

# Employment Status, Income and the Subjective Well-Being of Immigrants

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## Abstract

Migration theory suggests that individuals are leaving their country of origin due to the existence of an income differential between the home and host economy. However, although the income situation abroad may improve, the question of life satisfaction in the host country arises. In this context, I study the subjective well-being of the foreign-born using data from the German Socio-Economic Panel (1984-2005). Applying (generalized) ordered logit models it is shown to what extent the immigrants' life satisfaction is associated with their income situation as well as their employment status. Controlling for socio-economic characteristics, income has only a small, positive impact on subjective well-being. In addition, immigrants who are unemployed and/or benefit from the welfare state exhibit a significantly lower level of life satisfaction.

*Keywords:* Subjective Well-Being, Immigration, Generalized Ordered Logit Models

*JEL classification:* C23, C25, F22, I31, R23

## 1 Introduction

Migration literature usually focuses on factual movements of individuals studying the specific economic conditions in the home and host country. In general, theory suggests that

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individuals are leaving their country of origin due to a positive income differential between the home and host economy. Thus, immigration is associated with an increase in the living standard, eventually resulting in a higher utility level for the individual.

However, the decision to migrate and the associated location choice do not necessarily depend on differences in the wage level between the home and host economy. According to the welfare magnet hypothesis of Borjas (1999), the beneficial welfare system in the destination country determines the location choice of the migrant given the migration decision. Thereby, foreigners are assumed to move to another country because the welfare state abroad provides a minimum income, which exceeds labor earnings in the home country. Consequently, the individual living standard might increase although the immigrant does not participate in the labor market in the destination country.

While economic wealth of the immigrant may increase due to labor earnings or welfare benefits the question of subjective well-being arises. Economic prosperity does not necessarily lead to individual well-being as the seminal study of Easterlin (1974) shows. In contrast, self-reported happiness data reveal that individual utility also depends on other aspects in life such as the marital status or the overall economic situation in the country.<sup>1</sup>

Whereas economists are rather relying on observable choices of persons than on self-reported happiness to infer individual utility functions existing research suggests that subjective well-being represents an appropriate measure for utility [Kahneman and Krueger (2006)]. Moreover, focusing on observable choices only might lead to wrong conclusions on individual utility [e.g. Kahneman, Wacker, and Sarin (1997) as well as Ng (1997)]. Hence, the concept of subjective or self-reported well-being may though not replace but complement standard economic theory covering more aspects of individual utility.<sup>2</sup>

Against this background, I study whether and why immigrants display different levels of life satisfaction than the native population using data from the German Socio-Economic Panel (1984-2005). To the knowledge of the author this is the first study which explicitly

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<sup>1</sup>The term subjective well-being was introduced in psychology in order to assess the individuals' evaluation of happiness or satisfaction of life. Throughout this paper I will use the terms happiness, life satisfaction and (subjective) well-being interchangeably.

<sup>2</sup>Diener, Suh, Lucas, and Smith (1999) and Frey and Stutzer (2002) provide good overviews on recent studies and developments in happiness research.

addresses the question of life satisfaction on the immigrant population taking labor market participation, the income situation as well as various socio-economic characteristics into account.

Comparing natives and immigrants I find the latter to report on average a lower level of subjective well-being. Thereby, income only seems to have a small impact on the happiness level whereas the employment status strongly affects the subjective well-being of the foreign-born. These results provide evidence that immigrants in Germany pursue to make a living from work instead of playing on the welfare system. However, the individual health status represents the most important determinant for life satisfaction. With regard to the country of origin, it is shown that foreign-born who originate from Southern European Countries have the highest level of life satisfaction among the immigration population in Germany. As regards the length of stay, I do not find that long-term foreign residents are statistically different in their happiness level than short-term immigrants.

The remainder of this paper is organized as follows. In Section 2 the related literature on the migration decision and subjective well-being is reviewed. Section 3 presents the used data set as well as descriptive statistics. In Section 4 the econometric models and the explanatory variables are specified. Section 5 presents empirical findings and Section 6 concludes with regard to future research.

## **2 Related Literature**

There exists an extensive literature on the cross-border migration decision of individuals [e.g. Borjas (1987), Chiswick (1999), and Stark and Bloom (1985)]. In general, it is assumed that an individual pursues the maximization of his life time utility. Thereby, migration will take place because the expected and discounted life time utility in the host country subtracted by migration costs, which may be of monetary as well as psychical nature, exceeds the net present value of life time utility in the home country. In this context, earnings from labor usually serve as an approximation for utility so that the size of the earnings differential between source and destination country is supposed to be decisive for the migrants' location choice [Sjaastad (1962)].

In contrast to the labor market motive, Borjas (1999) develops a welfare magnet hypothesis indicating that the generous welfare state abroad represents the main reason for migration. Thereby, individuals are supposed to migrate because social and/or unemployment benefits exceed labor earnings in the country of origin, eventually resulting in a higher individual living standard abroad. In an alleviated version of this hypothesis it is argued that the welfare state does not represent the main reason for migration but determines the location choice of the migrant. In other words, migrants are assumed to choose the country, which provides the highest income from the welfare system. In this context, Sinn and Ochel (2003) suggest that the German welfare state will be threatened by the free movement of people within the European Union due to significant differences in wage earnings in Central and Eastern European Countries and the level of German social assistance.

Hence, either due to labor earnings or welfare benefits individual well-being is supposed to improve after immigration. However, whereas the positive correlation between income and utility seems straightforward at first glance the relationship does not hold in general. First, income from welfare benefits might not provide the same utility as labor earnings since unemployment is usually considered as involuntary [Frey and Stutzer (2002)]. In this context, Winkelmann and Winkelmann (1998) show that the employment status determines subjective well-being to a large extent. In particular, the authors find that becoming unemployed is more detrimental for life satisfaction than the corresponding decrease in income. Second, Easterlin (1974) shows that a rise in income does not necessarily result in an increase in subjective well-being. In a recent paper Blanchflower and Oswald (2004) confirm this result pointing out that individual well-being has not increased in Great Britain and has even declined in the United States since the middle of the 1970s although gross domestic product per capita has grown throughout this period.

Focusing on happiness levels within different regions in a country Frijters, Haisken-DeNew, and Shields (2004a) study the development of life satisfaction in East Germany using the German reunification as a natural experiment. In contrast to the previously mentioned investigations, they find that the rise in income (as well as the employment status) determine around 35-40 per cent of the increase in life satisfaction during the 1990s among the East German population. In a similar paper, Frijters, Haisken-DeNew, and Shields (2004b) explore the convergence of life satisfaction of the citizens residing in East and West Germany. Their study reveals that East Germans display a permanent increase in life satisfaction due to increased income as well as greater political freedom. For individuals in West Germany only small changes in subjective well-being have occurred during the 1990s although GDP per capita has increased. Despite this evidence for convergence, East Germans are still considerably less satisfied than West Germans. Since this gap cannot be fully explained by economic or socio-demographic factors, there is reason to assume that cultural differences between East and West lead *ceteris paribus* to lower satisfaction levels of the East Germans.

With regard to the population composition of a country the study by Blanchflower and Oswald (2004) shows that blacks and other non-white individuals in the United States are on average considerably less happy than whites. But, in the last thirty years the level of life satisfaction has risen among the black population while happiness among whites has deteriorated at the same time. However, whereas this investigation controls for races no explicit distinction between natives and immigrants is made.

Happiness research so far only focused on the native population distinguishing between individuals living in different regions within a country (e.g. East and West Germany) and/or races (e.g. blacks, whites and other non-whites). The following study is the first to explore in detail subjective well-being of the foreign-born. In the empirical investigation I analyze whether and why immigrants in Germany are less happy than their native counterparts and whether there has been convergence between both populations. In particular, I also show if subjective well-being of immigrants has changed upon their arrival and how life satisfaction is related to labor market participation and the income situation. Moreover, in order to reveal possible differences within the immigrant population I study to what extent the level of life satisfaction is subject to the country of origin.

### 3 Data

For the investigation I use the German Socio-Economic Panel (GSOEP), which is a nationally representative panel data set that was established in 1984. Since the first wave survey participants have been asked about their subjective well-being: "How satisfied are you with your life, all things considered?" Respondents indicate their level of life satisfaction on an ordinal and categorical scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied). Surveyed persons are at least aged 16. However, only individuals aged between 25 and 65 are included in the investigation since they are supposed to be available on the labor market.

Data from all 22 available waves (1984-2005) are used in order to study subjective well-being of immigrants as well as natives. The GSOEP provides repeated measurement on self-reported individual satisfaction so that inferences about developments over time are possible. After the German reunification in 1990 the GSOEP was extended to inhabitants in East Germany. In this context, internal migration is taken into account by assigning individuals who moved from the East to the West or vice versa back into their original region.<sup>3</sup> Although, the panel aims at surveying individuals on a consecutive basis attritions occur due to movings abroad or deaths.

With regard to the immigrant population not only the nationality of the surveyed individuals but also their country of origin is provided. As immigrants I only consider individuals if they are foreign-born and if they moved to Germany aged 18 at least. To put it differently, second generation immigrants, i.e. children from foreign-born parents who were raised in Germany, are excluded from the sample since they did not grow up in their country of origin and thus did not undertake the initial decision to migrate. Since the year of immigration to Germany is indicated for the foreign-born I analyze if subjective well-being of immigrants has changed with regard to their length of stay.

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<sup>3</sup>Due to few observations on the foreign-born in East Germany no separate analysis is conducted on the subjective well-being among immigrants in East and West Germany. Note that only around 2% of all foreign-born are living in East Germany [Destatis (2005)].

In Table 1 the distribution of life satisfaction for the native and immigrant population for the years 1984 and 2005 is presented. On average, the native population displays a higher level of happiness than the immigrant population in both years. The overall satisfaction level has decreased in Germany. Within the native population the level deteriorated from 7.5 to 6.9 whereas the decline was 0.7 (7.3 to 6.6) within the immigrant population.

Table 1: Distribution of Life Satisfaction for Natives and Immigrants in 1984 and 2005

Year	1984		2005	
Satisfaction Level	Native	Immigrant	Native	Immigrant
10	18.96 %	20.90 %	3.15 %	3.87 %
9	12.85 %	11.67 %	12.02 %	9.76 %
8	26.27 %	22.90 %	31.32 %	23.04 %
7	16.25 %	12.89 %	22.01 %	23.15 %
6	7.98 %	8.70 %	10.36 %	14.35 %
5	11.21 %	13.99 %	11.59 %	13.33 %
4	2.22 %	3.29 %	3.80 %	5.18 %
3	1.64 %	2.24 %	3.23 %	4.11 %
2	1.11 %	1.38 %	1.54 %	1.73 %
1	0.48 %	0.65 %	0.55 %	0.65 %
0	1.04 %	1.38 %	0.43 %	0.83 %
Mean	7.50	7.33	6.93	6.63
(Standard Error)	(2.05)	(2.24)	(1.81)	(1.93)
Individuals	6,049	2,459	12,697	1,680

*Source: Own calculations based on GSOEP 1984-2005.*

Since the foreign-born in Germany cannot be considered as a homogeneous group I indicate the level of life satisfaction for various countries of origin (see Table 2). In the year 1984 as well as in the year 2005 the Spanish immigrants in Germany display the highest level of subjective well-being. In 1984 these immigrants even had a higher satisfaction level than their native counterparts. Interestingly, immigrants from Turkey which represent the largest community among the foreign-born in Germany display the lowest level of subjective well-being in 1984 as well as in 2005. Comparing life satisfaction in 1984 and 2005 immigrants from Ex-Yugoslavia show the strongest decline in the happiness level, i.e. from 7.6 to 6.5. In

the latest GSOEP wave no immigrant population has a higher level of life satisfaction than the native population.

Table 2: Life satisfaction by country of origin and employment Status

Year	1984			2005		
Country of Origin	Total	employed	not employed	Total	employed	not employed
Germany	7.50 (2.05)	7.61 (1.87)	7.28 (2.33)	6.93 (1.81)	7.09 (1.67)	6.51 (2.09)
Turkey	6.95 (2.41)	7.04 (2.30)	6.78 (2.60)	6.22 (1.89)	6.58 (1.62)	5.89 (2.06)
Ex-Yugoslavia	7.61 (2.18)	7.72 (2.07)	7.18 (2.49)	6.30 (2.12)	6.52 (2.00)	6.00 (2.28)
Italy	7.36 (2.16)	7.55 (2.15)	6.84 (2.13)	6.69 (1.83)	7.04 (1.69)	5.93 (1.90)
Spain	7.70 (2.08)	7.89 (1.85)	7.22 (2.51)	6.60 (2.09)	7.14 (1.70)	5.80 (2.40)
Rest of Europe	7.35 (2.18)	7.49 (2.02)	6.94 (2.58)	6.81 (1.92)	7.05 (1.78)	6.27 (2.10)
Rest of the World	7.23 (2.18)	7.59 (1.82)	6.74 (2.58)	6.82 (1.90)	7.06 (1.69)	6.39 (2.16)
Mean	7.45	7.57	7.19	6.89	7.07	6.45
(Standard Error)	(2.11)	(1.94)	(2.38)	(1.83)	(1.68)	(2.10)
Individuals	8,508	5,727	2,781	14,377	10,268	4,109

*Source: Own calculations based on GSOEP 1984-2005.*

With regard to the employment status of the surveyed persons I find natives as well as immigrants who are employed to have a higher level of life satisfaction than individuals who are not employed.<sup>4</sup> Thereby, the difference amounts up to over one point for the Spanish and Italian immigrants in the year 2005. In comparison to the year 1984 the relationship between life satisfaction and employment status seems to have changed. Descriptive statistics for the year 2005 shows that being unemployed today is more detrimental for subjective well-being

<sup>4</sup>In the descriptive statistics no distinction between unemployed persons and individuals out of the labor force is made. They are grouped as not employed since the levels of life satisfaction are quite similar.



than it used to be since the spread in subjective well-being between individuals who are employed and who are not employed has risen.

Focusing on the length of stay of the foreign-born in Germany the average life satisfaction of immigrants surveyed in 2005 is presented in Table 3 . Thereby, I distinguish between five duration categories ranging from 1 to 9 years, 10 to 19 years, 20 to 29 years, 30 to 39 years and finally a category which consists of individuals with more than 39 years of residence in Germany.

Table 3: Life Satisfaction of Immigrants in Germany in 2005

Length of Stay	Total	employed	not employed
1 - 9 years	6.72 (1.77)	6.85 (1.87)	6.54 (1.64)
10 - 19 years	6.75 (1.83)	7.00 (1.68)	6.27 (2.03)
20 - 29 years	6.52 (1.93)	6.84 (1.62)	5.97 (2.27)
30 - 39 years	6.44 (1.80)	6.88 (1.87)	5.85 (2.21)
$\geq 40$ years	6.89 (1.90)	7.22 (1.72)	6.42 (2.04)
Mean	6.63	6.94	6.12
(Standard Error)	(1.93)	(1.74)	(2.11)
Individuals	1,680	1,044	636

*Source: Own calculations based on GSOEP 2005.*

The data indicate that immigrants with up to 20 years of residence in Germany have on average a marginal higher level of life satisfaction than individuals who are staying between 20 to 39 years. Immigrants who have been living in Germany for more than forty years display the highest level of life satisfaction among the immigrant population. However, with regard to the length of stay the overall level in life satisfaction seems to be relatively constant over time.

## 4 Econometric Framework

### 4.1 Model Specifications

Since the dependent variable is measured on a categorical and ordinal scale the use of ordered regression models is appropriate to study the relationship between subjective well-being and the explanatory variables [Van Praag and Carbonell (2004)]. As descriptive statistics showed only few people choose the lowest answer categories (0 - 2) when asked about their current level of life satisfaction (see Table 1). Hence, these categories are merged into one new group so that there remain nine different classes (0 - 8), which provide information on subjective well-being of the surveyed individuals.

#### Ordered Logit Model

In the first econometric specification a simple ordered logit model is used to study the determinants of subjective well-being in Germany. The underlying idea in this specification is that actual life satisfaction of individuals  $y$  is unobservable. Thus, subjective well-being represents a latent variable  $y^*$  ranging from  $-\infty$  to  $\infty$  depending on a set of explanatory variables  $x$  which can be observed for every individual  $i = 1, \dots, n$  over time  $t = 1, \dots, T$  [Long and Freese (2006)]. The  $\beta$  and  $\varepsilon$  represent the vector of coefficients and the error term, respectively.

$$y_{it}^* = x_{it}\beta + \varepsilon_{it} \quad (1)$$

In contrast to the binary logit model where only two mutually exclusive outcomes (0 and 1) are possible the ordered logit model expands the outcome categories by dividing  $y^*$  into  $J$  ordinal categories:

$$y_{it} = m \quad \text{if } \tau_{m-1} \leq y_{it}^* < \tau_m \quad \text{for } m = 1 \text{ to } J \quad (2)$$

The  $\tau_m$  through  $\tau_{m-1}$  represent the cut-points which are estimated by the model. By assumption  $\tau_0 = -\infty$  and  $\tau_J = \infty$ . The probability that subjective well-being at a given point in time  $y_{it}$  equals a specific category  $m$  among the nine levels of life satisfaction given the observed values of the explanatory variables  $x_{it}$  (left-hand side of equation 3) is equal to

the probability that the latent level of life satisfaction  $y_{it}^*$  is enclosed by the cut-points  $\tau_m$  and  $\tau_{m-1}$  given the values of the observed values of the explanatory variables  $x_{it}$  (right-hand side of equation 3)

$$\Pr(y_{it} = m|x_{it}) = \Pr(\tau_{m-1} \leq y_{it}^* < \tau_m|x_{it}) \quad (3)$$

Substituting the expression  $x_{it}\beta + \varepsilon_{it}$  for  $y_{it}^*$  and rearranging (3) yields equation (4) where  $F$  represents the cumulative distribution function for the error term, which is in the case of an ordered logit model a logistic distribution (see equation 5).

$$\Pr(y_{it} = m|x_{it}) = F(\tau_m - x_{it}\beta) - F(\tau_{m-1} - x_{it}\beta) \quad (4)$$

$$\Pr(y_{it} = m|x_{it}) = \frac{\exp(\tau_m - x_{it}\beta)}{1 + \exp(\tau_m - x_{it}\beta)} - \frac{\exp(\tau_{m-1} - x_{it}\beta)}{1 + \exp(\tau_{m-1} - x_{it}\beta)} \quad (5)$$

For  $y = 1$ , the second term on the right side in equation (4) cancels out since  $F(-\infty - x_{it}\beta) = 0$  and for  $y = J$  the first term on the right hand side in equation (4) equals  $F(-\infty - x_{it}\beta) = 1$ . Hence, for the nine different levels of life satisfaction eight cut-points are calculated whereas the vector of coefficients  $\beta$  remains identical for the different levels of subjective well-being. It is the specification of the ordered logit model which implies that the coefficient for each explanatory variable is identical across the outcome categories.

### Generalized Ordered Logit Model

The generalized ordered logit model relaxes the proportional odds or parallel line assumption of the simple ordered logit model [Williams (2006)]. In particular, in the generalized version each coefficient  $\beta$  is allowed to differ for each of the categories  $m$  so that the impact of the explanatory variables is subject to the happiness level of the individuals. For instance, the number of children might be more important for persons with a low satisfaction level than for individuals with a high level of subjective well-being. For the latter other aspects in life such as income or the health status might be more decisive for happiness. In order

to take these effects among the explanatory variables into account equation 5 is modified yielding the following expression:

$$\Pr(y_{it} = m|x_{it}) = F(\tau_m - x_{it}\beta_m) - F(\tau_{m-1} - x_{it}\beta_{m-1}) \quad (6)$$

Hence, in equation (6) each coefficient in the vector of coefficients  $\beta_m$  does not necessarily have to be the same for all categories but may change so that an explanatory variable is more important for some levels life satisfaction than for others. Accordingly, predicted probabilities in the general ordered logit model are computed as follows:

$$\Pr(y_{it} = 1|x_{it}) = \frac{\exp(\tau_1 - x_{it}\beta_1)}{1 + \exp(\tau_1 - x_{it}\beta_1)} \quad (7)$$

$$\Pr(y_{it} = m|x_{it}) = \frac{\exp(\tau_m - x_{it}\beta_m)}{1 + \exp(\tau_m - x_{it}\beta_m)} - \frac{\exp(\tau_{m-1} - x_{it}\beta_{m-1})}{1 + \exp(\tau_{m-1} - x_{it}\beta_{m-1})} \text{ for } m = 2 \text{ to } J - 1 \quad (8)$$

$$\Pr(y_{it} = J|x_{it}) = \frac{\exp(\tau_{J-1} - x_{it}\beta_{J-1})}{1 + \exp(\tau_{J-1} - x_{it}\beta_{J-1})} \quad (9)$$

In order to verify which of the coefficients violate the parallel line assumption I will run a Brant test [Brant (1990)]. This test compares slope coefficients of the  $J - 1$  binary logits implied by the ordered regression model. In a first step the generalized ordered logit model is run resulting in estimates for the coefficients. However, in a second step Wald tests are computed on each coefficient in order to check whether the parallel line assumption is violated. In other words, it is tested whether the coefficient should be identical for all categories or vary across the different satisfaction levels. In a third step, a global Wald test compares the model with constraints, i.e. coefficients do not vary across categories, and the model without constraints, i.e. coefficients (could) vary across categories. Finally, we arrive at a model where - in principle - all, some or no coefficient(s) violate(s) the proportional odds assumption. In case all coefficients meet the parallel line assumption the generalized ordered logit model collapses into the simple ordered logit model.

However, if some or no coefficient(s) violate the parallel line assumption the generalized ordered logit model provides a deeper understanding on the determinants of subjective well-being. In particular, a more complete picture which explanatory variables are associated with positive and negative impacts on the level of life satisfaction can be presented. In addition, I also indicate whether the point estimates obtained by the simple ordered logit models differ from the coefficients estimated by the generalized ordered logit models. Boes and Winkelmann (2006) provide first evidence that disentangling effects of the explanatory variables reveals further insights on the determinants of subjective well-being.<sup>5</sup>

## 4.2 Explanatory Variables

Following, Blanchflower and Oswald (2004) as well as Frijters, Haisken-DeNew, and Shields (2004a) net income in its logarithmic form is included among the regressors since it represents an approximation for economic well-being (*log income*).<sup>6</sup> Thereby, income does not only comprise labor earnings but also interests, rents, dividends from stocks etc. In case of unemployment the variable *log income* also consists of social assistance and/or unemployment benefits. Apart from income, there are other factors which are associated with subjective well-being. As previous studies revealed the employment status seems to be important [e.g. Winkelmann and Winkelmann (1998)]. The employment status is taken into account by including three dummy variables, namely *working* (reference category), *unemployed* and *nonparticipant* in the labor market. However, net income and employment status do not necessarily reflect the economic situation of the individuals appropriately. Employed individuals with a relatively high income may also face financial constraints due to mortgages, loans or other debts. That is why the self-reported financial situation is considered in the set of explanatory variables, i.e. *very concerned*, *somewhat concerned* and *not concerned at all* (reference category).

Previous studies found a U-shaped relationship between age and life satisfaction. In general, individuals aged around 40 are the least satisfied with their life compared to younger

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<sup>5</sup>The authors study the effect of income on positive and negative subjective well-being using a generalized ordered probit model.

<sup>6</sup>Gardner and Oswald (2006) provide evidence that income causes happiness. Using a sample of lottery winners they show that subjective well-being significantly increased due to unexpected money transfer.

and older persons [Diener, Suh, Lucas, and Smith (1999)]. Thus, I control for this possible non-linear relationship including the variables *age* as well as  $age^2$ . The dummy variable *male* indicates whether there exist differences in subjective well-being between men and women. As Winkelmann (2005) shows the health status represents another important predictor of life satisfaction. The five categories on health status contained in the GSOEP data set are transformed into a dichotomous variable distinguishing between persons who describe their current health as good or very good (*Health*) and those who report a satisfactory, poor or bad status. In this context, a dummy variable *disabled* is introduced in order to reveal whether being handicapped is detrimental for individual well-being.

In addition, the marital status seems to be quite important for individual well-being [Diener, Suh, Lucas, and Smith (1999)]. Family ties are taken into consideration by several dummy variables (*married, separated, single, divorced, or widowed* (reference category)). In this context, I also include the number of children as an explanatory variable. Since information on the educational background is given a distinction between three skill levels derived from the International Standard Classification of Education (ISCED) is made. Individuals with no or only a first school degree are classified as low-skilled (*low*), whereas persons with a completed apprenticeship or vocational training are considered as medium skilled (*medium*). Finally, persons with a full university degree are regarded as high-skilled (*high*) and serve as the reference group.

In order to capture differences between East and West Germany the dummy variable *West Germany* is included. Differences in subjective well-being within the immigrant population are taken into account by controlling for the country of origin (*Turkish, Ex-Yugoslavian, Italian, Spanish, Rest of Europe, Rest of World*). The Turkish immigrants serve as the reference category. In this context, migration duration measured in years since arrival is considered as an explanatory variable (*duration*). To verify whether there exists a non-linear relationship between satisfaction level and length of stay the associated square term ( $duration^2$ ) is introduced.

With regard to the macroeconomic environment survey participants are asked whether they are concerned about the general economic development. This information is considered in the set of explanatory variables by three dummy variables, i.e. *big worries, some worries* and *no worries* (reference category).

## 5 Results

In this section, I will first present results from the simple ordered logit regression for the period 1984 - 2005. In a second step, the empirical findings of the generalized ordered logit model are given. Thereby, I report to what extent the explanatory variables affect different levels of subjective well-being.

### Ordered Logit Model

In Table 5 results from the ordered logit regressions are presented. Since individuals are surveyed on several years standard errors are corrected to account for cluster effects. In order to capture a possible time trend, dummy variables for each year are introduced. Thereby, only weak evidence is found that the level of subjective well-being has deteriorated beginning at the end of the 1980s within then native and since the middle of the 1990s within the immigrant population.

In model (1) the estimated coefficients for the native population are given whereas model (2) and (3) present results for the immigrant population. In the latter model I additionally control for country of origin effects among the immigrant population.

The empirical investigation shows that male natives are less satisfied with their life than females ( $-0.127$ ). Within the immigrant population no statistically significant difference between males and females could be found. The U-shaped relationship between age and subjective well-being holds true within the native but not within the foreign-born sample. However, the health status represents the most important determinant in subjective well-being for Germans (1.861) as well as immigrants (1.758).

Table 4: Ordered Logit Models for the years 1984 - 2005

Variables	(1)		(2)		(3)	
	Natives		Immigrants			
	$\beta$	Std. Error	$\beta$	Std. Error	$\beta$	Std. Error
Male	-0.127***	0.024	-0.104	0.071	-0.069	0.071
Age	-0.005***	0.001	-0.000	0.003	-0.005	0.003
Age <sup>2</sup>	0.001***	0.000	0.001***	0.000	0.001***	0.000
No. of Children	-0.038***	0.013	-0.008	0.025	-0.002	0.023
Married	0.367***	0.051	0.532***	0.188	0.572***	0.194
Separated	-0.249**	0.083	-0.289	0.239	-0.302	0.245
Single	0.109*	0.061	0.523**	0.221	0.470**	0.224
Divorced	0.047	0.062	0.103	0.216	0.088	0.221
Widowed	-	-	-	-	-	-
Low Education	-0.088***	0.042	-0.062	0.082	0.004	0.085
Med. Education	-0.041	0.027	0.099	0.075	0.124	0.077
High Education	-	-	-	-	-	-
West Germany	0.454***	0.026	0.944***	0.352	1.054***	0.358
Turkish	-	-	-	-	-	-
Ex-Yugoslavian	-	-	-	-	0.285***	0.108
Italian	-	-	-	-	0.294***	0.094
Spanish	-	-	-	-	0.573***	0.151
Rest of Europe	-	-	-	-	0.302***	0.077
Rest of World	-	-	-	-	0.689***	0.095
Unemployed	-0.027	0.031	-0.388***	0.081	-0.363***	0.081
Nonparticipant	-0.036	0.047	-0.252*	0.152	-0.211	0.151
Working	-	-	-	-	-	-
Log income	0.067***	0.007	0.049***	0.017	0.048***	0.017



<i>continued</i>						
Big worries	-0.125***	0.033	-0.061	0.075	-0.071	0.075
Some worries	-0.159***	0.028	-0.074	0.060	-0.079	0.061
No worries	-	-	-	-	-	-
Very concerned	-1.702***	0.030	-1.582***	0.069	-1.552***	0.069
Somewhat conc.	-0.889***	0.019	-0.828***	0.052	-0.830***	0.051
Not conc. at all	-	-	-	-	-	-
Health	1.861***	0.031	1.755***	0.083	1.758***	0.082
Disabled	-0.302***	0.036	-0.413***	0.104	-0.399***	0.104
Duration	-	-	-0.011***	0.004	-0.003	0.004
Duration <sup>2</sup>	-	-	0.000	0.000	0.000	0.000
Year Dummies	Yes		Yes		Yes	
Observations	109,007		15,790		15,790	
Log-Likelihood	-195,191		-27,570		-27,664	

*Source: Own calculations based on GSOEP 1984-2005.*

The relationship between employment status and subjective well-being is quite important among the immigrant population. Unemployed foreigners are significantly less happy ( $-0.363$ ) than working immigrants whereas no differences across the employment status are found within the native sample. Income has a small and positive effect on the immigrants' ( $0.048$ ) and the natives' life satisfaction ( $0.067$ ). However, the financial situation determines life satisfaction in both subsample to a large extent, i.e. natives  $-1.702$  and immigrants  $-1.552$ . The general economic development influences the level of subjective well-being of natives ( $-0.125$ ) but not that of immigrants.

In accordance with previous findings [Frijters, Haisken-DeNew, and Shields (2004a) and Frijters, Haisken-DeNew, and Shields (2004b)] the place of residence determines the happiness level to a large extent. Natives ( $0.454$ ) as well as foreigners ( $1.054$ ) living in West Germany display a higher level of life satisfaction than individuals in the East.

Immigrants from Turkey are significantly less satisfied with their life than all other immigrant groups in Germany, although they represent the largest community of the foreign-born. With regard to the length of stay I only find in model (2) a small but negative impact on sub-

jective well-being ( $-0.011$ ). This finding might in turn represent an additional explanation for the out-migration of the foreign-born.

With regard to the marital status and family ties, children only seem to have a small but negative impact on self-reported well-being for natives ( $-0.038$ ) whereas no effect seems to exist for immigrants. Married individuals and singles are significantly happier than widowed persons whereas the coefficient of separated individuals is only significant and negative within the native population ( $-0.249$ ). The educational background only has a small effect on self-reported well-being within the native ( $-0.088$ ) and no statistically significant impact within the immigrant sample.

### **Generalized Ordered Logit Model**

In this subsection results from the generalized ordered logit model for the years 1984 - 2005 are presented. This econometric specification allows a more precise analysis of subjective well-being since explanatory variables may have positive as well as negative impacts with regard to the level of life satisfaction. In Table 5 the estimated vector of coefficients for the native population and their standard errors corrected for cluster effects are given. The associated Brant test indicates that there are five variables for which the proportional odds assumption holds, namely for the number of children, for the categories married, single and divorced individuals as well as for nonparticipants in the labor market. Hence, for these variables the coefficient does not vary across the categories of life satisfaction.

Comparing the point estimates from the ordered logit model with the coefficients from the generalized ordered logit model that meet the proportional odds assumption I do not only find the same signs but also their impacts to be quite similar. The number of children has a small but negative influence on the level of happiness ( $-0.038$ ) while married persons are more likely to display a higher level of subjective well-being ( $0.338$ ). Divorced persons and singles are not statistically different in their life satisfaction from widowed persons. With regard to the employment status nonparticipants do not display a higher or lower level of well-being than the employed.

Table 5: Generalized Ordered Logit Model for the years 1984 - 2005 - Native Population

Model 4								
Vector of Coeff.	1	2	3	4	5	6	7	8
Male	-0.129* (0.076)	-0.119** (0.054)	-0.082* (0.043)	-0.021. (0.033)	-0.060** (0.029)	-0.124*** (0.026)	-0.215*** (0.033)	-0.273*** (0.050)
Age	-0.002 (0.003)	-0.001 (0.002)	-0.001 (0.002)	-0.012*** (0.012)	-0.011*** (0.001)	-0.006** (0.001)	-0.005*** (0.001)	0.013*** (0.002)
Age <sup>2</sup>	-0.001* (0.000)	0.000 (0.000)	0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
No. of Children	-0.038*** (0.014)	-0.038*** (0.014)	-0.038** (0.014)	-0.038*** (0.014)	-0.038*** (0.014)	-0.038*** (0.014)	-0.038*** (0.014)	-0.038*** (0.014)
Married	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)	0.338*** (0.046)
Separated	-0.544*** (0.156)	-0.667*** (0.667)	-0.548*** (0.104)	-0.429*** (0.085)	-0.360*** (0.081)	-0.200** (0.046)	0.029 (0.110)	-0.099 (0.161)
Single	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)	0.063 (0.058)
Divorced	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)	0.017 (0.058)
Widowed	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)
Low Education	-0.107 (0.128)	-0.117 (0.088)	-0.092 (0.072)	-0.331* (0.054)	-0.246*** (0.047)	-0.103** (0.043)	0.040 (0.054)	0.455*** (0.084)
Med. Education	0.114 (0.109)	0.059 (0.070)	0.071 (0.054)	-0.174 (0.040)	-0.119*** (0.034)	-0.056* (0.030)	-0.032 (0.036)	0.305*** (0.060)
High Education	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)	- (0.058)
Log income	-0.009 (0.025)	-0.008 (0.016)	0.014 (0.013)	0.076*** (0.010)	0.086*** (0.008)	0.074*** (0.008)	0.060*** (0.010)	0.0155 (0.014)
West Germany	0.040 (0.094)	0.216*** (0.064)	0.243** (0.050)	0.393*** (0.036)	0.438*** (0.032)	0.491*** (0.031)	0.663*** (0.046)	0.753*** (0.080)

<i>continued</i>								
Unemployed	-0.379*** (0.092)	-0.288*** (0.064)	-0.228*** (0.051)	-0.128*** (0.037)	-0.114*** (0.034)	0.002 (0.032)	0.099** (0.040)	0.116** (0.057)
Nonparticipant	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)	-0.040 (0.043)
Working	-	-	-	-	-	-	-	-
Big worries	0.458*** (0.112)	0.322*** (0.078)	0.251* (0.065)	0.062 (0.047)	-0.042 (0.040)	-0.110*** (0.034)	-0.162*** (0.040)	0.126** (0.059)
Some worries	0.548*** (0.103)	0.400*** (0.073)	0.322** (0.060)	0.151*** (0.042)	-0.019 (0.035)	-0.139*** (0.029)	-0.277*** (0.032)	-0.348** (0.048)
No worries	-	-	-	-	-	-	-	-
Very concerned	-2.041*** (0.096)	-2.053*** (0.069)	-2.014*** (0.057)	-1.912*** (0.039)	-1.791*** (0.033)	-1.518*** (0.032)	-1.272*** (0.044)	-1.041*** (0.063)
Somewhat conc.	-0.485*** (0.090)	-0.692** (0.062)	-0.847*** (0.049)	-0.935*** (0.031)	-0.947*** (0.025)	-0.895*** (0.021)	-0.911*** (0.025)	-1.029*** (0.040)
Not conc. at all	-	-	-	-	-	-	-	-
Health	2.373*** (0.070)	2.313*** (0.046)	2.167*** (0.037)	1.853*** (0.031)	1.679*** (0.030)	1.511*** (0.034)	1.388*** (0.054)	1.331*** (0.080)
Disabled	-0.394*** (0.082)	-0.264*** (0.062)	-0.229*** (0.053)	-0.316*** (0.041)	-0.313*** (0.037)	-0.264*** (0.037)	-0.246*** (0.050)	-0.140** (0.069)
Year Dummies	Yes							
Observations	109,007							
Log-Likelihood	-183,069							

*Source: Own calculations based on GSOEP 1984-2005.*

For the remaining explanatory variables the coefficients differ across the categories since they violate the parallel line assumption. With regard to income there is a positive and significant impact for the categories four to seven whereas no effect exists in the lower satisfaction levels. In line with findings of Boes and Winkelmann (2006) income has a positive but not a negative effect on subjective well-being. However, being unemployed is negatively associated with the happiness level ( $-0.379$ ), although its impact is decreasing in higher levels of subjective well-being ( $-0.114$ ). Hence, individuals with a higher level of

happiness are positively influenced by other factors.

The results in Table 5 indicate that the place of residence, i.e. living in West Germany, has a positive and increasing impact on the happiness level. In contrast, the coefficients of the health status are decreasing from 2.373 to 1.331. Hence, there seem to exist trade-offs between the determinants of subjective well-being. As in previous studies a U-shaped relationship between life satisfaction and age is found within the native population.

In addition, persons with the highest happiness level who indicate that they consider their own financial situation as very concerned are less affected by these circumstances than individuals with a low level of happiness. Interestingly, the happiness level of the least satisfied is positively affected by the bad general economic development (0.458). Individuals at the lower end obviously derive a benefit from the overall detrimental macroeconomic environment.

In Table 6 the results of the generalized ordered logit model for the immigrant population are presented. As in the analysis of the native population a Brant test was performed for this subsample in order to test whether coefficients of the explanatory variables meet the parallel line assumption. Thereby, the coefficients for the number of children, married, separated and divorced individuals meet assumption. In addition, the coefficients for living in West Germany as well as nonparticipating in the labor market do not vary across the categories. Moreover, the variables  $\text{age}^2$ ,  $\text{duration}$  and  $\text{duration}^2$ , nonparticipant, Ex-Yugoslavian and Spanish also do not violate the proportional odds assumption.

Again, the point estimates in the simple ordered logit regression [model (3)] are by and large similar to the coefficients of the generalized version. Married individuals are more likely to display a higher level of life satisfaction (0.548) than all other individuals. Separated and divorced persons are statistically not different from widowed individuals with respect to their self-reported well-being. The number of children has no significant impact on subjective well-being at all. The coefficients for  $\text{age}$  and  $\text{age}^2$  show the expected signs indicating a weak U-shaped relationship between life satisfaction and aging among the immigrant population.

Table 6: Generalized Ordered Logit Model for the years 1984 - 2005 - Immigrant Population

Model 5								
Vector of Coeff.	1	2	3	4	5	6	7	8
Male	0.212 (0.211)	0.131 (0.147)	0.310*** (0.114)	0.016 (0.092)	-0.0455 (0.082)	-0.082 (0.076)	-0.187* (0.093)	-0.059 (0.124)
Age	0.002 (0.009)	-0.004 (0.006)	-0.007 (0.005)	-0.012*** (0.004)	-0.010*** (0.004)	-0.007* (0.004)	-0.002 (0.004)	0.011** (0.005)
Age <sup>2</sup>	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)	0.001*** (0.001)
No. of Children	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)	-0.002 (0.023)
Married	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)	0.548*** (0.181)
Separated	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)	-0.337 (0.235)
Single	-0.730 (0.529)	-0.124 (0.405)	0.726 (0.289)	0.292 (0.231)	0.382* (0.215)	0.392* (0.213)	0.712*** (0.226)	0.563** (0.262)
Divorced	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)	0.577 (0.208)
Widowed	-	-	-	-	-	-	-	-
Low Education	-0.625* (0.364)	-0.287 (0.211)	-0.042 (0.153)	-0.174* (0.112)	-0.027 (0.098)	0.076 (0.096)	-0.034 (0.111)	0.313** (0.159)
Med. Education	-0.481 (0.355)	-0.188 (0.204)	0.153 (0.151)	0.043 (0.102)	0.146* (0.087)	0.168* (0.088)	0.040 (0.105)	0.348** (0.157)
High Education	-	-	-	-	-	-	-	-
Log income	-0.013 (0.056)	-0.020 (0.042)	-0.010 (0.010)	0.082*** (0.021)	0.069*** (0.018)	0.047** (0.018)	0.041* (0.023)	-0.021 (0.027)
West Germany	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)	1.024*** (0.349)

<i>continued</i>								
Unemployed	-0.764*** (0.208)	-0.609*** (0.144)	-0.656*** (0.119)	-0.433*** (0.096)	-0.414*** (0.087)	-0.257*** (0.083)	-0.054 (0.108)	0.045 (0.147)
Nonparticipant	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)	-0.174 (0.146)
Working	-	-	-	-	-	-	-	-
Ex-Yugoslavian	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)	0.283*** (0.107)
Italian	0.269 (0.379)	0.526** (0.245)	0.169 (0.159)	0.336*** (0.127)	0.299** (0.112)	0.367*** (0.109)	0.244** (0.119)	-0.055 (0.171)
Spanish	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)	0.573*** (0.147)
Rest of Europe	0.132 (0.229)	-0.037 (0.151)	0.102 (0.120)	0.260*** (0.099)	0.370*** (0.090)	0.373*** (0.083)	0.279*** (0.096)	0.052 (0.132)
Rest of World	0.109 (0.283)	0.015 (0.207)	0.356** (0.153)	0.558*** (0.120)	0.671*** (0.107)	0.749*** (0.104)	0.731*** (0.120)	0.524*** (0.166)
Turkish	-	-	-	-	-	-	-	-
Big worries	0.674** (0.267)	0.611*** (0.199)	0.319** (0.156)	0.032 (0.103)	0.032 (0.089)	-0.063 (0.079)	-0.153* (0.088)	-0.027 (0.121)
Some worries	0.903*** (0.286)	0.911*** (0.198)	0.386** (0.149)	0.258*** (0.093)	0.118 (0.075)	-0.093 (0.065)	-0.230*** (0.068)	-0.274*** (0.098)
No worries	-	-	-	-	-	-	-	-
Very concerned	-2.042*** (0.178)	-2.071*** (0.127)	-2.022*** (0.104)	-1.770*** (0.080)	-1.654*** (0.074)	-1.481*** (0.087)	-1.168*** (0.085)	-0.976*** (0.115)
Somewhat conc.	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)	-0.854*** (0.052)
Not conc. at all	-	-	-	-	-	-	-	-

<i>continued</i>								
Health	2.133*** (0.177)	2.173*** (0.128)	2.129*** (0.095)	1.553*** (0.080)	1.563*** (0.078)	1.373*** (0.087)	1.116*** (0.130)	0.780*** (0.190)
Disabled	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)	-0.398*** (0.102)
Duration	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)
Duration <sup>2</sup>	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)
Year Dummies	Yes							
Observations	15,790							
Log-Likelihood	-27,143							

*Source: Own calculations based on GSOEP 1984-2005.*

With regard to the place of residence living in West Germany is highly significant and positively affects subjective well-being throughout all happiness levels (1.024). However, the health status represents the most important indicator for life satisfaction within the immigrant sample ranging from 2.133 to 0.780.

The educational background is only significant at the lower and upper end of the satisfaction levels. In the former case a negative influence and in the latter case a positive impact is found. Distinguishing between the country of origin foreigners from Ex-Yugoslavia (0.283) and Spain (0.573) display a statistically significant higher level of self-reported subjective well-being than Turkish immigrants (reference group). However, with regard to the length of stay in Germany no differences between short-term and long-term residents are found.

The coefficients of income only appear to be positive and significant within higher levels of life satisfaction. However, unemployment negatively affects subjective well-being in the lower levels of well-being (-0.764). Compared to the native population the negative impact is even stronger within the foreign-born population. In this respect migration theory is confirmed where individuals are assumed to leave their country of origin in order to work abroad.



In addition, the results on unemployment and happiness within the immigrant sample indicate that unemployment can be considered as involuntary since it is associated with a lower happiness level [Winkelmann and Winkelmann (1998) and Frey and Stutzer (2002)]. Interestingly, foreign-born at the lower level of subjective well-being are positively affected by a detrimental economic environment (0.674). Obviously, individuals compare their own situation with the general economic development putting their own circumstances into perspective.

## 6 Conclusion

Migration literature suggests that individuals are leaving their country of origin due to a positive income differential between the home and host economy. Thereby, migrants are supposed to arrive at a higher utility level once they have settled in the destination country. However, results from happiness research indicate that individual life satisfaction is not only associated with material well-being but also subject to other aspects in life. Against this background the study addresses the question of subjective well-being on the foreign-born.

The empirical findings indicate that income determines life satisfaction of immigrants in Germany only to a small extent. However, subjective well-being is highly associated with the employment status. In particular, unemployed foreigners display a significantly lower level of life satisfaction than employed immigrants. Hence, these results provide evidence that immigrants in Germany pursue to make a living from work as predicted in economic migration theory. In contrast, being unemployed corresponds to a lower level of life satisfaction.

Apart from economic aspects, the marital status represents an important factor for well-being. Married immigrants who are living together with their spouse display a significantly higher level of life satisfaction than the other types. However, among all explanatory variables the health status seems to be the most important determinant for life satisfaction. With respect to the overall level of well-being immigrants in Germany are significantly less satisfied with their life than the native population. But, differences among immigrants exist since foreigners originating from Southern European countries display a higher level of subjective

well-being than immigrants from other countries. With regard to the length of stay no significant relationship between the migration duration and the happiness level was found.

Due to data availability this investigation focused on immigrants residing in the host country. Hence, it would be promising to study how their life satisfaction was at the time of the migration decision, i.e. when they lived in their country of origin. In addition, since some migrants return to their home country it would be interesting to analyze how life satisfaction is associated with the return migration decision as well as how subjective well-being develops once they have come back to their country of origin again.

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