



UNIVERSITY OF  
CAMBRIDGE

# Cambridge Working Papers in Economics

*Does integration increase life satisfaction?*

*Zs Koczan*

CWPE 1314

# Does integration increase life satisfaction?<sup>☆</sup>

Zs. Koczan\*

*University of Cambridge, Cambridge, UK*

---

## Abstract

In recent years there has been increasing interest in measuring subjective well-being in economics; most of the literature on immigrants has however continued to focus on ‘objective’ measures of integration such as employment and education outcomes. This paper aims to complement these studies by analysing the life satisfaction of immigrants once settled in the host country, examining which elements of integration matter for life satisfaction. We find that in terms of simple averages immigrants appear to be less satisfied than natives. However, contrary to the results of some recent papers, this difference can be explained by factors related to economic integration, such as the details of their employment conditions, rather than cultural factors such as feelings of not belonging, which often loom large in the public mind. Also segregation does not affect their life satisfaction *per se*. While having host country citizenship appears to have a large, significant positive effect in a simple pooled ordinary least squares specification, exploiting a natural experiment of changes in the citizenship law in the host country we find that this is driven by a selection effect rather than an increase in life satisfaction due to obtaining citizenship.

*Keywords:* Integration, subjective well-being, segregation, citizenship law

*JEL classification:* J15, K37, O15

---

<sup>☆</sup>Special thanks go to Pramila Krishnan for her advice and encouragement. Hamish Low and Alexander Plekhanov as well as seminar participants at Cambridge, London, Munich and Nuremberg provided helpful suggestions.

\*zk219@cam.ac.uk; +447859204796

## 1. Introduction

In the popular mind migration is often associated with an increase in well-being, as embodied in narratives of the ‘promised land’ and a move ‘in hope of a better future’. In recent years there has been increasing interest in measuring subjective well-being in economics; it has also featured prominently in public discourse and debates (e.g. the Stiglitz-Sen-Fitoussi Report on social progress and well-being, commissioned by Nicholas Sarkozy; the British National Well-Being Project embraced by David Cameron). Most studies of migrants have however continued to focus on how well integrated immigrants are in terms of education or employment outcomes, the security of their legal or residential status or the degree to which they can achieve citizenship - important questions in their own right - but have rarely looked at the subjective consequences of these objective situations, in particular the question whether integration (however conceived) increases life satisfaction.

We will examine two questions: (1) we will first look at whether (and if so, why) immigrants are less satisfied than natives (as suggested by some recent papers) and (2) we will then analyse the determinants of the subjective well-being of immigrants, in a sense examining ‘who does better and who does worse’ among the group of migrants<sup>1</sup>. We do not attempt to find a single measure of ‘integration’, rather aim to examine the question from different angles. Card, Dustmann and Preston (2012) recently highlighted that public attitudes toward immigration policy are more influenced by cultural and social concerns than economic ones. We will look at various socioeconomic and cultural measures that could be associated with integration, trying to shed light on the question which elements of integration matter for subjective well-being.

As Graham (2008) put it: ‘happiness surveys may shed light on how the *direction* and *nature* of progress affects well-being’ (Graham 2008, p.85, italics in the original). Such potential policy implications may be interesting in the context of immigration as public discourse often debates the ‘alternatives’ of integration, assimilation or multiculturalism. Research on the subjective well-being of immigrants could thus have broader implications for social cohesion and hence policy.

---

<sup>1</sup>The words subjective well-being and life satisfaction are used here interchangeably, as measured using the standard life satisfaction question: ‘How satisfied are you with your life, all things considered?’.

The paper is structured as follows: section 2 reviews the empirical literature on the life satisfaction of immigrants, section 3 outlines the theoretical framework and section 4 discusses our empirical approach. Section 5 introduces the dataset used, section 6 presents the results including robustness tests and section 7 concludes.

## 2. Literature review

While most studies on immigrant integration have focused on objective integration parameters such as education and employment, in recent years there has been increasing interest in subjective well-being, primarily linked to the question whether migration increases life satisfaction. Such studies have however encountered the data constraint that to be able to assess the consequences of migration for subjective well-being we would want panel data from before the move as well as after arrival. Stillman, Gibson, McKenzie and Rohorua (2012) provided a key contribution to this field, relying on a natural experiment to compare successful and unsuccessful applicants to a migration lottery to experimentally estimate the impact of migration on objective and subjective well-being. A recent paper by Melzer and Muffels (2012) used the German reunification as a natural experiment to examine whether migration from East to West increased life satisfaction, focusing on income effects as well as the role of social comparisons. Bartram's (2010) study circumvented the data constraint by contrasting the 'marginal increase in satisfaction from income' among natives and migrants and found that the association between income and subjective well-being is indeed stronger for immigrants than for natives - but even for immigrants that association is still relatively weak.

Graham and Markowitz (2011) took one step back and looked at the selection effect, examining whether migrants are different from the rest of the population in terms of subjective measures of well-being. They found that people who intend to migrate are generally less satisfied than those who do not (as could be expected), however, more broadly, they found that migrants are 'frustrated achievers', people who have relatively high levels of objective well-being, such as income, but who are nonetheless dissatisfied with their situations and seek to improve them via migration.

Similarly, Knight, Song and Gunatilaka (2007) examined the question why rural-urban migrant households settled in urban China have an average life satisfaction score lower than that of rural households. Three basic hypotheses were considered: migrants had false expectations about their future

urban conditions, or about their future urban aspirations, or about their future selves. The disparity appears to be driven both by certain features of migrant conditions (in line with the classical literature on the psychology of migration and acculturative stress<sup>2</sup>), and by high aspirations (in line with Graham and Markowitz’s (2011) notion of ‘frustrated achievers’).

Few papers have looked at the well-being of immigrants once settled in the host country. These generally highlighted the relative dissatisfaction of migrants compared to the native population (Bartram, 2010; Amit, 2010; Safi, 2010; Baltatescu, 2007) and brought forward two explanations: discrimination and feelings of not belonging or loyalties towards immigrants’ countries of origin. The few papers that explicitly linked immigrants’ ethnic/ national identities to their life satisfaction usually found positive effects of strong majority identities and negative effects of strong minority identities on subjective well-being (Boski, 1989; Phinney *et al.*, 2001; Bartram, 2010). These results should however be interpreted more as correlations than as causal effects due to the likely endogeneity of identity.

We hope to contribute to the existing literature on subjective well-being and migration by focusing on the life satisfaction of immigrants once settled in the host country. First, we examine whether immigrants are indeed less satisfied than the natives (as suggested by the existing literature). Second, we study the determinants of the life satisfaction of immigrants in greater detail, analysing the role of socioeconomic as well as cultural factors. Unfortunately many of the papers looking at the subjective well-being of immigrants suffered from the endogeneity of current characteristics, such as identity, discrimination or social contacts, and omitted variable bias, primarily due to unobserved personality traits. We attempt to deal with these difficulties by relying on panel data. We use a fixed effects estimator to account for unobserved individual heterogeneity, examine changes over time and use lags to deal with reverse causality. We also examine restricted subsamples to assess robustness.

---

<sup>2</sup>See Park’s ‘marginal man’ (1928) or Handlin’s ‘uprooted’ and ‘children of the uprooted’ (Handlin, 1951, 1966). Concepts like ‘acculturative stress’ have been used to designate this immigration ‘psychopathology’ (Berry *et al.*, 1987; Berry, 2001), highlighting migrants’ cultural uprooting and ‘their establishing themselves’ again in the host society (Bourdieu and Sayad, 1964; Sayad, 1999).

### 3. Theoretical framework

While the terms life satisfaction and subjective well-being have been used above quite loosely, this section aims to outline a theoretical framework to serve as the basis of our empirical strategy. Psychologists argue that life satisfaction is both a ‘trait’ and a ‘state’, i.e. it has a stable, ‘genetic’ component, linked to personality traits such as extraversion, conscientiousness and emotional stability, but it is also affected by circumstances<sup>3</sup>. The life satisfaction of individual  $i$ , denoted  $\sigma_i$  can thus be written as a function

$$\sigma_i = \sigma(T_i, S_i) \tag{1}$$

where  $T_i$  captures the ‘trait’ component and  $S_i$  captures the ‘state’ component. These two factors can of course interact in influencing life satisfaction  $\sigma_i$  - an issue which we will take into consideration in our empirical approach.

Several papers (e.g. Fleurbaey, Schokkaert and Decanq, 2009; Kahneman and Deaton, 2010) have highlighted the distinction between emotional well-being or affect (the emotional quality of an individual’s everyday experience, the frequency and intensity of experiences of joy, stress, sadness, anger and affection that make one’s life pleasant or unpleasant) and life evaluation or cognition (the thoughts that people have about their life when they think about it). While life evaluation is an active exercise and is thus not a quantity that stands in the brain permanently, emotions flow constantly. When individuals answer survey questions on life satisfaction, they may not be given enough time to reflect properly and their judgement may be tainted by the mood of the day. Expressed satisfaction  $L_i$  is hence a noisy measure of the ‘true’, underlying life satisfaction  $\sigma_i$  and can be written as

$$L_i = L(T_i, R_i(A_i), d_i(f_i)) \tag{2}$$

where  $d_i$  is an error term, including  $f_i$ , the everyday fluctuations in affects and emotions,  $R_i$  incorporates the individual’s judgements about what makes a life good or bad (relative ‘weights’, which may in turn depend on ‘framing effects’ or reference groups  $A_i$ ). Context effects have been highlighted by

---

<sup>3</sup>The ‘trait-state-error’ model was originally proposed by Kenny and Zautra (1995). It has been later used by e.g. Ehrhardt, Saris and Veenhoven (2000); Schimmack and Lucas (2007); Lucas and Donnellan (2007); Schimmack *et al.* (2010) to look at well-being.

psychologists in several areas: how intelligent, smart, and happy people report themselves to be depends on the context of comparison (see Mussweiler, 2003 for a review; Diener, 2009 for the importance of context to well-being).  $A_i$  could thus include the past history of  $i$ 's life (pointing to the concept of adaptation) and the situation of his group of reference. Thus while  $T_i$  represents the 'trait' component of life satisfaction,  $R_i$  captures the 'state' component.

Our estimation equation can be written as

$$L_{it} = \alpha_i + \mu_t + \gamma X_{it} + d_{it} \quad (3)$$

where  $\alpha_i$  captures unobserved time invariant individual characteristics such as personality traits (the 'trait' component), while  $X_{it}$  incorporates the 'state' component, captured above by  $R_i$ .  $X_{it}$  includes more as well as less persistent components, however we do not wish to impose such distinctions *ex ante* and prefer to treat it instead as an empirical question.  $\mu_t$  captures aggregate trends or shocks using year dummy variables and  $d_{it}$  is the disturbance term, which includes affects and emotions  $f_i$ . Note that we do not treat life satisfaction as an autoregressive process since we argue that a person is not satisfied this year because he was satisfied last year, but that the correlation of life satisfaction over time is explained by (1) the 'trait' component and (2) the persistence in some of the circumstances, which made the individual satisfied last year as well.

#### 4. Estimation

We try to keep our empirical approach as close to this theoretical model as possible, explicitly acknowledging that subjective well-being depends on the interaction of a 'genetic' component, linked to personality traits, and circumstances, some of which may be more persistent than others. Most papers have looked at the determinants of life satisfaction relying on simple OLS, however since the 'trait' and the 'state' components may interact in affecting life satisfaction (i.e. unobserved personality traits may influence subjective well-being, while also being correlated with the characteristics on the right hand side), not taking into account this unobserved individual heterogeneity leads to biased estimates of the parameters of interest. We thus rely on panel data to compare a pooled OLS estimator with an estimator including individ-

ual fixed effects<sup>4</sup>. Whereas the pooled OLS estimator allows us to look at the effects of stable as well as changing characteristics or circumstances, but may be confounded by personality traits, the fixed effects estimator uses repeated observations on an individual over time to parse out the ‘trait’ component to give cleaner measures of the ‘state’ component.

As noted before, we are interested in two questions: (1) whether immigrants are less satisfied than natives (as suggested by the existing literature) and (2) what factors influence the life satisfaction of immigrants. We thus start our analysis by looking at the full sample, including both natives and immigrants to examine the first question, and will then restrict the sample to the immigrants only to examine the second.

The existing literature stresses the importance of individual characteristics such as age, gender, marital status and years of education, the harm done by unemployment or by competitive struggles among individuals and the negative effects of serious illness. For a comprehensive early review on the determinants of subjective well-being see e.g. Diener (1984). While we follow the literature in including controls for these characteristics, we extend this set to include variables which are of special interest in a migration context - please see Table 1 below. For a detailed discussion of each of these variables and available empirical evidence on them please see Table A.1 in the Appendix.

Table 1: Control variables

<i>personal &amp;</i>	age, gender, marital status, children, education,
<i>parental characteristics</i>	employment, home ownership, parental education, rural/ urban childhood, health
<i>migration-related variables</i>	years since migration, identity, German language skills, ethnic composition of neighbourhood, citizenship

<sup>4</sup>Ideally, given the discrete nature of our dependent variable, an ordered logit or probit model should be used. However, this raises the issue of how to incorporate individual fixed effects in an ordered logit model; the choice between suggested alternative estimators is not straightforward and raises further difficulties relating to the clustering of standard errors in panel data. Results in the following are thus based on pooled OLS with fixed effects; alternative specifications are examined as a robustness check and are discussed in section 6.5.



## 5. Data

We use data from the German Socio-Economic Panel (GSOEP), a large representative longitudinal survey of private households in Germany. Immigrants are oversampled in the GSOEP: our focus here is on the ‘B Foreigner West sample’, defined as those households where the head of household is Turkish, Italian, Spanish, Greek or from the former Yugoslavia. During the latter half of the 1950s the German government started actively recruiting guest workers in response to a labour shortage prompted by high economic growth rates. In 1973 the government stopped the recruitment of further guest workers as Germany entered a period of economic recession. In the subsequent years, the inflow of immigrants from the former guest worker countries consisted mainly of family members of those guest workers who remained in Germany (family reunification). The GSOEP was first administered in 1984, we use data until (and including) 2010 (the most recent wave currently available). We restrict our analysis to first generation immigrants as we do not wish to pool first and second generation immigrants together and the sample of second generation immigrants who were asked about our variables of interest is unfortunately too small for separate analysis.

We also rely on the ‘Microm indicators’, a unique dataset providing information on the ethnic composition of neighbourhoods at various levels of aggregation, which can be merged with the GSOEP<sup>5</sup>. These indicators are discussed in detail in section 6.3.

We use the standard life satisfaction survey question as our dependent variable:

*‘How satisfied are you with your life, all things considered?’*

with answer categories ranging from ‘completely dissatisfied’ (0) to ‘completely satisfied’ (10). This Satisfaction with Life Scale (SWLS) was developed to assess satisfaction with the respondent’s life as a whole. The scale does not assess satisfaction with life domains such as health or finances separately but allows subjects to integrate and weigh these domains in whatever way they choose (this was incorporated above through the relative weights  $R_i$ ). It therefore assesses an individual’s conscious evaluative judgement of his or her life by using the person’s own criteria (Pavot and Diener, 1993).

---

<sup>5</sup>due to privacy regulations this is only accessible on site at DIW Berlin

In the following we briefly discuss the reliability of this scale as a measure of life satisfaction.

The SWLS has been shown to be psychometrically well-validated (see e.g. Diener, 1984 or Pavot and Diener, 2008 for a review): it shows good convergent validity with other scales and with other types of assessments of subjective well-being. Its scores have been shown to correlate with measures of mental health and to be predictive of future behaviours such as suicide attempts (Diener *et al.*, 1985)<sup>6</sup>. New evidence from neuroscience also supports the reliability of life satisfaction questions: Davidson (2002, 2004) identified areas in the prefrontal cortex where the level of electrical activity is highly correlated with self-reported happiness, both across people and ‘within’ people over time<sup>7</sup>. Larsen, Diener and Emmons (1983) also found that such single life satisfaction measures did not seem to be highly contaminated by social desirability.

Given our comparison between natives and immigrants, an important concern is culture-based anchoring bias, i.e. cultural differences in response styles, so that people in different cultures might report different answers to the same question, even if in other respects their life quality is the same (see e.g. Oishi (2002) for a discussion of concepts like ‘happiness’ or ‘well-being’ in different languages and cultures). One basic check is to see to what extent the answers drawn from different countries and cultures appear to be influenced by the same factors: Rose and Özcan (2007) found that the determinants of life satisfaction in Turkey are very similar to those observed in the EU15, increasing our confidence in these measures. Also overall means are roughly in line, showing a significant increase in Turkey in the last decade according to both the Eurobarometer and World Values Survey results.

There is evidence that momentary mood influences subjects’ responses to subjective well-being questions (Schwarz and Clore, 1983). This finding

---

<sup>6</sup>The question also maps underlying thoughts and emotions well, i.e. shows patterns consistent to those which look at answers to the questions ‘Overall, to what extent do you feel the things you do in your life are worthwhile?’, ‘Overall, how happy did you feel yesterday?’ and (inversely) ‘Overall, how anxious did you feel yesterday?’. Positive and negative affect scales showed high independent correlations with a global well-being item (Beiser, 1974; Bradburn, 1969; Moriwaki, 1974)

<sup>7</sup>The scales correlate as expected with happiness ratings made about respondents by others and with other non-self-report data, e.g. Weinstein (1982) found that self-reported happiness was strongly related to an unobtrusive measure of smiling and laughing in an interview.

is consistent with memory research (e.g. Natale and Hantas, 1982), which shows that people tend to recall past events that are consonant with their current affect. However, despite the influence that current mood can have on subjective well-being measures, Kammann and Flett (1983) and Kammann *et al.* (1979) presented evidence indicating that this does not substantially distort scores, with both current mood and long-term affect being reflected in life satisfaction measures. Diener and Larsen (1984) found substantial amounts of cross-situational consistency in mean levels of person affect. Life satisfaction as assessed by the SWLS shows a degree of temporal stability (e.g. 0.54 for 4 years), with part of this being explained by personality and part by the stability of conditions in the respondents' lives. Yet, it has sufficient sensitivity to be able to detect changes in life satisfaction (Pavot and Diener, 1993).

Overall, subjective well-being measures seem to contain a substantial amount of valid variance, however, of course the limitations of using such self-reported data need to be kept in mind in the following analysis.

### *5.1. Descriptive statistics*

Table 2 reports descriptive statistics for the natives and first generation immigrants in 2010 and looks at economic as well as cultural characteristics. In terms of simple averages, the natives seem slightly more satisfied than the first generation (7.1 versus 6.7). The immigrants are somewhat less educated, have less secure jobs, are less likely to work in the occupation they were trained for and are less likely to own the house/ apartment they live in. Almost 60% of immigrants in our sample have a strong minority identity, while 20% have a strong majority identity (in terms of overlaps 10% have a dominant majority identity, 43% have a dominant minority identity, 39% have two strong identities and 8% have two weak identities). Around a quarter of the first generation in our sample has German citizenship by 2010.

In terms of life satisfaction there is almost as much variation 'within' individuals over time as there is between them (standard deviations of 1.30 and 1.49 respectively) and there is substantial movement between categories over time, the correlation of this year's life satisfaction with last year's is 0.59, for five years ago it is 0.44 (this is in line with the existing literature).

Table 2: Descriptive statistics

	natives		immigrants	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
life satisfaction	7.112	1.749	6.678	1.805
age	44.203	22.261	51.392	14.135
male	0.485	0.5	0.515	0.5
married	0.583	0.493	0.781	0.414
years of education	12.465	2.708	9.996	2.13
employed	0.51	0.5	0.447	0.498
works in occupation trained for	0.68	0.466	0.642	0.48
owns house/ apartment	0.589	0.492	0.362	0.481
has insecure job	0.158	0.365	0.222	0.416
serious illness	0.407	0.491	0.365	0.482
years since migration			33.934	10.621
minority identity			0.58	0.494
majority identity			0.202	0.402
German citizenship			0.245	0.43
speaks German			0.837	0.37
writes German			0.593	0.491

*Note: All differences between groups are significant at the 1% level.*

## 6. Results

### 6.1. Are immigrants less satisfied?

Table 3 below reports fixed effects results as well as pooled OLS for comparison, for a combined sample of natives and first generation immigrants. As noted before, while most of the literature on subjective well-being relied on simple OLS, we also examine a fixed effects specification to parse out the effects of the ‘trait’ component, in particular unobserved personality traits, to obtain cleaner measures of the effects of circumstances (the ‘state’ component).

Table 3: Are immigrants less satisfied?

	<b>POLS</b>	<b>FE</b>	<b>POLS</b>	<b>FE</b>	<b>POLS</b>	<b>FE</b>
	(1)	(2)	(3)	(4)	(5)	(6)
age	0	-0.027***	-0.011***	-0.044***	-0.005	-0.029***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.006)
male	-0.039	(omitted)	0.125**	(omitted)	0.103	(omitted)
	(0.043)		(0.045)		(0.057)	
married	0.105	0.046	0.037	0.184**	0.081	0.085
	(0.059)	(0.091)	(0.064)	(0.065)	(0.088)	(0.139)
separated/divorced	-0.572***	0.004	-0.492***	-0.006	-0.510***	-0.03
	(0.103)	(0.157)	(0.1)	(0.103)	(0.138)	(0.219)
widowed	-0.248	-0.752*	-0.545**	-0.091	-0.848**	-1.898**
	(0.151)	(0.317)	(0.191)	(0.214)	(0.296)	(0.669)
years of education	0.033***	0.01	0.008	0.034*	-0.001	0.026
	(0.008)	(0.029)	(0.01)	(0.017)	(0.012)	(0.057)
employed (lagged)	0.224***	0	0.098*	0.05	0.182*	0.087
	(0.041)	(0.049)	(0.043)	(0.035)	(0.078)	(0.093)
immigrant	-0.276***	(omitted)	0.087	(omitted)	0.072	(omitted)
	(0.055)		(0.061)		(0.09)	
works in occup.			0.131***	0.086**	0.012	0.006
			(0.037)	(0.029)	(0.051)	(0.067)
owner			0.238***	0.099*	0.178**	0.1
			(0.044)	(0.048)	(0.062)	(0.12)
children in hh			-0.005	0.001	0.001	-0.055
			(0.039)	(0.038)	(0.057)	(0.082)
insecure job					-0.430***	-0.236***
					(0.032)	(0.035)
<i>Number of obs.</i>	71779	71779	29835	29835	28369	28369

*Note for all tables: Standard errors in parentheses (clustered at the individual level).*

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Columns 3-6 also control for parental education, urban/ rural childhood and health.

The first two columns show a simple specification: in line with much of the earlier literature we find a negative effect of age and a negative effect of being divorced or widowed. Years of education has a positive effect, though this is no longer significant with fixed effects - unsurprising, since given our sample of adults, education does not change much over time ‘within’ individuals. As expected, employment has a positive effect (it is lagged here to

avoid reverse causality, similar positive effects are found for contemporaneous values or longer lags). In line with the earlier literature, which used similar specifications, we find that the first generation still seems less satisfied than the natives, even controlling for characteristics such as education and employment. In fact the coefficient on the immigrant dummy (-0.276) roughly corresponds to the difference observed in raw means (6.7 for the migrants versus 7.1 for the natives)<sup>8</sup>.

Columns 3 and 4 examine whether this relative dissatisfaction effect holds up when we introduce further control variables<sup>9</sup>. Our main finding is that the first generation is no longer less satisfied than the natives, the effect is mopped up by the details of employment conditions, in particular whether the respondent works in the occupation they were trained for<sup>10</sup>.

This specification looked at the effects of variables, which were as pre-determined as possible with respect to current life satisfaction (occupational choice occurred in the past, before migration). Although we would also be interested in the effects of current characteristics, such as the degree of job insecurity, here we are more worried about reverse causality: that people who are less satisfied with their lives as a whole select into more insecure jobs, possibly creating a downward spiral. As it is difficult to find valid instruments for job insecurity, which would not affect subjective well-being, we did not include this measure in our preferred model. Columns 5 and 6 extend the specification of columns 3 and 4 by also including a measure of the insecurity of the respondent's last job.

---

<sup>8</sup>Interactions between the first generation immigrant dummy and employment or education were not significant, suggesting that while these factors influence life satisfaction, they do not impact immigrants differently.

<sup>9</sup>Note that the large fall in the number of observations between the two specifications is mainly driven by the fact that the health question was not asked each year and that information on parental education and rural/ urban childhood is not available for all respondents. Repeating the simple specification on the smaller sample yields very similar results.

<sup>10</sup>In fact, extending the baseline specification of columns 1 and 2 by only adding this variable already makes the first generation dummy variable lose its significance.

Job insecurity is a subjective measure here, assessed on a 1-3 scale<sup>11</sup> and shows a highly significant negative effect. Note that this is likely to be correlated with whether the respondent works in the occupation they were trained for, explaining why this variable is no longer significant. To try to deal with the likely endogeneity of job insecurity (and possible bias due to its subjective nature), we examine robustness to using a predicted measure of job insecurity instead. Relying on a first stage regression of job insecurity on years with the firm, years of employment and its square (to allow for non-linear effects) and occupational categories, and using these predicted values in the second stage (correcting standard errors using bootstrapping), we find that job insecurity still has a highly significant negative effect, whereas the first generation immigrant dummy variable is no longer significant<sup>12</sup>.

Note that job insecurity (as well as working in occupation trained for in columns 3 and 4) have significant effects in both the pooled OLS and the fixed effects specifications, thus even once we look at the cleaner measure, removing the effects of unobserved individual heterogeneity. The Hausman test favours the fixed effects specification for all models, pointing to the role of unobserved individual heterogeneity, in particular personality traits.

Overall, our results are in contrast with the conclusions of Bartram (2010), Safi (2010) and Baltatescu (2007), who argued that even after controlling for a number of personal characteristics immigrants are less satisfied than natives, however they only included measures of education and employment, but did not control for the nature of the job and may thus have been affected by omitted variable bias.

As most of the existing literature found that immigrants are less satisfied than natives, but our results so far do not provide evidence for this, we also examine whether immigrants may be hurt more by adverse shocks such as losing a job or facing decreasing job security. Looking at the effects of job loss (constructed as 1 for those who were unemployed at time  $t$  but employed at time  $t-1$ , 0 for those employed at time  $t$  and at time  $t-1$ ) and increasing job insecurity (job insecurity at  $t$  higher than at  $t-1$ ), these have

---

<sup>11</sup>The question on job insecurity was only asked for currently employed respondents - to avoid such a restriction in the sample we used a measure of job insecurity of the last job the respondent had. Results are very similar if we only use the currently employed sample, who were actually asked about the insecurity of their current job. Results are also robust to using a dummy variable instead of the 1-3 scale.

<sup>12</sup>Results are available from the author upon request.

highly significant effects of the expected signs. Their interactions with the first generation dummy variable are however not significant, suggesting that while becoming unemployed decreases life satisfaction significantly for natives as well as migrants, immigrants are not hurt more<sup>13</sup>. While this may seem surprising at first sight, it can be explained by the fact that guest workers in Germany have full access to the German welfare system and having resided in Germany for over 30 years have most probably also built up their informal security nets.

Overall, answering our first question, although in terms of raw means immigrants indeed seem less satisfied than natives, the difference can be explained in terms of observables, in particular details of employment conditions. In fact similar economic characteristics seem to affect the life satisfaction of immigrants as for the native population.

### *6.2. What determines the life satisfaction of immigrants?*

Turning to the second question, what determines the life satisfaction of immigrants, Table 4 below restricts the sample to first generation immigrants to examine the effects of variables related to integration. Again we contrast the pooled OLS results as the baseline with a fixed effects estimator, which provides cleaner estimates by removing the effect of personality traits.

Looking first at columns (1) and (2), neither majority nor minority identity have a significant effect in either of the specifications - such loyalties/feelings of belonging thus do not seem to play a role *per se*. This finding is in contrast with the early results of Boski (1989) or more recently Bartram (2010). We believe that this difference can be explained by the fact that we used a lagged measure of identity to avoid reverse causality (and accounted for unobserved individual heterogeneity using fixed effects), suggesting that the positive link found in previous studies was indeed just a correlation and not a causal effect running from identity to life satisfaction. We also examined alternative identity measures such as ‘feelings of not belonging in Germany/ feeling stateless’ or ‘not feeling at home in the country of origin either’ - neither of these were significant once we controlled for individual fixed effects. These results are also robust to allowing for multiple, overlapping identities<sup>14</sup>.

---

<sup>13</sup>Results are available from the author upon request

<sup>14</sup>Discrimination is not included in the above preferred specification as we are worried



Table 4: What determines the life satisfaction of immigrants?

	<b>POLS</b>	<b>FE</b>	<b>POLS</b>	<b>FE</b>
	(1)	(2)	(3)	(4)
years since migration	-0.014 (0.01)	(omitted)	-0.004 (0.009)	-0.045 (0.027)
min. identity (lagged)	0.003 (0.063)	0.032 (0.08)	0.026 (0.058)	0.036 (0.065)
maj. identity (lagged)	0.24 (0.14)	0.007 (0.157)	0.245* (0.119)	0.051 (0.126)
German citizenship	3.986*** (0.513)	(omitted)	2.229** (0.754)	0.899 (1.031)
speaks German	0.221* (0.092)	0.173 (0.101)		
writes German	-0.012 (0.114)	0.056 (0.137)		
<i>Number of obs.</i>	2837	2837	3741	3741

*Note: Other control variables are as in columns 3 and 4 of Table 3.*

Better German language skills have the expected positive effect - they bring benefits in the labour market as well as facilitating social contacts with Germans. They are no longer significant once we include fixed effects, since, as for education, given our sample of first generation immigrants who arrived in Germany over 30 years ago, there is little variation in German language skills ‘within’ individuals over time. Results on other control variables are very similar to those reported in Table 3, in particular working in occupation trained for is still significant (if included job insecurity has a similar significant negative effect as before).

Note the large and highly significant positive effect of German citizenship in the pooled OLS specification - the coefficient would imply an increase in

---

that such subjective perceptions may be affected by reverse causality from general life satisfaction. However, as the existing literature suggested discrimination as a possible explanation for the relative dissatisfaction of immigrants, we examined the robustness of our results to its inclusion. Its effect is negative and highly significant as expected, while results on other variables are very similar to those discussed above. In particular, working in the occupation trained for and job insecurity retain their significance.

life satisfaction from 6 to almost 10 on the 0-10 scale. In this specification it drops out when using fixed effects due to collinearity with German language skills - unsurprising since this is a requirement for citizenship. Examining the results without controlling for German language skills (which are unlikely to change much for our sample of first generation immigrants and are thus mopped up by individual fixed effects anyway) German citizenship is still highly significant in the pooled OLS specification, but is no longer significant when we include individual fixed effects (please see columns 3 and 4 in Table 4). This suggests that we may be picking up a selection effect in the pooled OLS results rather than a positive effect of obtaining citizenship. This also seems more likely given the size of the effect, and that German citizenship brings few additional benefits relative to permanent rights of residence. We return to a discussion of this effect in greater detail in section 6.4 when looking at the impact of changes in the German citizenship law.

### *6.3. Does segregation affect life satisfaction?*

As there is a large literature on the effects of segregation on ‘objective’ measures such as the education or employment outcomes of immigrants, we examine whether the ethnic composition of neighbourhoods matters for their subjective well-being. Unfortunately the GSOEP only contains a rough, self-reported measure of the ethnic composition of neighbourhoods (respondents were asked whether there are ‘no’, ‘few’ or ‘many’ foreigners in their neighbourhood). Looking first at this self-reported measure, we find that while a more ‘immigrant’ neighbourhood seems to have a negative and significant effect on the life satisfaction of immigrants in the pooled OLS results, this effect disappears once we control for fixed effects (please see the first row of Table 5 below) and is no longer significant in either specification once we control for housing quality (please see the second row in Table 5).

However, as we are worried about potential biases in such a self-reported measure, we also analyse the effects of segregation using a unique dataset, which provides information on the ethnic composition of neighbourhoods at various levels of aggregation. We combine information on the ethnic composition of neighbourhoods from the Microm indicators with personal information from the GSOEP. We use two measures of the ethnic composition of neighbourhoods: (1) a 1 to 9 scale, which was constructed so that roughly 10% of the population falls into each category, this is measured at the ‘house’ level, so includes at least five households, or more if located within the same building (this measure is available for the years 2000-2010) and (2) the fraction of

foreigners in the population measured at the ‘pl8’ level - German postcodes consist of five digits, this subdivision adds a further three digits creating areas of roughly equal sizes (this measure is only available for 2010)<sup>15</sup>.

Table 5: Does segregation affect life satisfaction?

	<b>POLS</b>	<b>FE</b>
ethnic composition of neighbourhood (subjective measure)	-0.284** (0.091)	0.011 (0.152)
<i>Number of obs.</i>	1552	1552
ethnic composition of neighbourhood (subjective measure), controlling for housing quality	-0.18 (0.119)	-0.122 (0.193)
<i>Number of obs.</i>	771	771
ethnic composition of neighbourhood (1-9 scale, ‘house’ level)	-0.025 (0.02)	0.06 (0.08)
<i>Number of obs.</i>	1052	1052
ethnic composition of neighbourhood (% of foreigners, ‘pl8’ level)	0.002 (0.009)	
<i>Number of obs.</i>	540	

*Note: Control variables as above.*

Examining pooled OLS and fixed effects regressions using the same control variables as above, neither of these objective measures of the ethnic composition of the neighbourhood has a significant effect in any of the specifications (please see the third and fourth rows in Table 5). These results hold up when looking at immigrants and natives separately and when looking separately at employed and unemployed. As the immigrant literature

<sup>15</sup>In terms of raw means, as expected, immigrants live in neighbourhoods with a higher proportion of foreigners (6.7 versus 4.4 on the 1-9 scale, 10% versus 5% using the percentage of immigrants measure; please see Table A.2). Those living in more immigrant neighbourhoods are younger, less educated and are much less likely to own the house/apartment (these differences are significant at the 5% level, please see Table A.3). However, they are not more likely to be unemployed; differences in terms of job insecurity and working in occupation trained for are not significant either at conventional levels. Looking at the ethnic composition of neighbourhoods over time, both immigrants and natives seem to be living in less immigrant neighbourhoods, suggesting decreasing segregation (data was available for the years 2000-2010).

highlighted different effects of segregation for higher/ lower educated immigrants<sup>16</sup>, we repeated the above analysis separately for education levels above and below 12 years - the ethnic composition of the neighbourhood still did not have a significant influence on the life satisfaction of either of these groups.

We also restricted the sample to those who have not moved recently (varying the cutoff points) to avoid reverse causality due to life satisfaction affecting residential choices and looked separately at those who do/ do not express a wish to move. Results were very much in line with those above, thus increasing our confidence in our findings. Including ‘years since move’ as a control variable did not affect results and was not significant, in line with the psychological evidence that such effects should die out quickly. We also examined whether for those who moved in the years for which we have data on ethnic composition (2000-2010) there is a different effect before and after the move: ethnic composition of the neighbourhood still did not have a significant effect in either period. Including percentages of Turkish or ex-Yugoslav immigrants instead of the general percentage of foreigners did not change results either<sup>17</sup>.

#### 6.4. *Changes in the German citizenship law*

Returning to the results in Table 4 above, we found a large, positive and highly significant effect of having German citizenship. We now examine the source of this effect in greater detail by exploiting the variation coming from changes in the German citizenship law. We rely on two natural experiments: the 2000 change, introducing elements of *jus soli* into the previously *jus sanguinis* based framework and the earlier 1991/1993 changes to naturalization requirements.

In May 1999, the German parliament amended the Citizenship and Nationality Law of 1913. Under the original law, a child born in Germany was granted German citizenship only if at least one parent had German citizenship at the time of its birth. The new reform introduced elements of the birthright citizenship system: a child born to foreign parents on the 1<sup>st</sup> of

---

<sup>16</sup>see e.g. Edin, Fredriksson and Åslund (2003), who relied on a natural experiment to identify the effect of ethnic enclaves on the labour market performance of immigrants in Sweden; a similar natural experiment in Denmark was exploited by Damm (2009)

<sup>17</sup>These results are available from the author upon request. The analysis of indirect effects of segregation is outside the scope of this paper.

January 2000 or after was eligible for citizenship at birth if at least one parent had been ordinarily resident in Germany for 8 years when the child was born and had been granted a permanent right of residence. The law also introduced a transitional provision for the children of foreign residents under the age of 10 on the 1<sup>st</sup> of January 2000. These children would be naturalized upon application (to be completed before the 31<sup>st</sup> of December 2000) if at least one parent had been ordinarily resident in Germany for 8 years at the time of the child’s birth.

In order to avoid potential problems of endogeneity related to the child bearing decisions of immigrants, and variations over time in the composition of immigrant inflows, we focus on the retrospective component of the 2000 reform. We compare households composed of foreign parents whose youngest child was born in Germany between 1990 and 1999 who had resided in Germany for more than 8 years at the time of the child’s birth (the treatment group), with those who have children in the same age group, but who did not satisfy the residence requirement (the control group)<sup>18</sup>. We examine the effect of eligibility (intention to treat) using the following regression:

$$L_{ijt} = \beta_0 + \beta_1 T_j + \beta_2 D_t + \beta_3 T_j D_t + \gamma X_{ijt} + \mu_t + u_{ijt} \quad (4)$$

where  $L_{ijt}$  is the subjective well-being of parent  $i$  living in household  $j$  at time  $t$ ,  $T_j$  is the treatment dummy, differentiating the treatment and control groups defined above,  $D_t$  takes the value 1 for surveys after the reform was passed in parliament (May 1999) and is 0 otherwise.  $X_{ijt}$  are personal characteristics including age, gender, marital status, years of education and employment status. Year dummy variables,  $\mu_t$ , control for time specific shocks affecting all individuals. Our parameter of interest is thus  $\beta_3$ , measuring the average effect of the introduction of *jus soli* citizenship on parental life satisfaction. A change in the citizenship law could affect parental well-being as parents’ preferences and attitudes towards the host country might change when their descendants get their ‘new’ status, thus improving their economic opportunities as well as possibly sending a symbolic message of acceptance.

---

<sup>18</sup>This approach is in line with the work of Avitabile, Clots-Figueras and Masella (2010), who examined the effects of the change in the citizenship law on parental integration. We depart from their approach by using a narrower control group (they also used those parents with children born between 1980 and 1989) as we believe that this makes the treatment and control groups more comparable. Our results are robust to using either control group.

Estimating the above specification using OLS, clustering standard errors at the individual level, we find that the change in the citizenship law did not affect parents' life satisfaction (please see the first row of Table 6 below).

Table 6: Effects of changes in the German citizenship law

	<i>Coef.</i> ( <i>Std. Error</i> )	<i>Number of obs.</i>	<i>Number of indiv.s</i>
2000 change	-0.143 (0.104)	6787	1015
1991 change - 16-23 year olds, broad treatment group	-0.159 (0.135)	6427	2149
1991 change - 16-23 year olds, narrow treatment group	-0.166 (0.133)	6001	1971
1991 change - over 23 years old	0.027 (0.12)	7341	1277

As this could be partly explained by the fact that only own (rather than children's) citizenship plays a role in subjective well-being, we also examine the changes in naturalization requirements in the early 1990s<sup>19</sup>. Unlike the citizenship at birth provision, the naturalization policy for adults had been subject to a series of changes in the early 1990s. The 1990 law (enacted in April 1990, effective from the 1<sup>st</sup> of January 1991) made it easier for young immigrants between the ages of 16 and 23 from second and third generation resident families to obtain citizenship. This change did not amount to an automatic right to acquire citizenship, and set several conditions for eligibility. To be eligible applicants must (1) have lost or renounced their former citizenship; (2) have legally resided in Germany for eight years; (3) have never been convicted of a serious criminal act; and (4) have attended school for six years in Germany, of which at least four years must have been in a school of general education. Immigrants had to apply between their 16<sup>th</sup> and 23<sup>rd</sup> birthdays to be eligible according to these criteria. The new law also liber-

<sup>19</sup>It should be noted that these changes were not as clear cut as the 2000 law, making it more difficult to identify treatment and control groups with no spillovers, especially due to changes in residence permit regulations. Changes could also be seen more as a process than an abrupt jump, as reflected by the gradual increase in naturalizations in the early 1990s.

alized naturalization requirements for those over 23 years, who had resided legally in Germany for fifteen years and applied for citizenship before the 31<sup>st</sup> of December 1995. To be eligible for citizenship under this rule, applicants were required to (1) have lost or renounced their former citizenship; (2) have never been convicted of a serious criminal act; and (3) have the ability to support themselves and dependent family members.

Further amendments to these laws were passed in 1992/1993 when as part of the ‘asylum compromise’, the federal government made permanent the provisional naturalization rule that had been adopted in the 1990 Aliens Law (which had been scheduled to expire in December 1995). The federal government also amended the 1990 law to confer for the first time an individual *right* of naturalization on foreigners who satisfied the necessary requirements.

As we believe that the largest changes were made in the 1990/1991 reform (and these were then only reinforced in 1992/1993) we focus on the effects of these amendments, looking both at the effects for those aged 16-23 and those over 23. Our first specification compares those aged 16-23 at some point in the years 1990-1995 (i.e. those born 1967-1979) with those born after 1979 and those born 1960-67, who had not resided in Germany for 15 years yet so were not affected by other changes (immigrated after 1976). As it is unclear *ex ante* how near- or far-sighted individuals are with respect to such changes, we also examine a narrower treatment group, looking only at those who were immediately affected, i.e. 16-23 in the years 1990-1991 (born 1967-75), comparing them with the same control group as above. Furthermore we examine the effect on those who had been in Germany for more than 15 years in 1991, comparing them with those who had been there less than 15 years. We compare those who arrived 1970-76 with those who arrived 1976-80 to restrict the difference in age between treatment and control groups. Our results are robust to varying the ‘time windows’ of the treatment and control groups.

Our key finding is that none of these effects was significant (please see rows 2-4 in Table 6 above). Combined with our earlier result that citizenship did not have a significant effect once we controlled for individual fixed effects, we believe that our analysis looking at changes in the German citizenship law confirms the hypothesis that the pooled OLS specification was most likely picking up a selection effect, that even after controlling for observables those immigrants with German citizenship are systematically different from those without it. In a sense German citizenship may just be identifying those who are ‘of better types’, i.e. there may be a positive correlation between

German citizenship and certain unobserved personality traits, so the effect we are picking up is a selection story not a ‘jump’ in subjective well-being due to obtaining citizenship.

While these changes in the German citizenship law provided an interesting natural experiment as elements of birthright citizenship were introduced into a previously descent-based system and naturalization requirements were liberalized, further research could examine whether and how the effects of having/ obtaining citizenship in birthright based systems such as the US, Canada or France differ from those found here.

### 6.5. Robustness checks<sup>20</sup>

Although the results presented in section 6.1 controlled for a number of personal and family characteristics, we may be worried that we are still not ‘comparing like with like’ when contrasting the results for the first generation immigrants with those for the natives. This may be for instance because although we are controlling for age or employment status, there may be unobserved variables correlated with these, which may bias results if natives and immigrants are systematically different along these lines. To overcome the extrapolation problem of linear regressions we examine the robustness of our results when explicitly enforcing common support on all of the control variables discussed above, which were applicable to natives as well<sup>21</sup>. Relying on this restricted ‘comparable’ subset we obtain very similar results in terms of signs and significance, thus increasing our confidence in our findings.

Although our dependent variable, life satisfaction, is an ordered categorical variable with response categories ranging from 0 to 10, the above pooled OLS and fixed effects models treated it as continuous and assumed linearity. Unfortunately, as noted earlier, there is no straightforward generalisation of the simple logit with fixed effects framework to ordinal variables. Suggested solutions include the Chamberlain (1980) estimator, which collapses the outcome to a binary variable and picks a single cutoff point, the Das and van Soest (1999) two-step estimator, which estimates the model for all cutoffs and combines the estimates in a second step, Baetschmann *et al.*'s (2011)

---

<sup>20</sup>Results for all robustness checks are available from the author upon request.

<sup>21</sup>This could for instance overcome bias arising from the fact that we are looking at a specific subsample of immigrants who, in terms of age, are at the minimum of their ‘well-being curves’.



blow-up and cluster estimator, which creates a dataset where each individual is repeated  $K-1$  times (where the dependent variable is coded  $1...K$ ) each time using a different cutoff to collapse the dependent variable and Ferrer-i-Carbonell and Frijters' (2004) estimator where an optimal cutoff is defined for each individual, but this is in general inconsistent (Baetschmann, Staub and Winkelmann, 2011). In a simulation experiment Baetschmann *et al.* (2011) found that the Das and van Soest and Baetschmann estimators generally perform well; Dickerson, Hole and Munford (2011) found that the difference between the estimators is fairly minor. However, as there is no clear best choice among the above estimators and relying on these would raise difficulties concerning the clustering of standard errors we chose the above linear models as our preferred specification. Comparing the pooled OLS and fixed effects results obtained above with a simple ordered logit without fixed effects, results are very similar in terms of signs and significance of coefficients.

We also examine the robustness of our results by looking at different subsamples, repeating the above analysis for the Turkish and ex-Yugoslavian immigrants (the two largest immigrant groups in Germany), employed/ unemployed, different education levels and men and women separately. Our results for all subsamples are very much in line with those above<sup>22</sup>.

## 7. Conclusion

This paper aimed to complement existing studies of objective measures of migrant integration by looking at the subjective well-being of immigrants once settled in the host country. In particular we examined two questions: (1) whether immigrants are less satisfied than natives (as suggested by the existing literature) and (2) what determines the life satisfaction of immigrants. Looking at the first question we found that while in terms of raw means immigrants seem less satisfied than natives, this difference can be accounted for entirely in terms of observable characteristics, in particular details of employment conditions such as whether working in the occupation trained for or the degree of job insecurity. Furthermore, similar factors seem to affect the life satisfaction of immigrants and natives: while immigrants are hurt by

---

<sup>22</sup>As expected, the citizenship results are driven by the Turkish and ex-Yugoslav groups; very few of the guest workers from Greece, Italy or Spain in our dataset have German citizenship.

adverse shocks such as becoming unemployed, they are not hurt more than the native population.

Turning to the second question, we tried to examine ‘who does better and who does worse’ within the sample of immigrants, looking at socio-economic as well as cultural factors. We found no evidence supporting the concern that feelings of not belonging or loyalties towards immigrants’ countries of origin may have negative effects on their life satisfaction. Relying on a unique dataset including measures of the ethnic composition of neighbourhoods at various levels of disaggregation, we showed that segregation *per se* does not affect life satisfaction. Although having German citizenship appeared to have a large and highly significant positive effect in the pooled OLS specification, looking at the specification including individual fixed effects as well as examining the effects of changes in the German citizenship law we believe that this is a selection effect rather than an increase in life satisfaction due to *obtaining* citizenship.

Overall, we believe that our findings are very encouraging in that although in the short run migration involves ‘acculturative stress’, in the long run (in contrast to the findings of the earlier literature), once immigrants have settled, they are not less satisfied on average than the native population. Furthermore, the effect of ‘integration’ on life satisfaction comes primarily through economic factors - elements that policymakers can influence - rather than ‘cultural’ ones, with details of employment conditions playing a particularly important role.

## Appendix

Table A.1: Control variables

**age** Individual well-being tends to decrease with age though the relationship is often argued to be U-shaped rather than linear, with a minimum around age 50 (though this varies somewhat across countries, Bruni and Porta, 2005).

**gender** Women tend to report higher life satisfaction than men though the difference is often small and women's day-to-day emotions tend to fluctuate a lot more than men's.

**marital status, children** People with a partner report, on average, higher satisfaction scores than those without. Children have also been shown to increase well-being. (Given our focus on first generation immigrants, who got married and had children many years ago, we would not expect these variables to be affected by current life satisfaction.)

**education** The existing evidence seems somewhat ambiguous on the relationship between subjective well-being and education (Powdthavee, 2010): while most studies find that people with more years of education report higher satisfaction scores than those with fewer years of education (e.g. Helliwell, 2003; Bruni and Porta, 2005; Stutzer, 2004; Graham and Pettinato, 2002), there is some evidence that people who have completed at least a university degree report lower levels of job satisfaction and higher levels of mental distress compared to those from a lower educational background (Clark, 2003), holding health and income constant. These findings may be explained by the fact that in addition to increasing income, education may also raise aspirations, resulting in a potentially ambiguous overall effect. As we are looking at adults who have completed their education a long time ago, this variable should not be affected by current life satisfaction.

**employment** Empirical findings stress the harm done by unemployment, affecting income as well as status/ social expectations. Having a job includes many aspects that provide flow experiences and satisfy intrinsic needs, like being in the company of workmates, applying expertise and experiencing autonomy. Accordingly, being unemployed is repeatedly found to have large negative effects on people's subjective well-being, with little habituation. We also include a measure of whether the respondent works in the occupation they were trained for and a variable for the degree of job (in)security, which may be of particular relevance to immigrants. To deal with possible reverse causality from life satisfaction to employment we examine the robustness of our results to using lagged values as proxies.

Table A.1: Control variables, continued

**owns house/ apartment** The effect of income on subjective well-being has been shown to be positive but non-linear, both at the micro and at the macro level (Easterlin, 1974, 2001). Stutzer (2004) found that the positive effect of higher income can be offset by rising income aspirations. As we are worried that income may be endogenous (and may be measured with error) we do not include it in our preferred specification and use whether the respondent owns a house/ apartment as a proxy. (Results are very similar if we use income instead.)

**parental characteristics** We control for parents' education in levels and include dummy variables for whether the respondent grew up in a large/ medium/ small city or in the countryside.

**health** It is widely accepted that an adverse change in health reduces life satisfaction. Furthermore, the literature on mental and physical health reports great inequalities in this field among ethnic groups (Vega and Rumbaut, 1991; Rumbaut, 1994).

**years since migration** If the number of years in the destination country improves the economic position of immigrants, we would expect this to also increase their life satisfaction. However, this variable may also capture expectations, regret or comparisons with the home country. This may be of particular interest in our sample of guest workers, who originally arrived as temporary migrants.

**identity** To avoid the endogeneity of identity (if respondents are dissatisfied in Germany they may be less likely to feel German) we use lagged identity measures as a proxy. We believe this may be reasonable given considerable variation in subjective well-being over time as responses are influenced by the mood of the day as well as random events. We use identity from 2003 as a proxy for identity in 2010 (unfortunately the identity question was only asked in these years), life satisfaction in 2003 predicts only around 16% of the variation in satisfaction in 2010, whereas the identity variables (especially majority identity) are more correlated over time.

**German language skills** Language plays a central role in the integration of immigrants in the new labour market (Chiswick, 1998; 2002), but is also important for social contacts with the host population. Given our focus on first generation immigrants who arrived over 30 years ago we believe that current life satisfaction should not affect German language skills.

**discrimination** Although discrimination is often put forward as a possible explanation for the lower life satisfaction of ethnic or racial minorities (see e.g. Vega and Rumbaut, 1991; Rumbaut, 1994; Finch, Kolody and Vega, 2000; Taylor and Turner, 2002; Sellers *et al.*, 2003 or Hughes and Demo, 1989), general life satisfaction is likely to affect subjective perceptions of discrimination making the identification of a causal effect difficult. As instruments are hard to find we do not include discrimination in our preferred specification, but examine results both with and without this variable.

Table A.1: Control variables, continued

**ethnic composition of neighbourhood** Residential location is often portrayed as a key element of immigrant integration. In a study among adolescents from immigrant families, those living in ethnically homogeneous neighbourhoods reported a higher level of satisfaction with their lives than those living in heterogeneous neighbourhoods (Neto, 2001), contradicting the assumption that immigrants who are in social contact with local natives and live in heterogeneous neighbourhoods should be more socially integrated and thus more satisfied. To avoid the endogeneity of the location decision we examine robustness by restricting the sample to those who have not moved recently. We also examine results separately for those who want to/ do not want to move.

**German citizenship** Having German citizenship may affect the respondent’s economic opportunities as well as subjective perceptions of security or uncertainty and may also carry a more ‘symbolic’ value on the perception of immigrants in the host country. Variation due to changes in the German citizenship law is also explored.

Table A.2: Ethnic composition of neighbourhoods

		<b>natives</b>		<b>immigrants</b>	
		<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
fraction of foreigners	(1-9 scale)	4.441	2.472	6.776	2.349
fraction of foreigners	(percentage)	5.201	4.572	9.763	7.623
	Balkans	0.637	0.866	1.263	1.304
by ethnic	Greece	0.404	0.491	0.672	0.717
origin	Italy	0.702	0.747	1.171	1.166
	Spain-Portugal	0.185	0.251	0.29	0.348
	Turkey	1.492	2.615	3.876	5.415

Table A.3: Descriptive statistics by ethnic composition of the neighbourhood

	neighbourhood with low proportion of foreigners (1 on 1-9 scale)		neighbourhood with high proportion of foreigners (9 on 1-9 scale)	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
age	42.479	21.935	36.735	21.414*
male	0.489	0.5	0.497	0.5
married	0.634	0.482	0.562	0.496
years of education	12.274	2.584	11.231	2.696*
employed	0.516	0.5	0.505	0.5
working in occupation	0.661	0.473	0.676	0.468
owns house/ apartment	0.656	0.475	0.279	0.448*
from a large city	0.174	0.379	0.272	0.445*
from a medium size city	0.167	0.373	0.196	0.397
from a small city	0.222	0.416	0.247	0.431
has insecure job (1-3 scale)	1.755	0.726	1.751	0.734
children in hh	0.374	0.484	0.483	0.5
serious illness	0.397	0.489	0.342	0.474
first generation immigrants	0.458	0.498	0.589	0.492*

*Note: \* denotes significant difference between groups at the 5% level.*

## References

- Amit, K., 2010. Determinants of Life Satisfaction Among Immigrants from Western Countries and from the FSU in Israel. *Social Indicators Research* 96.
- Avitabile, C., Clots-Figueras, I., Masella, P., 2010. The Effect of Birthright Citizenship on Parental Integration Outcomes. CSEF Working Paper 246.
- Baetschmann, G., Staub, K., Winkelmann, R., 2011. Consistent Estimation of the Fixed Effects Ordered Logit Model. IZA Discussion Paper 5443.
- Baltatescu, S., 2007. Central and Eastern Europeans Migration' Subjective Quality of Life. A Comparative Study, *Journal of Identity and Migration Studies*, 1, 67-81.
- Bartram, D., 2010. Economic Migration and Happiness: Comparing Immigrants' and Natives' Happiness Gains From Income. *Social Indicators Research* 96.
- Beiser, M., 1974. Components and correlates of mental well-being, *Journal of Health and Social Behavior*, 15, 320-327.
- Berry, J.W., 2001. A psychology of immigration, *Journal of Social Issues*, 57, 615-631.
- Berry, J.W., Kim, U., Minde, T., Mok, D., 1987. Comparative studies of acculturative stress, *International Migration Review*, 21, 491-511.
- Boski, P., 1989. Correlative national self-identity of Polish Immigrants in Canada and United States. Paper presented at the 2<sup>nd</sup> Regional Conference of IACCP, Amsterdam.
- Bourdieu, P. and Sayad, A., 1964. *Le Déracinement. La Crise de l'agriculture traditionnelle en Algérie*. Minuit, Paris.
- Bradburn, N.M., 1969. *The Structure of Psychological Well-Being*. Aldine, Chicago.

- Bruni L., and Porta P.L., 2005. *Economics and Happiness: Framing the Analysis*. Oxford University Press, Oxford.
- Card, D., Dustmann, C., Preston, I., 2012. Immigration, wages, and compositional amenities. *Journal of the European Economic Association*, 10, 78-119.
- Chamberlain, G., 1980. Analysis of covariance with qualitative data, *Review of Economic Studies*, 47, 225-238.
- Chiswick, B.R., 1998. Hebrew Language Usage: Determinants and Effects on Earnings among Immigrants in Israel, *Journal of Population Economics*, 11(2), 253-271.
- Chiswick, B.R., Lee, Y.L., Miller, P.W., 2002. *Family Matters: The Role of the Family in Immigrants' Destination Language Acquisition*. Department of Economics, The University of Western Australia.
- Clark, A.E., 2003. Unemployment as a Social Norm: Psychological Evidence from Panel Data, *Journal of Labor Economics*, 21, 323-351.
- Damm, A.P., 2009. Ethnic Enclaves and Immigrant Labor Market Outcomes: Quasi-Experimental Evidence, *Journal of Labor Economics*, 27, 281-314.
- Das, M. and van Soest, A., 1999. A panel data model for subjective information on household income growth, *Journal of Economic Behavior and Organization*, 40, 409-426.
- Davidson, R.J., 2002. Anxiety and affective style: Role of prefrontal cortex and amygdala, *Biological Psychiatry*, 51, 68-80.
- Davidson, R.J., 2004. What does the prefrontal cortex 'do' in affect: Perspectives on frontal EEG asymmetry research, *Biological Psychology*, 67, 219-233.
- Dickerson, A., Hole, A.R., Munford, L., 2011. A review of estimators for the fixed-effects ordered logit model. United Kingdom Stata Users' Group Meetings, Stata Users Group.
- Diener, E. and Larsen, R.J., 1984. Temporal stability and cross-situational consistency of positive and negative affect, *Journal of Social Psychology*, 47(5), 1105-1117.



- Diener, E., 1984. Subjective well-being, *Psychological Bulletin*, 95, 542-575.
- Diener, E., 2009. Subjective Well-Being. In: Diener, E. (Ed.), *The Science of Well-Being*, Springer, New York.
- Diener, E., Emmons, R.A., Larsen, R.J., Griffin, S., 1985. The Satisfaction with Life Scale, *Journal of Personality Assessment*, 49, 71-75.
- Easterlin, R., 1974. Does economic growth improve human lot? Some empirical evidence, In: Davis, P.A. and Reder, M.W. (Eds.), *Economic growth: Essays in honor of Moses Abramowitz*, Academic Press, New York and London.
- Easterlin, R., 2001. Income and Happiness: Toward a Unified Theory, *Economic Journal*, 111(473), 465-484.
- Edin, P.-A., Fredriksson, P., Åslund, O., 2003. Ethnic Enclaves and the Economic Success of Immigrants - Evidence from a Natural Experiment, *Quarterly Journal of Economics*, 118, 329-357.
- Ehrhardt, J. J., Saris, W. E., Veenhoven, R., 2000. Stability of life-satisfaction over time: Analysis of change in ranks in a national population. *Journal of Happiness Studies*, 1(2), 177-205.
- Ferrer-i-Carbonell, A. and Frijters, P., 2004. How Important Is Methodology for the Estimates of the Determinants of Happiness?, *Economic Journal*, 114(497), 641-659.
- Finch, B.K., Kolody, B., Vega, W.A., 2000. Perceived Discrimination and Depression among Mexican-Origin Adults in California, *Journal of Health and Social Behavior*, 41(3), 295-313.
- Fleurbaey, M., Schokkaert, E., Decancq, K., 2009. What good is happiness? CORE Discussion Paper 2009017, Université catholique de Louvain.
- Graham, C., 2008. Some insights on development from the economics of happiness. In: Bruni, L., Comim, F., Pugno, M. (Eds.), *Capabilities and Happiness*, Oxford: Oxford University Press.
- Graham, C. and Markowitz, J., 2011. Aspirations and Happiness of Potential Latin American Immigrants, *Journal of Social Research and Policy*, 2(2), 9-26.

- Graham, C. and Pettinato, S., 2002. *Happiness and Hardship: Opportunity and Insecurity in New Market Economies*. The Brookings Institution Press, Washington, D.C.
- Handlin, O., 1951. *The Uprooted: The Epic story of the Great Migrations that made the American people*. Grosset & Dunlap, New York.
- Handlin, O., 1966. *Children of the Uprooted*. George Braziller, Inc., New York.
- Helliwell, J.F., 2003. *How's life? Combining Individual and National Variables to Explain Subjective Well-Being*. NBER Working Paper 9065.
- Hughes, M., and Demo, D.H., 1989. Self-perceptions of Black Americans: Self-esteem and personal efficacy, *American Journal of Sociology*, 95(1), 132-159.
- Kahneman D, and Deaton A., 2010. High income improves evaluation of life but not emotional well-being, *Proceedings of the National Academy of Sciences*, 107(38), 16489-93.
- Kammann, R., and Flett, R., 1983. Affectometer 2: A scale to measure current level of general happiness, *Australian Journal of Psychology*, 35, 257-265.
- Kammann, R., Christie, D., Irwin, R., Dixon, G., 1979. Properties of an inventory to measure happiness (and psychological health), *New Zealand Psychologist*, 8, 1-9.
- Kenny, D. A., and Zautra, A., 1995. The trait state error model for multiwave data. *Journal of Consulting and Clinical Psychology*, 63(1), 52-59.
- Knight, J., Song, L., Gunatilaka, R., 2007. *Subjective Well-being and its Determinants in Rural China*. Economics Series Working Paper 334, University of Oxford, Department of Economics.
- Larsen, R.J., Diener, E., Emmons, R.A., 1983. An evaluation of subjective well-being measures. University of Illinois at Champaign, Urbana.
- Lucas, R. E. and Donnellan, M. B., 2007. How stable is happiness? Using the STARTS model to estimate the stability of life satisfaction, *Journal of Research in Personality*, 41, 1091-1098.

- Melzer, S.M. and Muffels, R.J., 2012. Migrants' Pursuit of Happiness. The Impact of Adaptation, Social Comparison and Relative Deprivation: Evidence from a 'Natural' Experiment, SOEPpapers 448.
- Moriwaki, S.Y., 1974. The Affect Balance Scale: A validity study with aged samples, *Journal of Gerontology*, 29, 73-78.
- Mussweiler, T., 2003. Comparison processes in social judgment: Mechanisms and consequences, *Psychological Review*, 110, 472-489.
- Natale, M. and Hantas, M., 1982. Effect of temporary mood states on selective memory about the self, *Journal of Personality and Social Psychology*, 42, 927-934.
- Neto, F., 2001. Satisfaction with life among adolescents from immigrant families in Portugal, *Journal of Youth and Adolescence*, 30, 53-56.
- Oishi, S., 2002. The experiencing and remembering of well-being: A cross cultural analysis. *Personality and Social Psychology Bulletin*, 28, 1398-1406.
- Park, R.E., 1928. Human Migration and the Marginal Man, *The American Journal of Sociology*, 33(6), 881-893.
- Pavot, W. and Diener, E., 1993. The affective and cognitive context of self-reported measures of subjective well-being, *Social Indicators Research*, 28, 1-20.
- Pavot, W. and Diener, E., 2008. The Satisfaction With Life Scale and the emerging construct of life satisfaction, *Journal of Positive Psychology*, 3, 137-152.
- Phinney, J.S., Horenczyk G., Liebkind, K., Vedder, P., 2001. Ethnic Identity, Immigration, and Well-Being: An Interactional Perspective, *Journal of Social Issues*, 57(3), 493-510.
- Powdthavee, N., 2010. How Much Does Money Really Matter? Estimating the Causal Effects of Income on Happiness. University of York, York.
- Rose, R. and Özcan, Y., 2007. First European Quality of Life Survey: Quality of life in Turkey. European Foundation for the Improvement of Living and Working Conditions.

- Rumbaut, R., 1994. The Crucible within: Ethnic Identity, Self-Esteem, and Segmented Assimilation among Children of Immigrants, *International Migration Review*, 28(4), 748-794.
- Safi, M., 2010. Immigrants' life satisfaction in Europe: Between assimilation and discrimination, *European Sociological Review*, 26(2), 159-176.
- Sayad, A., 1999. *The Suffering of the Immigrant*, trans. David Macey. Polity Press, Cambridge.
- Schimmack, U., Krause, P., Wagner, G.G., Schupp, J., 2010. Stability and Change of Well Being: An Experimentally Enhanced Latent State-Trait-Error Analysis. *Social Indicators Research*, 95, 19-31.
- Schimmack, U. and Lucas, R. E., 2007. Environmental influences on well-being: A dyadic latent panel analysis of spousal similarity, *Social Indicators Research*, 24(1), 81-100.
- Schwarz, N. and Clore, G.L., 1983. Mood, misattribution, and judgements of well-being: Informative and directive functions of affective states, *Journal of Personality and Social Psychology*, 45, 513-523.
- Sellers, R.M., Caldwell, C.H., Schmeelk-Cone, K., Zimmerman, M.A., 2003. The role of racial identity and racial discrimination in the mental health of African American young adults, *Journal of Health and Social Behavior*, 44(3), 302-317.
- Stillman, S., Gibson, J., McKenzie, D., Rohorua, H., 2012. Miserable Migrants? Natural Experiment Evidence on International Migration and Objective and Subjective Well-Being, IZA Discussion Paper 6871.
- Stutzer, A., 2004. The Role of Income Aspirations in Individual Happiness, *Journal of Economic Behavior and Organization*, 54(1), 89-109.
- Taylor, J. and Turner, R.J., 2002. Perceived Discrimination, Social Stress, and Psychological Distress in the Transition to Adulthood: Racial/Ethnic Contrasts, *Social Psychology Quarterly*, 65, 213-225.
- Vega, W.A., and Rumbaut, R.G., 1991. Ethnic Minorities and Mental Health, *Annual Review of Sociology*, 17, 351-83.

Weinstein, L., 1982. Positive contrast as due to happiness, *Bulletin of the Psychonomic Society*, 19, 97-98.