done on the specific relationship between immigration and happiness. Therefore,

the decision was made to include immigration as a linear variable in our initial empirical models. More research on this relationship specifically is needed to identify the exact relationship. The expectation is now that the relationship works the same as, for example, the relationship between income and happiness. When immigration numbers are low in a certain region, and immigration increases with *X,* that shock of *X* will stronger influence the individual happiness than the same shock in a certain region with a high rate of immigration. Moreover, the expectation is that an increase of a thousand additional immigrants in the Netherlands does not lead to a *constant* change in the level of happiness of natives. The size of the effect remained very small throughout the study and the robustness checks, matching the expectations that were made based on the existing literature. When this study is replicated, it is wise to immediately include the natural logarithm on immigration.

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# Appendix A

This appendix provides an overview of all variables used in this study.

**Variable: Happiness (8 rounds)** Code: HAPPY

- *Taking all things together, how happy would you say you are?*

0: Extremely unhappy
1: 1
2: 2
3: 3
4: 4
5: 5
6: 6
7: 7
8: 8
9: 9
10: Extremely happy
77: Refusal
88: Don't know
99: No Answer

When cleaning the data, all respondents who did not answer, refused to answer, or did not know the answer to this question were excluded from the dataset.

| | |
|---|---|
| Extremely unhappy | 25 |
| 1 | 17 |
| 2 | 48 |
| 3 | 112 |
| 4 | 178 |
| 5 | 385 |
| 6 | 737 |
| 7 | 2,804 |
| 8 | 5,622 |
| 9 | 2,514 |
| Extremely happy | 945 |

**Variable: Age (8 rounds)** Code: AGEA

- Age of respondent, calculation based on year of birth and year of interview

| | |
|---|---|
| <18 | 264 |
| 18-34 | 2,645 |
| 35-44 | 2,443 |
| 45-64 | 4,825 |
| >65 | 3,210 |

Note: In the table above, age is presented in age categories to give an overview how age is divided in this sample. However, in the regressions and analysis, we use age as a continuous variable. Happiness is highest in the youngest age category and declines in the following categories. People

experience the most unhappy feelings in the age group of 45 to 64. This corresponds with the findings of Gerdtham and Johanesson (2001) who explain that age is U-shaped.

**Variable: Highest level of education (8 rounds)** Code: EISCED

- 0: Not possible to harmonize into ES-ISCED
  1: ES-ISCED I, less than lower secondary
  2: ES-ISCED II, lower secondary
  3: ES-ISCED IIIb, lower tier upper secondary
  4: ES-ISCED IIIa, upper tier upper secondary
  5: ES-ISCED IV, advanced vocational, sub-degree
  6: ES-ISCED V1, lower tertiary education, BA level
  7: ES-ISCED V2, higher tertiary education, >= MA level
  55: Other
  77: Refusal
  88: Don't Know
  99: No Answer

When cleaning the data, all respondents who belonged to the group "Other" or were not possible to harmonize into ES-ISCED were excluded from the dataset. Moreover, respondents who did not answer, refused to answer, or did not know the answer to this question were also excluded from the dataset

The continuously variable 'education in years' is included in the European social survey, but the line of questioning has changed over the years. First, this variable was only interested in full-time education years, but after some years, years of part-time education was included. Subsequently, the results were distorted and the choice was made to include the categorical variable on the highest level of education: EISCED. This variable previously consisted of the 7-point scale above. This variable was recoded in the variable "Education" which consists of the following three levels: primary, secondary and tertiary education.

The variable Education is generated in the following way.
1,2 = Primary Education - 3,4 = Secondary Education - 5,6,7 = Tertiary Education

| | |
|---|---|
| Primary | 5,541 |
| Secondary | 3,987 |
| Tertiary | 3,859 |

**Variable: Gender (8 rounds)** Code: GNDR

- 1: Male
  2: Female
  9: No Answer

When cleaning the data, all respondents who did not answer this question were excluded from the dataset. Subsequently, this variable was recoded and now takes the value 0 if female and 1 if male.

| | |
|---|---|
| Female | 7,382 |
| Male | 6,005 |

**Variable: Partner** Code: PARTNER
ICPART1

First four rounds: PARTNER

- *Lives with husband/wife/partner at household grid*
  1: Lives with husband/wife/partner at household grid
  2: Does not
  9: Not available

Last four rounds: ICPART1

- *Lives with husband/wife/partner*
  1: Lives with husband/wife/partner
  2: Does not
  9: Not available

The variable ICPART1 needed small adjustment in the last two rounds in order to successfully merge the variables. The variable Partner was recoded and now takes the value 0 if the respondent does not live with a husband/wife/partner and takes 1 if the respondent lives with a husband/wife/partner.

| | |
|---|---|
| Does not | 5,147 |
| Lives with partner | 8,240 |

**Variable: Children at home (8 rounds)** Code: CHLDHM

- 1: Respondent lives with children at household grid
  2: Does not
  9: Not available

When cleaning the data, all respondents who were not able to answer this question were excluded from the dataset. Subsequently, this variable was recoded and now takes the value 0 if the respondent does not live with children at household grid and 1 if the respondent lives with children at household grid.

| | |
|---|---|
| Does not | 9,014 |
| Lives with children | 4,373 |

**Variable: Religiosity (8 rounds)** Code: RLGDGR

- *Regardless of whether you belong to a particular religion, how religious would you say you are?*

  0: Not at all religious
  1: 1
  2: 2
  3: 3
  4: 4
  5: 5
  6: 6
  7: 7
  8: 8
  9: 9

10: Very religious
77: Refusal
88: Don't know
99: No answer

When cleaning the data, all respondents who did not answer, refused to answer, or did not know the answer to this question were excluded from the dataset.

| | |
|---|---|
| Not at all religious | 2,461 |
| 1 | 721 |
| 2 | 790 |
| 3 | 872 |
| 4 | 717 |
| 5 | 1,448 |
| 6 | 1,716 |
| 7 | 2,180 |
| 8 | 1,534 |
| 9 | 496 |
| Very religious | 452 |

**Variable: Citizen of Country & Born in country (8 rounds)** Code: CTZCNTR BRNCNTR

- *Are you a citizen of [The Netherlands]?*

  1: Yes
  2: No
  3: Refusal
  8: Don't know
  9: No answer

- *Were you born in [The Netherlands]?*
  1: Yes
  2: No
  7: Refusal
  8: Don't know
  9: No answer

Respondents who answered "No", refused to answer, did not answer, or did not know the answer to one of these questions were excluded from the dataset in order to ensure that all respondents in the dataset are natives.

**Variable: Attitude towards immigration – Same race/ethnic group** Code: IMSMETN

- *To what extent do you think [the Netherlands] should allow people of the same race or ethnic group as most [Dutch] people to come and live here?*
  1: Allow many to come and live here
  2: Allow some
  3: Allow a few
  4: Allow none
  7: Refusal

8: Don't know
9: No answer

Respondents who refused to answer, did not answer, or did not know the answer were excluded from the dataset.

| | |
|---|---|
| Allow Many (1) | 1,733 |
| Allow Some (2) | 7,241 |
| Allow a Few (3) | 3,576 |
| Allow None (4) | 837 |

**Variable: Attitude towards immigration – Different race/ethnic group** Code: IMDFETN

- *To what extent do you think [the Netherlands] should allow people of the same race or ethnic group as most [Dutch] people to come and live here?*
  1: Allow many to come and live here
  2: Allow some
  3: Allow a few
  4: Allow none
  7: Refusal
  8: Don't know
  9: No answer

Respondents who refused to answer, did not answer, or did not know the answer were excluded from the dataset.

| | |
|---|---|
| Allow Many (1) | 1,441 |
| Allow Some (2) | 6,689 |
| Allow a Few (3) | 4,100 |
| Allow None (4) | 1,157 |

Subsequently, these two attitude-variables have been merged into one comprehensive attitude construct with the following values:

4: Allow many to come and live here
3.5
3: Allow some
2.5
2: Allow a few
1.5
1: Allow none

Because the average of these two variables has been used, values of 1.5, 2.5 and 3.5 have been generated in the new attitude-variable. As a result, after merging these variables, there are now 7 different values that attitude can take. Intuitively, these values have been recoded so that the highest value represents the most positive value.

| | |
|---|---|
| Allow Many (4) | 1,349 |
| 3.5 | 364 |
| Allow Some (3) | 6,261 |

| | |
|---|---|
| (2.5) | 1,090 |
| Allow a Few (2) | 3,274 |
| (1.5) | 282 |
| Allow None (1) | 767 |

In the analysis however, the attitude*immigration moderator is used as a continuous variable, which has zero as the lowest value and 3 as the highest value. The mean is estimated at 1.68.

| | |
|---|---|
| 0 | 767 |
| 0.5 | 282 |
| 1 | 3,274 |
| 1.5 | 1,090 |
| 2 | 6,261 |
| 2.5 | 364 |
| 3 | 1,349 |

**Variable: Year**

The variable: "year of the interview" has been changed into two different variables after round 2. The first variable reported the time at which the interview began, the second variable reported the time at which the research was completed. Because of this, it sometimes happens that two years are available for one particular round. For example, Essround 3 may have been conducted in the year 2006 and 2007. This arises when a respondent started with the European Social Survey in 2006 but ends with the survey in 2007. The interviews that did not take place in the year of the survey round took place in the months thereafter. For simplicity, it was decided to keep the years of the survey rounds. This required the recoding of some cases. As a result, the variable year consists of only 8 different years, and not 16 years.

| | |
|---|---|
| 2002 | 2,110 |
| 2004 | 1,654 |
| 2006 | 1,657 |
| 2008 | 1,551 |
| 2010 | 1,612 |
| 2012 | 1,626 |
| 2014 | 1,684 |
| 2016 | 1,493 |

**Variable: Health (8 rounds)** Code: HEALTH

- *How is your health in general? Would you say it is ...*

  1: Very good
  2: Good
  3: Fair
  4: Bad
  5: Very Bad
  7: Refusal

8: Don't know
9: No answer

When cleaning the data, all respondents who did not answer, refused to answer, or did not know the answer to this question were excluded from the dataset.

| | |
|---|---|
| Very good | 2,151 |
| Good | 7,455 |
| Fair | 3,159 |
| Bad | 550 |
| Very bad | 72 |

**Variable: Feeling about income**

| | |
|---|---|
| Living comfortably | 6,707 |
| Coping | 5,257 |
| Difficult | 1,113 |
| Very Difficult | 310 |

When cleaning the data, all respondents who did not answer, refused to answer, or did not know the answer to this question were excluded from the dataset.