Integration and Subjective Well-being of Immigrants in the UK

Fari Aftab

Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

The University of Leeds
Leeds University Business School
Department of Economics

July 2022

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

Acknowledgements

This research work has been carried out under the supervision of Professor David Spencer, Dr Juliane Scheffel and Professor Peter Howley. I thank them for their patience, encouragement, and guidance during my PhD study. I am particularly grateful for their detailed and constructive feedback. I feel truly blessed to have Dr Juliane Scheffel and Professor David Spencer as part of my supervisory team, who cared so much about my work and responded promptly to my questions and queries throughout all the stages of my research work. Dr Juliane Scheffel has been especially instrumental in the success of this research work, as this would not be possible without her constant moral and emotional support.

A special warm thanks to Professor Sarah Jewell for her encouragement and support. Her work in the field of well-being was an inspiration for the topic explored in the thesis, and her detailed econometric notes on panel data techniques have been the guiding light for a sound empirical analysis.

I also received excellent support from my elder sister, Dr Zary Aftab, who guided me in improving my written work. I owe the greatest debt to my parents Surriya and Rehmat Aftab, and my sisters, Dr Zary Aftab and Joyce Aftab. This work would not have been possible without their unconditional love and unwavering support and encouragement.

Abstract

The thesis comprises three research papers. The first paper examines the social and economic integration of immigrants (i.e., foreign-born) compared to the native-born in the UK. The findings for social integration suggest that immigrants have lower neighbourhood embeddedness (i.e., regular interactions and attachment to the neighbourhood), smaller social network size, and lower community involvement in terms of volunteering and charitable behaviour than natives. For economic integration, the findings show that immigrants have a higher probability of unemployment and lower probability of employment, homeownership, job security and work autonomy than natives. Additional analysis reveals that the differences between immigrants and natives across most indicators of social and economic integration are larger for non-white immigrants and those that have stayed for less than 10 years in the UK.

The second paper studies the subjective well-being of immigrants and natives. The findings show that immigrants have lower subjective well-being than natives and that the identified well-being gaps are higher for non-white immigrants and those with a longer length of stay. We find that some of the well-being gaps can be explained by the disadvantaged position of immigrants across the indicators of social and economic integration.

Finally, the third paper investigates the subjective well-being of immigrants during Covid-19. We find that the pandemic has negatively impacted the life satisfaction of immigrants more strongly than that of natives. Our findings also show that immigrants with low pre-pandemic neighbourhood embeddedness and small social networks suffered a larger decline in life satisfaction than natives while those with high neighbourhood embeddedness and large social network size remained relatively resilient to the adverse impact of Covid-19.

Overall, our empirical analysis contributes by building a representative picture of immigrants' integration into multiple aspects of social and economic life in the UK. We add to existing research by showing how various aspects of social and economic integration help to explain some of the well-being gaps between immigrants and natives. Lastly, the thesis establishes that social integration may help to mitigate the adverse impact of crises like the Covid-19 pandemic on the subjective well-being of immigrants.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

The integration of immigrants in host countries has important implications for the subjective well-being of immigrants and broader issues of social cohesion. As a result, it has become a policy objective and a matter of significant public discussion (Home Office of the UK, 2005; Scottish Executive, 2006; European Commission, 2007; Integrated communities action plan, 2019).[1] However, as will become apparent in our review of the relevant literature, the study of the integration of immigrants and their subjective well-being has remained fragmented due to a lack of consensus around what aspects of life in the host country constitute the integration process and which of these aspects might be more significant for subjective well-being (Ager and Strang, 2008; Saggar et al., 2012; Greenspan et al., 2018). Economists have long explored the economic aspects of immigration, including the employment outcomes and earnings of immigrants in the host country (Chiswick, 1978; 2002; 2003; Borjas, 1985; 1992; 2002; Bosswick and Heckmann, 2006; Elliot and Lindley, 2008; Clark and Lindley, 2009). Yet, they have only recently considered the non-economic dimensions of life in terms of social networks and community involvement (Danzer and Yaman, 2013; Baert and Vujić, 2016). Economic researchers such as Dolan et al. (2008) and Frey and Stutzer (2002; 2010) suggest that in addition to economic outcomes, the social aspects of an immigrant's life must also be explored for a sounder and more realistic account of the immigrant's position in the host society.

This thesis aims to bring together the different social and economic dimensions of integration and examine their association with immigrants' subjective well-being. In keeping with previous studies on the UK, we define immigrants as the non-UK born population and natives as UK-born (Casey and Dustmann, 2010; Sinning, 2010; Dustmann and Frattini, 2011; Khattab and Lazarus, 2016; Greenspan et al., 2018). To achieve our aim, we begin by examining the integration of immigrants in social and

[1]Home office (2005) Integration Matters: A national strategy for refugee integration. London: [www.ind.homeoffice.gov.uk/6353/6356/17715/closedconsultationsrefinteg1.pdf]

Scottish executive (2006) Scottish Refugee Integration Fund 2007/08. Edinburgh: Scottish Executive: [http://www.scotland.gov.uk/Topics/People/Equality/Refugees-asylum/ refugee fund.]

European commission (2007) Handbook on Integration for Policymakers and Practitioners (2nd edn). European Commission, DG Justice, Freedom and Security: Brussels. [http://europa.eu/comm/justice_home/.]

Integrated Communities Action Plan (2019). HM Government.: [https://www.gov.uk/government/publications/integrated-communities-action-plan]

economic dimensions of life compared to natives. We include integration in the neighbourhood, size of social networks and community involvement as social measures, and employment status, quality of job and homeownership as economic measures. In addition, we explore the association of these social and economic measures with the subjective well-being of immigrants and natives. Finally, we take advantage of the unexpected exogenous shock due to the Covid-19 pandemic and examine whether social integration before the pandemic played a mitigating role in the adverse impact of Covid-19 on the subjective well-being of immigrants and natives.

1.1 A Note on Integration

The concept of integration comes from a more comprehensive viewpoint of acculturation of immigrants, which refers to the process by which immigrants interact with the host culture and become part of the host society (Berry et al., 2002; Lakey, 2003; Sam and Berry, 2010). Acculturation usually involves the interaction between two groups: a dominant group that has greater influence and power in the host country (that is, usually the majority population) and an acculturating group that undertakes adaptive practices to become part of the dominant group (Berry, 2001; Berry et al., 2002; 2006).[2] Integration is considered an effective strategy for acculturation of immigrants into the host community as it promotes equal opportunity, diversity, innovation, creativity, and, ultimately, social cohesion in the host country (Zapata-Barrero, 2013). Therefore, it has become a policy goal for governments in migrant-receiving countries around the globe. It has also received attention from academic scholars (Sinning, 2010; Phillimore, 2012; Integrated Communities Action Plan, 2019). The literature to date uses disparate measures of integration and data limitations often prevent the analysis of integration in multiple dimensions of life (Cook et al.,

[2] Existing research describes the process of acculturation in terms of four different strategies: integration, assimilation, marginalisation, and segregation (Berry and Sam, 2006; Berry and Hou, 2017). The integration involves adopting the host culture while retaining one's own cultural norms. Assimilation refers to adopting the host culture and letting go of own cultural norms. Separation implies maintaining one's own culture and rejecting the host culture. Marginalisation means the rejection of both the new and own culture. According to studies, marginalisation, segregation, and assimilation have been widely rejected from the point of view of migration policy on the grounds that these usually constitute cultural exclusion and may result in culturally destructive and criminal behaviour in extreme cases (Banting and Kymlicka, 2006; Entzinger, 2000; Kingston, 2015; Steven and Wessendorf, 2010). In contrast, integration is preferred over other acculturative strategies because it allows for multicultural migration policies that foster cultural adoption with the maintenance of one's own cultural norms and values.

2011; Vervoort, 2012; Magnusson and Hedman, 2014; Wheatley, 2017; Greenspan et al., 2018). However, a fundamental view that connects much of the literature is that the integration of immigrants represents the achievement of equivalent outcomes to those of the majority host community across the dimensions of life under investigation (Card et al., 1998; Algan et al., 2010; Saggar et al., 2012). In this study, integration refers to the inclusion of immigrants into both social and economic dimensions of life. We label the investigation of how well immigrants do in terms of social connections and community involvement compared to native-born as social integration, whereas we label the examination of how immigrants fare compared to native-born in terms of economic success in the host country as economic integration. Studying both the social and economic integration of immigrants allows us to present a representative picture of immigrants' integration in the two major aspects of life in the host country.

1.2 A Note on Subjective Well-being

Studies linking integration and subjective well-being suggest that the cultural shock experienced during the process of integration into a new culture can adversely impact immigrants' subjective well-being (Glass and Bieber, 1997; Dow, 2011; Koydemir, 2013; Berry and Hou, 2016; 2017). Researchers use various measures to examine the relationship between integration and well-being, which can be summarised by two major conceptualisations of subjective well-being termed as 'life satisfaction' (Safi, 2010; Bartram, 2011; Arpino and de Valk, 2018) and 'mental health' (Jayaweera, 2014; Gilliver et al., 2014; Brysten et al., 2019).

The life satisfaction measure of well-being consists of cognitive judgments about overall satisfaction from life in general. It is measured by asking respondents to think about their overall life or a specific domain of life and evaluate their satisfaction with it. Life satisfaction tends to vary amongst individuals depending upon specific standards used to judge how well life is going as a whole or in specific areas of life, e.g., job, relationships, health etc. (Helliwell, 2008; Nowok et al., 2013; Kim-Prieto et al., 2013; Baykara-Krumme and Platt, 2018). While life satisfaction is based on recall, mental health considers life as lived and emotions involved in day-to-day life (Kahneman and Riis, 2005; Clark et al., 2010; Waldron, 2010). Mental health is mostly assessed by asking respondents to consider their current state of mind (or last couple

of weeks) and evaluate their emotions such as sadness, happiness, anxiety, depression, failure, anger, worry etc. A person with better mental health generally has pleasant feelings more than unpleasant ones (Dolan et al., 2008; Griffith and Jones, 2019; Hou et al., 2020).

An advantage of the subjective nature of the life satisfaction and mental health measures of well-being is that they allow insight into people's perceptions of their well-being and avoid the assumption that certain things (e.g., wealth) are good for people's well-being. Studies show that life satisfaction and mental health are valid constructs of subjective well-being and can be measured reliably (Layard, 2005; Dolan et al., 2008; Griffith and Jones, 2019). Life satisfaction and mental health both play a role in determining the overall well-being of individuals (including immigrants), and both are therefore used in this study.

1.3 Outline of the Thesis and Contributions

The thesis is comprised of three research papers. In the first research paper (Chapter 2), we evaluate the social and economic integration of immigrants compared to natives. We also examine whether any differences vary according to white/non-white ethnicity and the length of stay of immigrants. Previous studies are often limited to studying either social or economic dimensions rather than both and remain divided on the appropriate outcome measures to capture these dimensions (Cook et al., 2011; Sinning, 2010; Vervoort, 2012; Magnusson and Hedman, 2014; Greenspan et al., 2018). A more comprehensive investigation of the process of integration is currently lacking in research. In this chapter, we contribute to the existing research by using multiple indicators to capture social and economic integration, where social integration is proxied by social network size, community involvement in terms of volunteering and charitable behaviour and a unique measure of neighbourhood embeddedness. Economic integration is captured by considering employment, unemployment, job quality in terms of job security and work autonomy, and homeownership status.

Chapter 2 shows that immigrants have lower neighbourhood embeddedness, smaller social network size, and a lower likelihood of volunteering and exhibiting charitable behaviour than natives. Immigrants are found to have a higher likelihood of

unemployment and a lower likelihood of employment and achieving homeownership than natives. Employed immigrants have lower job quality as proxied by job security and work autonomy than employed natives. The differences between immigrants and natives are larger for non-white immigrants across all the indicators of social and economic integration, except for neighbourhood embeddedness, where differences are more substantial for white immigrants. Lastly, we observe that differences in the indicators of social and economic integration are more pronounced for immigrants with a shorter length of stay compared to immigrants with a longer length of stay.

In the second research paper (Chapter 3), we examine the subjective well-being of immigrants and natives, and its relationship with the indicators of social and economic integration. Subjective well-being is studied using both the evaluative measure of overall satisfaction with life and a composite measure of mental health. The analysis is conducted in two steps. In the first step, we complement previous studies in examining whether there are gaps in life satisfaction and mental health between immigrants and natives. Additionally, we examine if these gaps vary by the white/non-white ethnicity of immigrants and length of stay. In the second step, we uniquely contribute to existing research on well-being by studying the role of the differences between social and economic integration identified in Chapter 2 in explaining the subjective well-being gaps between immigrants and natives.

Chapter 3 shows that immigrants have lower life satisfaction and mental health than natives. These well-being disparities are more substantial for non-white immigrants than white immigrants and those who have lived in the UK for more than 10 years. We show that part of the well-being gap is explained by the disadvantaged position of immigrants across the measures of social and economic integration; however, a substantial gap remains unexplained. Moreover, the analysis reveals that our indicators of social and economic integration are significantly and positively associated with the life satisfaction and mental health of individuals and that the strength of these relationships does not vary between immigrants and natives. In offering an explanation for our findings, we suggest that a reason for persistent well-being disparities between immigrants and natives could be the disadvantage associated with being an immigrant and belonging to a non-white ethnic minority group.

In the third research paper (Chapter 4), we examine the subjective well-being of immigrants and natives during the Covid-19 pandemic. We add to existing research by first examining the differential impact of Covid-19 on the subjective well-being of immigrants and natives. Second, we uniquely contribute to the research on well-being and resilience by exploiting the quasi-experimental nature of the Covid-19 pandemic to study the potential causal impact of pre-pandemic levels of social integration in mitigating the adverse shock on subjective well-being.

Chapter 4 shows that, during the pandemic, subjective well-being in terms of life satisfaction has declined for both immigrants and natives. Immigrants, in particular, have suffered a larger decline in life satisfaction than natives. Further analysis reveals that pre-pandemic social integration, in terms of neighbourhood embeddedness and social network size, has played a role in protecting the life satisfaction of immigrants. Put differently, we observe that immigrants with lower pre-pandemic neighbourhood embeddedness and smaller social networks suffered a larger decline in life satisfaction during Covid-19.

Overall, this research offers a comprehensive picture of immigrants' integration into multiple aspects of social and economic life. In addition, it highlights the significance of integration for the subjective well-being of immigrants. While complementing previous studies in showing that both social and economic integration are positively associated with well-being, it also shows how social integration plays a vital role in protecting the life satisfaction of immigrants during challenging times like the recent Covid-19 pandemic. The research findings have important implications for policy and research aimed at achieving better outcomes for the subjective well-being of immigrants.

Chapter 2: Social and Economic Integration of Immigrants in the UK

2.1 Introduction

The integration of immigrants is essential for a socially cohesive and economically progressive society (Phillips et al., 2018; Blagden et al., 2020; Coates and Patel, 2020). It is also a core principle for UK government policy on immigration and inclusive communities (Integrated Communities Action Plan, 2019).[3] This study explores the social and economic integration of immigrants in the UK. We define integration as the ability of immigrants to achieve similar levels of social and economic outcomes as natives (Card et al., 1998; Algan et al., 2010; OECD/European Union, 2019).

The literature to date focuses on either social integration or economic integration (Dustmann, 1996; Korinek et al., 2005; Sinning, 2010; Greenspan et al., 2018) and is often limited to measuring social or economic integration by focusing on only one aspect of immigrants' experience in the host country. For instance, when examining social integration, most studies use social networks of immigrants compared to natives (Danzer, 2011; Cook et al., 2011; Vervoort, 2012), whereas a few focus on involvement in civic institutions (Osili and Du, 2005; Handy and Greenspan, 2009). To reflect economic integration, most researchers focus on employment status (Dustmann and Fabbri, 2003; Berthoud and Blekesaune, 2007; Clark and Drinkwater, 2008), while others use homeownership (Bauer and Sinning, 2011; Magnusson and Hedman, 2014). Integration is a multi-dimensional process (Phillimore, 2012; Saggar et al., 2012) and studying a single aspect (or measure) can provide a narrow, if not misleading, picture of immigrants' integration into the host society. Therefore, a gap remains for a study that considers various aspects of immigrants' social and economic integration simultaneously.

This chapter attempts to fill this gap in research. Its contribution is three-fold. First, we go beyond a singular interpretation of immigrants' integration and take advantage of a large-scale panel survey in the UK to capture a wide variety of indicators reflective of both social and economic integration of immigrants with natives as the benchmark. We use social networks and community involvement (i.e.,

[3]Integrated Communities Action Plan (2019). HM Government.: [https://www.gov.uk/government/publications/integrated-communities-action-plan]

volunteering and charitable behaviour) as measures of social integration and generate a novel measure of immigrants' embeddedness in the neighbourhood based on six attitudinal statements reflecting regular interactions and sense of attachment to the neighbourhood that have not been considered before. We use employment status (i.e., employment and unemployment) and homeownership as proxy measures of economic integration and include quality of work as another dimension to better understand how immigrants' economic integration compares to natives. The quality of work is measured by job security and work autonomy and offers a measure of economic success beyond just achieving employment in the host country (Clark, 2015; Wheatley, 2017).

Second, we complement existing research by providing evidence of how the social and economic integration of immigrants differs from natives based on their ethnicity and length of stay in the UK. Immigrants are a heterogeneous group, and their ethnicity and number of years spent in the host country may considerably influence how well they integrate. Third, the longitudinal dataset we use allows us to control for changes over time and time-invariant individual unobserved heterogeneity that most previous studies are not able to take into account given the cross-sectional nature of the survey data they use.

Our findings for the differences between immigrants and natives across the indicators of social integration show that immigrants have lower neighbourhood embeddedness, smaller social network size and lower community involvement as proxied by volunteering and charitable behaviour. The findings for economic integration show that immigrants have a higher probability of being unemployed and have a lower probability of being employed and having job security and work autonomy compared to natives. Immigrants are also found to have lower probability of homeownership than natives. According to ethnicity and length of stay of immigrants, we find that non-white immigrants and those who have stayed for less than 10 years fare less well compared to natives across most indicators of social and economic integration. Overall, the findings of the chapter add new information on the nature and extent of integration of immigrants in the UK.

The remainder of the paper is structured as follows. Section 2.2 provides a literature review of previous research on the social and economic integration of

immigrants. Section 2.3 introduces the source of data, construction of the key variables in the analysis and some discussion of summary statistics. Section 2.4 discusses the methodology used. Section 2.5 presents the results. Finally, section 2.6 presents a discussion and conclusion with some policy implications and limitations of our research.

2.2 Literature on Social and Economic Integration

For social integration, two major perspectives can be identified from the existing body of research. First, social integration is viewed as the 'acceptance' of immigrants into the social networks and relationships in the receiving society (Cook et al., 2011; Danzer, 2011; Wessendorf and Phillimore, 2019). Second, social integration is considered as the 'inclusion' of immigrants into civic institutions which facilitate community involvement in the host country (Osili and Du, 2005; Handy and Greenspan, 2009; Baert and Vujic, 2016). Those who investigate social integration from the 'acceptance' perspective argue that immigrants need to be accepted into the social networks of the host community to not only familiarise themselves with the norms and values of the host culture but also to gain access to economic opportunities (Zimmermann et al., 2000; Craig, 2015). The existing literature on social integration highlights that non-white immigrants often face more challenges in establishing social networks with natives due to ethnic and cultural differences and potential discrimination (Heckmann and Bosswick, 2006; Vervoort, 2012). For instance, Saggar et al. (2012) find that white immigrants in the UK are much more likely to report feelings of trust and togetherness with others in the neighbourhood, primarily because they are less likely to face challenges like discrimination in settling into the neighbourhood than non-white immigrants, irrespective of the educational, employment and demographic characteristics. Social networks are likely to improve with the length of stay in the host country as it affords immigrants more time to learn the host country's language and communicate with the host population (Depalo et al., 2006; Schnell et al., 2012; Saggar et al., 2012).

While earlier literature studied immigrant's social networks at a broader social level (Lockwood, 1964; Berger et al., 2005, Remennick, 2004), more recent studies stress the importance of studying social networks at a more localised neighbourhood

level as everyday life takes place in the neighbourhood (Danzer, 2011; Cook et al., 2011; Vervoort, 2012). These studies have either examined integration into the neighbourhood qualitatively (Cook et al., 2011) or by using the frequency of social interactions in the neighbourhood to measure social integration (Vervoort, 2012). Fortunately, the Understanding Society (UKHLS) dataset for the UK allows us to study social integration at the neighbourhood level and social networks at a broader level.

Studies focusing on the 'inclusion' as opposed to the 'acceptance' perspective often use community involvement to assess the level of social integration of immigrants. Studies show that community involvement reflects the integration of immigrants because it shows their exposure and the ability to engage with the host country's culture and societal norms and values (Howard, 2005; Handy and Greenspan, 2009). Community involvement is considered part and parcel of immigrants' equal access to social networks in the host community, allowing their active participation in civic institutions (Pillimore, 2012; Baert and Vujic, 2016). Commonly used measures of community involvement include volunteering and charitable behaviour. For example, Greenspan et al. (2018) used volunteering to measure community involvement and found that immigrants in Germany have a considerably lower rate of volunteering than the native-born population and argued that ethnic differences could partly explain this gap.

Similar to neighbourhood integration, there is evidence suggesting that community involvement such as volunteering can vary significantly across different ethnic groups. Osili and Du (2005), for instance, find that white immigrants in the United States are considerably more likely to exhibit charitable behaviour than comparable non-white immigrants. In general, it is expected that prolonged residency increases the chances for immigrants to engage in community involvement (Handy and Greenspan, 2009; Greenspan et al., 2018).

Most often, researchers use the employment status of immigrants as a proxy for economic integration, and a common finding is that immigrants tend to do worse than native-born in terms of employment rates (Lazear, 1999; Clark and Drinkwater, 2008; Cebolla-Boado et al., 2019; Manley et al., 2019) and that employment outcomes vary substantially according to ethnic groups, with non-white immigrants having

lower employment rates than their white migrant or native counterparts (Blackaby et al., 2002; Dustmann and Fabbri, 2003; Berthoud and Blekesaune, 2007; Clark and Drinkwater, 2008; Clark and Lindley, 2008). Most previous studies do not consider the quality of work, such as job security and autonomy at the workplace, that may influence immigrants' economic situation and, therefore, reflect their strength of economic integration. Low-quality jobs, as characterised by a high risk of job loss and lack of control over various decisions within the job, are linked to lower levels of income and productivity (Bartling et al., 2021; Vidal, 2013; Clark, 2015; Wheatley, 2017). Such low-quality work is more prevalent amongst immigrants because they are likely to take on jobs that natives might not be willing to do (Orrenius and Zavodny, 2009; Diaz-Serrano, 2013; Khattab and Lazarus, 2016). The lack of autonomy over work is primarily known to make it difficult for immigrants to find extra part-time work as they risk losing their job if they decline the offered working hours (Weishaar, 2008; Potter and Hamilton, 2014; Scott, 2017). Studies show that new immigrants are more likely to have insecure jobs compared to natives and that the differences tend to reduce with a longer length of stay as education, skills and work experience increase (Kaufman and Mirsky, 2004; Lehmer and Ludsteck, 2011; Liu et al., 2019). Inequalities in the quality of work arise in terms of ethnicity, where studies show that ethnic minority groups, including non-white immigrants, are more likely to report low quality work, possibly due to lack of host country qualifications, education, and labour market discrimination (Raijman et al., 2003; Burgard et al., 2009; Landsbergis et al., 2014).

Quality of work is an important dimension of immigrants' quality of life as a high risk of job loss and low work autonomy can reduce the bargaining power of workers, often resulting in reduction in wages, lower worker productivity and eventually lower economic integration besides being employed (Potter and Hamilton, 2014; Scott, 2017; Liu et al., 2019). However, empirical evidence on the differences in measures of job quality among immigrants is limited. Given that an average worker spends about half of their time on weekdays at their workplace, this limitation is too important to ignore in the context of the economic integration of immigrants. Fortunately, the longitudinal survey data we use in this chapter provides information regarding job security and various aspects of autonomy in the workplace.

Another aspect of economic integration considered by the existing research is homeownership because it represents long-term economic stability and a financial commitment to a relatively fixed asset (Nygaard, 2011; Magnusson and Hedman, 2014). Some well-cited studies include Andersson et al. (2010) and Magnusson and Hedman (2014) who conducted a comparative analysis of immigrants and natives for homeownership in Sweden and found that ethnic minorities and immigrant groups are less likely to have homeownership. Studies in the UK also show that white immigrants are more likely to own homes having settled permanently compared to non-white immigrants (Nygaard, 2011; Gobillon and Solignac, 2015; Constant et al., 2009). The longer length of stay reflects the long-run commitment to stay in the UK, enabling immigrants to accumulate wealth to facilitate homeownership (Sinning, 2010; Magnusson and Hedman, 2014).

The above literature suggests that the integration of immigrants is a multi-dimensional process, meaning that analysis focusing on one dimension, such as social networks, could obscure disadvantages in community involvement and employment. Thus, we go beyond a singular interpretation of integration by using multiple measures to study social and economic integration, including neighbourhood integration, volunteering, charitable behaviour, employment status, job quality and homeownership.

2.3 Dataset and Sample Description

To explore the social and economic integration of immigrants in the UK, we use the United Kingdom Household Longitudinal Study (UKHLS), a nationally representative household and individual level panel survey[4]. The survey began in 2009 and has approximately 40,000 participating households across England, Scotland, Wales, and Northern Ireland. The dataset is organised as 'waves', where each wave captures the responses for two to three overlapping years. Fortunately for our purposes, the dataset has a large general population sample, an ethnic minority booster sample, and an additional immigrant-ethnic minority boost sample (included from wave six onwards),

[4]University of Essex, Institute for Social and Economic Research (2020). Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]. 13th Edition. UK Data Service. SN: 6614, http://doi.org/10.5255/UKDA-SN-6614-14.

containing rich information on respondents' characteristics and behaviour. We use waves 2 (2010-2012), 6 (2014-2016) and 8 (2016-2018) for our analysis, depending upon the availability of data for the variables in use (see section 2.3.2 for more detail on the treatment of missing data).

We classify immigrants as all non-UK born individuals and natives as UK-born individuals for ease of description and use. This definition is in line with previous studies (Casey and Dustmann, 2010; Sinning, 2010; Dustmann and Frattini, 2011). An advantage of this large-scale dataset is that we can divide immigrants according to their ethnicity (white and non-white) (see appendix section A.1 for more details on immigrant and ethnicity variables). We also divide immigrants according to the length of stay, computed by subtracting the year of the individual's interview and the year the respondent came to the UK.

2.3.1 Indicators of Social and Economic Integration

This section discusses various measures we use as indicators to examine social and economic integration that are carefully selected in line with the literature discussed in section 2.2.

Neighbourhood Embeddedness

To study social integration, we take advantage of the availability of data on the experiences of individuals in their neighbourhood. It is important to study social relationships at the neighbourhood level because day-to-day interactions occur around one's place of residence (Cook et al., 2011; Saggar et al. 2012; Vervoort, 2012). Our first measure of social integration is neighbourhood embeddedness[5] which is based on the information from six different question items. These question items were recorded in a specific neighbourhood module in waves 1, 3, 6, and 9 (in the UKHLS survey). In this module, individuals were asked to report their level of agreement/disagreement (scale from 1 (strongly disagree) to 5 (strongly agree)) with a host of statements designed to capture how well they feel integrated into various aspects of

[5]A concept first introduced by Schnell et al. (2012).

neighbourhood life. This includes variables that capture regularity of interactions with neighbours, ease of borrowing things and exchanging favours from neighbours, willingness to trust neighbours for advice, sense of overall belongingness to the neighbourhood, whether they feel similar to others in the neighbourhood, and plans to remain a resident for a number of years.

We employ exploratory factor analysis to reduce the information provided by the six question statements to a latent construct, reflecting a psychological sense of embeddedness within the neighbourhood. This latent construct can then be used as a proxy to conduct a neighbourhood-level analysis of immigrants' integration into the host country while avoiding multicollinearity from using individual variables as regressors in next chapters.

Factor Analysis

We commence factor analysis with several tests to determine the suitability of respondents' answers to the six question items for this approach. The Kaiser-Meyer-Oklin measure of sampling adequacy is 0.86, indicating that 86% of the variance in the correlation matrix is explained by an underlying factor and hence factor analysis is justifiably applicable (Kaiser, 1974). Next, we use Bartlett's test of Sphericity to find out if there are adequate intercorrelations between the question items. The p-value of 0.000 confirms a strongly significant relationship between the variables. Finally, we conduct an exploratory factor analysis on the six question items, using polychoric correlation matrix (which takes into account the ordinal nature of the raw observed variables). The result is a single factor with an eigenvalue greater than one, which is retained for further analysis.

The question statements and associated factor loadings are presented in Table 2.1. The two statements that attracted the highest factor loadings are 'similar to others in the neighbourhood’ and 'plan to remain in the neighbourhood' and 'feel like belong to the neighbourhood'. The higher a respondent scores on the factor variable, the higher their overall level of agreement with the statements that make up that factor labelled as neighbourhood embeddedness. We tested scale reliability and found a high degree of consistency in responses to the question-items used to derive the measure of

the neighbourhood embeddedness as indicated by a Cronbach's alpha of 0.84 (this is a measure of how closely related the six question-items are as a group).

Table 2.1 Question statements that constitute our measure of neighbourhood embeddedness	
Question Statements	**Loadings**
I think of myself as similar to the people that live in this neighbourhood	0.72
I plan to remain a resident for a number of years in this neighbourhood	0.70
I feel like I belong to this neighbourhood	0.68
I regularly stop and talk with people in my neighbourhood	0.62
If I needed advice about something, I could go to someone in my neighbourhood	0.57
I borrow things and exchange favours with my neighbours	0.54

We maintain that our analysis at the neighbourhood level is unique as, in addition to social interactions at the neighbourhood level. We also take into account factors such as immigrants' attachment to the neighbourhood (willingness to remain), feelings of belongingness (feel similar and belong to the neighbourhood), sense of reciprocity and trust (as reflected by the questions related to advice obtainable from neighbours and the ability of borrowing and exchanging favours with others). Hewston (2009) suggests this approach, arguing for the inclusion of 'meaningful social contacts' rather than mere superficial interactions when studying social integration. He maintains that in meaningful social relationships, people get to know each other well enough to move beyond superficial interactions and develop feelings of trust and reciprocity. A limitation of the approach to studying social integration at the neighbourhood level is that ethnic minorities and immigrants are usually drawn to co-ethnic neighbourhoods (Johnston et al., 2002; Robinson et al., 2007), which can sometimes introduce bias in the results. Given the absence of appropriate data to control for neighbourhood composition[6], we supplement our analysis for social integration with alternative measures, including social network size, volunteering and charitable behaviour.

[6]To crudely test for the limitations imposed by the lack of an adequate measure of neighbourhood composition, we repeated our main analysis for neighbourhood embeddedness while excluding the ethnic boost samples that are collected from ethnically rich areas in the UK. The results remain qualitatively similar with this sample restriction, showing that neighbourhood composition may not impose undue bias to our results (Appendix table A.1). However, we remain cautious in our interpretation of results and avoid implying causality.

Social Network Size

We consider a measure of the size of a respondent's social network other than family members as an additional indicator of social integration. This allows us to capture social integration in a broader sense, thus departing from a localised view of integration in the host country as in the case of neighbourhood embeddedness. The variable used is labelled 'social network size' and it is captured in the dataset by asking the respondents: *"How many close friends do you have?" (Values range from 0 to 10).* This variable is available in waves 1, 3, 6 and 9. A limitation of social network size as a measure of social integration is that it may capture friends that are living far away (perhaps, country of origin), in which case it may be a less reliable measure of social integration. We therefore consider additional measures of social integration, including volunteering and charitable behaviour that are considered part-and-parcel of successful social networks in the host country (Pillimore, 2012; Baert and Vujic, 2016).

Community involvement

Active community involvement indicates that an individual has developed an altruistic connection to society and engages with its norms, values, and culture, which is indicative of integration (Osili and Du, 2005; Baert and Vujic, 2016; Greenspan et al., 2018). We capture community involvement of individuals by volunteering and charitable behaviour. The measures used for volunteering and charitable behaviour are available in waves 2, 4, 6 and 8. In relation to volunteering, respondents are asked: *"In the last 12 months, have you given any unpaid help or worked as a volunteer for any type of local, national or international organisation or charity?*". To capture charitable behaviour, respondents are asked: *"In the last 12 months, have you donated any money to charities or other organisations?*" These questions are based on 'Yes' and 'No' responses and are used to construct dummy variables, which are equal to 1 for 'Yes' for volunteering and charitable behaviour and 0 otherwise.

Employment status

To study economic integration, we consider the employment status of individuals as it provides information about labour market access that is the main source of income and economic stability (Clark and Drinkwater, 2008; Cebolla-Boado et al., 2019; Manley et al., 2019). The variable for employment status is available in all waves of dataset and is based on the question: "*Which of this best describes your current economic situation: unemployed, self-employed, paid employment (full-time/ part-time), retired, on maternity leave, family care or home, full-time student, long term sick or disabled, Govt training scheme, unpaid, family business, on apprenticeship and doing something else?"*

We generate a variable with three categories for ease of interpretation and use. The first category labelled 'employed' includes paid employment, self-employment, or maternity leave. The second category is labelled 'unemployed' and consists of unemployed individuals. The third category is labelled 'outside the labour market' and includes individuals such as the retired, full-time students and the long-term sick or disabled. While we can compare immigrants and natives across all the economic categories, strictly from an economic integration perspective, we are more interested in the unemployed and employed individuals (which include self-employed and those on maternity leave). Therefore, we use two dummy variables, coded 1 for the category under examination and 0 otherwise. For example, a dummy that takes the value 1 for the unemployed and 0 for the remaining categories is used to study unemployment.

Job Quality/Quality of work

We consider quality of work in terms of job security and work autonomy. This is an important aspect of economic integration as having a secure job and control over working conditions is linked to higher levels of income and productivity, and ultimately higher economic stability (Diaz-Serrano, 2013; Khattab and Lazarus, 2016; Scott, 2017). The measures of job security and work autonomy available in the dataset are only applicable to employed individuals and are available in waves 2, 4, 6 and 8. The question pertaining to job security asks the respondents: *"Think about your employment prospects over the next 12 months: Thinking about losing your job by*

being sacked, laid-off, made redundant or not having your contract renewed, how likely do you think it is that you will lose your job during the next 12 months?" (Select from options: 1=very likely, 2=likely, 3= unlikely and 4= very unlikely). We generate a dummy variable for job security for ease of interpretation and use, which equals 1 for 'unlikely and very unlikely to lose job' and 0 otherwise.

To capture work autonomy, respondents are asked five questions: *"In your current job, how much influence do you have over: what tasks you do in your job, the pace at which you work, how you do your work, the order in which you carry out tasks, and the time you start or finish your working day?" (Select from options: 1=none, 2=a little, 3= some, 4=a lot).* We generate a composite variable labelled "work autonomy" by summing the responses to each of the five questions. The resultant outcome variable ranges from 1 to 20, where 1 implies low work autonomy and 20 implies high work autonomy. The Cronbach's alpha (a measure of internal consistency of a scale) showed that 83% of the variance in the composite scores associated with the five items is reliable.

Homeownership

We consider homeownership as another dimension of economic integration because it reflects long-term economic stability and wealth accumulation (Sinning, 2010; Magnusson and Hedman, 2014). The measure of homeownership is based on the question: "*Does your household own this accommodation, or is it rented?" (Select from options: owned outright, Owned on Mortgage/shared ownership, rented, rent-free)*. This variable is available in all waves. We generate a dummy variable for ease of interpretation and use, which takes the value of 1 for categories 'owned outright' or 'owned on mortgage/shared ownership' and 0 otherwise.

Socio-demographic controls

Socio-demographic controls include a dummy for female *(female=1 and male=0),* marital status *(unmarried=0, married=1, divorced=2),* age groups (*first category:16-*

30, second category: 31-50 and third category ≥51 years)[7], categorical variable for educational qualifications *(1 = Degree/ higher degree, 2 = no qualifications, 3 = GCSE/Lower and 4 = A-levels)*, discrete variables for household size and number of children and continuous variable for logged net monthly household income. The household income is logged for two reasons. First to facilitate interpretation in approximate percentage terms (instead of monetary terms) and second this variable is skewed so taking log smooths out the distribution. An additional control for occupation is included when running the regressions for job quality variables that are only valid for employed individuals. The occupation variable has three categories: (*1 = routine, 2 = intermediate 3 = management/professional*). These variables are available in all waves used in the analysis for this chapter.

2.3.2 Generating Data for Missing Waves

All dependent and independent variables are available in waves 2, 6 and 8, except for neighbourhood embeddedness and social network size, which are only available in alternate waves 3, 6 and 9. The missing data for waves 2 and 8 imply that we would be left with a cross-section of the data (only wave 6) when obtaining a sample with non-missing values for all variables to conduct the empirical analysis. Moreover, using different samples for various regression models does not allow studying the indicators of social and economic integration altogether in one regression when examining their association with well-being in Chapter 3. To prevent such issues, we filled the values for the missing waves 2 and 8 for neighbourhood embeddedness and social network size by carrying backwards the values of waves 3 and 9 for each respondent[8]. For instance, wave 3 responses were assigned to wave 2, and the values for wave 9 were assigned to wave 8 for these variables. This practice enables us to conduct empirical analysis using a consistent sample based on waves 2, 6 and 8.[9]

[7] Results do not change with age included as a continuous variable.
[8] The variables for neighbourhood embeddedness and social network size do not vary significantly over-time for a respondent.
[9] We checked if our imputation strategy might be driving our findings by repeating our main empirical analysis for neighbourhood embeddedness and social network size with the original waves 3, 6 and 9 of data (see appendix table A.2), in addition to the imputed waves of data 2, 6 and 8 (see table 2.3 in section 2.5.1), in separate regression models. The findings showed that the results for the gaps in neighbourhood embeddedness and social network size are qualitatively the same in both cases, thus confirming that the imputation strategy does not drive our findings.

2.3.3 Summary Statistics

This section discusses some summary statistics of key variables presented in Table 2.2. The table shows the mean differences in our migrant and native samples, where immigrants are also divided into white and non-white ethnic groups. Our main sample based on waves 2, 6 and 8 of the UKHLS dataset comprises of 9% immigrants and 91% natives. The statistics for socio-demographic controls in column 1 show that natives and immigrant samples have 56% and 58% females, respectively. Immigrants are more likely to be married and tend to be, on average, 9 years younger than natives. Compared to natives, they appear to live in larger households and have more children. Immigrants and natives have similar levels of monthly household income. Given that immigrants reside in larger households, this would suggest a lower average individual income from household members and potentially more dependents. 54% of immigrants and 36% of natives have high educational degree. Employed immigrants have a higher percentage of individuals in routine occupations and have equal management/professional occupants as natives. About 71% of immigrants in our sample have lived in the UK for more than 10 years.

The indicators of social integration show that immigrants have about 0.12 points lower neighbourhood embeddedness than natives. A closer look at differences between immigrant groups reveals that non-white immigrants have 0.08 points while white immigrants have 0.21 points lower neighbourhood embeddedness than natives. Thus, showing that the differences in neighbourhood embeddedness between immigrants and natives are larger for white immigrants than for non-white immigrants.

Additionally, we provide the distribution of our measure of neighbourhood embeddedness in Figure 2.1, which shows that approximately 50% of natives and 40% of immigrants report high scores for neighbourhood embeddedness (ranging from 4 and above). Around 47% of natives and 55% of immigrants report neighbourhood embeddedness scores below 3, thus showing that a higher percentage of immigrants report low neighbourhood embeddedness than natives.

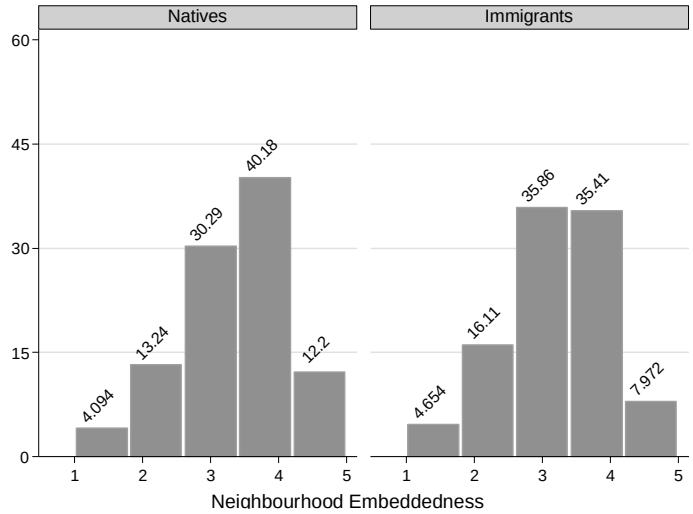

Figure 2.1: A distribution of neighbourhood embeddedness scores for immigrants and natives

For social network size in Table 2.2, we observe that immigrants have 0.68 fewer friends than natives. We observe that this gap is larger for non-white immigrants (0.91) compared to white immigrants (0.25). Hence, non-white immigrants have the smallest social network size. Figure 2.2 displays the distribution of the measure of social network size which shows that approximately 30% of natives and 20% of immigrants report having a close circle of 6 to 10 friends.

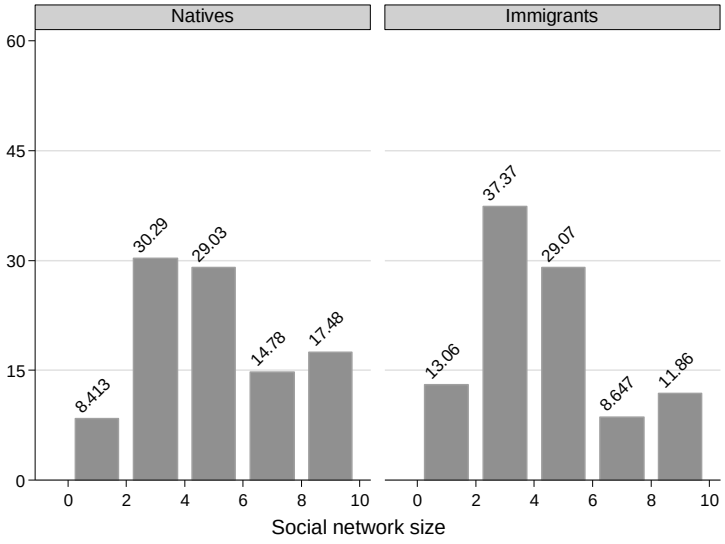

Figure 2.2: A distribution of social network size for immigrants and natives

When it comes to community involvement, the table shows that 18% of immigrants volunteer and 65% exhibit charitable behaviour; this compares to 21% volunteering and 73% charitable behaviour for natives. On average, it appears that immigrants have 3 percentage points lower volunteering and 8 percentage points lower

charitable behaviour than natives. These differences are mainly concentrated in the non-white immigrants' sub-group, measuring 4 percentage points lower volunteering and 10 percentage lower charitable behaviour than natives.

The economic integration indicators show that 68% of immigrants and 57% of natives are employed (including full-time, part-time employed or self-employed, as well as those on maternity leave). 63% of non-white immigrants and 77% of white immigrants are employed. A small percentage of immigrants (7%) and natives (4%) are unemployed. Unemployment is 7% amongst non-white immigrants and 4% amongst white immigrants. Thus, non-white immigrants appear to have adverse employment outcomes than white immigrants. Table 2.2 also shows that 75% of natives and 56% of immigrants have homeownership. Non-white and white immigrants have 21 and 14 percentage points lower homeownership compared to natives, respectively. Employed immigrants have a 2 percentage points lower job security and 14 points lower work autonomy than natives. Non-white immigrants have a 3 percentage points lower job security and 36 points lower work autonomy than natives, whereas white immigrants have a 22 points lower work autonomy and similar job security as natives. Hence, non-white immigrants tend to have low job quality. Figure 2.3 illustrates the distribution of work autonomy scores for immigrants and natives. It shows that approximately 55% of natives and 50% of immigrants have high scores (ranging from 15 and above) for work autonomy.

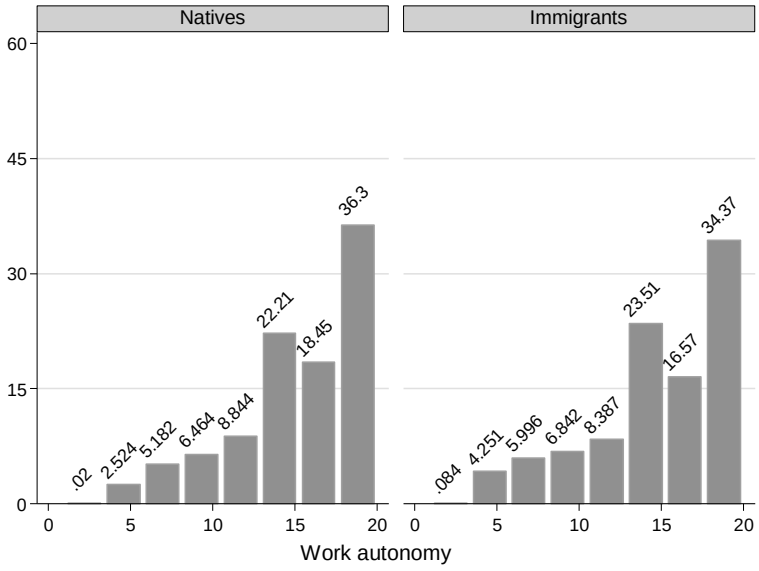

Figure 2.3: The distribution of work autonomy scores for immigrants and natives

Table 2.2 Descriptive Statistics

		Natives	Immigrants	Diff from natives	Non-white immigrants	Diff from natives	White immigrants	Diff from natives
		Column 1			Column 2		Column 3	
Female		56%	58%		58%		60%	
Relationship Status								
	Unmarried	40%	32%		29%		39%	
	Married	53%	64%		67%		56%	
	Divorced	7%	4%		4%		5%	
Household size	(1-16)	2.7	3.6		3.8		3.0	
Number of children	(0-10)	0.45	0.94		1.00		0.80	
Age groups	16-30	19%	21%		21%		21%	
	31-50	34%	59%		58%		60%	
	>50	47%	20%		21%		19%	
Mean Age		49	40		41		40	
Education								
	No qualifications	11%	8%		10%		4%	
	GCSE/Lower	31%	21%		22%		20%	
	A-Level	22%	17%		17%		17%	
	High Degree	36%	54%		51%		59%	
Net monthly household income		3267	3393		3263		3647	
Years spent in the UK								
	0-10		29%		29%		28%	
	11-20		34%		37%		32%	
	21-41		37%		34%		40%	
Social Integration								
Neighbourhood Embeddedness		3.29	3.17	0.12***	3.21	0.08***	3.08	0.21***
Social Network Size (0-10)		4.71	4.03	0.68***	3.80	0.91***	4.45	0.26***
Community Involvement								
	Volunteering	0.21	0.18	0.03***	0.16	0.05***	0.21	0.000
	Charitable behaviour	0.73	0.65	0.08***	0.63	0.10***	0.67	0.06***
Economic Integration								
Employment status								
	Employed	0.57	0.68	-0.11***	0.63	-0.06***	0.77	-0.20***
	Unemployed	0.04	0.07	-0.03***	0.07	-0.03***	0.04	0.000
	Outside Labour Market	0.39	0.25	0.14***	0.30	0.09***	0.19	0.20***
Homeownership		0.75	0.56	0.19***	0.54	0.21***	0.61	0.14***
observations (waves 2,6,8)		79589	7413		4896		2518	
Number of Individuals		40505	4591		3166		1425	
Quality of work								
	Job security	0.91	0.89	0.02***	0.88	0.03***	0.91	0.000
	Work Autonomy (1-20)	14.95	14.81	0.14***	14.59	0.36***	15.17	-0.22***
Occupation	Routine	38%	40%		43%		38%	
	Intermediate	16%	14%		14%		16%	
	Management & Professional	46%	46%		43%		46%	
observations (wave 2,6,8)		39055	4101		2540		1561	
Number of Individuals		22185	2652		1713		939	

The variables for job security, work autonomy and occupation are only applicable for employed individuals.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

2.4 Methodology

We follow the methodology of previous studies in examining the social and economic integration of immigrants with natives as the benchmark (Card et al., 1998; Algan et al., 2010). This is done using an immigrant dummy ($immigrant_i$) as the main variable of interest. A statistically significant and negative coefficient for the immigrant dummy can be interpreted as lower levels of social and economic integration; otherwise, they can be considered as integrated as natives. To examine the gaps in the social and economic integration of immigrants and natives, we use multivariate regression analysis and estimate the following model:

$$Y_{it} = \alpha_0 + \alpha_1 immigrant_i + \boldsymbol{X_{it}\alpha_2} + \delta_t + \mu_{it}, \quad (2.1)$$

where Y_{it} represents the dependent variables, including neighbourhood embeddedness, social network size, volunteering, charitable behaviour, unemployment, employment, job security, work autonomy and homeownership for individual *i* in wave *t*; $immigrant_i$ is a dummy variable which enables us to study the differences in social and economic integration between immigrants and natives; $\boldsymbol{X_{it}}$ is a vector of demographic control variables (i.e., gender, marital status, educational qualifications, age groups, number of children, household size and household income). We also include wave dummies δ_t to account for unobserved heterogeneity that might arise due to macroeconomic influences that may impact people similarly each year. μ_{it} is the composite error term consisting of unobserved individual effects (γ_i) and the idiosyncratic error term (v_{it}). We estimate robust standard errors.

The panel nature of our dataset enables us to account for time-invariant individual heterogeneity (or individual effect), in that some people may report systematically different levels of neighbourhood embeddedness or social network size, for example, due to more optimistic personalities or cultural traits over the sample years. In this context, a fixed-effects estimator would be a suitable approach to estimate equation (2.1).[10] One limitation is that time-invariant variables are dropped

[10] The Hausman tests conducted using Equation (2.1) revealed that FE approach is the preferred specification.

(e.g., immigrants dummy) from the regression, which is essential for our analysis. To resolve this issue, we will use a random-effects specification with the Mundlak correction, also called the correlated random effects model (CRE) (Obucina, 2012; Mavromaras et al., 2012). This model was proposed by Mundlak (1978) who showed that the coefficient estimates from a random-effects approach approximate those provided by the fixed effects approach if the means of time-varying variables are included in the regression model. We estimate Equation (2.1) using the correlated random effects specification for dependent variables that are continuous/categorical and correlated random effect logit specification (i.e., marginal effects) for binary response-dependent variables.

A limitation of CRE approach is that it does not allow us to control for the individual effect that is likely correlated with the time invariant immigrant dummy. Due to the lack of strong instrumental variables, we are unable to resolve this issue and therefore a residual individual effect remains even after controlling for the means of the time-varying regressors. This issue remains a challenge in this line of research.

2.5 Empirical Analysis and Results

In this section, we discuss the results for multivariate regression analysis used to study the differences in the social and economic integration of immigrants and natives while controlling for socio-demographic characteristics. We take advantage of the panel nature of our dataset and use the correlated random effects (CRE) approach to estimate Equation (2.1), as it allows us to control for the time-invariant unobserved individual heterogeneity.[11] The dependent variables are the indicators of social and economic integration. The main independent variable of interest is the immigrant dummy, which can be interpreted as the gap in social and economic integration between immigrants and natives. The immigrant dummy masks heterogeneity amongst the immigrant population. Therefore, it is modified to differentiate immigrants according to their

[11] We estimated a pooled OLS (or pooled logit in the case of binary variables) as a starting point to gain insight into the cross-sectional differences in the relationships we examine. Pooled OLS estimates are often subject to biases as this approach does not take into account the time-invariant unobserved individual heterogeneity of the respondents (e.g., personality traits). Comparison of the results from the two estimation approaches reveals that the coefficients for the variables of interest and the socio-demographic controls are smaller in magnitude for CRE than pooled OLS. Thus, indicating the presence of unobserved heterogeneity in the pooled OLS estimates, rendering CRE the preferred estimation approach. For clarity and parsimony, we do not discuss pooled OLS findings in the main results section and present these results in the appendix (see Tables A.3 to A.18).

ethnicity (white/non-white) and length of stay in separate regression models while keeping natives as the reference group. The coefficients for these variables can be interpreted as the differences between the corresponding immigrant group and natives.

To gain an understanding of the differences between immigrants and natives across the various indicators of social and economic integration, it is necessary that the indicators are comparable. However, this is not directly possible as the indicators of social and economic integration have different matrices; for example, neighbourhood embeddedness ranges from 1 to 5, while social network size ranges from 0 to 10, so it is difficult to compare them. Similarly, job security is a dummy variable, whereas work autonomy ranges from 1 to 20, which means they are not directly comparable. To resolve this issue, we transformed the continuous/ordinal variables into standardised units, also called the z-scores, which are measured in standard deviations from the mean. The estimates for standardised versions of variables are presented in addition to the results for the non-standardised ones, where applicable.

2.5.1 Comparing Social Integration of Immigrants and Natives

In this section, we study the differences in the social integration between immigrants and natives. Social integration is proxied by neighbourhood embeddedness, social network size, and community involvement (i.e., volunteering, and charitable behaviour).

Neighbourhood Embeddedness

We consider neighbourhood embeddedness as an indicator of social integration because neighbourhoods are a vital site for engaging with the host country's residents and developing local community relationships (Danzer, 2011; Cook et al.,2011; Vervoort, 2012). Table 2.3 reports the results for the differences in neighbourhood embeddedness between natives and immigrants obtained from separate regressions in column 1. The estimates are obtained from correlated random effects (CRE) approach.

The coefficient for the immigrant dummy in column 1 (Panel A) shows that immigrants, on average, have 0.04 points lower neighbourhood embeddedness than natives (corresponding to 6% of a standard deviation of the variable). A closer look at the differences between immigrant groups, as presented in panel B of Table 2.3, reveals that non-white immigrants have similar neighbourhood embeddedness as natives. In contrast, white immigrants have 0.12 points lower neighbourhood embeddedness than natives, corresponding to a 15% of a standard deviation. A plausible explanation for these findings could be given by studies that show unemployment and lower education amongst non-white immigrants could possibly drive stronger neighbourhood networks compared to natives and white counterparts who are more educated and tend to establish social networks outside of local neighbourhood, usually at the workplace (Depalo et al., 2006; Schnell et al. 2012). Another possible explanation for our findings could be that non-white immigrants tend to reside in neighbourhoods with substantial co-ethnic presence and therefore tend to have stronger relationships in the local community than their white counterparts (Charles, 2003; Schnell et al., 2012; Saggar et al., 2012).This idea is supported by the factors loadings presented in Table 2.1 for the neighbourhood embeddedness variable which show high agreement by respondents on question statements indicating a stronger sense of similarity and belongingness to the neighbourhood, which may be driven by the presence of ethnic co-residents. The available evidence for the UK also suggests that immigrants, especially those from non-white ethnicity, tend to live in neighbourhoods with a substantial co-ethnic presence (Robinson et al., 2007). While appearing to be relatively well-integrated socially into the neighbourhood, it remains an open question with whom immigrants interact with at the neighbourhood level (e.g., other immigrants or natives). The literature is divided on whether co-ethnic networks impede integration as Putnam (2004) maintains that social integration becomes more difficult for individuals with substantial co-ethnic networks, whereas a more recent study by Cheung and Phillimore (2013) shows that co-ethnic networks can facilitate integration into the host country by fostering contact with the native population.

The third group of estimates in Table 2.3 (panel C) reports results on neighbourhood embeddedness depending on the length of stay of immigrants. The results show that immigrants that have stayed for 0-10 years have 0.06 points lower neighbourhood embeddedness than natives, whereas the immigrants that have stayed

for 21-41 years have 0.03 points lower neighbourhood embeddedness than natives.[12] These findings indicate that immigrants with a longer length of stay in the UK are more similar to natives in neighbourhood embeddedness. The results are in line with studies that show a longer length of stay has a positive association with social networks in the neighbourhood (Bridge, 2002; Schnell et al., 2012).

Finally, the results for socio-demographic controls are consistent with previous studies that show that being a female, married, having less education, being older, having a higher household income and more children to be positively associated with neighbourhood embeddedness (Danzer, 2011; Cook et al., 2011; Vervoort, 2012) (see appendix Tables A.3-A.5 for full results).

In addition to the analysis discussed above, as a robustness check we examined if our findings for neighbourhood embeddedness are sensitive to an alternative composition. To do this, we reconstructed the variable for neighbourhood embeddedness by summing the responses to each of the five questions (given in table 2.1). The resultant outcome variable ranges from 1 to 30, where 1 implies low neighbourhood embeddedness and 30 implies high neighbourhood embeddedness. The Cronbach's alpha (a measure of internal consistency of a scale) showed that 84% of the variance in the composite scores associated with the five items is reliable. Next, we re-estimated the regressions for neighbourhood embeddedness with this alternative measure and the results remained qualitatively the same (see appendix table A.6). This shows that our findings for neighbourhood embeddedness are not driven by the compositional technique.

[12] The *z*-test confirms that these coefficients are significantly different from each other. To test whether the difference in coefficients is statistically significant, we employ the standard z statistics $Z = (b_1 - b_2)/\sqrt{(SE(b_1))^2 + (SE(b_2))^2}$, which was proposed by Clogg et al. (1995) and Paternoster et al. (1998) and this statistic is valid for large sample size.

Table 2.3. Differences in neighbourhood embeddedness and social network size between immigrants and natives; Based on correlated random effects estimations

	Neighbourhood Embeddedness	Social Network Size
	(1)	(2)
A. Immigrants – Native (ref.)		
Immigrants	-0.042***	-0.582***
	(0.010)	(0.037)
Standardised coefficient	-0.056***	-0.211***
	(0.013)	(0.013)
B. Immigrants by Ethnic Group – Native (ref.)		
Non-white Immigrants	-0.005	-0.710***
	(0.012)	(0.043)
Standardised coefficient	-0.007	-0.258***
	(0.016)	(0.016)
White Immigrants	-0.116***	-0.322***
	(0.017)	(0.063)
Standardised coefficient	-0.154***	-0.117***
	(0.023)	(0.023)
C. Immigrants by Length of Stay – Native (ref.)		
0-10 Years	-0.055***	-0.712***
	(0.017)	(0.062)
Standardised coefficient	-0.072***	-0.258***
	(0.022)	(0.022)
11-20 Years	-0.043***	-0.641***
	(0.016)	(0.055)
Standardised coefficient	-0.057***	-0.233***
	(0.021)	(0.020)
21-41 Years	-0.031**	-0.423***
	(0.016)	(0.057)
Standardised coefficient	-0.041**	-0.153***
	(0.021)	(0.021)
Socio-demographic controls	Yes	Yes
Means of time-varying variables	Yes	Yes
Wave Dummies	Yes	Yes
Observations	87,002	87,002
Number of persons	45,096	45,096

Notes: Panels A - C provide results from separate regressions. Full estimates can be found in appendix Tables A.3 to A.5. The socio-demographic variables include gender, age, marital status, education, household income, household size and number of children. Robust standard errors in parentheses; ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Social Network Size

The social network size, as measured by the number of friendships other than family members, enables us to understand immigrants' social integration beyond the local community and family members. Column 2 of Table 2.3 (panel A) provides the results for social network size, where immigrants have, on average, 0.58 smaller social networks than natives (21% of a standard deviation). Next in panel B, we observe that non-white immigrants have 0.71 smaller social networks (26% of a standard deviation), while white immigrants have a 0.32 smaller social network (12% of a standard deviation) than natives.[13] These findings suggest that, in contrast to neighbourhood embeddedness, the gap in social network size between immigrants and natives is much more substantial and driven by the smaller social networks of non-white immigrants. A possible explanation could be that non-white immigrants may socialise less due to host country language barriers (Bauer et al., 2005; Barry and Miller, 2005) and sometimes discrimination (Heckmann and Bosswick, 2006; Vervoort, 2012).

The results for the relationship between the length of stay and social network size in panel C show that immigrants that have stayed for 0-10 years have 0.71 smaller social networks, while those that have stayed for 11-20 and 21-41 years have about 0.64 and 0.42 smaller social networks than natives[14], respectively. Our findings align with studies that show the longer length of stay is positively associated with social networking because it allows immigrants more time to establish social networks and become as integrated into the society as natives (Depalo et al., 2006; Schnell et al., 2012; Saggar et al., 2012).

One of the limitations highlighted in section 2.3.1 regarding the measure of social network size is that immigrants might be reporting their friendships outside the UK. While we do not have an alternative measure to check for this, it is plausible that the smaller network gaps between immigrants and natives for groups with longer lengths of stay suggests friendships/networks that are probably established within the

[13] We computed the *z*-test and confirm that the coefficients for white and non-white immigrants are statistically different from each other.

[14] The *z*-test shows the coefficients for length of stay are statistically different from each other.

UK overtime. Thus, lending some support to social network size as a credible measure of social integration.

Our findings for socio-demographic controls are in line with previous studies as individuals with low educational qualifications, higher age, larger households, and more children tend to have a smaller social network size, while higher household income is associated with larger social networks (see appendix Tables A.3 to A.5 for full results) (Berger et al., 2005, Remennick, 2004; Cook et al., 2011; Danzer, 2011; Wessendorf and Phillimore, 2019).

Community Involvement

Community involvement, as captured by volunteering and charitable behaviour, allows us to look beyond the social networks and gain insight into immigrants' engagement and exposure to the host country's culture, social norms and values (Handy and Greenspan, 2009; Phillimore, 2012; Baert and Vujic, 2016). Table 2.4 presents the results (i.e., marginal effects) from CRE logit models for volunteering in column 1 and charitable behaviour in column 2. The results in panel A show that immigrants have a 2 percentage point and 8 percentage point lower probability of volunteering and charitable behaviour than natives, respectively. Comparing the coefficients to the average of volunteering[15] and charitable behaviour[16] in our sample shows that this translates to immigrants being approximately 10% less likely to volunteer and to have 11% lower probability of giving to charity.

The results for the differences in terms of white and non-white ethnicity of immigrants presented in panel B show that non-white immigrants have a 3 percentage point lower probability to volunteer (i.e., 15% of the average volunteering) and 9 percentage points lower charitable behaviour (i.e., 13% of the average charitable behaviour) compared to natives. White immigrants are 1 percentage point less likely to volunteer (i.e., 5% of the average volunteering) and 8 percentage points less likely to engage in charitable behaviour (i.e., 11% of the average charitable behaviour) than

[15] Average volunteering in our sample is 0.20 (20%).
[16] Average charitable behaviour in our sample is 0.72 (72%).

natives.[17] These results show that compared to natives, the likelihood of volunteering and charitable giving is lower for non-white immigrants than for white immigrants. A possible explanation of our findings could be given by previous studies that show that non-white ethnic groups and immigrants tend to have limited social and economic resources and are, therefore, less likely to spend time and money in community involvement which might not provide immediate gains (Baert and Vujic, 2016; Greenspan et al., 2018).

The results concerning the length of stay are presented in panel C and show that the differences between immigrants and natives in volunteering and charitable behaviour are smaller for immigrants who have stayed longer in the UK. Immigrants who have stayed in the UK for 0-10 years are 4 percentage points less likely to volunteer, while those living for 21-41 years are 2 percentage points less likely to volunteer than natives. In column 2, we find that immigrants who stayed for 0-10 years have a 15 percentage points lower likelihood, while those living for 11-20 years have a 9 percentage points lower likelihood of charitable behaviour compared to natives.[18] In contrast, no significant differences in charitable behaviour are found for immigrants who have stayed for 21-41 years. A plausible explanation for our findings could be that the longer time of stay increases the opportunities to develop a sense of civic duty to volunteer and find financial resources to contribute through charitable behaviour (Korinek et al., 2005; Schnell et al., 2012; Baert and Vujić, 2016).

Finally, the socio-demographic controls reveal that being a female, married, and having a higher household income is positively associated with community involvement, whereas a higher number of children in the household, larger household size, higher age and lower education are negatively associated with community involvement (see appendix Tables A.7 to A.9 for full results). These results align with previous studies (Osili and Du, 2005; Handy and Greenspan, 2009; Baert and Vujic, 2016; Greenspan et al., 2018).

[17] The *z*-test for the coefficients of volunteering and charitable behaviour shows that the coefficients for white and non-white immigrants are statistically different from each other.

[18] Coefficients are significantly different from each other as confirmed by *z*-test.

Overall, our analysis for the social integration of immigrants compared to natives reveals substantial differences in social network size, followed by charitable behaviour, volunteering and neighbourhood embeddedness. Within immigrant groups, we see that larger differences are observed between non-white immigrants and natives in terms of having smaller social networks and a lower probability of volunteering and charitable behaviour. In contrast, they appear more similar to natives in their neighbourhood embeddedness.

Table 2.4. Differences in community involvement between immigrants and natives; Marginal effects based on CRE logit estimations

	Volunteering	Charitable behaviour
	(1)	(2)
A. Immigrants – Native (ref.)		
Immigrants	-0.023***	-0.078***
	(0.004)	(0.008)
B. Immigrants by Ethnic Group – Native (ref.)		
Non-white Immigrants	-0.028***	-0.089***
	(0.005)	(0.013)
White Immigrants	-0.012*	-0.075***
	(0.007)	(0.009)
C. Immigrants by Length of Stay (MLS) – Native (ref.)		
0-10 Years	-0.043***	-0.146***
	(0.006)	(0.014)
11-20 Years	-0.007	-0.087***
	(0.007)	(0.012)
21-41 Years	-0.020**	-0.018
	(0.006)	(0.011)
Socio-demographic controls	Yes	Yes
Means of time-varying variables	Yes	Yes
Wave Dummies	Yes	Yes
Observations	87,002	87,002
Number of persons	45,096	45,096

Notes: The table presents marginal effects obtained from correlated random effects logit models. Panels A – C provide results from separate regressions. Full estimates can be found in the Appendix Tables A.7-A.9 for volunteering and charitable behaviour. The socio-demographic variables include gender, age, marital status, education, household income, household size and number of children. Robust standard errors in parentheses; ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

2.5.2 Comparing Economic Integration of Immigrants and Natives

In this section, we examine the differences in the economic integration of immigrants and natives. Economic integration is proxied by employment status (i.e.,

unemployment and employment), homeownership and job quality (i.e., job security and work autonomy).

Employment Status

Employment status is considered an indicator of economic integration because it represents access to the labour market, which is a source of income and economic stability (Clark and Drinkwater, 2008; Cebolla-Boado et al., 2019; Manley et al., 2019). Table 2.5 presents the results for the probabilities of unemployment and employment in columns 1 and 2, respectively. The findings in column 1 (Panel A) show that immigrants have a 1 percentage point higher probability of being unemployed than natives. This corresponds to about a 25% higher likelihood of unemployment as compared to the average unemployment of 4% of the overall sample. Column 2 (panel A) shows that, compared to natives, immigrants have a 5 percentage point lower probability of being employed, which translates into 9% lower employment probability amongst immigrants as compared to the average employment of 58%.

When looking at the differences with regard to the ethnicity of immigrants in panel B, we find that non-white immigrants have a 1 percentage point higher probability of unemployment (i.e., 25% of the average unemployment)[19] and are 10 percentage points less likely to be employed compared to natives (i.e., 17% compared to the average employment).[20] For white immigrants, in contrast, we find a 5 percentage point higher probability of employment than natives (i.e., 8% of the average employment in our sample)[21], whereas we do not observe statistically significant differences between the two groups in terms of unemployment.

Our findings might be driven by the average difference in age between immigrants and natives, as reported in descriptive statistics in Table 2.2. To test this, we restrict the sample to respondents below the early retirement age of 56 years.[22]

[19] 0.01 is 25% of the average unemployment of 4% in our sample.
[20] 0.10 (or 0.098) is 17% of the average employment of 58% in our sample.
[21] The white and non-white coefficients are significantly different from each other as confirmed by z-test.
[22] GOV.UK. 2022. Early retirement, your pension and benefits. [online] Available at: <https://www.gov.uk/early-retirement-pension/personal-and-workplace-pensions#:~:text=When%20you%20can%20take%20money,early%20because%20of%20ill%20health> [Accessed 9 April 2022]. Results don't change when restricting the maximum age to 64.

Results reported in appendix Table A.13 show that working-age white immigrants are similar to natives in both employment and unemployment, whereas the results for non-white immigrants confirm previous results in that this group of immigrants is significantly more likely to be unemployed and less likely to be employed compared to natives. A possible explanation of these findings could be that non-white immigrants may lack host country specific educational qualifications and job skills, resulting in lower employment and higher unemployment (Kanas and Van Tubergen, 2009; Cebolla-Boado et al., 2019). Another reason given by previous research for the lower probability of employment and higher probability of unemployment could be because of unfair treatment in the job market (Blackaby et al., 2002; Remennick, 2004; Heath and Cheung, 2007; Clark and Drinkwater, 2007; Khattab and Johnston, 2013).

Table 2.5. Differences in employment, unemployment and homeownership between immigrants and natives; Marginal effects based on CRE Logit estimations

	Unemployment (1)	Employment (2)	Homeownership (3)
A. Immigrants – Native (ref.)			
Immigrants	0.007***	-0.052***	-0.253***
	(0.002)	(0.008)	(0.052)
B. Immigrants by Ethnic Group – Native (ref.)			
Non-white Immigrants	0.010***	-0.098***	-0.491***
	(0.002)	(0.010)	(0.012)
White Immigrants	0.001	0.047***	-0.093***
	(0.002)	(0.013)	(0.011)
C. Immigrants by Length of Stay (MLS) – Native (ref.)			
0-10 Years	0.003	-0.111***	-0.428***
	(0.002)	(0.015)	(0.012)
11-20 Years	0.005**	-0.075***	-0.264***
	(0.002)	(0.012)	(0.011)
21-41 Years	0.015***	0.015	-0.115***
	(0.003)	(0.012)	(0.012)
Socio-demographic controls	Yes	Yes	Yes
Means of time-varying variables	Yes	Yes	Yes
Wave Dummies	Yes	Yes	Yes
Observations	87,002	87,002	87,002
Number of individuals	45,096	45,096	45,096

Notes: The table presents marginal effects obtained from correlated random effects logit models. Panels A - C provide results from separate regressions. Full estimates can be found in the Appendix for unemployment and employment in Tables A.10 - A.12. Full estimates for homeownership can be found in appendix Tables A.14 - A.16 The socio-demographic variables include gender, age, marital status, education, and household income. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Next, our findings for the differences in unemployment between natives and immigrants according to their length of stay in panel C show insignificant differences for 0-10 years of stay while immigrants that have stayed for 11-20 years and 21-41 years have 1 percentage point higher likelihood of being unemployed than natives. When the sample is restricted to respondents aged 56 years or less, we find that immigrants who have stayed in the UK for 0-10 years are 1 percentage point more likely to be unemployed, and the same is true for those that have stayed for 11-20 years and 21-41 years (see appendix Table A.13). These findings imply that immigrants have a higher probability of unemployment than natives, regardless of their length of stay in the UK.

For employment (in panel C), we find that immigrants who have stayed for 0-10 years are 11 percentage points less likely to be employed, while those who have been in the UK for 11-20 years are 8 percentage points less likely to be employed than natives. The employment gap between immigrants and natives is insignificant for immigrants that have stayed for 21-41 years in the UK. The results change when the sample is restricted to the working-age population as we find that immigrants are 6 percentage points less likely to be employed as compared to natives regardless of their length of stay in the UK (see appendix table A.13).

Our findings for the association between employment status and length of stay contrast with previous studies, which show that a longer length of stay provides opportunities to acquire host country qualifications, develop language skills and establish social networks, which can help immigrants gain employment and avoid unemployment (Clark and Drinkwater, 2008; Cebolla-Boado et al., 2019). It has to be noted, that we are unable to study the same individuals over time and therefore some of the differences in findings compared to previous literature could be driven by potential differences in the samples that compose different groups of immigrants.[23]

[23] It should be noted here that observed socio-economic characteristics of immigrant groups by their length of stay studied in appendix Table A.0, show that educational qualifications vary between different groups of immigrants according to their length of stay. Specifically, 60% of immigrants that have lived for 0-10 years in the UK have high education degree, while 51% of those with 11-20 and 21-41 years of stay have higher education degree. Hence, groups with longer length of stay have lower education than more recent groups of immigrants (i.e., 0-10 years of stay). In terms of no qualifications, 6% of immigrants with 0-10 and 11-20 years of stay are without educational qualifications while 11% of immigrants with 21-41 years have no qualifications. However, they are similar in terms of the proportions of females (58% in each group), marital status (more than 60% are married in all groups), number of children (approximately 2 children in each group), household size (approx. 4 members in each group), and income levels (ranges from approx. 3200-3500 in all groups).

The results for socio-demographic controls show that females have, on average, a lower probability of both being employed and unemployed compared to men. Being married, younger, better educated and having higher household income are associated with a lower probability of unemployment and higher probability of employment (see appendix Tables A.10 to A.12). These findings align with those observed by previous studies (Dustmann and Fabbri, 2003; Berthoud and Blekesaune, 2007; Clark and Drinkwater, 2008).

Homeownership

We consider homeownership as another indicator of economic integration because it reflects an investment into a fixed asset and long-term economic success (Constant et al., 2009; Nygaard, 2011; Magnusson and Hedman, 2014). In Table 2.5, the results for homeownership are presented in column 3.

The findings displayed in panel A show that immigrants have a 25 percentage point lower likelihood of homeownership than natives (34% of the average homeownership in our sample).[24] We also find that non-white immigrants (in panel B) are 49 percentage points less likely (66% of the average homeownership), and white immigrants are 9 percentage points less likely to achieve homeownership (12% of the average homeownership).[25] A possible explanation could be that ethnic groups have a lower probability of homeownership because of limited access to economic opportunities for wealth accumulation that can provide the financial power to afford homeownership (Sinning, 2010; Andersson et al., 2010; Magnusson and Hedman, 2014).

Our findings for length of stay provided in panel C show that immigrants who have stayed for 0-10 years are 43 percentage points less likely to have homeownership, while those that have stayed for 11-20 and 21-41 years are 26 and 12 percentage points less likely to have homeownership compared to natives.[26]A plausible reasoning for these results could be that a longer stay allows more time to take part in economic activities that may provide financial means for homeownership (Friedman and

[24] Average homeownership is 0.74 (or 74%).
[25] The coefficients are significantly different from each other as shown by the *z*-test.
[26] *Z*-test confirms that the coefficients for length of stay are significantly different from each other.

Rosenbaum, 2004; Magnusson and Hedman, 2014). Another explanation could be that homeownership represents a commitment to remain in the host country, in which case immigrants who plan to remain for longer in the UK tend to invest towards homeownership (Constant et al., 2009; Nygaard, 2011; Gobillon and Solignac, 2015). Finally, the results for socio-demographic controls show that being married, older, having higher levels of education and having a higher income are associated with a higher probability of homeownership, whereas women tend to have a lower probability of homeownership (see appendix A14-A16) (Constant et al., 2009; Sinning, 2010; Nygaard, 2011; Magnusson and Hedman, 2014)

Job quality/Quality of work

Studies show that the quality of work, both in terms of perceived measures of job security and work autonomy, has implications for the economic stability of employed individuals and, therefore, their economic integration (Potter and Hamilton, 2014; Scott, 2017; Liu et al., 2019). We consider the quality of work as an indicator of economic integration that is applicable for only employed individuals.

Table 2.6 provides the results for our subjective measures of job security and work autonomy as independent variables. Findings presented in columns 1 and 2 (Panel A) show that immigrants have a 2 percentage points lower job security (i.e., 2% of the average job security in our sample)[27] and 0.16 points lower work autonomy than natives (4% of a standard deviation in this variable).

With regards to ethnicity of immigrants (panel B), we find that white immigrants are similar to natives in terms of both job security and work autonomy. In contrast, non-white immigrants report 3 percentage points lower job security (i.e., 3% of the average) and 0.34 points (8% of a standard deviation) lower work autonomy than natives.[28] Some plausible reasons for our findings could be that non-white immigrants may be lacking host country specific educational qualifications, language skills or experiencing discrimination in the labour market that may prevent access to

[27] Average job security is 0.91 (or 91%) in our sample.
[28] The white/non-white coefficients are significantly different from each other according to the by *z*-test.

secure and autonomous jobs (Raijman et al., 2003; Burgard et al., 2009; Landsbergis et al., 2014; Scott, 2017).

Next, we examine the gaps between immigrants and native in terms of job security and work autonomy over the length of stay in panel C of Table 2.6. The results show that job quality is independent of the length of stay as evident by the 2 percentage points lower job security of immigrants across all the groups of length of stay while the results for work autonomy are insignificant. This contrasts with previous studies that show recent immigrants are more likely to have low quality work and that with a longer length of stay, they tend to occupy better jobs as education, skills and work experience in the host country are gained (Kaufman and Mirsky, 2004; Lehmer and Ludsteck, 2011; Liu et al., 2019). One possible explanation for our findings could be that immigrants are likely to experience job-related discrimination and job mismatch irrespective of their qualifications and work experience, which might lead to insecure jobs irrespective of their length of stay (Agudelo-Suárez et al., 2009; Bell et al., 2013). Another possible explanation for the different findings could be the differences in the composition between immigrants according to their lengths of stay as we do not study the same immigrants over time.[29]

Finally, for socio-demographic controls, we find that females have lower job quality while married respondents, older ones, those with higher education levels and in management/professional jobs as opposed to routine types of jobs tend to have better job quality (see appendix Tables A.17 to A.19). These results are in line with previous studies that also control for these measures when studying work quality (Clark, 2015; Wheatley, 2017; Liu et al., 2019; Bartling et al., 2021).

Overall, the analysis in this section shows that the disparity in economic integration between immigrants and natives is highest in homeownership, followed by unemployment, employment, work autonomy and job security. Substantial differences are observed for non-white immigrants, while white immigrants appear to be as economically integrated as natives when looking at employment status and job quality.

[29] Appendix Table A.0 shows that immigrants with 0-10 years of stay are younger and more likely to have a high education degree than those in the groups that constitute individuals with longer lengths of stay.

Table 2.6. Differences in job quality/quality of work between immigrants and natives; Marginal effects based on CRE logit estimations for job security and CRE estimations for work autonomy

	Job Security	Work Autonomy
	(1)	(2)
A. Immigrants – Native (ref.)		
Immigrants	-0.020***	-0.165**
	(0.004)	(0.073)
Standardised Coefficient		-0.040**
		(0.018)
B. Immigrants by Ethnic Group		
Non-white Immigrants	-0.027***	-0.338***
	(0.006)	(0.092)
Standardised Coefficient		-0.083***
		(0.022)
White Immigrants	-0.004	0.136
	(0.006)	(0.109)
Standardised Coefficient		0.033
		(0.027)
C. Immigrants by Length of Stay		
0-10 Years	-0.015*	-0.178
	(0.009)	(0.125)
Standardised Coefficient		-0.043
		(0.031)
11-20 Years	-0.028**	-0.049
	(0.009)	(0.115)
Standardised Coefficient		-0.012
		(0.028)
21-41 Years	-0.026**	-0.150
	(0.009)	(0.136)
Standardised Coefficient		-0.037
		(0.033)
Socio-demographic controls	Yes	Yes
Means of time-varying variables	Yes	Yes
Wave Dummies	Yes	Yes
Observations	43,156	43,156
Number of persons	24,837	24,837

Notes: The table presents marginal effects obtained from correlated random effects logit model. Panels A – C report results from separate regressions. Job security and work autonomy are only valid for employed individuals. Full estimates can be found in the Appendix (Tables A.17-A.19). The socio-demographic controls, include gender, age, marital status, education, occupation and household income. Robust standard errors in parentheses, ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

2.6 Discussion and Conclusion

This paper compared the social and economic integration of immigrants to natives in the UK as well as investigated the differences across sub-groups according to ethnicity and length of stay. We used social network size, community involvement (as measured by volunteering and charitable behaviour) and a unique measure of neighbourhood embeddedness as indicators of social integration. The indicators of economic

integration included employment, unemployment, homeownership, and quality of work (as measured by job security and work autonomy).

The comparative analysis reveals some interesting patterns in the social and economic integration of immigrants and natives. The analysis for social integration shows immigrants have lower neighbourhood embeddedness than natives, but these differences appear to be driven by the lower embeddedness of white immigrants into the neighbourhood, as opposed to non-white immigrants. Other studies that find similar results have established that non-white immigrants tend to engage with others in the neighbourhood more if they are living in co-ethnic neighbourhoods (Johnston et al., 2002; Robinson et al., 2007). Due to the lack of a measure of neighbourhood composition, we cannot test with whom immigrants interact at the neighbourhood level. Vervoot (2012) indicated that such differences might be important when examining the strength of social integration because ethnic residential concentration may reduce the probability of immigrants having strong social ties with natives.

The findings for social network size and community involvement show that immigrants have smaller size of social networks and are less likely to volunteer and exhibit charitable behaviour than natives, and these gaps are more substantial for non-white immigrants than white immigrants. Our findings also uncover significant gaps in economic integration, where immigrants have a higher likelihood of being unemployed and a lower probability of being employed and having homeownership. Employed immigrants are found to have less work autonomy and a lower likelihood of job security than natives, where the gaps are more substantial for non-white immigrants than white immigrants. These results are in line with existing research that reports that ethnic minorities have a disadvantaged position in labour market access and areas involving monetary investments (Osili and Du, 2005; Clark and Drinkwater, 2008; Constant et al., 2009; Gobillon and Solignac., 2015).

In comparing the magnitudes of the effect sizes, we find that the differences in social integration between immigrants and natives are largest in social network size, followed by charitable behaviour, volunteering and neighbourhood embeddedness. For economic integration, the differences between immigrants and natives are more substantial in homeownership, followed by unemployment, employment, work autonomy and job security. Finally, non-white immigrants tend to have a more

disadvantaged position across the measures of social and economic integration than white immigrants, except in the case of neighbourhood embeddedness where they are more comparable to natives.

Further, our findings suggest that immigrants who have stayed in the UK for longer are less different from natives in terms of neighbourhood embeddedness, social network size, community involvement and homeownership. In contrast, the disparities across the measures of employment status and work quality persist for immigrants irrespective of their length of stay. This highlights that targeted integration policies that seek to empower immigrants to avoid unemployment and facilitate access to more secure and autonomous work might be required to improve immigrants' employment outcomes and job quality (Weishaar, 2008; Potter and Hamilton, 2014; Scott, 2017). Specific policy action cannot be established without further research on the causes of disparities between the measures of social and economic integration of immigrants and natives.

Previous studies do not recognise the multi-dimensional nature of social and economic integration of immigrants and usually consider one or two dimensions. This study has contributed by considering various aspects of social and economic integration to provide a more comprehensive picture of immigrants' integration in the UK. Moreover, the observed disparities between immigrants and natives across various measures of social and economic integration highlight that a disadvantaged position of immigrants along one dimension of social/economic integration does not necessarily impede integration in other dimensions. For example, non-white immigrants have substantively lower social networks than natives while being strongly embedded in their neighbourhoods.

A limitation of our research in this chapter is that we have been unable to rule out selection bias and therefore some of the estimated differences in social and economic integration between immigrants and natives might be picking up selection effects. An example could be the findings for charitable behaviour, as some immigrants may choose to send money back to their home country which may limit their disposable income that can be spent in the UK and consequently lead to lower charitable behaviour than natives. Similarly, the propensity of non-white immigrants to reside in larger households and have lower income levels than natives and white

immigrants could limit their ability (and potentially their willingness) to give to charity. The lower average household income per person in this case could then result in the differences in composition between the two groups that drive the results instead of a possible lack of social integration.

Another aspect of our findings that may also be due to selection bias is the trends observed in the probability of homeownership and length of stay as individuals with longer-term commitment to stay are more likely to invest into a fixed asset like owning a home as compared to immigrants who plan to stay for a shorter time. If this is true in this case, then the estimates of length of stay would essentially be picking up the differences in commitment to stay between various immigrant groups rather than a possible lack of economic integration/stability. Therefore, we have been careful in the write-up to offer plausible, though not definitive, explanations for our findings.

Finally, we believe that the social and economic integration of immigrants may be associated with their subjective well-being. As a result, we empirically test the association of social and economic integration with the subjective well-being of immigrants in the UK in the next chapter.

Chapter 3: Immigrants' Subjective Well-being in the UK: The Role of Social and Economic Integration

3.1 Introduction

In public opinion, immigration is often associated with an increase in well-being as individuals usually decide to move to a new country in search of a better future (Hendriks, 2018). However, numerous studies find that immigrants tend to report lower subjective well-being than natives (Baltatescu, 2007; Safi, 2010; Bartram, 2011; Gilliver et al., 2014; Arpino and de Valk, 2018; Brysten et al., 2019). The well-being gap remains after controlling for factors such as education, income, and employment. These studies have not considered factors including social networks, community involvement. the quality of work and homeownership that are likely to contribute to immigrants' evaluation of their well-being (Baert and Vujic, 2016; Wheatley, 2017; Mazzucato et al., 2017; Wessendorf and Phillimore, 2019). We consider all these factors in the context of social and economic integration of immigrants and study their role in explaining the well-being gap between immigrants and natives.

While previous studies have been important in highlighting the differences in well-being, and social/economic integration of immigrants (Baltatescu, 2005; Safi, 2010; Bartram, 2011; Gilliver et al., 2014; Arpino and de Valk, 2018; Brysten et al., 2019), they have relied on cross-sectional survey data and qualitative analysis, which has limitations associated with interpretation as findings may be confounded by individual characteristics such as personality traits. In this chapter, we contribute by using the same UKHLS panel dataset as in Chapter 2. This allows us to take into account the variation in respondents' answers over time and control for time-invariant unobserved individual heterogeneity (that is, take into account personality traits). This dataset enables us to study two alternative measures of subjective well-being, the evaluative measures labelled as life satisfaction and mental health, while also probing for differences between natives and immigrant groups according to white/non-white ethnicity and length of stay. We proxy economic integration by employment status, homeownership, and job quality as measured by job security and work autonomy. Social integration is measured by social network size, community involvement such as volunteering and charitable behaviour, and a composite measure of the level of

neighbourhood embeddedness that captures social interactions, trust, and a sense of attachment to the neighbourhood.

Our study finds a substantial gap in the life satisfaction and mental health between immigrants and natives, where immigrants have lower life satisfaction and mental health compared to natives. These well-being gaps appear to be more substantial for non-white immigrants than white immigrants and those that have longer length of stay in the UK. Some of the well-being gaps can be explained by the lower levels of social and economic integration of immigrants compared to natives, however a substantial gap remains unexplained.

The remainder of the paper is structured as follows. Section 3.2 provides a literature review of previous research on immigrants' subjective well-being and social and economic integration. Section 3.3 introduces the source of data, construction of the key variables in the analysis and some discussion of summary statistics. Section 3.4 discusses the methodology used. Section 3.5 will present the results and interpretation of these results. Finally, section 3.6 provides a discussion and conclusion with some policy implications.

3.2 Literature Review

There is growing interest from both a research and policy perspective in investigating the factors that might be associated with the subjective well-being of immigrants. Commonly using life satisfaction as a measure of subjective well-being, studies show that immigrants are likely to have lower life satisfaction than natives (Baltatescu, 2007; Safi, 2010; Bartram, 2011; Arpino and de Valk, 2018). Some studies use mental health as a measure of subjective well-being and report that immigrants tend to have worse mental health than natives (Jayaweera, 2014; Gilliver et al., 2014; Brysten et al., 2019). In offering explanations for these findings, traditionally, studies have focused on the psychological effect of economic integration, highlighting the higher unemployment amongst immigrants compared to natives as a contributory factor (Song et al., 2005; Leopold et al., 2017; Shen and Kogan, 2020). These studies have repeatedly shown that unemployment is one of the strongest negative correlates of well-being as it is not only associated with income loss but also with the loss of social

status, work friends, diminished motivation to achieve life goals and reduced self-confidence (Sirgy et al., 2001; Song et al., 2005; Frey, 2008; Bartram, 2011).

A related but much less studied factor that might also explain immigrants' lower subjective well-being is the quality of work, often measured by job security (Loretto et al., 2020; Muoka and Lhussier., 2020) and autonomy at the workplace (Grönlund, 2007; Wheatly, 2017). The lack of job security may adversely influence well-being, given the threat of unemployment in the future generates stress and anxiety about losing economic stability (Knabe and Ratzel, 2010; Wheatley, 2017; Muoka and Lhussier., 2020). By contrast, employment that provides people with job security contributes positively to the subjective well-being of employees (Loretto et al., 2020). Similarly, autonomy at the workplace has been shown to increase the life satisfaction of employees (Thompson and Prottas, 2006; Wheatly, 2017).

Work autonomy has been found to reduce work-related stress, and work-family conflict as flexible schedules and job controls enable workers to plan important personal life events (Grönlund, 2007; Bryan and Sevilla, 2017). Work autonomy also generates positive feelings and attitudes among employees, which positively impacts subjective well-being (Galletta et al., 2011). While job security can ensure a stable economic future, work autonomy offers work-life balance and worker empowerment which are positively associated with well-being (Benach et al., 2014). Job security is likely to be important for the well-being of immigrants as their migrant status implies limited access to public funds, increased challenges in the job market, and concerns with finding adequate accommodation (Fudge, 2011; Torres and Wallace, 2013). The idea of the negative influence of low-quality work on subjective well-being is supported by stress response theories that state that exposure to external stressors can lead to severe psychological distress and disorder (Jackson et al.,2010; Slavich and Irwin, 2014). The risk of losing employment and the lack of control over workload/hours are common to precarious jobs. What is clear from the existing research is that immigrants tend to occupy lower quality jobs than natives and that the quality of work has implications for the well-being of individuals.

In addition to employment and job quality, a handful of studies have also identified homeownership as an important aspect of the economic integration which positively influences the subjective well-being of immigrants (Diaz-Serrano, 2009;

Stillman and Liang, 2010; Obucina, 2013; Frank et al., 2016). Homeownership contributes to the sense of belonging, higher social standing, and long-term economic stability, which may positively influence the subjective well-being of immigrants (Schellenberg and Hou, 2005; Mazzucato et al., 2017).

At a broader level, economic measures of integration are only partially capable of capturing most aspects of life that could help explain the well-being disparity between immigrants and natives. Therefore, some researchers stress the importance of social aspects of life, building on the premise that going to work and earning money does not generate happiness in all cases (Headley et al., 2008) and showing that social networks of immigrants in the host country can be a vital source of practical and emotional support mechanism which is necessary for well-being (Angelini et al., 2015; Arpino and de Val, 2018; Shen and Kogan, 2020). The typical approach to study social integration has been to use close friendships and social networks to measure social integration (Danzer and Ulku, 2011; Cook et al., 2011; Vervoort, 2012; Angelini et al., 2015; Arpino and de Val, 2018; Shen and Kogan, 2020). A few studies have highlighted the importance of considering social interactions with neighbours since well-being comparisons are generally made with acquaintances rather than family members (Sandstrom and Dunn, 2014; Appau et al., 2019; Wessendorf and Phillimore, 2019; Hou et al., 2020). We, however, consider both as proxies of social integration when exploring its relationship with subjective well-being.

A part of migration research also considers community involvement as an important dimension of social integration (Osili and Du, 2005; Baert and Vujic, 2016) that could be associated with the subjective well-being of immigrants. This strand of research shows that there are two ways in which community involvement could be associated with life satisfaction. First, community involvement is part and parcel of social networks in the host community, which could be a vital source of emotional and mental support (Handy and Greenspan, 2009; Appau et al., 2019). The second widely accepted explanation is by Andreoni (1990), who introduced the warm-glow theory, suggesting that civic acts of volunteering and charitable behaviour might not necessarily be motivated by pure altruism (charity motivated by the receiver's welfare). For instance, one might give to charity to boost self-esteem with the empathetic joy of giving (warm glow). In light of this theory, we can consider community organisations as an opportunity to promote one's subjective well-being.

Therefore, we expect that the community involvement of immigrants is likely to enhance their life satisfaction. Overall, the studies on social integration suggest that successful integration of immigrants involves social engagement at the neighbourhood level and more broadly in community organisations.

It has also been noted by previous studies that there is considerable heterogeneity in the patterns of life satisfaction across immigrant groups according to their ethnicity and length of stay. While it is consistently shown that non-white immigrants have lower subjective well-being than natives (Oligiati et al., 2013; Longhi, 2014; Knies et al., 2016; Shen and Kogan, 2020; Jaspal et al., 2020), the results for the length of stay are mixed. Some studies show that the longer length of stay corresponds to higher subjective well-being as there is more time to adapt to the social/economic and cultural landscape (Angelini et al., 2015; Sand and Gruber, 2018). Others find that the longer immigrants stay in the host country, the lower is the life satisfaction, which could be due to unrealistically high expectations that remain unfulfilled over the years of stay or experience of discrimination (Bartram, 2010; Safi, 2010; Obucina, 2013; Yaman and Cubi-Molla, 2017).

Finally, most studies consider socio-demographic characteristics to be important for life satisfaction, including age, gender, marital status, health, income, and education, where being a female, married, healthy, earning higher-income, and being educated is associated with higher levels of subjective well-being whereas age has a U-shaped relationship (Bartram, 2013; De Vroome and Hooghe, 2014; Bobowik et al., 2015; Knies et al., 2016). In line with these studies, we also control for these socio-demographic characteristics.

In summary, the literature to date focuses mainly on factors that reflect 'economic integration' (Dustmann, 1996; Korinek et al., 2005; Sinning 2010; Greenspan et al., 2018) and much less attention is given to 'social integration' (Sandstrom and Dunn, 2014; Arpino and de Val, 2018; Appau et al., 2019). Previous studies often focus on one or two measures to capture immigrants' social and economic integration (see Chapter 2, section 2.2), which offers a limited scope for understanding the factors that might help understand the reasons for the well-being disparity between immigrants and natives. Therefore, in this study, we examine the role of various

aspects of immigrants' social and economic integration in explaining the well-being disparity.

3.3 Dataset and Sample Description

We study the subjective well-being of immigrants using the United Kingdom Household Longitudinal Study (UKHLS), a nationally representative household and individual level panel survey.[30] In line with the analysis in Chapter 2, we classify immigrants as non-UK born individuals and natives as UK-born individuals. This definition aligns with previous studies (Casey and Dustmann, 2010; Sinning, 2010; Dustmann and Frattini, 2011). We also divide immigrants according to their ethnicity[31] (white and non-white) and length of stay. Social integration is proxied by social networks size, neighbourhood embeddedness and community involvement (i.e., volunteering, and charitable behaviour). We use the imputed versions of the variables for neighbourhood embeddedness and social network size (see discussion in Chapter 2, section 2.3.2). The use of imputed variables allows us to have a consistent sample to study the role of various indicators of social and economic integration in explaining the immigrant-native well-being gap in a stepwise regression analysis. Economic integration is captured using employment status, job quality (i.e., job security and work autonomy) and homeownership. A detailed discussion on the construction of these variables is provided in Chapter 2, section 2.3.1.

The final sample consists of waves 2 (2010-2012), 6 (2014-2016) and 8 (2016-2018). We control for several socio-demographic characteristics, which includes a dummy for females *(female=1 and male=0),* marital status *(unmarried=0, married=1, divorce=2),* age as a continuous variable (16 and above), health (*healthy=1, otherwise=0*), educational qualifications *(1= Degree/ higher degree, 2=A-levels, 3=other qualifications and 4=no qualifications),* a variable for household size and net monthly household income. The household income is logged to facilitate

[30] University of Essex, Institute for Social and Economic Research (2020). Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]. 13th Edition. UK Data Service. SN: 6614, http://doi.org/10.5255/UKDA-SN-6614-14.

[31] Our sample for non-white immigrants has 80% non-European individuals. The sample for white immigrants has 93% European immigrants. Our overall sample for European migrants is very small relative to white migrants which increases the risk for misleading results. Therefore, we focus on the distinction between immigrants according to their ethnicity to maximise the use of available observations.

interpretation in approximate percentage terms (instead of monetary terms) and to smooth out the skewed distribution. We also control for occupation when running the regressions for employed individuals. The occupation variable has three categories (*1= routine, 2= intermediate 3= management/professional*).

3.3.1 Indicators of Subjective Well-being

Our first outcome variable for subjective well-being is life satisfaction which captures people's self-reported assessments of the quality of their lives. This measure is well supported by previous studies in validity and reliability (e.g., Layard, 2005; Dolan et al., 2008). In UKHLS, individuals are asked: "*How satisfied, or dissatisfied, are you with your life overall*?". Respondents can then answer this question on a Likert scale of 1 for completely dissatisfied to 7 for completely satisfied[32]. Figure 3.1 displays the distribution of life satisfaction scores which shows that approximately 60% of natives and 50% of immigrants report high levels of life satisfaction (somewhat satisfied (6) and completely satisfied (7)).

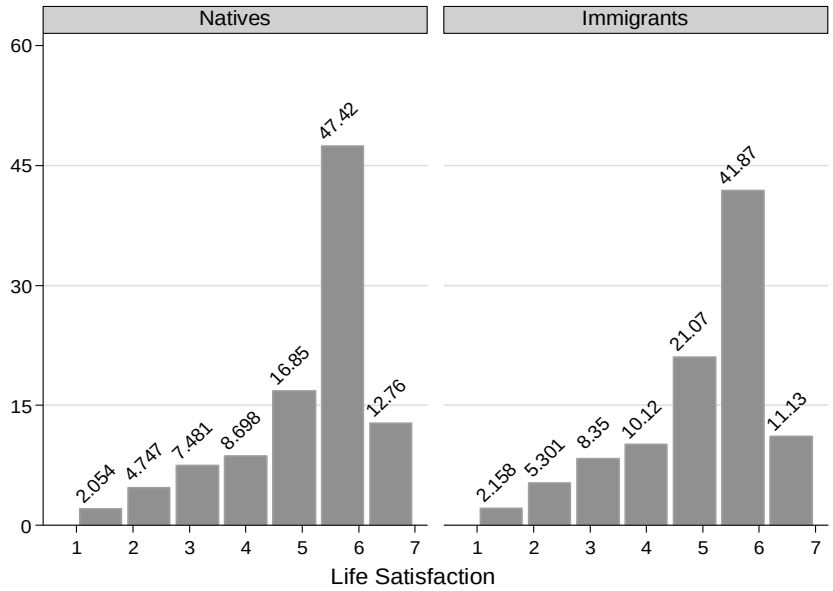

Figure 3.1: A distribution of life satisfaction scores for immigrants and natives

Our second outcome variable for subjective well-being is mental health, which is measured using the 12-item version of the General Health Questionnaire (GHQ-12)

[32] 1=Completely dissatisfied, 2=Mostly dissatisfied, 3=Somewhat dissatisfied, 4=Neither satisfied and nor dissatisfied, 5=Somewhat satisfied, 6=Mostly satisfied and 7=Completely satisfied

which is considered a reliable and valid measure of mental well-being (Griffith and Jones, 2019). This measure is based on responses to 12 separate questions regarding respondents' ability to concentrate, overcome difficulties, make decisions, solve problems, enjoy everyday activities, sleeplessness, feelings of usefulness, strain, depression, confidence, self-worth, and happiness levels scored on a four-point scale. This measure is available in the dataset as a single scale created by recoding the four-point scale on each variable into two categories for low and high distress, and then summing, giving a scale running from 0 to 12, with 12 representing the most distressed state (also translated as the lowest level of subjective well-being).

We reverse coded the overall score for ease of interpretation so that a value of 12 represents the least distressed. Going forward, we label this variable as 'mental health' and use mental well-being as a synonym. Figure 3.2 displays the distribution of respondent's answers on mental health (GHQ), which shows that approximately 70% of both immigrants and natives report high mental health scores with scores being slightly higher for natives.

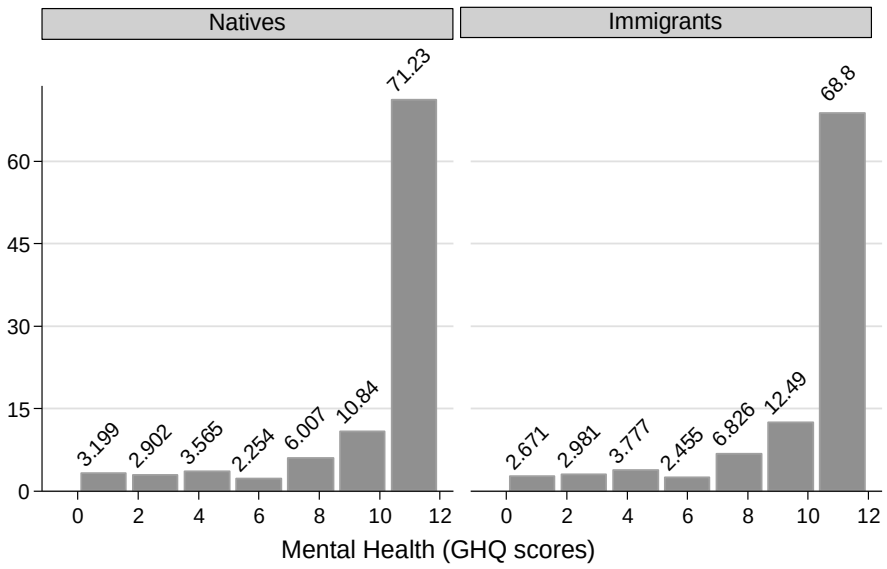

Figure 3.2: A distribution of mental health scores for immigrants and natives

3.3.2 Descriptive Statistics

Table 3.1 reports descriptive statistics for all the variables for natives and immigrants, where immigrants are further divided according to their white and non-white ethnicity to gain an understanding of the differences between these groups. The natives and immigrant sample consist of 56% and 58% of females, respectively. Immigrants have a higher percentage of married and a lower percentage of divorced individuals compared to natives. On average, immigrants are 9 years younger, healthier, more highly educated and have larger households. The average household incomes are similar for immigrants and natives but given that migrant households tend to be larger in size, this would suggest lower average individual incomes from household members (and/or potentially a larger number of dependants). About 71% of immigrants in our sample have lived in the UK for more than 10 years. Immigrants have lower levels of neighbourhood embeddedness, smaller social networks and they are less likely to volunteer and to engage in charitable behaviour than natives. Immigrants are more likely to be employed and have a lower probability of being outside the labour market than natives. A small percentage of immigrants and natives are unemployed, where immigrants have a higher proportion of unemployed than natives. Immigrants also have a lower probability of homeownership, and their jobs show lower levels of job security and work autonomy. Immigrants report lower average life satisfaction and mental health than natives.

The disaggregation of immigrants according to ethnicity shows that non-white and white immigrants have similar mean age and percentage of females. Non-white immigrants are more likely to be married and are less educated than white immigrants. They also reside in larger households and have lower average monthly household incomes than white immigrants. Interesting patterns emerge across the indicators of subjective well-being, social integration, and economic integration. We observe that non-white immigrants report lower levels of life satisfaction and worse mental health than natives, while white immigrants are similar to natives across these measures of subjective well-being. Non-white immigrants appear to have smaller social networks, and are less likely to volunteer, engage in charitable behaviour, be homeowners, have job security, and work autonomy. Finally, we observe that non-white immigrants are more likely to be unemployed than white immigrants and native counterparts.

Table 3.1 Descriptive statistics for the dependent and independent variables

	Natives	Immigrants	Diff from natives	Non-white immigrants	Diff from natives	White immigrants	Diff from natives
	Column 1			Column 2		Column 3	
Female	56%	58%		58%		60%	
Relationship Status							
Unmarried	40%	32%		29%		39%	
Married	53%	63%		67%		56%	
Divorced	7%	4%		4%		5%	
Age Mean	49	40		41		40	
Healthy	64%	80%		80%		79%	
Education							
No qualifications	11%	8%		10%		4%	
GCSE/Lower	31%	21%		22%		20%	
A-Level	22%	17%		17%		17%	
High Degree	36%	54%		51%		59%	
Net household monthly income	3267	3394		3262		3647	
Household Size	2.7	3.6		3.8		3.0	
Years spent in the UK							
0-10		29%		29%		28%	
11-20		34%		37%		32%	
21-41		37%		34%		40%	
Subjective well-being							
Life Satisfaction	5.26	5.12	0.14***	5.05	0.21***	5.26	0.000
Mental Health	10.37	10.24	0.13***	10.17	0.20***	10.35	0.02
Social Integration							
Neighbourhood Embeddedness	3.29	3.17	0.12***	3.21	0.08***	3.08	0.21***
Social Network Size (0-10)	4.71	4.03	0.68***	3.80	0.91***	4.45	0.26***
Community Involvement							
Volunteering	0.21	0.18	0.03***	0.16	0.05***	0.21	0.000
Charitable behaviour	0.73	0.65	0.09***	0.63	0.10***	0.67	0.06***
Economic Integration							
Employment status							
Employed	0.57	0.68	-0.11***	0.64	-0.06***	0.77	-0.20***
Unemployed	0.04	0.07	-0.03***	0.07	-0.03***	0.04	-0.01
Outside Labour Market	0.39	0.25	0.14***	0.30	0.09***	0.19	0.20***
Homeownership	0.75	0.56	0.19***	0.54	0.21***	0.61	0.14***
Observations (waves 2,6,8)	79589	7413		4896		2518	
Number of Individuals	40505	4591		3166		1425	
Quality of work							
Job security	0.91	0.89	0.02***	0.88	0.03***	0.91	0.000
Work Autonomy (1-20)	14.95	14.81	0.14***	14.59	0.36***	15.17	-0.22***
Occupation Routine	38%	40%		43%		38%	
Intermediate	16%	14%		14%		16%	
Management & Professional	46%	46%		43%		46%	
Observations (wave 2,6,8)	39055	4101		2540		1561	
Number of Individuals	22185	2652		1713		939	

The variables for job security, work autonomy and occupation are only applicable for employed individuals in the dataset. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

3.4 Methodology

Our analysis begins by examining how individuals' subjective well-being as measured by their life satisfaction and mental health is associated with immigrant status and indicators of social/economic integration. This yields the following model specification:

$$Y_{it} = \alpha_0 + \alpha_1 immigrant_i + \boldsymbol{X_{it}\alpha_2} + \boldsymbol{Z_{it}\alpha_3} + \delta_t + \mu_{it}, \qquad (3.1)$$

where Y_{it} represents life satisfaction/mental health; $immigrant_i$ is a dummy variable which enables us to study the difference in subjective well-being between immigrants and natives. $\boldsymbol{X_{it}}$ is a vector of socio-demographic control variables (i.e., gender, marital status, age and age square, health, education, household size and log of net monthly household income); $\boldsymbol{Z_{it}}$ is a vector representing indicators of social and economic integration; δ_t are wave dummies which capture macroeconomic influences that may impact people's wellbeing similarly per year; μ_{it} is the composite error term consisting of unobserved individual effects (γ_i) and the idiosyncratic error term (v_{it}). The panel nature of our dataset enables us to consider individual heterogeneity in that some people may report systematically different levels of life satisfaction/mental health, for example, due to cultural differences or a more optimistic nature (i.e., personality traits) over the sample years. To take this time-invariant unobserved individual heterogeneity (also referred to as individual effect) into account without losing the immigrant dummy estimates, we use the correlated random effects approach recommended by Mundlak (1978), who showed that the random effects (RE) approach approximated the estimates provided by the fixed effects approach if the means of time-varying variables are included amongst the set of explanatory variables in the statistical model. A limitation of CRE approach is that it only allows us to control for the individual effect that is correlated with time variant independent variables and not with time invariant variables (that is, immigrant dummy in this case). Therefore, there is still a residual individual effect after controlling for the means of the time-varying variables. Unfortunately, it is not possible for us to resolve this issue given the absence of reliable strong instrumental variables. Future studies may locate such variables and resolve this issue, which may be challenging.

3.5 Regression Results

In this section, we examine the gaps in subjective well-being of immigrants and natives as measured by life satisfaction and mental health and the role of various indicators of social and economic integration in explaining the gaps. The analysis is conducted in two parts. In the first part, we study if our measures of social and economic integration can help explain the difference in well-being between natives and immigrants (i.e., well-being gap). In the second part, we examine if job quality (one of the measures of economic integration) can help to explain some of the well-being gaps between employed immigrants and natives. The latter is an important dimension to study as immigrants tend to be younger and, therefore, more active in the labour market than natives.

3.5.1 Life Satisfaction

We present the results obtained from a correlated random effects estimation for the differences in life satisfaction between immigrants and natives in Table 3.2. For the sake of clarity, we do not report the means of time-varying variables as part of our results. The coefficient of the immigrant dummy can be interpreted as the gap in life satisfaction (or subjective well-being) between immigrants and natives. The results in Model 1a show that, on average, immigrants have about 0.14 points lower life satisfaction than natives. The life satisfaction gap is robust to the inclusion of employment status and socio-demographic controls in Model 1b. Our findings are in line with previous studies that also report immigrants to have lower subjective well-being/life satisfaction levels than natives (Baltatescu, 2005; Safi, 2010; Bartram, 2011). The question that remains is how large is the difference in life satisfaction between immigrants and natives? To communicate the substantiveness of our findings, we compare the estimated differences between immigrants and natives to that of the commonly observed negative correlates of subjective well-being, that is, divorce and unemployment. This is in keeping with much of the previous research which suggests that negative shocks such as divorce, unemployment or death are typically found to have the strongest adverse effects on life satisfaction (Nordenmark, 1999; Strandh,

2000; Kamerāde and Bennett, 2018). Compared to unemployment, the adverse well-being effects of divorce while being significant and substantive, are typically modest.

We can see in Table 3.2, (Model 1b) that being divorced is associated with 0.06 points lower life satisfaction than being married, whereas being unemployed is associated with 0.41 points lower life satisfaction than employed. The 0.14 points lower life satisfaction of immigrants, as reported in Table 3.2 (Model 1a and 1b), would be equivalent to more than double the estimated well-being loss from divorce and 34% of the estimated well-being loss from unemployment for the population as a whole.

We use the life satisfaction gap identified in Model 1b that controls for socio-demographic characteristics as a baseline against which we assess the extent to which adding further measures for economic and social integration can help explain the immigrant-native gap in life satisfaction. For example, when homeownership is included in Model 1c, the coefficient of the immigrant dummy falls to 0.10, which reduces the difference in life satisfaction initially attributed to immigrant status in Model 1b by approximately 29 percent[33]. We observe a further decline in the well-being gap when the measures of community involvement, social network size and neighbourhood embeddedness are added in Models 1d, 1e and 1f, respectively. Comparing Models 1b to 1f, we observe that the initial gap in life satisfaction between immigrants and natives is reduced by 50% (from -0.14 to -0.07 points), which is a substantial and statistically significant reduction.[34]

In addition to the information regarding well-being losses associated with immigrant status, the regression results reported in Table 3.2 also provide insight into the relationship of demographic characteristics and indicators of social/economic integration with life satisfaction. The results for socio-demographic controls are in line with previous studies and show that females, healthy individuals (i.e., without long-standing illness/disability), and households with higher net monthly incomes are more satisfied with life, while divorce has a negative association with life satisfaction

[33] We begin by adding homeownership to the base model as it is a consistent correlate of subjective well-being alongside employment status and should be controlled for when studying the relationship of new variables of interest with subjective well-being.

[34]The difference between both the coefficient is statistically significant at the 1% level. To test whether the difference in coefficients is statistically significant, we employ the standard z statistics $Z = (b_1 - b_2)/\sqrt{(SEb_1)^2 + (SEb_2)^2}$, which was proposed by Paternoster et al., (1998) and this statistic is valid for large sample sizes.

(Bartram, 2013; De Vroome and Hooghe, 2014; Bobowik et al., 2015; Knies et al., 2016). We also include age and age squared because age has a U-shaped relationship with subjective well-being such that younger and older individuals have higher levels of well-being than middle-aged (Baltatescu, 2005; Safi, 2010; Arpino and de Valk, 2018; Appau et al., 2019). We do not find a significant association between education and life satisfaction, which is not surprising as education of an individual does not change much over time and the significance is completely taken away by the mean of education in the correlated random effects specification. Kóczán (2016) reported a similar finding for education in a fixed-effects model. Next, we examine the association of the indicators of social and economic integration with the life satisfaction of individuals. The results in Table 3.2 show that being a homeowner is associated with higher life satisfaction. Studies show that homeownership imparts a sense of financial security and provides longer-term economic stability which may positively influence one's subjective well-being (Schellenberg and Hou, 2005; Mazzucato et al., 2017).

Individuals who volunteer and exhibit charitable behaviour have higher life satisfaction compared to those who do not volunteer and give to charity, respectively. A possible reason for the positive association could be that community involvement in terms of volunteering and charitable behaviour has been found to boost one's self-esteem which enhances subjective well-being (Andreoni, 1990). Another reason could be that individuals who take part in community programmes have developed a true sense of altruism as they feel like they are a valuable member of society, in which case volunteering and charitable behaviour would again be well-being enhancing (Handy and Greenspan, 2009; Appau et al., 2019). Higher neighbourhood embeddedness and larger social networks are associated with higher life satisfaction. Studies show that social networks, other than family can be a source of practical and emotional support which positively influences subjective well-being (Angelini et al., 2015; Arpino and de Val, 2018; Shen and Kogan, 2020). It is important to note here that our findings for community involvement, neighbourhood embeddedness and social network size might be driven by people's characteristics that are positively associated with life satisfaction. For example, people with higher education and income may have higher levels of life satisfaction, and are therefore more inclined to volunteering, giving to charity, socializing with neighbours, and building wider social networks.

Table 3.2. Life satisfaction gap between immigrants and natives (Correlated random effects model)

	Life Satisfaction (Dependent Variable)					
	Model 1a	Model 1b	Model 1c	Model 1d	Model 1e	Model 1f
Immigrants Native (ref.)						
	-0.140***	-0.138***	-0.100***	-0.091***	-0.083***	-0.067***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.019)	(0.020)
Standard Coefficients	-0.094***	-0.093***	-0.072***	-0.065***	-0.059***	-0.048***
	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Economic Integration						
Employment status						
Employed(ref.)						
Unemployed		-0.408***	-0.390***	-0.377***	-0.372***	-0.368***
		(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Outside the labour market		-0.014	-0.013	-0.012	-0.014	-0.015
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Homeownership			0.093***	0.091***	0.069***	0.065***
			(0.020)	(0.020)	(0.020)	(0.020)
Social Integration						
Volunteering				0.049***	0.049***	0.048***
				(0.016)	(0.016)	(0.016)
Charitable behaviour				0.034**	0.034**	0.032**
				(0.015)	(0.015)	(0.015)
Neighbourhood Embeddedness					0.104***	0.103***
					(0.011)	(0.011)
Social Network Size						0.022***
						(0.003)
Socio-demographic controls						
Gender Male(ref.)						
Female		0.049***	0.045***	0.033***	0.012	0.015
		(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Marital Status Married (ref.)						
Unmarried		0.042	0.037	0.036	0.036	0.036
		(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Divorced		-0.061**	-0.060**	-0.062**	-0.060**	-0.063***
		(0.025)	(0.025)	(0.025)	(0.025)	(0.024)
Age		-0.083***	-0.075***	-0.075***	-0.075***	-0.075***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Age Squared		0.001***	0.001***	0.001***	0.001***	0.001***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Healthy		0.135***	0.134***	0.135***	0.136***	0.137***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Educational Qualification						
Degree/High degree (ref.)						
No qualifications		0.064	0.067	0.070	0.043	0.045
		(0.078)	(0.078)	(0.078)	(0.078)	(0.078)
GCSE/Lower		0.007	0.002	-0.001	-0.003	-0.002
		(0.051)	(0.052)	(0.052)	(0.051)	(0.051)
A-levels		-0.012	-0.019	-0.017	-0.018	-0.017
		(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Household Size		-0.010	-0.014	-0.014	-0.014	-0.014
		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Logged Monthly Household Income		0.049***	0.049***	0.048***	0.048***	0.049***
		(0.013)	(0.013)	(0.013)	(0.012)	(0.012)
Means of time-varying variables		Yes	Yes	Yes	Yes	Yes
Wave Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,002	87,002	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Previous researchers have established that the correlates of subjective well-being may differ between immigrants and natives (De Vroome and Hooghe, 2014; Kuykendall et al., 2015; Knies et al., 2016; Deigo-Rosell et al., 2018). To examine this, we interacted each of the indicators of social and economic integration with the immigrant dummy in separate regressions. We did not find any significant interaction effects, which implies that the relationship of the indicators of social and economic integration with life satisfaction does not vary systematically between immigrants and natives (see appendix Tables B.1-B.6).

We now turn to identify the differences in life satisfaction of employed immigrants and natives and study the role of job quality in explaining the life satisfaction gap between immigrants and natives in Table 3.3. The measures of job quality are only applicable for employed individuals. The results in Model 2a (without socio-demographic controls) show that employed immigrants report about 0.09 points lower levels of life satisfaction than natives. This gap is robust to the inclusion of socio-demographic controls in Model 2b (the baseline model)[35]. This life satisfaction gap would be equivalent to one and a half times the estimated well-being losses from divorce (-0.06)[36] and 22% of the estimated well-being losses from unemployment (-0.41)[37]. Next, we observe that the addition of job quality variables, that is, job security and work autonomy in Model 2c, reduces the well-being gap from 0.09 to 0.07 which is a 22% reduction. Although this is not a significant reduction, still shows that the quality of work dimension of economic integration helps to explain some but not all the difference in life satisfaction between employed immigrants and natives. Table 3.3 also shows that individuals with job security and higher work autonomy have higher life satisfaction than those without job security and work autonomy, respectively. These findings can be explained by previous studies that show job security and work autonomy reduce job-related stress and add positively to subjective well-being (Galletta et al., 2011; Benach et al., 2014; Slavich and Irwin, 2014).

We cannot rule out the fact that the above findings may be biased due to reverse causality: as individuals who feel less satisfied about their overall life may be allocated into more insecure and less autonomous jobs thus further worsening their subjective

[35] The regression results control for occupation, the usual socio-demographic controls and indicators of social and economic integration established as significant correlates of life satisfaction in Table 3.2.
[36] 0.09 is equal to one and a half (150%) of the well-being loss of 0.06 from divorce as seen in table 3.2
[37] 0.09 is equal to 22% of the well-being loss of 0.41 from unemployment as seen in table 3.2

well-being. Put another way, individuals with secure and autonomous work have characteristics that are positively correlated with well-being (such as high levels of education[38] and higher incomes[39]). So, the direction of causality is unclear. Further studies may overcome this limitation by finding valid instrumental variables, which would not affect life satisfaction directly but are highly correlated with job security and work autonomy. For this research, the above challenge can be recognised, and the results can be treated with caution.

Further, to examine whether the strength of these relationships with subjective well-being vary between immigrants and natives, we added interaction terms between our measures of job quality and immigrants' dummy, in separate regressions. The analysis for interaction terms yields insignificant results (See appendix Tables B.7 and B.8), which implies that the relationship of job security and work autonomy with life satisfaction does not vary systematically between immigrants and natives.

Table 3.3. Life satisfaction gap between employed immigrants and natives (Correlated random effects model)

		Life Satisfaction (Dependent Variable)		
		Model 2a	Model 2b	Model 2c
Immigrants	Native (ref.)	-0.098***	-0.094***	-0.072***
		(0.025)	(0.025)	(0.025)
	Standard Coefficients	-0.069***	-0.063***	-0.048***
		(0.017)	(0.017)	(0.017)
Economic Integration				
Job Quality/Quality of work				
	Job security			0.125***
				(0.026)
	Work Autonomy			0.016***
				(0.003)
Socio-demographic controls			Yes	Yes
Means of time-varying variables			Yes	Yes
Wave Dummies		Yes	Yes	Yes
Observations		43,146	43,146	43,146
Number of persons		24,833	24,833	24,833

The variables for job security and work autonomy are only applicable for employed individuals. Model 2a only includes the immigrants dummy and wave dummies. The Models 2b and 2c includes indicators of social/economic integration including neighbourhood embeddedness, social network size, community involvement and homeownership. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

[38] Approximately 50% of individuals with job security have high education degree while 45% of individuals without job security have high education degree. Approximately 50% of individuals with high work autonomy (score of 11 and above) have high education degree while 33% of individuals with low work autonomy (score of 10 and less) have high education degree.

[39] Individuals with job security and high work autonomy have higher income than those without job security and low work autonomy, respectively. That is, average monthly personal income of individuals with job security is £2486 while it is £2163 for individuals without job security. The average personal monthly income is £2399 for individuals with high work autonomy while it is £1123 for individuals with low work autonomy.

The immigrant dummy studied in Tables 3.2 and 3.3 masks heterogeneity amongst the immigrant population. Therefore, it is modified to differentiate immigrants according to their ethnicity (white/non-white) and length of stay in separate regression models in Table 3.4 and 3.5. The coefficients for these variables can be interpreted as the gap in life satisfaction between the corresponding groups and natives as the reference group. Panel A in Table 3.4 shows that non-white immigrants are 0.20 points less satisfied than natives in Model 3a. This gap reduces to 0.18 with the inclusion of socio-demographic controls in Model 3b. The 0.18 well-being gap is equivalent to three times the estimated well-being loss from divorce[40], and about 44% of the well-being loss associated with unemployment for the population as a whole[41]. At the same time, white immigrants appear more similar to natives as they have 0.05 points lower life satisfaction than natives in Model 3a, a finding that remains unchanged after controlling for socio-demographic controls in Model 3b. The 0.05 well-being gap is slightly less than the estimated well-being loss from divorce and about 12% of the estimated well-being losses from unemployment. These findings are in line with previous research that indicates that non-white immigrants generally have lower subjective well-being than white immigrants (Verkuyten, 2008; Oligiati et al., 2013; Longhi, 2014; Knies et al., 2016; Shen and Kogan, 2020; Jaspal et al., 2020).

Next, we study if our findings hold up when we introduce the measures of economic and social integration stepwise with Model 3b as the baseline model. It is evident from the results presented in Model 3c to 3f that the gradual introduction of homeownership, community involvement, and social network size resulted in the non-white migrant and native gap falling from 0.18 to 0.11 points which shows that approximately 40% of the life satisfaction gap can be explained by these measures of social and economic integration.[42] It should be noted that the addition of neighbourhood embeddedness in model 3e did not have a significant influence on the gap in life satisfaction between non-white immigrants and natives. This mainly has to do with the fact that the non-white immigrants and natives in our sample are comparable in neighbourhood embeddedness (see Chapter 2, section 2.5.1).

[40] 0.18 is three times (300% of) 0.06, the estimated well-being losses from divorce.
[41] 0.18 is 44% of 0.41, the estimated well-being losses from unemployment.
[42] The *z* test confirms that the difference between the coefficients in Model 3a and 3e is statistically significant at the 1% level

The comparison of well-being between natives and immigrants segregated according to their length of stay in Model 3a (panel B) suggests that immigrants that have stayed in the UK for 0-10 years report 0.09 points lower life satisfaction than natives. The well-being gap reduces to 0.07 with the addition of socio-demographic controls in Model 3b. This is equivalent to almost the same well-being losses as from divorce[43] and about 17% of the estimated well-being losses from unemployment[44]. The magnitude of the life satisfaction gap is higher for immigrants with a longer length of stay in both models 3a and 3b (with socio-demographic controls). For example, in model 1b immigrants who have stayed for 11-20 years have 0.14 points lower life satisfaction than natives, which is equivalent to more than double the estimated well-being loss from divorce and about 34% of the well-being losses from unemployment. Immigrants with the length of stay between 21-41 years have 0.19 points lower life satisfaction than natives in model 1b, which corresponds to triple the estimated well-being loss from divorce and 46% of the estimated well-being losses from unemployment for the population as a whole[45].

One might think that the negative association is due to the higher age of immigrants that have stayed the longest in the UK, as studies show life satisfaction falls with increasing age (Safi, 2010; Bartram, 2013; Yaman and Cubi-Molla, 2017). However, it should be noted that the relationship is robust to the inclusion of age and age squared amongst the demographic controls in the regression model. In addition, the results remain qualitatively the same when the analysis is repeated with the working age restriction of below 64 years and by the early retirement age of 56 years and less. Finally, the stepwise inclusion of the indicators of social and economic integration from Model 3c onwards shows that about 50% of the life satisfaction gap between natives and immigrants who have stayed for 11-20 years can be explained by these factors while 21% of the gap is explained for those that have stayed for more than 21 years.

[43] Estimated well-being loss from divorce is -0.06.
[44] Estimated well-being loss from unemployment is -0.41.
[45] The *z* test confirms that the coefficients of MLS 0-10 and 11-20 are statistically different from each other and MLS 21-41 at the 1% level of significance.

Table 3.4. Life satisfaction gaps between natives and immigrants with immigrants disaggregated by white/non-white ethnicity and length of stay (Correlated random effects model)

	Life Satisfaction (Dependent Variable)					
	Model 3a	Model 3b	Model 3c	Model 3d	Model 3e	Model 3f
A. Immigrants by Ethnic Group – Native (ref.)						
Non-white Immigrants	-0.199***	-0.183***	-0.142***	-0.132***	-0.137***	-0.117***
	(0.025)	(0.024)	(0.025)	(0.025)	(0.024)	(0.024)
Standard Coefficients	-0.134***	-0.123***	-0.101***	-0.093***	-0.096***	-0.082***
	(0.017)	(0.016)	(0.017)	(0.017)	(0.016)	(0.016)
White Immigrants	-0.052*	-0.049*	-0.017	-0.009	0.024	0.031
	(0.030)	(0.030)	(0.030)	(0.030)	(0.029)	(0.029)
Standard Coefficients	-0.035*	-0.033*	-0.014	-0.008	0.014	0.019
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
B. Immigrants by Length of Stay (MLS) – Native (ref.)						
MLS 0-10 Years	-0.093***	-0.068**	-0.002	0.016	0.023	0.042
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
Standard Coefficients	-0.063***	-0.046**	-0.006	0.007	0.013	0.025
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
MLS 11-20 Years	-0.159***	-0.140***	-0.098***	-0.089***	-0.084***	-0.067**
	(0.030)	(0.030)	(0.030)	(0.030)	(0.029)	(0.029)
Standard Coefficients	-0.108***	-0.095***	-0.072***	-0.065***	-0.061***	-0.049**
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
MLS 21-41 Years	-0.204***	-0.191***	-0.177***	-0.173***	-0.162***	-0.150***
	(0.032)	(0.032)	(0.032)	(0.032)	(0.031)	(0.031)
Standard Coefficients	-0.138***	-0.129***	-0.122***	-0.119***	-0.111***	-0.103***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Economic Integration						
Labour market position						
Employed(ref.)						
Unemployed		Yes	Yes	Yes	Yes	Yes
Outside the labour market		Yes	Yes	Yes	Yes	Yes
Homeownership			Yes	Yes	Yes	Yes
Social Integration						
Volunteering				Yes	Yes	Yes
Charitable behaviour				Yes	Yes	Yes
Neighbourhood Embeddedness					Yes	Yes
Social Network Size						Yes
Socio-demographic controls		Yes	Yes	Yes	Yes	Yes
Means of time-varying variables		Yes	Yes	Yes	Yes	Yes
Wave Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,002	87,002	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096	45,096	45,096

Panels A and B present results from separate regressions. The socio-demographic controls include age, gender, marital status, education, health, household income and size. All regressions include wave fixed effect and means of time-varying variables. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Further, in Table 3.5 we study the difference in life satisfaction of employed immigrants and natives, with immigrants divided by their white/non-white ethnicity in panel A and by their length of stay in panel B. Findings show that non-white immigrants and those who have stayed for longer in the UK have lower life satisfaction

than natives in Models 4a and 4b (with socio-demographic controls). The gaps for white immigrants and more recently arrived immigrants (MLS 0-10 years) is statistically insignificant. The gaps for immigrants that are non-white and have stayed for longer in the UK fall with the addition of job security and work autonomy variables in Model 4c, thus confirming that the differences in job quality help explain some of the life satisfaction gap but not all.

Table 3.5. Life satisfaction gap between employed natives and immigrants, with immigrants disaggregated by white/non-white ethnicity and length of stay (Correlated random effects model)

	Life Satisfaction (Dependent Variable)		
	Model 4a	Model 4b	Model 4c
A. Immigrants by Ethnic Group – Native (ref.)			
Non-white Immigrants	-0.159***	-0.154***	-0.122***
	(0.032)	(0.032)	(0.032)
Standard Coefficients	-0.108***	-0.104***	-0.082***
	(0.022)	(0.021)	(0.021)
white Immigrants	0.009	0.005	0.010
	(0.038)	(0.036)	(0.035)
Standard Coefficients	0.006	0.003	0.007
	(0.025)	(0.024)	(0.024)
B. Immigrants by Length of Stay (MLS) – Native (ref.)			
MLS 0-10 Years	0.023	-0.000	0.023
	(0.039)	(0.039)	(0.039)
Standard Coefficients	0.016	-0.000	0.016
	(0.026)	(0.026)	(0.026)
MLS 11-20 Years	-0.096**	-0.087**	-0.065*
	(0.039)	(0.038)	(0.038)
Standard Coefficients	-0.065**	-0.059**	-0.043*
	(0.026)	(0.026)	(0.026)
MLS 21-41 Years	-0.195***	-0.178***	-0.157***
	(0.043)	(0.041)	(0.041)
Standard Coefficients	-0.131***	-0.120***	-0.106***
	(0.029)	(0.028)	(0.027)
Economic Integration			
Job Quality/Quality of work			
Job Security			Yes
Work Autonomy			Yes
Socio-demographic controls		Yes	Yes
Means of time-varying variables		Yes	Yes
Wave Dummies	Yes	Yes	Yes
Observations (waves 2,6,8)	43,146	43,146	43,146
Number of persons	24,833	24,833	24,833

The variables for job security and work autonomy are only applicable for employed individuals in the dataset. Panels A and B present results from separate regressions. Model 4a only includes immigrants dummy and wave dummies. The regression models 4b and 4c controls for age, gender, marital status, education, health, occupation, household income and size. Regression models 4b and 4c also controls for neighbourhood embeddedness, social network size, community involvement and homeownership. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

3.5.2 Mental Health/Mental Well-being

An additional measure of subjective well-being we consider is mental health. Tables 3.6 and 3.7 present the results for mental health as dependent variable. Our findings for mental health in Table 3.6, Model 5a show that immigrants have a 0.13 points lower mental health score than natives. This reduces to 0.11 points after the introduction of socio-demographic controls in Model 5b, thus showing that demographic differences help explain some of the well-being gap. Previous studies have also reported the lower mental health of immigrants compared to natives (Jayaweera, 2014; Gilliver et al., 2014; Brysten et al., 2019).

To communicate the substantiveness of the differences in mental health between immigrants and natives, we compare the estimates obtained for immigrants to those for divorce and unemployment in Table 3.6. Looking at Model 5b, we can see that being divorced, as opposed to being married, is associated with a 0.22 points lower mental well-being, while unemployment, as compared to employment, is associated with a 0.98 points reduction in mental well-being.

The 0.11 points mental health gap (Model 5b) between immigrants and natives while controlling for socio-demographic controls is equivalent to 55% of the estimated well-being loss from divorce and 12% of the well-being loss from unemployment. The mental health gap between natives and immigrants declines as we introduce homeownership in Model 5c and it becomes insignificant with the addition of community involvement in Model 5d. Thus, unlike life satisfaction, the mental health gap between immigrants and natives in Model 5b (with socio-demographic controls) can be broadly explained by the differences in homeownership and community involvement. Further our findings show that homeownership, higher neighbourhood embeddedness, larger social networks, active volunteering and being integrated into the neighbourhood are positively associated with the mental health of individuals. Previous studies also find that homeownership has a positive relationship with mental health (Stillman and Liang, 2010; Mazzucato et al., 2017) and social networks and engagement in host community improve mental well-being (Wessendorf and Phillimore, 2019; Meng and Xue, 2020; Hou et al., 2020).

Table 3.6. Mental Health gap between immigrants and natives (Correlated random effects model)

	Mental Health (Dependent Variable)					
	Model 5a	Model 5b	Model 5c	Model 5d	Model 5e	Model 5f
Immigrants Native (ref.)						
	-0.132***	-0.115***	-0.066*	-0.064	-0.050	-0.028
	(0.039)	(0.039)	(0.040)	(0.040)	(0.040)	(0.040)
Standard Coefficients	-0.044***	-0.038***	-0.022*	-0.021	-0.017	-0.009
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Economic Integration						
Employment Status Employed(ref.)						
Unemployed		-0.982***	-0.958***	-0.960***	-0.950***	-0.944***
		(0.067)	(0.067)	(0.067)	(0.067)	(0.067)
Outside the labour market		-0.300***	-0.298***	-0.301***	-0.305***	-0.306***
		(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
Homeownership			0.239***	0.235***	0.190***	0.184***
			(0.032)	(0.032)	(0.031)	(0.031)
Social Integration						
Volunteering				0.079**	0.079**	0.078**
				(0.034)	(0.034)	(0.034)
Charitable behaviour				0.006	0.005	0.008
				(0.030)	(0.030)	(0.030)
Neighbourhood Embeddedness					0.184***	0.183***
					(0.023)	(0.023)
Social Network Size						0.011**
						(0.005)
Socio-demographic controls						
Gender Male (ref.)						
Female		-0.393***	-0.395***	-0.397***	-0.429***	-0.424***
		(0.022)	(0.022)	(0.023)	(0.022)	(0.022)
Marital Status Unmarried		-0.202***	-0.190***	-0.191***	-0.190***	-0.190***
		(0.059)	(0.059)	(0.059)	(0.059)	(0.059)
Divorced		-0.220***	-0.206***	-0.208***	-0.205***	-0.209***
		(0.077)	(0.077)	(0.077)	(0.077)	(0.076)
Age		-0.081***	-0.077***	-0.076***	-0.075***	-0.075***
		(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Age Squared		0.001***	0.001***	0.001***	0.001***	0.001***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Healthy		0.382***	0.381***	0.382***	0.384***	0.384***
		(0.030)	(0.031)	(0.031)	(0.030)	(0.030)
Educational Qualification Degree/Higher Degree (ref)						
No Qualification		0.143	0.133	0.132	0.091	0.092
		(0.171)	(0.171)	(0.171)	(0.170)	(0.170)
GCSE/Lower		0.154	0.137	0.135	0.130	0.131
		(0.114)	(0.114)	(0.114)	(0.114)	(0.114)
A-levels		0.104	0.088	0.088	0.087	0.088
		(0.064)	(0.064)	(0.064)	(0.064)	(0.064)
Household Size		-0.021	-0.031	-0.031	-0.031	-0.031
		(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Logged Household Income		0.072***	0.069**	0.069***	0.069***	0.070***
		(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Means of time-varying variables		Yes	Yes	Yes	Yes	Yes
Wave Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,002	87,002	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

As a further check to see if the strength of these relationships varies between immigrants and natives, we added an interaction term between the measures of social/economic integration and immigrant dummy, in separate regressions. The results did not reveal significant interaction effects, showing that the association of social and economic integration with mental health does not systematically differ between immigrants and natives (see appendix Table B.9-B.14 for results).

In Table 3.7, we study the mental health gap between employed immigrants and natives. In contrast to our findings for life satisfaction, we do not observe significant differences in the mental health of employed immigrants and natives. A possible reason could be that people with better mental health scores are more likely to be employed (Frijters et al., 2014; Bryan et al., 2019) and thus the issue of reverse causality in this case may bias our results (potentially towards zero). Moreover, we find that our measures of job quality are positively associated with mental health; that is, individuals with higher job security and work autonomy are likely to have better mental health outcomes. Previous studies also report that higher job security and work autonomy corresponds to better mental well-being (Jackson et al.,2010; Slavich and Irwin, 2014). Again, we recognise that the opposite might be true as people with better mental health may work in more secure and autonomous jobs while mentally distressed respondents are more likely to be employed in more insecure and less autonomous jobs. The absence of valid instruments prevents us from addressing the issue of reverse causality.

Table 3.7. Mental health gap between employed immigrants and natives (Correlated random effects model)

		Mental Health (Dependent Variable)		
		Model 6a	Model 6b	Model 6c
Immigrants	Native (ref.)	0.061	0.014	0.064
		(0.048)	(0.048)	(0.048)
	Standard Coefficients	0.021	0.005	0.021
		(0.016)	(0.016)	(0.016)
Economic Integration				
Job Quality/Quality of work				
	Job Security			0.051***
				(0.006)
	Work Autonomy			0.607***
				(0.061)
Socio-demographic controls			Yes	Yes
Means of time-varying variables			Yes	Yes
Wave Dummies		Yes	Yes	Yes
Observations		43,146	43,146	43,146
Number of persons		24,833	24,833	24,833

The variables for job security and work autonomy are only applicable for employed individuals. Model 6a only includes the immigrant dummy and wave dummies. The controls in models 6b and 6c include age, gender, marital status, education, health, occupation, household income and size and the indicators of social/economic integration. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels,

Next, we examine the differences in mental health between natives and immigrants by ethnicity and length of stay. The results for the analysis are presented in Table 3.8. As observed previously for life satisfaction, we find that white immigrants and natives have similar levels of mental health (as seen in panel A), while non-white immigrants have significantly lower mental health than natives. More specifically, non-white immigrants have about 0.21 points lower well-being scores than natives in Model 7a, which corresponds to 7% of a standard deviation. The well-being gap falls to 0.18 with the addition of socio-demographic controls in Model 7b. This is comparable to our findings in terms of life satisfaction, where the 0.18 points lower life satisfaction of immigrants compared to natives corresponds to 12% of a standard deviation of the life satisfaction variable. Thus, the gap in mental health is relatively less substantial than the gap for life satisfaction between non-white immigrants and natives.

Checking for the substantiveness of mental health gap as compared to the well-being losses from divorce and unemployment[46] shows that the 0.18 points lower mental health of non-white immigrants compared to natives (while controlling for socio-demographic characteristics) is equivalent to 81% of the well-being loss from divorce and 18% of the well-being loss from unemployment.

Further, our findings show that the addition of homeownership and community involvement variables in Models 7c and 7d, respectively, results in the smaller mental health gap, indicating that the differences in these variables between non-white immigrants and natives help to explain some of the well-being gap. As seen in the case of life satisfaction, the inclusion of neighbourhood embeddedness in Model 7e results in a larger mental health gap than before because of the higher neighbourhood embeddedness of non-white immigrants revealed in Chapter 2 of the thesis (see section 2.5.1). Finally, the addition of social network size in Model 7f results in a significantly smaller mental health gap than we found in previous models.

In conclusion, part of the lower mental health can be explained by the lower levels of homeownership, community involvement and size of social networks of non-white immigrants compared to natives. The *z*-test confirms that the differences in

[46] As seen in table 3.6, being divorced, as opposed to being married, is associated with a 0.22 points lower mental well-being, while unemployment, as compared to employment, is associated with a 0.98 points reduction in mental well-being.

coefficients in the baseline Model 7b and 7f are statistically significant at a 5% significance level.[47]

Turning to the gap in mental health with immigrants segregated by their length of stay in panel B, we find that the longer length of stay results in a higher mental health gap with natives. Model 7a shows that immigrants who have stayed for 0-10 years have better mental health than natives, while those who have stayed for 11-20 years and 21-41 have 0.15 and 0.34 points lower mental health than natives, respectively. These gaps are robust to the inclusion of socio-demographic controls in Model 7b. Thus, showing that immigrants with the longer length of stay are worse off as the gaps are much larger for these groups of immigrants.

In Model 7b, the mental health gap of 0.13 points between immigrants that have stayed for 11-20 years, and natives is equivalent to 60% of the well-being loss from divorce[48] and 13% of the estimated well-being losses from unemployment[49]. The mental well-being gap of 0.33 points between immigrants that have stayed for more than 21 years, and natives is equivalent to approximately one and a half times the well-being loss from divorce and about 34% of the well-being losses from unemployment.

The gap for immigrants that have stayed for 11-20 years can be explained by the lower homeownership, as the addition of these variables renders the gap insignificant. In contrast, the mental health gap identified between natives and immigrants with 21-41 years of stay becomes slightly smaller when homeownership, community involvement, neighbourhood embeddedness and social network size are introduced gradually from Models 7c to 7f, respectively.

[47] To test whether the difference in coefficients is statistically significant, we employ the standard z statistics $Z = (b_1 - b_2)/\sqrt{(SEb_1)^2 + (SEb_2)^2}$, which was proposed by Paternoster et al., (1998) and this statistic is valid for large sample sizes.
[48] As seen in table 3.6, being divorced, as opposed to being married, is associated with a 0.22 points lower mental well-being.
[49] As seen in table 3.6, unemployment, as compared to employment, is associated with a 0.98 points reduction in mental well-being.

3.8. Mental Health of natives and immigrants, with immigrants disaggregated by white/non-white ethnicity and length of stay (Correlated random effects model)

	Mental Health (Dependent Variable)					
	Model 7a	Model 7b	Model 7c	Model 7d	Model 7e	Model 7f
A. Immigrants by Ethnic Group - Native (ref.)						
Non-white Immigrants	-0.207***	-0.184***	-0.132***	-0.129***	-0.134***	-0.106**
	(0.048)	(0.048)	(0.049)	(0.049)	(0.048)	(0.048)
Standard Coefficients	-0.069***	-0.061***	-0.044***	-0.043***	-0.045***	-0.035**
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
white Immigrants	0.018	0.021	0.065	0.066	0.115*	0.125**
	(0.062)	(0.062)	(0.062)	(0.062)	(0.063)	(0.063)
Standard Coefficients	0.006	0.007	0.022	0.022	0.038*	0.042**
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
B. Immigrants by Length of Stay (MLS) - Native (ref.)						
MLS 0-10 Years	0.141**	0.169***	0.261***	0.267***	0.279***	0.305***
	(0.056)	(0.056)	(0.057)	(0.057)	(0.057)	(0.057)
Standard Coefficients	0.047**	0.056***	0.087***	0.089***	0.093***	0.102***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
MLS 11-20 Years	-0.144**	-0.125**	-0.071	-0.069	-0.060	-0.035
	(0.061)	(0.061)	(0.062)	(0.062)	(0.061)	(0.061)
Standard Coefficients	-0.048**	-0.042**	-0.023	-0.023	-0.020	-0.012
	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)	(0.020)
MLS 21-41 Years	-0.335***	-0.327***	-0.310***	-0.308***	-0.290***	-0.274***
	(0.068)	(0.068)	(0.068)	(0.068)	(0.067)	(0.067)
Standard Coefficients	-0.112***	-0.109***	-0.103***	-0.103***	-0.097***	-0.091***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.022)	(0.022)
Economic Integration						
Labour market position						
Employed(ref.)						
Unemployed		Yes	Yes	Yes	Yes	Yes
Outside the labour market		Yes	Yes	Yes	Yes	Yes
Homeownership			Yes	Yes	Yes	Yes
Social Integration						
Volunteering				Yes	Yes	Yes
Charitable behaviour				Yes	Yes	Yes
Neighbourhood Embeddedness					Yes	Yes
Social Network Size						Yes
Socio-demographic controls		Yes	Yes	Yes	Yes	Yes
Means of time-varying variables		Yes	Yes	Yes	Yes	Yes
Wave Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	87,002	87,002	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096	45,096	45,096

Panels A and B present results from separate regressions. The socio-demographic controls include age, gender, marital status, education, health, household income and size. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Further analysis for employed individuals in Table 3.9 does not reveal any significant gaps in the mental health between employed natives and white/non-white immigrants. We also do not observe significant gaps concerning the length of stay of immigrants. For our purposes, the important point to note is that we see the same patterns when it comes to the relationship of the indicators of social and economic integration and our measures of subjective well-being (i.e., life satisfaction in section 3.5.1 and mental health in this section) that align with existing research.

3.9. Mental Health of employed natives and immigrants, with immigrants disaggregated by white/non-white ethnicity and length of stay (Correlated random effects model)

	Mental Health (Dependent Variable)		
	Model 8a	Model 8b	Model 8c
A. Immigrants by Ethnic Group - Native (ref.)			
Non-white Immigrants	0.055	-0.036	0.037
	(0.059)	(0.060)	(0.059)
white Immigrants	0.074	0.095	0.108
	(0.075)	(0.074)	(0.073)
B. Immigrants by Length of Stay (MLS) - Native (ref.)			
MLS 0-10 Years	0.303***	0.253***	0.304***
	(0.066)	(0.068)	(0.068)
MLS 11-20 Years	-0.012	-0.055	-0.005
	(0.075)	(0.075)	(0.074)
MLS 21-41 Years	-0.078	-0.116	-0.068
	(0.084)	(0.083)	(0.081)
Economic Integration			
Job Quality/Quality of Work			
Job Security			Yes
Work Autonomy			Yes
Socio-demographic controls		Yes	Yes
Means of time-varying variables		Yes	Yes
Wave Dummies	Yes	Yes	Yes
Observations	43,146	43,146	43,146
Number of persons	24,833	24,833	24,833

Panels A and B present results from separate regressions. Model 8a only includes immigrant dummy and wave dummies. The regressions in model 8b and 8c include wave dummies and socio-demographic variables including age, gender, marital status, education, occupation, household income and size. Regressions in model 8b and 8c also include means of time-varying variables and the indicators of social and economic integration including neighbourhood embeddedness, social network size, community involvement and homeownership. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

3.6 Discussion and Conclusion

This research paper set out to examine the subjective well-being of immigrants and natives. The findings show that compared to natives, immigrants in the UK have lower subjective well-being than natives. This is in line with several previous studies in

Europe that report immigrants tend to have lower levels of subjective well-being than natives (Baltatescu, 2007; Safi, 2010; Bartram, 2011; De Vroome and Hooghe, 2014; Arpino and de Valk, 2018). The disaggregation of immigrants by ethnicity revealed that compared to natives, non-white immigrants have lower life satisfaction and mental health than white immigrants. A plausible explanation for these findings could be the so-called double disadvantage, that is, the experience of discrimination and unfair treatment both because of immigrant status and belonging to an ethnic minority group in the host country (Raijman and Semyonov, 1997; Knies et al., 2016; Liu et al., 2019; Shen and Kogan, 2020). These findings have implications for policy evaluation as the effectiveness of well-being policies is likely to vary depending upon the ethnic composition of target immigrant population. Hence research on the success of policy interventions should take ethnic composition of immigrants into account (Ager and Strang, 2008; Craig, 2015).

Additionally, the classification of immigrants by length of stay in the UK showed that the subjective well-being gap is more pronounced for immigrants who have stayed for more than 10 years. A possible reason for the larger gap in subjective well-being with the length of stay could be the unrealistically high expectations of immigrants regarding their life after migration to the host country, which is likely to lead to psychological distress if these expectations are not fulfilled (Baltatescu, 2007; Bartram, 2011; Obucina, 2013). A plausible explanation of this could also be that immigrants report higher well-being in the early years of arriving in the host country as they compare their new life with their country of origin; however, as the length of stay increases, they stop comparing their life with their country of origin and begin comparing it to the life of others in the host country (Hendriks and Bartram, 2016; 2019). The relative adversity they face could then explain their lower well-being over time. Another reason could be that the longer immigrants stay in the host country, the higher is the probability of their experiencing discrimination in the receiving society, which has a psychological cost on their well-being (Safi, 2010).

Our findings show that the indicators of economic integration, in particular homeownership and measures of the quality of work, are positively associated with subjective well-being and the less privileged position of immigrants across these measures compared to natives can partially account for some of the observed well-being disparities in subjective well-being between immigrants and natives. The results

for the indicators of social integration highlight that social network size, neighbourhood embeddedness and community involvement are positively correlated with subjective well-being and also contribute to explaining some of the well-being disparities. An implication of these findings is that policies aimed at improving the well-being of immigrants should focus on promoting various dimensions of social and economic integration such as facilitating community involvement and access to more secure jobs to minimise the well-being gaps between immigrants and natives. However, it is difficult to recommend precise policy interventions as further research is required to assess the determinants of social and economic integration| of immigrants.

Furthermore, our analysis also reveals insignificant interaction effects between our measures of social/economic integration and migration status, implying that the relationship of these variables with subjective well-being does not vary between immigrants and natives. This is in contrast to studies that suggest that social and economic factors have a stronger relationship with immigrants' subjective well-being than natives (Bartram, 2013; Oligiati et al., 2013).

We conclude by noting that this research highlights homeownership, job security, work autonomy, neighbourhood embeddedness, community involvement and social networks as important factors that are positively associated with immigrants' subjective well-being. In many cases, we would expect that based on prior literature (see section 3.2) these variables have a positive association with the subjective well-being of immigrants, but we recognise that this does not imply a causal relationship. Future work may further probe the impact of these variables by identifying suitable instrumental variables or other quasi-experimental techniques, albeit the identification of such instruments will be challenging. The reported findings are interpreted as estimates of the direction and the strength of associations between the variables rather than causal effects. Nevertheless, as they stand, the results provide important pointers on the well-being gaps between immigrants and natives.

Chapter 4: The Immigrant-Native gap in Subjective Well-being during Covid-19: The Role of Social Integration

4.1 Introduction

In the previous chapter, we established a significant gap in subjective well-being between immigrants and natives. Recent studies on the impact of Covid-19 show that this gap has been magnified by the Covid-19 pandemic in the UK (Routen et al., 2021; Hu, 2020; Proto and Quintana-Domeque, 2021). Amongst the reasons for the observed overall decline in well-being is the increasing loneliness due to self-isolation and the shift to working from home (Killgore et al., 2020; Hu, 2020; Fetzer et al., 2021). We use the Covid-19 pandemic as a quasi-experiment to examine how factors representing social integration can potentially mitigate the adverse impact of an unexpected exogenous shock on well-being and whether there are differences by immigrant status. Identifying these factors is critically important, as they can inform policies aimed at enhancing resilience and maintaining well-being in society (PeConga et al., 2020; Habersaat et al., 2020; Johnston et al., 2021).

This chapter seeks to add to the current understanding of the impact of Covid-19. Firstly, it examines whether the pandemic has had an unequal impact on the subjective well-being of immigrants and natives in the UK. Secondly, it examines if pre-pandemic levels of social integration have played a role in mitigating the impact of the pandemic on the well-being of immigrants and natives. Because social support mechanisms are important in challenging times (Hawryluck et al., 2004), it is likely that the levels of social integration before the pandemic are rendered more significant for the well-being of individuals during the pandemic.

The empirical analysis uses the latest wave of the Understanding Society main-stage survey before the pandemic together with the Covid-19 survey, both conducted for the same individuals. We operationalise social integration using the same measures developed in Chapter 2. The indicators of social integration include neighbourhood embeddedness and social network size. During the pandemic, individuals were required to limit social activities to their homes and only interact with inner-social circles, which likely made every-day social interactions in the neighbourhood and close friendships more significant.

The analysis in this chapter shows that both immigrants and natives experienced a decline in life satisfaction during the pandemic. More importantly, we find that immigrants have had a larger drop in life satisfaction than natives. We also find that immigrants with lower neighbourhood embeddedness and smaller social networks before the pandemic have experienced a larger reduction in life satisfaction than comparable natives during the pandemic. These findings are robust to controlling for differences in demographic characteristics and Covid-19 symptoms. We do not find significant results for the differences between immigrants and natives regarding mental health, which is our second measure of subjective well-being. An additional bi-variate descriptive analysis reveals that mental health declined and followed a similar trend for both groups. Overall, our results suggest that social integration in terms of larger social networks and higher neighbourhood embeddedness can help to mitigate the negative impact of sudden negative shocks on the subjective well-being of immigrants, such as the Covid-19 outbreak.

The remainder of the paper is structured as follows: In section 4.2, we discuss relevant literature. Section 4.3 introduces the sources of data, key variables of interest and some discussion of summary statistics. In section 4.4, we discuss the methodology. Section 4.5 discussed the results. Section 4.6 discusses some robustness checks and finally section 4.7 presents the conclusion.

4.2 Literature Review

The World Health Organisation declared the Covid-19 outbreak a global pandemic in March 2020, prompting governments worldwide to issue social distancing measures such as the suspension of social activities and the move to working from home to contain the spread of the infection. As a result, there was an unprecedented need for research to understand the far-reaching consequences of the pandemic on the well-being of individuals.

Recent studies on the subjective well-being of individuals during the Covid-19 pandemic shows that the uncertainty brought about by the global spread of the disease and social distancing measures, including the suspension of social gatherings, community programmes, and closure of workplaces, has resulted in a decline in the life satisfaction and mental health (Banks and Xu, 2020; Holmes et al., 2020; Fujiwara

et al., 2020; Fancourt et al., 2020; Routen et al., 2021; Dymecka et al., 2021). The reduction in subjective well-being varies between individuals depending upon various social resources; for instance, having a wider range of social networks and strong social support mechanisms is positively associated with life satisfaction during the pandemic (Willsher and Harrap, 2020; Bonomi et al., 2021). A general mechanism to explain this result is that lower social networks and lack of social interactions are likely to lead to feelings of isolation which can then decrease life satisfaction and adversely impact mental health (Lee and Cagle, 2018; Kim et al., 2020; Clair et al., 2021).

Studies have found that ethnic minorities and immigrants have suffered a larger decline in subjective well-being compared to their majority and native counterparts (Routen et al., 2021; Hu, 2020; Proto and Quintana-Domeque, 2021). These studies also show that immigrants are most likely to report struggles with the maintenance of social support networks (La Rochelle-Côté and Uppal, 2020; Routen et al., 2021; Nakash et al., 2021). This is primarily because immigrants tend to have smaller friendship circles that can provide emotional support in times of crisis (Finklestein et al., 2012; Aikawa and Kleyman., 2021).

While studies have found immigrants are more prone to facing social, economic, and well-being costs during the Covid-19 pandemic (Routen et al., 2021; Nakash et al., 2021; Bossavie et al., 2020l Hu, 2020; Proto and Quintana-Domeque, 2021), a gap remains in the research regarding the effects of resilience in mitigating the negative impact of the pandemic on well-being (Van Bavel et al., 2020). A small number of studies that consider resilience in times of crisis have mainly focused on the role of factors such as education (Mandemakers, 2010), income (Smith et al., 2005), religiosity (Dehejia et al., 2007; Popova, 2014), and non-cognitive skills (Buddelmeyer and Powdthavee, 2016). We only found one study for the UK on the resilience of individuals during the Covid-19 pandemic by Johnston et al. (2021), who showed that self-efficacy as defined by the confidence and belief in oneself to deal with life challenges protected psychological distress, while income, savings, religion, and social capital do not protect against psychological distress. Although Johnston et al. (2021) used a similar dataset to our study (UKHLS), their analysis is limited to just a month (April 2020) of the Covid-19 period. In contrast, we are able to consider a longer time-period (i.e., from May 2020 to March 2021) which allows us to take into account the changes in well-being over time. Moreover, they analyse the population

in the UK as a whole while considering a measure of mental health (GHQ scale) to gauge resilience, whereas we probe for differences in the impact of pandemic with regards to migrant status and consider mental health and life satisfaction in studying resilience in subjective well-being.

Knowledge regarding factors that can help prevent the adverse impact of life challenges on well-being is important because studies show that high subjective well-being correlates with lower anxiety and stress due to Covid-19 (Trzebinski et al., 2020; Best et al., 2021). One way to study factors that might help mitigate the adverse shocks to well-being is to investigate the role of social resources before the pandemic in maintaining people's subjective well-being during the pandemic (Wanberg et al., 2020).

Below we study the role of social integration of immigrants and natives in maintaining their subjective well-being during Covid-19. Pre-pandemic levels of social integration are likely to be relevant to individuals' subjective well-being during the pandemic, as the lockdown restrictions on in-person social interactions and closure of workplaces did not allow individuals to establish new social networks (Iacobucci, 2020). Previous studies show that social networks are a source of emotional support to cope with the stressful life events as they can help to mitigate emotional distress (Filipp and Klauer, 1991; Greenglass, 2002; Herrero et al., 2011). Thus, it is reasonable to assume that individuals with lower social network size and neighbourhood embeddedness before the pandemic are likely to suffer a more pronounced decline in subjective well-being during the pandemic. Analysing the relationship of social factors in non-pandemic times with well-being during the pandemic is vital in helping policymakers plan for future pandemics and other adverse shocks.

4.3 Data and Summary Statistics

We use two high-quality large scale longitudinal datasets provided by Understanding Society-the UK Household Longitudinal Survey (UKHLS; University of Essex, 2020). The first dataset is the mainstage survey, which was started in 2009 and collects information from around 40,000 households in the UK (also used in Chapters 2 and 3

of the thesis) [50]. The second dataset used is the Covid-19 longitudinal online survey[51] which started in April 2020 and collected data in monthly waves until July 2020. Later, the data collection was changed to every two months from September 2020 onwards. The Covid-19 survey focuses on experiences related to the Covid-19 pandemic and collects information from the households that participated in at least one of the last two waves of the mainstage survey (wave 9 or 10).

For this study, we combine wave 9 of the main stage survey (years 2017-2019) with the Covid -19 survey processed in May, July, September and November of 2020, and January and March of 2021. The datasets are well suited for exploring the well-being levels of UK-born and non-UK born citizens (also called immigrants). The immigrant dummy takes the value 1 for immigrants (non-UK born) and 0 for natives (UK-born). We match respondents in the Covid-19 survey with their records in wave 9, the period before the pandemic, to make sure we can study the same individuals across time periods. We drop observations with missing information on the variables of interest described in the next section. The final sample consists of 9,932 individuals with 8,981 natives and 951 immigrants. To capture time before and during the Covid-19 period, we generate a Covid-19 dummy variable where wave 9 of the main survey is coded as 0, and the waves from the Covid-19 survey are coded as 1.

4.3.1 Measures of Subjective Well-being

In line with the analysis in Chapter 3, our measures of subjective well-being are life satisfaction and mental health. The life satisfaction variable is based on evaluating satisfaction with overall life on a scale ranging from 1 to 7, where 1 refers to completely dissatisfied and 7 completely satisfied. The information on life satisfaction of individuals is recorded every two months starting from May 2020.

The mental health variable is a 12-item version of the General Health Questionnaire (GHQ-12). The scale is based on responses to 12 separate questions regarding respondents' ability to concentrate, overcome difficulties, capability to make

[50] University of Essex, Institute for Social and Economic Research (2020). Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]. 13th Edition. UK Data Service. SN: 6614, http://doi.org/10.5255/UKDA-SN-6614-14.

[51] University of Essex, Institute for Social and Economic Research. (2021). Understanding Society: COVID study, 2020-2021. [data collection]. 11th Edition, UK Data Service.

decisions about things, ability to face up to problems, enjoy everyday activities, lost sleep over worry, and feel they play a useful part in things, constantly felt under strain, recently feel depressed, have lost confidence, think of oneself as worthless, and feel reasonably happy. Each question records information on a four-point scale. The mental health variable available in the dataset is derived from the above-mentioned questions and runs on a scale of 0 to 12, with 12 representing the most distressed state (also translated as the lowest level of subjective well-being). We reverse coded the overall score for ease of interpretation so that a value of 12 represents the least distressed. We label this variable as 'mental health' in the subsequent analysis.

4.3.2 Indicators of Social Integration

The indicators of social integration include neighbourhood embeddedness and social network size. The neighbourhood embeddedness variable ranges from 1 (least embedded) to 5 (most embedded). The social network size variable is measured by the number of friends and ranges from 0 (low) to 10 (high). For more information on these variables, see Chapter 2, section 2.3.1.

All variables used in the analysis are available in wave 9. To facilitate the analysis of the relationship of pre-pandemic social integration with well-being during Covid-19 we carry forward the data from wave 9 of the mainstage survey to the Covid-19 waves of data.

4.3.3 Socio-Demographic Controls

We control for demographic characteristics describing the socio-economic background of a respondent. The data for characteristics that are not expected to change over a short period of time is not collected in the Covid-19 survey and is therefore extracted from the mainstage survey. The stable socio-demographic characteristics include the variables for female (*female=1 and male=0*), marital status (*unmarried=0, married=1 and divorced=2*), educational qualifications (*Degree/ higher degree=4, A-level=3, other qualifications=2 and no qualifications=1*), household size (*ranges from 1-12*), and good health (*no long-term illness/disability=1, otherwise=0*). We also account for age and current household income. The variables for age and current household income are generated by combining the mainstage

survey and Covid-19 survey information. We also control for Covid-19 symptoms by generating a dummy that takes a value of 1 for having Covid-19 symptoms during the pandemic and 0 otherwise.

We recognise that employment conditions are likely to change during Covid-19; therefore, when controlling for employment status in the regression analysis, we generate a new categorical variable for employment status. This variable combines the information on employment status before the pandemic (wave 9) and during the pandemic (Covid-19 data waves). We generate a categorical variable to capture employment status. This has four categories: *employment, unemployment, furloughed, and outside the labour market*.

The employment category is coded 1 for those who remained employed or gained employment during Covid-19. The unemployment category is coded 2 and consists of individuals who remained unemployed or became unemployed during the pandemic. The furloughed category is coded 3 and constitutes people that were employed before the pandemic (wave 9) but became furloughed during the Covid-19 pandemic. The final category is outside the labour market, which is coded 4 and includes individuals who remained outside the labour market[52] during the pandemic. The variable is used in the regression as a categorical variable, with employment as the reference category.

4.3.4 Descriptive Statistics

We commence our empirical analysis with a brief discussion of some descriptive statistics presented in Table 4.1. Immigrants and natives have comparable proportions of females and married people in the sample. Immigrants constitute a larger part of healthier individuals in terms of the absence of long-standing illness and disability compared to natives. The average age in our sample is around 50, where immigrants are, on average, 2 years younger than natives. Employment status shows that about 6% of immigrants and 7% of natives are furloughed, whereas immigrants have a higher percentage of being either employed or unemployed than natives. Immigrants have a higher percentage of individuals with high-education degrees and larger

[52] This category includes individuals who are retired, in family care or home, full-time students, long term sick or disabled, in government training schemes, unpaid, family business, on apprenticeship and doing something else.

household sizes than natives. Immigrants have similar household incomes as natives but since they live in larger households, this would suggest lower average individual incomes from household members (and/or potentially a larger number of dependants). Immigrants are more likely to report Covid-19 symptoms. This may reflect partly their greater exposure to Covid-19 due to their sources of employment.

Regarding the pre-pandemic levels of social integration considered in this chapter, we see that immigrants and natives have similar degrees of neighbourhood embeddedness and size of social networks.

Overall, the descriptive statistics discussed above indicate that our sample in this chapter is different from previous chapters (2 and 3) as immigrants and natives are comparable across most socio-demographic characteristics and respondents on average belong to older age group, which might have implications for the generalisability of our findings. This raises a concern about sample selection, therefore we used inverse probability weights to take into account the selection probabilities into the study and nonresponse at each wave, including the before and during Covid-19 survey.

The weighted descriptive statistics (see appendix C.1) are comparable to the unweighted statistics in table 4.1 (especially, when it comes to the similarities/differences between immigrants and natives). This shows that the specific sample characteristics are not driven by unequal sampling probabilities of various groups of individuals that constitute our sample. We refrain from using weights in the final regressions to take advantage of the immigrant ethnic boost sample as otherwise we would not have the requisite sample size of migrants (statistical power) to conduct three-way interaction analysis credibly. We are aware that attrition could be a real issue as individuals with lower life satisfaction are likely to drop out, and therefore appropriate robustness checks are conducted and discussed in section 4.6.

Table 4.1 Descriptive statistics for main variables of interest

Variables		Natives	Immigrants
		Means/Percentages	**Means/Percentages**
Female		57%	58%
Relationship Status	Unmarried	20%	17%
	Married	73%	77%
	Divorced	7%	6%
Healthy (lack of long-term illness/disability)		66%	73%
Age		54	52
Educational Qualifications	No qualifications	4%	6%
	GCSE/Lower	25%	21%
	A-Level	20%	17%
	High Degree	51%	56%
Current household monthly income		3788	3991
Have Covid-19 Symptoms		3%	4%
Household Size		2	3
Employment status	Employed	56%	59%
	Furloughed	7%	6%
	Unemployed	1%	4%
	Outside labour market	36%	31%
Pre-pandemic levels of social integration			
Neighbourhood Embeddedness (1-5)		3.24	3.20
Social Network Size (0-10)		4.95	4.79
Observations		23,890	2,295
Number of Individuals		8,981	951

To understand the changes in immigrants' subjective well-being, we plot the life satisfaction and mental health scores of immigrants and natives in Figures 4.1 and 4.2. We compare bi-monthly average life satisfaction and mental health levels from May 2020 to March 2021 with the levels before the pandemic (in wave 9): In Figure 4.1, we observe that the life satisfaction of immigrants and natives has declined, on average, during the Covid-19 pandemic. Immigrants and natives had similar levels of life satisfaction before the pandemic; however, differences emerged between the two groups in that immigrants experienced a stronger decline in life satisfaction during the pandemic than natives. We study the trends in mental health of immigrants and natives in Figure 4.2. It shows that, on average both groups experienced a deterioration in mental health during the Covid-19 period from May 2020 to March 2021. Unlike life satisfaction, the mental health appears to be slightly better for immigrants than natives, but the difference is statistically insignificant. Overall, we can say that the decline in in the mental health remains the same for both immigrants and natives.

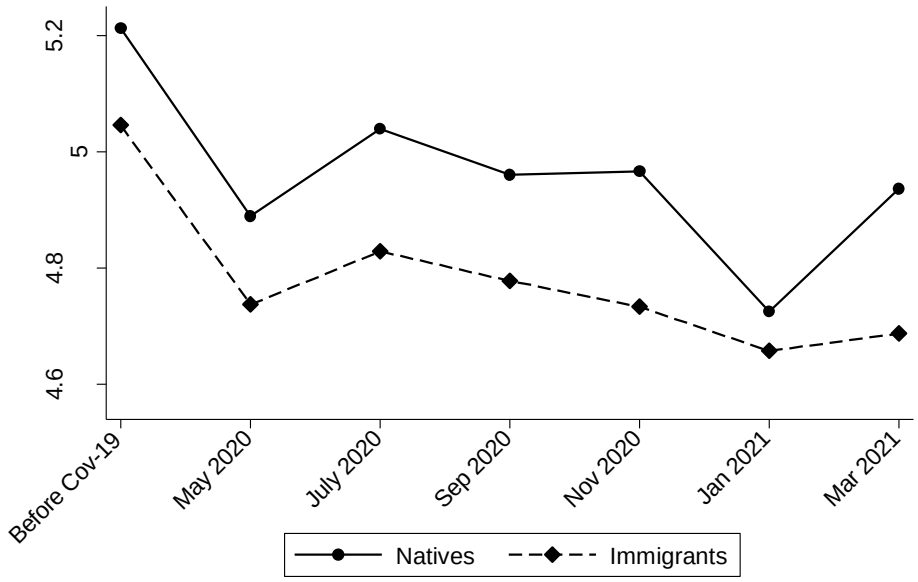

Figure 4.1: The comparison of life satisfaction of immigrants and natives during and before the Covid-19 pandemic. Before Covid-19 constitutes wave 9 of the mainstage survey covering the years 2017-2019. The months of May 2020 to March 2021 represent the period for Covid-19.

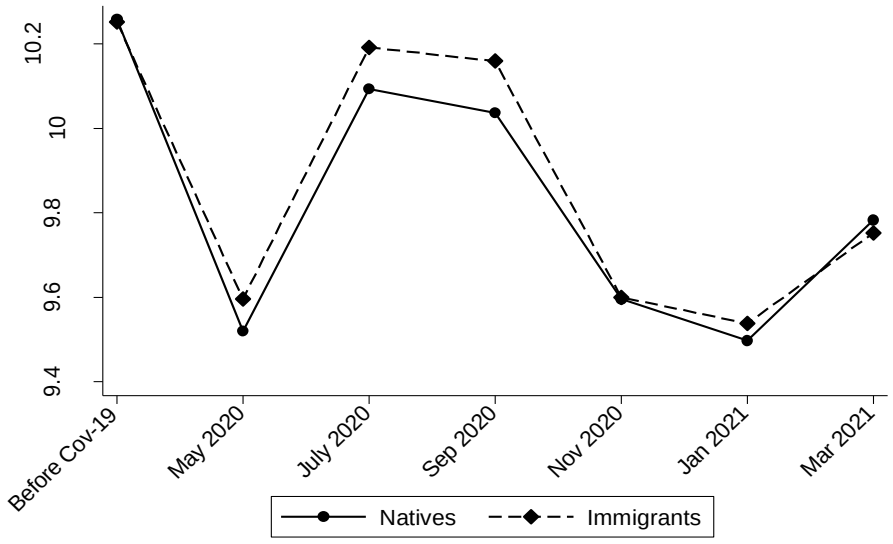

Figure 4.2: The comparison of mental health of immigrants and natives during and before the Covid-19 pandemic. Before Covid-19 constitutes wave 9 of the mainstage survey covering the years 2017-2019. The months of May 2020 to March 2021 represent the period for Covid-19.

4.4 Methodology

We use the following equation to study the life satisfaction of immigrants and natives:

$$Y_{it} = \beta_0 + \beta_1 Cov_t + \beta_2 Mig_i + \beta_3 Cov_t \times Mig_i + \boldsymbol{X_{it}\beta_4} + \delta_t + \mu_{it} \qquad (4.1)$$

where Y_{it} represents the dependent variables (i.e., life satisfaction or mental health), Mig_i is a migrant dummy, Cov_t is a dummy variable which takes the value 0 for before the pandemic (wave 9 for years 2017-2019) and 1 indicating the Covid-19 pandemic (May 2020-March 2021). Our main variable of interest is $Cov_t \times Mig_i$ which denotes the interaction term. A significant interaction term would indicate that the life satisfaction of immigrants is impacted more during the pandemic compared to that of natives. $\boldsymbol{X_{it}}$ is a vector of socio-demographic controls including gender, marital status, age/age square, health, education, and log of net household income, household size as well as Covid-19 symptoms. δ_t represents wave dummies to account for common factors that might arise due to macroeconomic influences that may impact people similarly each wave. μ_{it} is the composite error term consisting of unobserved individual effects (η_i) and the idiosyncratic error term (v_{it}).

In a second step, we examine the impact of pre-pandemic levels of social integration, Z_{i0}, on the well-being of immigrants and natives during the Covid-19, compared to before Covid-19 by estimating the following specification:

$$Y_{it} = \beta_0 + \beta_1 Cov_t + \beta_2 Mig_i + \beta_3 Z_{i0} + \mathbf{I_{i0}\boldsymbol{\beta_4}} + \beta_5 Cov_t \times \beta_6 Mig_i \times \beta_7 Z_{i0} + \boldsymbol{X_{it}\beta_8} + \delta_t + \mu_{it}, \qquad (4.2)$$

where $\mathbf{I_{i0}}$ is a vector of the remaining two-way interaction terms between the immigrant and Covid-19 dummies, the immigrant dummy and the social integration variable, and the Covid-19 dummy and the social integration variable under investigation. $Cov_{it} \times Mig_{it} \times Z_{i0}$ represents the three-way interaction term that allows us to study whether the pre-pandemic levels of social integration (Z_{i0}) moderate the adverse effect of the Covid-19 pandemic (Cov_t) on subjective well-being of immigrants (Mig_i). A significant interaction term would imply that the indicator of social integration under examination moderates the decline in life

satisfaction of immigrants during Covid-19 over and above that of natives. Equations (4.1) and (4.2) are estimated using a correlated random effects approach (see Chapter 2, section 2.4 for more discussion). The correlated random effects approach allows us to control for time-invariant unobserved heterogeneity in life satisfaction/mental health between individuals.

4.5 Results

The empirical analysis is conducted in two stages. In the first stage, we examine whether there is a differential decline in life satisfaction and mental health for immigrants during the Covid-19 pandemic using equation (4.1). In the second stage, we study whether higher pre-pandemic levels of social integration play a role in moderating the declines in life satisfaction and mental health during Covid-19 using equation (4.2). We discuss our findings for life satisfaction in section 4.5.1 and mental health in section 4.5.2.

4.5.1 Life Satisfaction during Covid-19

The results of our examination of the differential impact of the pandemic on the life satisfaction between natives and immigrants is presented in Table 4.2. The immigrant dummy shows that immigrants in our sample had slightly lower life satisfaction than natives before the pandemic (-0.05) although the result is statistically insignificant. This result is different from previous chapter (3) mainly because samples vary given the pre-pandemic period consists of a single wave (9) rather than multiple waves and because some of the effect is captured by the interaction effect. The Covid-19 dummy shows that the pandemic led to an average reduction in reported well being of 0.18 points for natives. The coefficient of our main variable of interest (the two-way interaction term between the immigrant and Covid-19 dummy) is negative and statistically significant ($\hat{\beta}$ = -0.13, $\rho < 0.05$). It indicates that immigrants suffered an additional negative reduction of about 0.13 units in life satisfaction during the pandemic itself compared to natives, while controlling for the socio-demographic characteristics as well as Covid-19 symptoms. The results for the control variables show that being unmarried, divorced, of older age, less educated, unemployed, living in a larger household and having Covid-19 symptoms are significantly and negatively

associated with life satisfaction. In contrast, healthy respondents (lack of long-standing illness and disability) tend to report significantly high levels of life satisfaction.

Table 4.2. Comparing life satisfaction of immigrants and natives before and during Covid-19

		Model 1
Migrant Dummy		-0.050
		(0.055)
Covid-19 Dummy		-0.180***
		(0.035)
Migrant Dummy × Covid-19 Dummy		-0.130**
		(0.066)
Socio-demographic controls		
Employment Status	Employed(ref.)	
	Unemployed	-0.377***
		(0.084)
	Outside the labour market	-0.014
		(0.047)
	Furloughed	-0.049
		(0.049)
Covid 19 Symptoms		-0.089*
		(0.051)
Female		-0.011
		(0.024)
Marital Status	Unmarried	-0.296***
		(0.031)
	Divorced	-0.210***
		(0.046)
Age		-0.091***
		(0.017)
Age Squared		0.000***
		(0.000)
Healthy		0.293***
		(0.022)
Education	High degree (ref.)	
	No qualifications	-0.090
		(0.062)
	GCSE/Lower	-0.090***
		(0.030)
	A level	-0.043
		(0.030)
(log) Current monthly Household Income		0.009
		(0.010)
Household Size		-0.034***
		(0.011)
Constant		4.586***
		(0.183)
Observations		26,185
Number of persons		9,932

Estimates were obtained from correlated random effects. Regression includes wave dummies and means of time-variant variables. Goodness of fit tests: R-squared is 0.06 and the Wald test is significant. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

To gain insight into factors that might help mitigate the adverse health shocks (such as the Covid-19 pandemic) on the subjective well-being of immigrants and natives, we will now examine whether subjective well-being during Covid-19 depends upon pre-pandemic levels of social integration, and if there are differences with regards to immigrant status. We consider the indicators of social integration, including neighbourhood embeddedness and size of social networks because recent studies show that the impairment of social networks during the pandemic led to feelings of isolation which negatively impacted life satisfaction (Kim et al., 2020; Clair et al., 2021). The idea of studying pre-pandemic levels of social integration is supported by the psychological theory of stress and trauma, which suggests that individuals with lower levels of social resources (i.e., social integration in this context) are more vulnerable to experiencing losses in their well-being during a time of crisis compared to those with larger social networks (Hobfall, 1989; 2011; 2016). This theory is especially relevant for our study in the context of the Covid-19 pandemic as individuals with inadequate social support mechanism may have found it more difficult to deal with the challenges of the crisis.

Pre-pandemic Levels of Social Integration, and Life Satisfaction

To examine whether the differential impact of Covid-19 on the well-being of immigrants and natives is conditional on pre-pandemic levels of social integration, we interact the migrant dummy and the Covid-19 dummy with the indicators of social integration in separate regressions as represented by Equation (4.2). We supplement our findings with a graphical illustration rather than simply looking at the sign and significance of the interaction terms.

Neighbourhood embeddedness

We start by examining the roles of neighbourhood embeddedness. Table 4.3 presents the results based on Equation (4.2). The interaction term between the Covid-19 and immigrant dummy is negative, statistically significant, and large in size (-0.72) which is in line with our baseline findings in that immigrants report significantly lower levels of life satisfaction during the pandemic. The negative impact is slightly mitigated by high levels of neighbourhood embeddedness of immigrants as indicated by the three-way interaction (Migrant Dummy × Covid Dummy × NE_0). The coefficient estimate

is positive and statistically significant ($\hat{\beta}$ = 0.19, ρ < 0.02), which indicates that high levels of neighbourhood embeddedness mitigate the impact of Covid-19 on the life satisfaction of immigrants more strongly as compared to natives. These results also imply that the association of pre-pandemic neighbourhood embeddedness with life satisfaction during Covid-19 is much stronger for immigrants than natives.

Table 4.3. The role of pre-pandemic neighbourhood embeddedness in mitigating the adverse well-being impact of Covid-19

	Life Satisfaction
Migrant Dummy	0.306
	(0.232)
Covid-19 Dummy	0.038
	(0.093)
Neighbourhood Embeddedness (NE_0)	0.246***
	(0.022)
Migrant Dummy × NE_0	-0.107
	(0.069)
Covid-19 × NE_0	-0.091***
	(0.024)
Covid-19 × Migrant Dummy	-0.721**
	(0.288)
Migrant Dummy × Covid Dummy × NE_0	0.188**
	(0.085)
Observations	26,185
Number of persons	9,932

The table presents the estimation obtained from correlated random effects. Regressions include socio-demographic controls, wave dummies and means of time-variant variables which include health, age, employment status, current household income, and covid-19 symptoms. We also control for pre-pandemic social network size. Goodness of fit tests: R-squared is 0.07 and the Wald test is significant. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Figure 4.3 presents the visual illustration of the results for the three-way interaction effects. The lines represent the predictions for life satisfaction at various levels of neighbourhood embeddedness before (solid line) and during Covid-19 (dashed line) based on Table 4.3. We have separated the plots for immigrants and natives, for ease of interpretation and exposition. Looking at the graph on the left-hand side, we can observe that natives with low pre-pandemic neighbourhood embeddedness are as less satisfied during Covid-19 as before. In contrast, the graph on the right-hand side shows that immigrants with low pre-pandemic neighbourhood embeddedness undergo a significantly larger estimated reduction in life satisfaction in response to the Covid-19 pandemic. Focusing on the upper end of the two lines in the graphs for immigrants and natives, it is evident that natives with high neighbourhood

embeddedness experienced a significant decline in life satisfaction during Covid-19 compared to before, thus showing the absence of mitigating effect of neighbourhood embeddedness on their well-being. The opposite is true for immigrants, as the life satisfaction levels of immigrants with high neighbourhood embeddedness are similar in the two time periods. These findings indicate that social integration in terms of neighbourhood embeddedness has played a role in mitigating the adverse impact of Covid-19 on the well-being of immigrants alone.

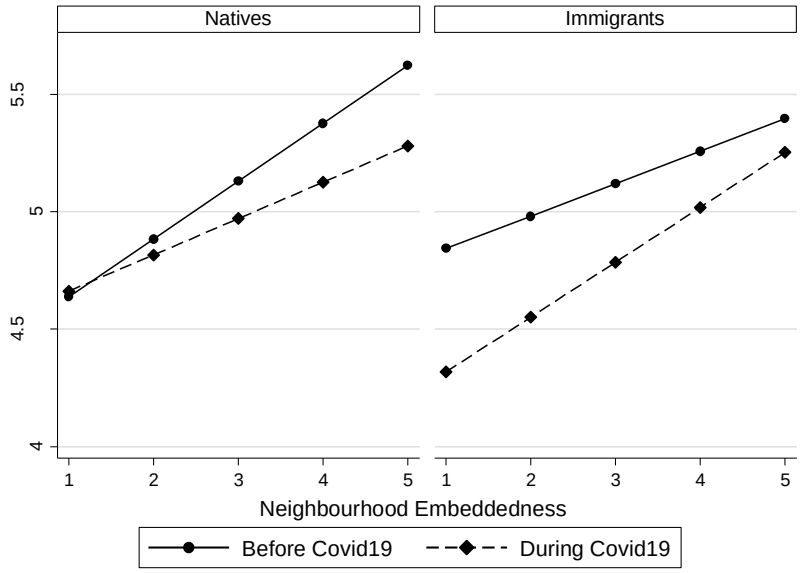

Figure 4.3: The life satisfaction of immigrants and natives depending upon their pre-pandemic levels of neighbourhood embeddedness during Covid-19, as compared to before Covid-19. Circles show marginal effects.

Social Network Size

In Table 4.4, we study the role of pre-pandemic social network size on the well-being of immigrants and natives. In particular, we are interested in examining whether larger pre-pandemic social networks can help mitigate the adverse impact of Covid-19 on well-being. The interaction term between the Covid-19 and immigrant dummy is negative and statistically significant (-0.36) which shows that immigrants report significantly low levels of life satisfaction during the pandemic. The negative impact is slightly mitigated by the larger size of social networks of immigrants as indicated by the three-way interaction (Migrant Dummy × Covid Dummy × SNS_0) which is

positive and statistically significant ($\hat{\beta}$ = 0.05, ρ < 0.03). In other words, the pre-pandemic social network size is more strongly positively associated with the life satisfaction of immigrants than natives during Covid-19.

Table 4.4. The role of pre-pandemic social networks size in mitigating the adverse well-being impact of Covid-19

	Life Satisfaction
Migrant Dummy	0.048
	(0.116)
Covid-19 Dummy	-0.103*
	(0.061)
Social network size	0.040***
	(0.006)
Migrant Dummy × Social network size	-0.018
	(0.021)
Covid-19× Social network size	-0.031***
	(0.007)
Covid-19×Migrant Dummy	-0.364***
	(0.132)
Migrant Dummy × Covid-19 Dummy × Social network size	0.049**
	(0.023)
Observations	26,185
Number of persons	9,932

Estimates obtained from correlated random effects. Regressions include socio-demographic controls, wave dummies and means of time-variant variables including health, age, employment status, current household income, and covid-19 symptoms. We also control for pre-pandemic neighbourhood embeddedness. Goodness of fit tests: R-squared is 0.08 and the Wald test is significant. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Figure 4.4 illustrates the three-way interaction effect for the size of social networks. As before, the solid line represents the predicted life satisfaction at different sizes of social networks before Covid-19 while the dashed line portrays this relationship during Covid-19.

Looking at the graph on the left (for natives) in figure 4.4, we observe that natives with smaller pre-pandemic social network size have as low life satisfaction during the pandemic as before while those with larger social network size suffered a significant decline during Covid-19. This shows the absence of mitigating effect of social network size for natives. When looking at the graph on the right (for immigrants) in figure 4.4, we observe that immigrants with smaller social network size

suffered a significant decline in life satisfaction during Covid-19 whereas those with larger social network size report life satisfaction levels much similar to before Covid-19 pandemic. These findings imply that larger social network size plays a role in mitigating the adverse impact of Covid-19 on the well-being of immigrants more than that for natives.

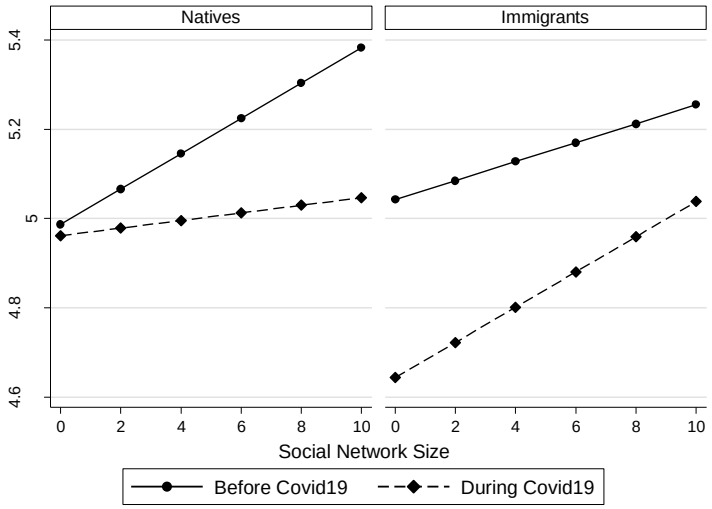

Figure 4.4: The life satisfaction of immigrants and natives depending upon their pre-pandemic levels of social network size during Covid-19, as compared to before Covid-19. Circles show marginal effects.

Our findings for neighbourhood embeddedness and social network size are corroborated by existing studies that have documented that individuals with smaller social networks and those who live in socially segregated neighbourhoods tend to experience greater declines in well-being during the pandemic (Zheng et al., 2020; Clair et al., 2021; La Rochelle-Côté, and Uppal 2020; Routen et al., 2021; Nakash et al., 2021). Further research is required to find out why the high levels of pre-pandemic neighbourhood embeddedness and large social network size protects immigrants' subjective well-being during Covid-19 but have the opposite impact for natives. A possible explanation could be that our findings may be driven by Covid-19 restrictions that discouraged social interactions, resulting in natives with higher neighbourhood embeddedness and larger social networks to feel less satisfied. The social distancing restrictions may have also negatively impacted the life satisfaction of immigrants with smaller social networks and lower neighbourhood embeddedness.

4.5.2 Mental health during Covid-19

An important dimension of subjective well-being that should also be considered in the context of Covid-19 is mental health. We begin the analysis by first analysing the impact of the pandemic on the gap in the mental health of immigrants and natives. The results are reported in the appendix Table C.2. The main coefficient of interest is the interaction term between immigrant and the Covid-19 dummies. The coefficient for the interaction term is statistically insignificant ($\hat{\beta} = 0.12$, $\rho < 0.34$), indicating that mental health did not vary systematically between immigrants and natives during the pandemic compared to before the Covid-19 period. This finding is not unique to this study. Related studies by Pierce et al. (2021) and Bonoi et al. (2021), who use the same Understanding society Covid-19 survey dataset as this study, find that the mental health of most UK adults remained resilient or returned to the pre-Covid-19 levels after the first lockdown in April 2020.

Next, we examine if the pre-pandemic levels of social integration help mitigate the adverse impact of Covid-19 on the mental health of immigrants and natives. To do this, we constructed the same three-way interactions as in previous sections between the immigrant dummy, the Covid-19 dummy and our measures of social integration in separate regression models with mental health as the dependent variable. The three-way interaction analysis did not reveal any significant results (see appendix tables C.3 for neighbourhood embeddedness and C.4 for social network size), indicating that pre-pandemic levels of social integration are not systematically related to the differences in the mental health between immigrants and natives during the pandemic. Overall, in this section, we find that the pandemic has impacted the mental health of immigrants and natives similarly and that pre-pandemic levels of social integration do not play a moderating role in the relationship.

4.6 Robustness checks

We now examine the robustness for our results for life satisfaction to selective attrition, alternative methodological approach, and different composition of the neighbourhood embeddedness measure. First, we explored the robustness of our findings with regards to selective attrition, for example more satisfied individuals

might remain in the sample while less satisfied may drop out in subsequent waves of data. Hence, to check for the bias due to selective attrition we re-estimated our models by restricting Covid-19 data to the first two (May and July 2020) and three waves (May, July and September 2020) in separate regression models. The results remain qualitatively the same (see appendix tables C5-C7), indicating that our findings are not driven by panel/selective attrition.

Second, we tested whether our findings are driven by the methodological approach. We repeated our analysis using fixed effects estimation which although omits time invariant variables such as the immigrant dummy and stable socio-demographic characteristics, gives us qualitatively the same results (available upon request) for interaction effects, thus showing that the results are not driven by our estimation approach.

Third, we examined if our findings for neighbourhood embeddedness are sensitive to an alternative composition (same as the one discussed in Chapter 2, section 2.5.1 as a robustness check). The alternative outcome variable is obtained by summing up the rows on the responses to six question variables that constitute our original measure of neighbourhood embeddedness obtained from factor analysis. This measure ranges from 1 (low neighbourhood embeddedness) to 30 (high neighbourhood embeddedness). The re-estimation of the regressions for neighbourhood embeddedness with this alternative measure yields qualitatively the same results (see appendix table C.8), thus showing that our findings for neighbourhood embeddedness are robust to different compositional technique.

4.7 Conclusion

This research complements existing studies on the impact of Covid-19 by exploring how the subjective well-being of immigrants has changed compared to natives during the pandemic. Our results suggest that the pandemic has had, on average, a stronger negative impact on the life satisfaction of immigrants than natives. The widening well-being inequality during Covid-19 highlights that immigrants are a more vulnerable group during times of crisis like the Covid-19 pandemic. The analysis is further extended to examine the role of pre-pandemic social integration in protecting or worsening the subjective well-being of immigrants and natives during the pandemic.

Our findings reveal that some of the negative impact of Covid-19 on the life satisfaction is mitigated for immigrants who felt more embedded in their neighbourhoods and had a large social network before the pandemic. In other words, immigrants with the low neighbourhood embeddedness and small social networks prior to the pandemic experienced a considerably larger decline in life satisfaction during Covid-19 than natives. These findings highlight that the high levels of social integration act as protective mechanism for the well-being of immigrants during Covid-19. This is policy relevant as social networking and facilitating strong neighbourhood connections can be a focus for building population resilience as a public health measure.

Chapter 5 Conclusion and Future Research

5.1 Conclusion

This thesis has investigated the social and economic integration and the subjective well-being of immigrants compared to natives. Specifically, we have looked at the following issues: (1) differences in the social and economic integration of immigrants and natives; (2) the role of these differences in explaining the subjective well-being gaps between immigrants and natives; (3) the role of pre-pandemic levels of social integration in mitigating the potential adverse impact of Covid-19 on the subjective well-being of immigrants and natives.

The findings for social integration show that immigrants have lower neighbourhood embeddedness, smaller social networks, and a lower likelihood of volunteering and charitable behaviour than natives. A closer look at the differences regarding the ethnicity of immigrants reveals that non-white immigrants are similar to natives in terms of neighbourhood embeddedness, whereas significant differences are observed for white immigrants. In contrast, the immigrant-native differences in the size of social networks, volunteering, and charitable behaviour are significantly larger for non-white immigrants than white immigrants. Significant differences are observed for immigrants across the indicators of economic integration, in that they are more likely to be unemployed and less likely to be employed or to be homeowners than natives. Employed immigrants are less likely to have secure jobs and have lower work autonomy than natives. The immigrant-native disparities across all the indicators of economic integration are found to be larger for non-white immigrants as opposed to white immigrants. Our results also show that immigrants who have stayed for longer in the UK are less different from natives across the indicators of neighbourhood embeddedness, social network size, volunteering, charitable behaviour, and homeownership.

The assessment of subjective well-being as measured by life satisfaction and mental health shows that immigrants have lower subjective well-being than natives. White immigrants are comparable to natives in terms of their subjective well-being, whereas the gaps in subjective well-being are substantial for non-white immigrants. While the differences between immigrants, more specifically non-white immigrants,

and natives, across the indicators of social and economic integration can help explain some of the subjective well-being disparity, a significant part remains unexplained. Further, the disaggregation of immigrants by their length of stay shows that those with the longest length of stay have lower subjective well-being, and the gaps remain robust once controls for social and economic integration are added.

The examination of subjective well-being during Covid-19 shows that immigrants suffered a larger decline in life satisfaction than natives. We do not observe differences between immigrants and natives in the impact of Covid-19 on subjective well-being in terms of mental health; however, we do observe a general decline in mental health for both groups during the Covid-19 pandemic. The analysis for pre-pandemic levels of social integration reveals that neighbourhood embeddedness and social network size have a stronger association with the life satisfaction of immigrants than natives during Covid-19, as compared to before. This suggests that high levels of social integration have mitigated the negative impact of Covid-19 on the subjective well-being of immigrants during the pandemic.

In summary, the thesis shows that immigrants, and specifically non-white immigrants, fare less well across all the indicators of social and economic integration compared to natives except in the case of neighbourhood embeddedness. We have also established that social and economic integration is positively associated with the subjective well-being of immigrants and natives, and the gaps between the two groups across these measures could help to explain some but not the entire gap in subjective well-being between immigrants and natives. Finally, social integration plays an important role in mitigating the adverse impact of Covid-19 on the life satisfaction of immigrants.

5.2 Main Contributions

The main contributions of the thesis are as follows:

The research work in Chapter 2 contributes to existing research by building a representative picture of immigrants' integration in the UK. It uses multiple indicators to capture social and economic integration rather than the usual singular approach to studying the concept. In addition, we introduce a unique measure of neighbourhood embeddedness to study social integration that is composed of immigrants' sense of

belongingness, trust, attachment, and social interactions in the neighbourhood. Existing research has not considered such a composite measure of neighbourhood embeddedness to the best of our knowledge. The advantage of such a measure is that it allows us to study 'meaningful social contacts' where people get to know each other well enough to move beyond superficial interactions and develop feelings of trust and reciprocity rather than mere superficial interactions when studying social integration (Hewton, 2009).

The empirical analysis in Chapter 3 contributes to knowledge regarding factors that might help to explain the subjective well-being gaps between immigrants and natives. The analysis highlights that the lower levels of neighbourhood embeddedness, social network size, community involvement, homeownership, job security and work autonomy of immigrants compared to natives can help explain some of the subjective well-being gap.

Our investigation in Chapter 4 adds to the empirical evidence on the impact of Covid-19 on the subjective well-being of immigrants and natives. Additionally, we use Covid-19 as a quasi-experiment that allows us to understand how social integration can help protect the life satisfaction and mental health of individuals against some of the adverse effects of an exogenous shock. Our findings complement studies in confirming that immigrants have suffered a larger decline in life satisfaction (Routen et al., 2021; Hu, 2020; Proto and Quintana-Domeque, 2021). A novel contribution of our research in this chapter is in highlighting the significance of social integration, specifically in terms of neighbourhood embeddedness and social networks, for the life satisfaction of immigrants during times of crisis.

Overall, the thesis contributes to research on the well-being and integration of immigrants by adding new evidence for the UK. To the best of our knowledge, this is the only research work that considers the integration of immigrants into various aspects of social and economic life simultaneously. It also uniquely contributes by showing that social integration could be a vital source of resilience and aid in mitigating the adverse impact of challenging times like the Covid-19 pandemic on subjective well-being.

5.3 Implications

The research work presented in this thesis does not allow us to provide concrete policy recommendations without making recourse to causal analysis. However, our analysis offers some important policy implications.

Our research work in Chapter 2 shows that immigrants have lower levels of employment, job security and work autonomy compared to natives and that these disparities persist irrespective of their length of stay. This suggests the need for targeted integration policies to enable immigrants to avoid unemployment and gain more secure and autonomous work, for instance by providing subsidised skills trainings. However, further labour market research is required to assess the cause of above results and to develop more precise policies.

The empirical analysis in Chapter 3 shows that the lower levels of social and economic integration of immigrants compared to natives can help explain some of the well-being gaps between the two groups. These findings can guide policy makers that seek to improve the subjective well-being of individuals as various aspects of social and economic integration such as homeownership, community involvement and job security could be promoted to enhance immigrants' subjective well-being and bridge some of the well-being gap between immigrants and natives. The lack of causal evidence makes it difficult to provide concrete policy recommendations. Therefore, further research is required to establish the determinants of each of these aspects of social and economic integration. This could then better inform policy advice.

Next, the heterogeneity observed between the gaps in subjective well-being and social/economic integration for white/non-white immigrant groups compared to natives in Chapters 2 and 3 has implications for policy evaluation. That is, the research on the success and effectiveness of integration and well-being policies should take ethnic composition of immigrants into account (Council of the EU, 2004; Ager and Strang, 2008; Craig, 2015).

Finally, an important finding in Chapter 4 is that neighbourhood embeddedness and social network size might help mitigate the adverse impact of Covid-19 on the subjective well-being of immigrants. This suggests that policies concerned with

building population resilience and aiding vulnerable communities should place emphasise on social connectedness in the neighbourhood as a public health measure.

5.4 Limitations and Future Research

In the first research paper (Chapter 2), we could not control for neighbourhood composition due to lack of data availability when studying neighbourhood embeddedness. We suggest that future research considers the ethnic composition of the neighbourhood to better understand the extent of social integration. Our dataset also does not allow us to confirm if our measure of social network size captures the number of friends inside the UK and not at an international level. Future studies may overcome this limitation given the availability of appropriate dataset.

In the second research paper (Chapter 3), our empirical analysis left the question as to what factors might explain the well-being gaps between immigrants and natives open. The finding that subjective well-being of immigrants is lower for those with the longer length of stay also remains unanswered. Future research may explore factors associated with the country of origin that are likely to influence immigrants' subjective well-being in the host country, which is beyond the confines of this research work.

In addition to the above-mentioned limitations, our research studies associations between variables and does not provide causal evidence. The estimates also do not allow us to disentangle the direction of causality. For instance, we find that individuals that have larger social networks are likely to be more satisfied with life; however, the opposite may be true as well. That is, individuals with high life satisfaction might be more likely to have larger social networks. Moreover, it is likely that some of our variables suffer from selection bias. For instance, we find that immigrants are less likely to exhibit charitable behaviour than natives – however, it is plausible that some immigrants might be more inclined to send money back to their home country instead of giving it to charity in the host country. The limited disposable income in this case would prevent immigrants from giving to charity, and not the possible lack of social integration. Another example of selection bias is that immigrants who remain in the country for longer periods of time could be systematically different from those who arrived more recently. That is, since immigrants with longer stays tend to be less educated in our sample and also report

lower levels of life satisfaction, then the estimates of length of stay would essentially be picking up these group differences compared to natives rather than anything else. Therefore, we remain limited to providing tentative explanations for our findings. A possible solution could be the use of quasi-experimental techniques or identifying appropriate instrumental variables to overcome some of these limitations, though identifying such variables will be difficult.

In the third research paper (Chapter 4), the socio-demographic characteristics show that the sample examined in this chapter is different from previous chapters which is likely to have implications for the generalisability of our results. Further research could probe for differences in the results when samples vary, for example studies may conduct the analysis for the impact of the Covid-19 pandemic using one or two waves of data to see if the results differ.

Notwithstanding the limitations of our research work, this thesis has contributed to existing research by developing a comprehensive picture of the integration of immigrants in various aspects of social and economic life in the UK. A novel feature is in establishing social integration, specifically in terms of neighbourhood embeddedness and size of social networks, as an important aspect of social life that may help mitigate the adverse impact of stressful life events like the Covid-19 pandemic. Last but not the least, we provide important implications for policy and future research work in the field well-being.

Appendix A for Chapter 2

Section A.1 Defining Key Variables

Immigrant:

The variable used is based on the question: *Were you born in the UK, that is in England, Scotland, Wales or Northern Ireland?* The respondent indicates 'yes' if born in England, Scotland, Wales or Northern Ireland, otherwise selects the category 'Not born in the UK'. For empirical analysis, a dummy variable is created, where the success category for immigrants takes the value of '1' if the respondent indicates 'not born in the UK' and the '0' includes the rest of the responses.

Ethnicity (white and non-white immigrants):

All respondents are asked the question: *What is your ethnic group?* We use this variable by creating a dummy variable, where the success category is for white respondents who indicate one of these groups: British/English/Scottish/Welsh/Norther Irish (white), Irish (white), Gypsy or Irish traveller (white), any other white background (white). The non-white category includes respondents that indicate their ethnicity as one of these groups: white and Black Caribbean (Mixed), white and Black African (Mixed), white and Asian (Mixed), Any other mixed background (Mixed), Indian (Asian or Asian British), Pakistani (Asian or Asian British), Bangladeshi (Asian or Asian British), Chinese (Asian or Asian British), Any other Asian background (Asian or Asian British), Caribbean (Black or Black British), African (Black or Black British), Any other Black background (Black or Black British), Arab (other ethnic group), Any other ethnic group (other ethnic group).

Table A.0 Socio-demographic characteristics of immigrants as disaggregated by their length of stay

		Natives	Immigrants by their length of stay		
			0-10	**11-20**	**21-41**
Female		56%	57%	58%	58%
Relationship Status					
	Unmarried	40%	35%	35%	28%
	Married	53%	63%	61%	65%
	Divorced	7%	2%	4%	7%
Household size	(1-16)	2.7	3.5	3.8	3.6
Number of children	(0-10)	0.45	0.87	1.15	0.78
Age groups	16-30	19%	35%	22%	9%
	31-50	34%	58%	66%	52%
	>50	47%	7%	12%	39%
Mean Age		49	34	38	47
Education					
	No qualifications	11%	6%	7%	11%
	GCSE/Lower	31%	20%	22%	21%
	A-Level	22%	14%	19%	17%
	High Degree	36%	60%	52%	51%
Net monthly household income		3267	3163	3301	3567
Employment Status					
	Employed	57%	67%	68%	69%
	Unemployed	4%	6%	6%	5%
	Outside Labour Market	39%	26%	26%	25%
observations (waves 2,6,8)		79589	2123	2595	2695
Number of Individuals		40505	1577	1913	1724

Table A.1. Differences between immigrants and natives across the measures of neighbourhood embeddedness and social network size while excluding the ethnic boost samples in the UKHLS dataset

	Neighbourhood Embeddedness	Social Network Size
	CRE	CRE
	(1)	(2)
Immigrants		
Native (ref.)	-0.068***	-0.498***
	(0.014)	(0.053)
Standardised coefficient	*-0.090****	*-0.181****
	(0.019)	*(0.019)*
Immigrants by Ethnic Group		
Native (ref.)		
Non-white Immigrants	-0.043*	-0.647***
	(0.020)	(0.075)
Standardised coefficient	*-0.057***	*-0.234****
	(0.026)	*(0.027)*
white Immigrants	-0.090***	-0.371***
	(0.020)	(0.070)
Standardised coefficient	*-0.120****	*-0.135****
	(0.026)	*(0.025)*
Immigrants by Length of Stay (MLS)		
Native (ref.)		
MLS 0-10 Years	-0.105***	-0.649***
	(0.023)	(0.085)
Standardised coefficient	*-0.139****	*-0.235****
	(0.030)	*(0.031)*
MLS 11-20 Years	-0.079***	-0.546***
	(0.023)	(0.083)
Standardised coefficient	*-0.105****	*-0.198****
	(0.030)	*(0.030)*
MLS 21-41 Years	-0.030	-0.328***
	(0.023)	(0.085)
Standardised coefficient	*-0.040*	*-0.119****
	(0.030)	*(0.031)*
Socio-demographic controls	**Yes**	**Yes**
Means of time-varying variables	**No**	**Yes**
Wave Dummies	**Yes**	**Yes**
Observations	63,978	63,978
Number of persons	30,806	30,806

Notes: The table presents the estimates from separate regression models using original waves of data for neighbourhood embeddedness and social network size after excluding the ethnic minority boost sample and immigrant ethnic minority boost sample. Note: The results are qualitatively comparable to our findings in table 2.3 for the differences in neighbourhood embeddedness. All regressions include wave fixed effects, means of time-varying variables and socio-demographic controls, including gender, age, marital status, education, and income. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.2. Differences in neighbourhood embeddedness and social network size between immigrants and natives using the original waves 3, 6 and 9

	Neighbourhood Embeddedness	Social Network Size
	CRE	CRE
	(1)	(2)
Immigrants		
Native (ref.)	-0.033***	-0.724***
	(0.010)	(0.036)
Standardised coefficient	*-0.043****	*-0.263****
	(0.013)	*(0.013)*
Immigrants by Ethnic Group		
Native (ref.)		
Non-white Immigrants	0.005	-0.909***
	(0.011)	(0.042)
Standardised coefficient	*0.007*	*-0.330****
	(0.015)	*(0.015)*
white Immigrants	-0.118***	-0.314***
	(0.018)	(0.062)
Standardised coefficient	*-0.156****	*-0.114****
	(0.023)	*(0.022)*
Immigrants by Length of Stay (MLS)		
Native (ref.)		
MLS 0-10 Years	-0.059***	-0.838***
	(0.017)	(0.063)
Standardised coefficient	*-0.078****	*-0.304****
	(0.023)	*(0.023)*
MLS 11-20 Years	-0.027*	-0.771***
	(0.015)	(0.053)
Standardised coefficient	*-0.035**	*-0.280****
	(0.020)	*(0.019)*
MLS 21-41 Years	-0.020	-0.602***
	(0.015)	(0.054)
Standardised coefficient	*-0.027*	*-0.218****
	(0.020)	*(0.020)*
Socio-demographic controls	**Yes**	**Yes**
Means of time-varying variables	**No**	**Yes**
Wave Dummies	**Yes**	**Yes**
Observations	88,508	88,508
Number of persons	44,390	44,390

Notes: The table presents the estimates from separate regression models using original waves of data for neighbourhood embeddedness and social network size. All regressions include wave fixed effects, means of time-varying variables and socio-demographic controls, including gender, age, marital status, education, and income. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.3. Full estimated results for the immigrant dummy for the differences in neighbourhood embeddedness and social network size between immigrants and natives (Waves 2, 6 and 8)

		Neighbourhood Embeddedness		Social Network Size	
		Pooled OLS	CRE	Pooled OLS	CRE
Immigrants					
	Native (ref.)	-0.063***	-0.042***	-0.616***	-0.582***
		(0.010)	(0.010)	(0.037)	(0.037)
Standard Coefficient		*-0.084****	*-0.056****	*-0.223****	*-0.211****
		(0.014)	*(0.013)*	*(0.014)*	*(0.013)*
Socio-demographic controls					
Gender	Male (ref.)				
	Female	0.064***	0.064***	-0.003	-0.014
		(0.006)	(0.006)	(0.023)	(0.023)
Marital Status	Unmarried (ref.)				
	Married	0.141***	0.033**	0.038	0.008
		(0.007)	(0.014)	(0.027)	(0.050)
	Divorced	-0.024*	-0.003	0.010	0.053
		(0.013)	(0.013)	(0.049)	(0.045)
Mean of marital status			0.099***		-0.034
			(0.016)		(0.058)
Age	16-30(ref.)				
	31-50	0.296***	0.057***	-0.268***	-0.282***
		(0.010)	(0.011)	(0.033)	(0.038)
	≥51	0.548***	0.030**	-0.101***	-0.179***
		(0.010)	(0.015)	(0.036)	(0.058)
Mean of age			0.014***		0.001
			(0.000)		(0.001)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	0.208***	0.141***	-0.700***	0.111
		(0.010)	(0.040)	(0.043)	(0.135)
	GCSE/Lower	0.070***	0.060**	-0.450***	0.095
		(0.007)	(0.026)	(0.029)	(0.089)
	A-levels	0.026***	0.027*	-0.269***	0.034
		(0.008)	(0.015)	(0.031)	(0.052)
Mean of educational qualifications			-0.006		0.244***
			(0.013)		(0.046)
(log) Monthly Household Income		0.020***	0.014**	0.377***	-0.015
		(0.005)	(0.006)	(0.020)	(0.022)
Mean of Income			0.031***		0.665***
			(0.009)		(0.035)
Household Size		0.005	0.006	-0.152***	-0.018
		(0.003)	(0.005)	(0.011)	(0.018)
Mean of household size			0.021***		-0.190***
			(0.006)		(0.022)
Number of Children in household		0.022***	0.032***	-0.019	-0.047*
		(0.004)	(0.007)	(0.016)	(0.026)
Mean of number of children in household			-0.012		0.052*
			(0.009)		(0.031)
			(0.009)		(0.035)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		87,002	87,002	87,002	87,002
Number of persons		45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.4. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

	Neighbourhood Embeddedness		Social Network Size	
	Pooled OLS	CRE	Pooled OLS	CRE
Immigrants by Ethnic Group				
Native (ref.)				
Non-white Immigrants	-0.031**	-0.005	-0.771***	-0.710***
	(0.012)	(0.012)	(0.044)	(0.043)
Standardised Coefficient	*-0.041***	*-0.007*	*-0.280****	*-0.258****
	(0.016)	*(0.016)*	*(0.016)*	*(0.016)*
white Immigrants	-0.124***	-0.116***	-0.322***	-0.322***
	(0.017)	(0.017)	(0.063)	(0.063)
Standardised Coefficient	*-0.165****	*-0.154****	*-0.117****	*-0.117****
	(0.023)	*(0.023)*	*(0.023)*	*(0.023)*
Socio-demographic controls				
Gender Male (ref.)				
Female	0.065***	0.064***	-0.004	-0.015
	(0.006)	(0.006)	(0.023)	(0.023)
Marital Status Unmarried (ref.)				
Married	0.141***	0.033**	0.041	0.008
	(0.007)	(0.014)	(0.027)	(0.050)
Divorced	-0.024*	-0.003	0.012	0.054
	(0.013)	(0.012)	(0.049)	(0.045)
Mean of marital status		0.098***		-0.030
		(0.016)		(0.058)
Age 16-30(ref.)				
31-50	0.296***	0.057***	-0.267***	-0.282***
	(0.010)	(0.011)	(0.033)	(0.038)
≥51	0.547***	0.030*	-0.097***	-0.177***
	(0.010)	(0.015)	(0.036)	(0.058)
Mean of age		0.014***		0.002
		(0.000)		(0.001)
Educational Qualifications				
Degree/Higher Degree (ref)				
No qualifications	0.207***	0.141***	-0.698***	0.111
	(0.010)	(0.040)	(0.043)	(0.135)
GCSE/Lower	0.070***	0.061**	-0.451***	0.093
	(0.007)	(0.026)	(0.029)	(0.089)
A-levels	0.026***	0.027*	-0.269***	0.033
	(0.008)	(0.015)	(0.031)	(0.052)
Mean of educational qualifications		-0.006		0.244***
		(0.013)		(0.046)
(log) Monthly Household Income	0.021***	0.014**	0.369***	-0.015
	(0.005)	(0.006)	(0.020)	(0.022)
Mean of monthly household income		0.034***		0.654***
		(0.009)		(0.035)
Household Size	0.006**	0.006	-0.145***	-0.018
	(0.003)	(0.005)	(0.011)	(0.018)
Mean of household Size		0.019***		-0.183***
		(0.006)		(0.022)
Number of Children in household	0.023***	0.032***	-0.021	-0.047*
	(0.004)	(0.007)	(0.016)	(0.026)
Mean of number of children in household		-0.011		0.049
		(0.009)		(0.031)
		(0.009)		(0.032)
Wave Dummies	**Yes**	**Yes**	**Yes**	**Yes**
Observations	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.5. Full estimated results for the differences between natives and immigrant divided by length of stay (Waves 2, 6 and 8)

	Neighbourhood Embeddedness		Social Network Size	
	Pooled OLS	CRE	Pooled OLS	CRE
Immigrants by Length of Stay (MLS)				
Native (ref.)				
MLS 0-10 Years	-0.087***	-0.055***	-0.754***	-0.712***
	(0.017)	(0.017)	(0.062)	(0.062)
Standardised Coefficient	*-0.116****	*-0.072****	*-0.274****	*-0.258****
	(0.022)	*(0.022)*	*(0.023)*	*(0.022)*
MLS 11-20 Years	-0.066***	-0.043***	-0.668***	-0.641***
	(0.016)	(0.016)	(0.057)	(0.055)
Standardised Coefficient	*-0.087****	*-0.057****	*-0.242****	*-0.233****
	(0.021)	*(0.021)*	*(0.021)*	*(0.020)*
MLS 21-41 Years	-0.043***	-0.031**	-0.460***	-0.423***
	(0.016)	(0.016)	(0.059)	(0.057)
Standardised Coefficient	*-0.056****	*-0.041***	*-0.167****	*-0.153****
	(0.021)	*(0.021)*	*(0.021)*	*(0.021)*
Socio-demographic controls				
Gender Male (ref.)				
Female	0.064***	0.064***	-0.003	-0.014
	(0.006)	(0.006)	(0.023)	(0.023)
Marital Status Unmarried (ref.)				
Married	0.142***	0.033**	0.041	0.007
	(0.007)	(0.014)	(0.027)	(0.050)
Divorced	-0.024*	-0.003	0.009	0.051
	(0.013)	(0.013)	(0.049)	(0.045)
Mean of marital status		0.100***		-0.030
		(0.016)		(0.058)
Age 16-30(ref.)				
31-50	0.295***	0.057***	-0.275***	-0.287***
	(0.010)	(0.011)	(0.033)	(0.038)
≥51	0.546***	0.030*	-0.113***	-0.185***
	(0.010)	(0.015)	(0.036)	(0.058)
Mean of age		0.014***		0.001
		(0.000)		(0.001)
Educational Qualifications				
Degree/Higher Degree (ref)				
No qualifications	0.208***	0.141***	-0.701***	0.114
	(0.010)	(0.040)	(0.043)	(0.135)
GCSE/Lower	0.069***	0.061**	-0.451***	0.096
	(0.007)	(0.026)	(0.029)	(0.089)
A-levels	0.026***	0.027*	-0.271***	0.034
	(0.008)	(0.015)	(0.031)	(0.052)
Mean of educational qualifications		-0.006		0.245***
		(0.013)		(0.046)
(log) Monthly Household Income	0.019***	0.014**	0.375***	-0.015
	(0.005)	(0.006)	(0.020)	(0.022)
Mean of monthly household income		0.031***		0.662***
		(0.009)		(0.035)
Household Size	0.005	0.006	-0.153***	-0.018
	(0.003)	(0.005)	(0.011)	(0.018)
Mean of household Size		0.021***		-0.192***
		(0.006)		(0.022)
Number of Children in household	0.022***	0.032***	-0.018	-0.047*
	(0.004)	(0.007)	(0.016)	(0.026)
Mean of number of children in household		-0.012		0.052*
		(0.009)		(0.031)
Wave Dummies	**Yes**	**Yes**	**Yes**	**Yes**
Observations	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.6. Differences in neighbourhood embeddedness between immigrants and natives; Based on correlated random effects estimations using the aggregated version of the neighbourhood embeddedness variable.

	Neighbourhood Embeddedness
	Aggregated version (1-30)
A. Immigrants – Native (ref.)	
Immigrants	-0.302***
	(0.065)
Standardised coefficient	-0.064***
	(0.014)
B. Immigrants by Ethnic Group – Native (ref.)	
Non-white Immigrants	-0.216***
	(0.076)
Standardised coefficient	-0.046***
	(0.016)
White Immigrants	-0.478***
	(0.113)
Standardised coefficient	-0.102***
	(0.024)
C. Immigrants by Length of Stay – Native (ref.)	
0-10 Years	-0.608***
	(0.105)
Standardised coefficient	-0.130***
	(0.022)
11-20 Years	-0.312***
	(0.099)
Standardised coefficient	-0.067***
	(0.021)
21-41 Years	-0.051
	(0.097)
Standardised coefficient	-0.011
	(0.021)
Socio-demographic controls	Yes
Means of time-varying variables	Yes
Wave Dummies	Yes
Observations	87,002
Number of persons	45,096

Notes: Panels A - C provide results from separate regressions. The socio-demographic variables include gender, age, marital status, education, household income, household size and number of children. Robust standard errors in parentheses; ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Correlation between the neighbourhood embeddedness measure through factor analysis and the composite measure based on row-totals is 0.79.

Table A.7. Full estimated results for the immigrant dummy showing the differences in volunteering and charitable behaviour between immigrants and natives (Waves 2, 6 and 8)

		Volunteering		Charitable Behaviour	
		Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants					
	Native (ref.)	-0.031***	-0.023***	-0.077***	-0.078***
		(0.005)	(0.004)	(0.006)	(0.008)
Socio-demographic controls					
Gender	Male (ref.)				
	Female	0.025***	0.024***	0.073***	0.085***
		(0.003)	(0.003)	(0.003)	(0.004)
Marital Status	Unmarried (ref.)				
	Married	0.010**	-0.006	0.042***	0.014
		(0.003)	(0.007)	(0.004)	(0.010)
	Divorced	-0.002	0.006	-0.018**	-0.005
		(0.006)	(0.006)	(0.007)	(0.008)
Mean of marital status			0.010		0.017
			(0.008)		(0.011)
Age	16-30(ref.)				
	31-50	-0.028***	-0.053***	0.096***	0.000
		(0.004)	(0.007)	(0.005)	(0.007)
	≥51	0.041***	-0.042***	0.182***	-0.015
		(0.005)	(0.009)	(0.005)	(0.011)
Mean of age			0.002***		0.006***
			(0.000)		(0.000)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	-0.196***	0.038*	-0.206***	-0.067**
		(0.004)	(0.023)	(0.006)	(0.027)
	GCSE/Lower	-0.122***	0.063***	-0.123***	-0.025
		(0.004)	(0.016)	(0.004)	(0.016)
	A-levels	-0.083***	0.016**	-0.069***	-0.018**
		(0.004)	(0.007)	(0.004)	(0.009)
Mean of educational qualifications			0.079***		0.055***
			(0.007)		(0.008)
(log) Monthly Household Income		0.023***	-0.005	0.086***	0.035***
		(0.003)	(0.003)	(0.003)	(0.004)
Mean of Income			0.039***		0.111***
			(0.005)		(0.006)
Household Size		-0.001	0.005**	-0.031***	-0.014***
		(0.001)	(0.002)	(0.002)	(0.003)
Mean of household size			-0.003		-0.023***
			(0.003)		(0.004)
Number of Children in household		-0.000	0.006*	0.016***	0.013**
		(0.002)	(0.004)	(0.002)	(0.005)
Mean of number of children in household			-0.013**		0.013**
			(0.004)		(0.006)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		87,002	87,002	87,002	87,002
Number of persons		45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.8. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

	Volunteering		Charitable Behaviour	
	Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants by Ethnic Group				
Native (ref.)				
Non-white Immigrants	-0.041***	-0.028***	-0.080***	-0.089***
	(0.006)	(0.005)	(0.009)	(0.013)
white Immigrants	-0.014*	-0.012*	-0.076***	-0.075***
	(0.008)	(0.007)	(0.007)	(0.009)
Socio-demographic controls				
Gender Male (ref.)				
Female	0.024***	0.023***	0.073***	0.085***
	(0.003)	(0.003)	(0.003)	(0.004)
Marital Status Unmarried (ref.)				
Married	0.010**	-0.006	0.042***	0.014
	(0.003)	(0.007)	(0.004)	(0.010)
Divorced	-0.002	0.006	-0.018**	-0.005
	(0.006)	(0.006)	(0.007)	(0.008)
Mean of marital status		0.010		0.017
		(0.008)		(0.011)
Age 16-30(ref.)				
31-50	-0.028***	-0.053***	0.096***	0.000
	(0.004)	(0.007)	(0.005)	(0.007)
≥51	0.041***	-0.042***	0.182***	-0.015
	(0.005)	(0.009)	(0.005)	(0.011)
Mean of age		0.002***		0.006***
		(0.000)		(0.000)
Educational Qualifications				
Degree/Higher Degree (ref)				
No qualifications	-0.196***	0.038*	-0.206***	-0.067**
	(0.004)	(0.023)	(0.006)	(0.027)
GCSE/Lower	-0.122***	0.063***	-0.123***	-0.025
	(0.004)	(0.016)	(0.004)	(0.016)
A-levels	-0.083***	0.016**	-0.069***	-0.018**
	(0.004)	(0.007)	(0.004)	(0.009)
Mean of educational qualifications		0.079***		0.055***
		(0.007)		(0.008)
(log) Monthly Household Income	0.022***	-0.005	0.086***	0.035***
	(0.003)	(0.003)	(0.003)	(0.004)
Mean of monthly household income		0.038***		0.111***
		(0.005)		(0.006)
Household Size	-0.000	0.005**	-0.032***	-0.014***
	(0.001)	(0.002)	(0.002)	(0.003)
Mean of household Size		-0.003		-0.024***
		(0.003)		(0.004)
Number of Children in household	-0.000	0.006*	0.016***	0.013**
	(0.002)	(0.004)	(0.002)	(0.005)
Mean of number of children in household		-0.013**		0.013**
		(0.004)		(0.006)
Wave Dummies	**Yes**	**Yes**	**Yes**	**Yes**
Observations	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.9. Full estimated results for the differences between natives and immigrants divided by length of stay (Waves 2, 6 and 8)

	Volunteering		Charitable Behaviour	
	Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants by Length of Stay (MLS)				
Native (ref.)				
MLS 0-10 Years	-0.064***	-0.043***	-0.142***	-0.146***
	(0.008)	(0.006)	(0.011)	(0.014)
MLS 11-20 Years	-0.014*	-0.007	-0.084***	-0.087***
	(0.008)	(0.007)	(0.009)	(0.012)
MLS 21-41 Years	-0.021**	-0.020**	-0.019**	-0.018
	(0.007)	(0.006)	(0.009)	(0.011)
Socio-demographic controls				
Gender Male (ref.)				
Female	0.024***	0.024***	0.073***	0.085***
	(0.003)	(0.003)	(0.003)	(0.004)
Marital Status Unmarried (ref.)				
Married	0.011***	-0.006	0.044***	0.013
	(0.003)	(0.007)	(0.004)	(0.010)
Divorced	-0.002	0.006	-0.019**	-0.005
	(0.006)	(0.006)	(0.007)	(0.008)
Mean of marital status		0.010		0.019*
		(0.008)		(0.011)
Age 16-30(ref.)				
31-50	-0.029***	-0.054***	0.092***	-0.001
	(0.004)	(0.007)	(0.005)	(0.007)
≥51	0.039***	-0.043***	0.176***	-0.017
	(0.005)	(0.009)	(0.005)	(0.011)
Mean of age		0.002***		0.006***
		(0.000)		(0.000)
Educational Qualifications				
Degree/Higher Degree (ref)				
No qualifications	-0.197***	0.039*	-0.206***	-0.066**
	(0.004)	(0.023)	(0.006)	(0.027)
GCSE/Lower	-0.122***	0.063***	-0.124***	-0.024
	(0.004)	(0.016)	(0.004)	(0.016)
A-levels	-0.084***	0.016**	-0.070***	-0.018**
	(0.004)	(0.007)	(0.004)	(0.009)
Mean of educational qualifications		0.080***		0.056***
		(0.007)		(0.008)
(log) Monthly Household Income	0.022***	-0.005	0.086***	0.035***
	(0.003)	(0.003)	(0.003)	(0.004)
Mean of monthly household income		0.038***		0.110***
		(0.005)		(0.006)
Household Size	-0.001	0.005**	-0.032***	-0.014***
	(0.001)	(0.002)	(0.002)	(0.003)
Mean of household Size		-0.003		-0.024***
		(0.003)		(0.004)
Number of Children in household	-0.000	0.006*	0.016***	0.013**
	(0.002)	(0.004)	(0.002)	(0.005)
Mean of number of children in household		-0.013**		0.013**
		(0.004)		(0.006)
Wave Dummies	**Yes**	**Yes**	**Yes**	**Yes**
Observations	87,002	87,002	87,002	87,002
Number of persons	45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.10. Full estimated results for the migrant dummy showing the differences in unemployment and employment between immigrants and natives (Waves 2, 6 and 8)

		Unemployment		Employment	
		Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants					
	Native (ref.)	0.016***	0.007***	-0.011**	-0.052***
		(0.003)	(0.002)	(0.006)	(0.008)
Socio-demographic controls					
Gender	Male (ref.)				
	Female	-0.015***	-0.007***	-0.063***	-0.099***
		(0.001)	(0.001)	(0.003)	(0.004)
Marital Status	Unmarried (ref.)				
	Married	-0.020***	0.001	0.012***	0.038***
		(0.002)	(0.002)	(0.003)	(0.010)
	Divorced	-0.008**	-0.003**	0.118***	0.132***
		(0.003)	(0.001)	(0.006)	(0.007)
Mean of marital status			-0.008***		0.122***
			(0.002)		(0.012)
Age	16-30(ref.)				
	31-50	0.026***	0.009***	0.247***	0.470***
		(0.003)	(0.001)	(0.005)	(0.006)
	≥51	0.063***	0.016***	-0.105***	-0.461***
		(0.003)	(0.003)	(0.005)	(0.007)
Mean of age			0.001***		-0.017***
			(0.000)		(0.000)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	0.035***	-0.046***	-0.300***	-0.834***
		(0.003)	(0.009)	(0.006)	(0.010)
	GCSE/Lower	0.026***	-0.039***	-0.114***	-0.552***
		(0.002)	(0.008)	(0.004)	(0.015)
	A-levels	0.003**	-0.033***	-0.068***	-0.283***
		(0.002)	(0.007)	(0.004)	(0.007)
Mean of educational qualifications			-0.017***		-0.205***
			(0.002)		(0.012)
(log) Monthly Household Income		-0.032***	-0.013***	0.175***	0.158***
		(0.001)	(0.001)	(0.003)	(0.005)
Mean of Income			-0.005***		0.038***
			(0.001)		(0.007)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		87,002	87,002	87,002	87,002
Number of persons		45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.11. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

		Unemployment		Employment	
		Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants by Ethnic Group					
	Native (ref.)				
	Non-white Immigrants	0.023***	0.010***	-0.044***	-0.098***
		(0.004)	(0.002)	(0.007)	(0.010)
	white Immigrants	0.002	0.001	0.059***	0.047***
		(0.004)	(0.002)	(0.010)	(0.013)
Socio-demographic controls					
Gender Male (ref.)					
	Female	-0.015***	-0.007***	-0.063***	-0.099***
		(0.001)	(0.001)	(0.003)	(0.004)
Marital Status	Unmarried (ref.)				
	Married	-0.020***	0.001	0.014***	0.037***
		(0.002)	(0.002)	(0.003)	(0.010)
	Divorced	-0.008**	-0.003**	0.118***	0.132***
		(0.003)	(0.001)	(0.006)	(0.007)
Mean of marital status			-0.008***		0.124***
			(0.002)		(0.012)
Age	16-30(ref.)				
	31-50	-0.026***	0.009***	0.246***	0.469***
		(0.003)	(0.001)	(0.005)	(0.006)
	≥51	0.063***	0.016***	-0.105***	-0.461***
		(0.003)	(0.003)	(0.005)	(0.007)
Mean of age			0.001***		-0.017***
			(0.000)		(0.000)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	0.035***	-0.047***	-0.298***	-0.833***
		(0.003)	(0.009)	(0.006)	(0.010)
	GCSE/Lower	0.026***	-0.039***	-0.113***	-0.551***
		(0.002)	(0.008)	(0.004)	(0.015)
	A-levels	0.003**	-0.033***	-0.068***	-0.283***
		(0.002)	(0.007)	(0.004)	(0.007)
Mean of educational qualifications			-0.017***		-0.205***
			(0.002)		(0.012)
(log) Monthly Household Income		-0.032***	-0.013***	0.175***	0.158***
		(0.001)	(0.001)	(0.003)	(0.005)
Mean of monthly household income			-0.005***		0.037***
			(0.001)		(0.007)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		87,002	87,002	87,002	87,002
Number of persons		45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.12. Full estimated results for the differences between natives and immigrants divided by length of stay (Waves 2, 6 and 8)

		Unemployment		Employment	
		Pooled logit	CRE logit	Pooled logit	CRE logit
Immigrants by Length of Stay (MLS)					
Native (ref.)					
MLS 0-10 Years		0.009**	0.003	-0.041***	-0.111***
		(0.004)	(0.002)	(0.010)	(0.015)
MLS 11-20 Years		0.013**	0.005**	-0.036***	-0.075***
		(0.004)	(0.002)	(0.009)	(0.012)
MLS 21-41 Years		0.029***	0.015***	0.034***	0.015
		(0.005)	(0.003)	(0.009)	(0.012)
Socio-demographic controls					
Gender Male (ref.)					
Female		-0.015***	-0.007***	-0.063***	-0.099***
		(0.001)	(0.001)	(0.003)	(0.004)
Marital Status	Unmarried (ref.)				
Married		-0.020***	0.001	0.013***	0.038***
		(0.002)	(0.002)	(0.003)	(0.010)
Divorced		-0.008**	-0.003**	0.118***	0.132***
		(0.003)	(0.001)	(0.006)	(0.007)
Mean of marital status			-0.008***		0.124***
			(0.002)		(0.012)
Age	16-30(ref.)				
31-50		-0.027***	0.009***	0.245***	0.469***
		(0.003)	(0.001)	(0.005)	(0.006)
≥51		0.064***	0.016***	-0.108***	-0.460***
		(0.003)	(0.003)	(0.005)	(0.007)
Mean of age			0.001***		-0.017***
			(0.000)		(0.000)
Educational Qualifications					
Degree/Higher Degree (ref)					
No qualifications		0.035***	-0.046***	-0.300***	-0.833***
		(0.003)	(0.009)	(0.006)	(0.010)
GCSE/Lower		0.026***	-0.039***	-0.114***	-0.551***
		(0.002)	(0.008)	(0.004)	(0.015)
A-levels		0.003**	-0.033***	-0.069***	-0.284***
		(0.002)	(0.007)	(0.004)	(0.007)
Mean of educational qualifications			-0.017***		-0.204***
			(0.002)		(0.012)
(log) Monthly Household Income		-0.032***	-0.013***	0.175***	0.158***
		(0.001)	(0.001)	(0.003)	(0.005)
Mean of monthly household income			-0.006***		0.037***
			(0.001)		(0.007)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		87,002	87,002	87,002	87,002
Number of persons		45,096	45,096	45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.13. Differences in unemployment and employment between immigrants and natives in the working-age population (age<=56)

		Unemployment	Employment
		CRE logit	CRE logit
		(1)	(2)
Immigrants	Native (ref.)	0.007***	-0.068***
		(0.002)	(0.007)
Immigrants by Ethnic Group	Native (ref.)		
	Non-white Immigrants	0.011***	-0.111***
		(0.003)	(0.009)
	white Immigrants	-0.000	0.015
		(0.003)	(0.011)
Immigrants by Length of Stay (MLS)			
	Native (ref.)		
	MLS 0-10 Years	0.006*	-0.064***
		(0.003)	(0.011)
	MLS 11-20 Years	0.008**	-0.077***
		(0.003)	(0.011)
	MLS 21-41 Years	0.008**	-0.061***
		(0.004)	(0.013)
Socio-demographic controls		Yes	Yes
Means of time-varying variables		Yes	No
Wave Dummies		Yes	Yes
Observations		87,002	87,002
Number of persons		45,096	45,096

Notes: The table presents the estimates from separate regression models. All regressions include wave fixed effects, means of time-varying variables (for CRE regressions) and socio-demographic controls, including gender, age, marital status, education, income, household size and number of children. Robust standard errors in parentheses; ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.14. Full estimated results for the migrant dummy for the differences in homeownership between immigrants and natives (Waves 2, 6 and 8)

		Homeownership	
		Pooled Logit	CRE logit
Immigrants by Ethnic Group			
Native (ref.)			
	Immigrants	-0.181***	-0.253***
		(0.006)	(0.052)
Socio-demographic controls			
Gender Male (ref.)	Female	-0.005*	-0.002
		(0.003)	(0.007)
Marital Status	Unmarried (ref.)		
	Married	0.118***	0.051***
		(0.003)	(0.005)
	Divorced	-0.045***	-0.026**
		(0.007)	(0.012)
Married mean			0.032*
			(0.017)
Age	16-30(ref.)		
	31-50	0.073***	0.001
		(0.005)	(0.006)
	≥51	0.232***	0.029***
		(0.005)	(0.008)
Mean of Age			0.007***
			(0.000)
Educational Qualifications			
Degree/Higher Degree (ref)			
	No qualifications	-0.183***	0.059**
		(0.006)	(0.027)
	GCSE/Lower	-0.092***	0.069***
		(0.003)	(0.013)
	A-levels	-0.031***	0.059***
		(0.004)	(0.009)
Education Mean			0.077***
			(0.007)
(log) Monthly Household Income		0.144***	0.035***
		(0.003)	(0.004)
Mean of Income			0.227***
			(0.009)
Wave Dummies		**Yes**	**Yes**
Observations		87,002	87,002
Number of persons		45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.15. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

		Homeownership	
		Pooled Logit	CRE logit
Immigrants by Ethnic Group			
	Native (ref.)		
	Non-white Immigrants	-0.201***	-0.491***
		(0.007)	(0.012)
	white Immigrants	-0.144***	-0.093***
		(0.009)	(0.011)
Socio-demographic controls			
Gender Male (ref.)			
	Female	-0.005*	0.010***
		(0.003)	(0.003)
Marital Status	Unmarried (ref.)		
	Married	0.119***	0.028***
		(0.003)	(0.004)
	Divorced	-0.045***	-0.008**
		(0.007)	(0.004)
Married mean			0.013**
			(0.006)
Age	16-30(ref.)		
	31-50	0.073***	0.009**
		(0.005)	(0.003)
	≥51	0.231***	0.019***
		(0.005)	(0.005)
Mean of Age			0.003***
			(0.000)
Educational Qualifications			
	Degree/Higher Degree (ref)		
	No qualifications	-0.182***	0.042***
		(0.006)	(0.010)
	GCSE/Lower	-0.091***	0.055***
		(0.003)	(0.008)
	A-levels	-0.030***	0.038***
		(0.004)	(0.006)
Education Mean			0.038***
			(0.004)
(log) Monthly Household Income		0.144***	0.023***
		(0.003)	(0.002)
Mean of Income			0.087***
			(0.004)
Wave Dummies			
Observations		87,002	87,002
Number of persons		45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.16. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

		Homeownership	
		Pooled Logit	CRE logit
Immigrants by Length of Stay (MLS)			
Native (ref.)			
	MLS 0-10 Years	-0.325***	-0.428***
		(0.010)	(0.012)
	MLS 11-20 Years	-0.181***	-0.264***
		(0.009)	(0.011)
	MLS 21-41 Years	-0.065***	-0.115***
		(0.009)	(0.012)
Socio-demographic controls			
Gender Male (ref.)			
	Female	-0.005**	-0.002
		(0.003)	(0.004)
Marital Status	Unmarried (ref.)		
	Married	0.120***	0.049***
		(0.003)	(0.005)
	Divorced	-0.045***	-0.025***
		(0.007)	(0.006)
Married mean			0.033***
			(0.007)
Age	16-30(ref.)		
	31-50	0.068***	0.000
		(0.005)	(0.004)
	≥51	0.223***	0.028***
		(0.005)	(0.007)
Mean of Age			0.007***
			(0.000)
Educational Qualifications			
	Degree/Higher Degree (ref)		
	No qualifications	-0.184***	0.060***
		(0.006)	(0.011)
	GCSE/Lower	-0.093***	0.069***
		(0.003)	(0.008)
	A-levels	-0.033***	0.058***
		(0.004)	(0.006)
Education Mean			0.077***
			(0.004)
(log) Monthly Household Income		0.142***	0.034***
		(0.003)	(0.003)
Mean of Income			0.223***
			(0.005)
Wave Dummies			
Observations		87,002	87,002
Number of persons		45,096	45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.17. Full estimated results for the migrant dummy for the differences in job security and work autonomy between immigrants and natives (Waves 2, 6 and 8)

		Job Security		Work Autonomy	
		Pooled Logit	CRE logit	Pooled OLS	CRE
Immigrants					
	Native (ref.)	-0.024***	-0.020***	-0.204***	-0.165**
		(0.005)	(0.004)	(0.074)	(0.073)
Standardised Coefficient				-0.050***	-0.040**
				(0.018)	(0.018)
Socio-demographic controls					
Gender Male (ref.)					
	Female	-0.002	-0.002	-0.592***	-0.567***
		(0.003)	(0.002)	(0.045)	(0.044)
Marital Status	Unmarried (ref.)				
	Married	0.015***	0.002	0.113**	0.163*
		(0.003)	(0.006)	(0.051)	(0.086)
	Divorced	0.003	0.005	-0.103	-0.161*
		(0.006)	(0.004)	(0.102)	(0.094)
Married mean			0.009		-0.083
			(0.006)		(0.101)
Age	16-30(ref.)				
	31-50	0.007**	0.001	0.599***	0.290***
		(0.004)	(0.004)	(0.058)	(0.072)
	≥51	0.029***	0.006	0.416***	0.090
		(0.005)	(0.007)	(0.069)	(0.114)
Mean of Age			0.000**		0.017***
			(0.000)		(0.003)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	-0.008	0.019	-0.222	-0.905***
		(0.008)	(0.018)	(0.141)	(0.320)
	GCSE/Lower	0.004	0.018	0.064	-0.389*
		(0.004)	(0.013)	(0.061)	(0.204)
	A-levels	0.005	0.012	0.085	-0.128
		(0.004)	(0.008)	(0.058)	(0.111)
Education Mean			0.007		-0.271***
			(0.006)		(0.105)
Occupation	Routine (ref.)				
	Intermediate	0.010**	0.009*	0.931***	0.468***
		(0.004)	(0.005)	(0.070)	(0.084)
	Management and Professional	0.003	0.001	2.463***	1.532***
		(0.004)	(0.006)	(0.055)	(0.103)
Occupation mean			0.001		0.549***
			(0.004)		(0.061)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		43156	43156	43156	43156
Number of persons		24,837	24,837	24,837	24,837

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.18. Full estimated results for the differences in white/non-white immigrants and natives (Waves 2, 6 and 8)

		Job Security		Work Autonomy	
		Pooled Logit	CRE logit	Pooled OLS	CRE
Immigrants by Ethnic Group					
	Native (ref.)				
	Non-white Immigrants	-0.037***	-0.030***	-0.378***	-0.338***
		(0.007)	(0.006)	(0.094)	(0.092)
				-0.092***	-0.083***
				(0.023)	(0.022)
	white Immigrants	-0.004	-0.004	0.077	0.136
		(0.008)	(0.006)	(0.112)	(0.109)
				0.019	0.033
				(0.027)	(0.027)
Socio-demographic controls					
Gender Male (ref.)					
	Female	-0.002	-0.002	-0.594***	-0.569***
		(0.003)	(0.002)	(0.045)	(0.044)
Marital Status	Unmarried (ref.)				
	Married	0.016***	0.002	0.118**	0.162*
		(0.003)	(0.006)	(0.051)	(0.086)
	Divorced	0.003	0.005	-0.102	-0.160*
		(0.006)	(0.004)	(0.102)	(0.094)
Married mean			0.009		-0.075
			(0.006)		(0.102)
Age	16-30(ref.)				
	31-50	0.007**	0.001	0.599***	0.288***
		(0.004)	(0.004)	(0.058)	(0.072)
	≥51	0.029***	0.006	0.416***	0.091
		(0.005)	(0.007)	(0.069)	(0.114)
Mean of Age			0.000**		0.017***
			(0.000)		(0.003)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	-0.008	0.019	-0.220	-0.902***
		(0.008)	(0.018)	(0.141)	(0.320)
	GCSE/Lower	0.003	0.018	0.062	-0.391*
		(0.004)	(0.013)	(0.061)	(0.204)
	A-levels	0.005	0.012	0.084	-0.129
		(0.004)	(0.008)	(0.058)	(0.111)
Education Mean			0.007		-0.270**
			(0.007)		(0.105)
Occupation	Routine (ref.)				
	Intermediate	0.010**	0.009*	0.929***	0.468***
		(0.004)	(0.005)	(0.070)	(0.084)
	Management and Professional	0.003	0.001	2.459***	1.532***
		(0.004)	(0.006)	(0.055)	(0.103)
Occupation mean			0.001		0.547***
			(0.004)		(0.061)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		43,156	43,156	43,156	43,156
Number of persons		24,837	24,837	24,837	24,837

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A.19. Full estimated results for the differences between natives and immigrants divided by length of stay (Waves 2, 6 and 8)

		Job Security		Work Autonomy	
		Pooled Logit	CRE logit	Pooled OLS	CRE
Immigrants by Length of Stay (MLS)					
	Native (ref.)				
	MLS 0-10 Years	-0.015*	-0.013*	-0.166	-0.178
		(0.009)	(0.007)	(0.128)	(0.125)
				-0.033	-0.043
				(0.031)	(0.031)
	MLS 11-20 Years	-0.028**	-0.020**	-0.190	-0.049
		(0.009)	(0.007)	(0.119)	(0.115)
				-0.040	-0.012
				(0.029)	(0.028)
	MLS 21-41 Years	-0.026**	-0.021**	-0.119	-0.150
		(0.009)	(0.007)	(0.138)	(0.136)
				-0.025	-0.037
				(0.034)	(0.033)
Socio-demographic controls					
Gender Male (ref.)					
	Female	-0.002	-0.002	-0.592***	-0.567***
		(0.003)	(0.002)	(0.045)	(0.044)
Marital Status	Unmarried (ref.)				
	Married	0.015***	0.002	0.113**	0.163*
		(0.003)	(0.006)	(0.051)	(0.086)
	Divorced	0.003	0.005	-0.103	-0.160*
		(0.006)	(0.004)	(0.102)	(0.094)
Married mean			0.009		-0.083
			(0.006)		(0.102)
Age	16-30(ref.)				
	31-50	0.007*	0.001	0.599***	0.288***
		(0.004)	(0.004)	(0.058)	(0.072)
	≥51	0.029***	0.006	0.415***	0.089
		(0.005)	(0.007)	(0.069)	(0.114)
Mean of Age			0.000**		0.017***
			(0.000)		(0.003)
Educational Qualifications					
	Degree/Higher Degree (ref)				
	No qualifications	-0.008	0.019	-0.223	-0.903***
		(0.008)	(0.018)	(0.141)	(0.320)
	GCSE/Lower	0.004	0.018	0.064	-0.388*
		(0.004)	(0.013)	(0.061)	(0.204)
	A-levels	0.005	0.012	0.084	-0.129
		(0.004)	(0.008)	(0.058)	(0.111)
Education Mean			0.007		-0.270**
			(0.006)		(0.105)
Occupation	Routine (ref.)				
	Intermediate	0.010**	0.009*	0.931***	0.468***
		(0.004)	(0.005)	(0.070)	(0.084)
	Management and Professional	0.004	0.001	2.463***	1.532***
		(0.004)	(0.006)	(0.055)	(0.103)
Occupation means			0.001		0.549***
			(0.004)		(0.061)
Wave Dummies		**Yes**	**Yes**	**Yes**	**Yes**
Observations		43,156	43,156	43,156	43,156
Number of persons		24,837	24,837	24,837	24,837

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Appendix B for Chapter 3

Appendix B.1

Interaction effects between migrant dummy and indicators of social and economic integration (Life satisfaction dependent variable)

Table B.1. Interaction effects between immigrant dummy and neighbourhood embeddedness with life satisfaction as the dependent variable (Correlated random effects approach)

		Life Satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.049
		(0.084)
Neighbourhood Embeddedness		0.103***
		(0.011)
Immigrants × Neighbourhood Embeddedness		-0.006
		(0.026)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.368***
		(0.030)
	Outside the labour market	-0.015
		(0.020)
	Homeownership	0.065***
		(0.020)
Social Integration		
	Volunteering	0.048***
		(0.016)
	Charitable behaviour	0.032**
		(0.015)
	Social Network Size	0.012***
		(0.003)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.2. Interaction effects between immigrant dummy and social network size with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.079**
		(0.034)
Social Network Size		0.022***
		(0.003)
Immigrants × Social Network Size		0.003
		(0.007)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.368***
		(0.030)
	Outside the labour market	-0.015
		(0.020)
	Homeownership	0.065***
		(0.020)
Social Integration		
	Volunteering	0.048***
		(0.016)
	Charitable behaviour	0.031**
		(0.015)
	Neighbourhood Embeddedness	0.103***
		(0.011)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.3. Interaction effects between immigrant dummy and volunteering with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.057***
		(0.021)
Volunteering		0.052***
		(0.016)
Immigrants × Volunteering		-0.054
		(0.043)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.368***
		(0.030)
	Outside the labour market	-0.015
		(0.020)
	Homeownership	0.065***
		(0.020)
Social Integration		
	Charitable behaviour	0.032**
		(0.015)
	Social Network Size	0.012***
		(0.003)
	Neighbourhood Embeddedness	0.103***
		(0.011)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.4. Interaction effects between immigrant dummy and charitable behaviour with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.025
		(0.031)
Charitable behaviour		0.038**
		(0.015)
Immigrant × Charitable behaviour		-0.065
		(0.037)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.368***
		(0.030)
	Outside the labour market	-0.015
		(0.020)
	Homeownership	0.065***
		(0.020)
Social Integration		
	Volunteering	0.048***
		(0.016)
	Social Network Size	0.012***
		(0.003)
	Neighbourhood Embeddedness	0.103***
		(0.011)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.5. Interaction effects between immigrant dummy and employment status with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.077***
		(0.022)
Employment Status		
	Unemployed	-0.381***
		(0.032)
	Outside the labour market	-0.016
		(0.021)
Immigrants × Unemployment		0.109
		(0.082)
Immigrants × Outside the labour market		0.012
		(0.043)
Economic Integration		
	Homeownership	0.065***
		(0.020)
Social Integration		
	Charitable Behaviour	0.031**
		(0.015)
	Volunteering	0.048***
		(0.016)
	Social Network Size	0.012***
		(0.003)
	Neighbourhood Embeddedness	0.103***
		(0.011)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.6. Interaction effects between immigrant dummy and homeownership with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.026
		(0.031)
Homeownership		0.074***
		(0.020)
Immigrants × Homeownership		-0.071
		(0.038)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.367***
		(0.030)
	Outside the labour market	-0.015
		(0.020)
Social Integration		
	Charitable Behaviour	0.032**
		(0.015)
	Volunteering	0.048***
		(0.016)
	Social Network Size	0.012***
		(0.003)
	Neighbourhood Embeddedness	0.103***
		(0.011)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.7. Interaction effects between migrant dummy and job security with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.075
		(0.074)
Job Security		0.125***
		(0.028)
Immigrants × Job Security		0.003
		(0.076)
Economic Integration		
	Homeownership	0.048*
		(0.025)
	Work Autonomy	0.016***
		(0.003)
Social Integration		
	Volunteering	0.040*
		(0.021)
	Charitable Behaviour	0.015
		(0.020)
	Social Network Size	0.012***
		(0.004)
	Neighbourhood Embeddedness	0.091***
		(0.015)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		43,146
Number of persons		24,833

The variables for job security and work autonomy are only applicable for employed individuals. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.8. Interaction effects between immigrant dummy and work autonomy with life satisfaction as the dependent variable (Correlated random effects approach)

		Life satisfaction (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.060
		(0.088)
Work Autonomy		0.017***
		(0.003)
Immigrants × Work Autonomy		0.009
		(0.006)
Economic Integration		
	Homeownership	0.049*
		(0.025)
	Job Security	0.125***
		(0.026)
Social Integration		
	Volunteering	0.040*
		(0.021)
	Charitable Behaviour	0.015
		(0.020)
	Social Network Size	0.091***
		(0.015)
	Neighbourhood Embeddedness	0.091***
		(0.015)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		43,146
Number of persons		24,833

The variables for job security and work autonomy are only applicable for employed individuals. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Appendix B.2

Interaction effects between immigrant dummy and indicators of social and economic integration (Mental health dependent variable)

Table B.9 Interaction effects between immigrant dummy and neighbourhood embeddedness with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.550
		(0.330)
Neighbourhood Embeddedness		0.405***
		(0.041)
Immigrants × Neighbourhood Embeddedness		0.078
		(0.100)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.940***
		(0.067)
	Outside the labour market	-0.526***
		(0.077)
	Homeownership	0.282***
		(0.053)
Social Integration		
	Volunteering	0.203***
		(0.059)
	Charitable behaviour	0.035
		(0.053)
	Social Network Size	0.027***
		(0.009)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.10 Interaction effects between immigrant dummy and social network size with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.066
		(0.068)
Social Network Size		0.010**
		(0.005)
Immigrant × Social Network Size		0.012
		(0.013)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.940***
		(0.067)
	Outside the labour market	-0.306***
		(0.043)
	Homeownership	0.296***
		(0.052)
Social Integration		
	Volunteering	0.079**
		(0.034)
	Charitable behaviour	-0.007
		(0.030)
	Neighbourhood Embeddedness	0.184***
		(0.023)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.11 Interaction effects between immigrant dummy and volunteering with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.382***
		(0.118)
Volunteering		0.048
		(0.054)
Immigrants × Volunteering		0.160
		(0.136)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.922***
		(0.067)
	Outside the labour market	-0.296***
		(0.043)
	Homeownership	0.282***
		(0.053)
Social Integration		
	Charitable behaviour	0.035
		(0.091)
	Social Network Size	0.027***
		(0.009)
	Neighbourhood Embeddedness	0.397***
		(0.040)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.12. Interaction effects between immigrant dummy and charitable behaviour with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.028
		(0.062)
Charitable behaviour		0.001
		(0.031)
Immigrants × Charitable behaviour		0.090
		(0.072)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.944***
		(0.067)
	Outside the labour market	-0.306***
		(0.043)
	Homeownership	0.212***
		(0.029)
Social Integration		
	Volunteering	0.078**
		(0.034)
	Social Network Size	0.011**
		(0.005)
	Neighbourhood Embeddedness	0.183***
		(0.023)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.13. Interaction effects between immigrant dummy and homeownership with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.095
		(0.062)
Homeownership		0.041
		(0.044)
Immigrants × Homeownership		0.141
		(0.077)
Economic Integration		
Employment Status		
	Employed(ref.)	
	Unemployed	-0.940***
		(0.067)
	Outside the labour market	-0.356***
		(0.044)
Social Integration		
	Charitable Behaviour	0.021
		(0.031)
	Volunteering	0.070**
		(0.035)
	Social Network Size	0.015**
		(0.007)
	Neighbourhood Embeddedness	0.182***
		(0.026)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.14. Interaction effects between immigrant dummy and employment status with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		-0.016
		(0.044)
Employment Status		
	Unemployed	-0.935***
		(0.071)
	Outside the labour market	-0.303***
		(0.044)
Immigrant × Unemployment		-0.081
		(0.180)
Immigrant × Outside the labour market		-0.036
		(0.089)
Economic Integration		
	Homeownership	0.212***
		(0.029)
Social Integration		
	Charitable Behaviour	0.008
		(0.030)
	Volunteering	0.078**
		(0.034)
	Social Network Size	0.011**
		(0.005)
	Neighbourhood Embeddedness	0.183***
		(0.023)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		87,002
Number of persons		45,096

Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.15. Interaction effects between immigrant dummy and job security with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.206
		(0.163)
Job Security		0.625***
		(0.065)
Immigrant × Job Security		0.161
		(0.166)
Economic Integration		
	Homeownership	0.040
		(0.037)
	Work Autonomy	0.051***
		(0.006)
Social Integration		
	Volunteering	0.083**
		(0.035)
	Charitable Behaviour	0.059
		(0.041)
	Social Network Size	0.017**
		(0.008)
	Neighbourhood Embeddedness	0.135***
		(0.032)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		43,146
Number of persons		24,833

The variables for job security and work autonomy are only applicable for employed individuals. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table B.16. Interaction effects between immigrant dummy and work autonomy with mental health as the dependent variable (Correlated random effects approach)

		Mental health (dependent variable)
		Model 1a
Immigrants	Native (ref.)	
		0.191
		(0.181)
Work Autonomy		0.052***
		(0.006)
Immigrants × Work Autonomy		0.009
		(0.011)
Economic Integration		
	Homeownership	0.041
		(0.037)
	Job Security	0.607***
		(0.061)
Social Integration		
	Volunteering	0.083**
		(0.035)
	Charitable Behaviour	0.059
		(0.041)
	Social Network Size	0.017**
		(0.008)
	Neighbourhood Embeddedness	0.135***
		(0.032)
Socio-demographic controls		Yes
Means of time-varying variables		Yes
Wave Dummies		Yes
Observations		43,146
Number of persons		24,833

The variables for job security and work autonomy are only applicable for employed individuals. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Appendix C for Chapter 4

Table C.1 Descriptive statistics for main variables of interest: Weighted vs Unweighted

Variables		Natives	Immigrants	Natives	Immigrants
		Means/Percentages		Means/Percentages	
		Unweighted		Weighted	
Female		57%	58%	55%	56%
Relationship Status	Unmarried	20%	17%	28%	23%
	Married	73%	77%	66%	71%
	Divorced	7%	6%	6%	6%
Healthy (lack of long-term illness/disability)		66%	73%	66%%	71%
Age		54	52	51	50
Educational Qualifications	No qualifications	4%	6%	3%	3%
	GCSE/Lower	25%	21%	29%	24%
	A-Level	20%	17%	23%	14%
	High Degree	51%	56%	45%	59%
Current household monthly income		3788	3991	3754	4042
Have Covid-19 Symptoms		3%	4%	3%	3%
Household Size		2	3	2	3
Employment status	Employed	56%	59%	57%	60%
	Furloughed	7%	6%	9%	9%
	Unemployed	1%	4%	2%	3%
	Outside labour market	36%	31%	32%	28%
Pre-pandemic levels of social integration					
Neighbourhood Embeddedness (1-5)		3.24	3.20	3.13	3.16
Social Network Size (0-10)		4.95	4.79	4.79	4.53
Observations		23,890	2,295	22,575	2,049

Note: The difference between immigrants and natives across the socio-demographic are comparable in weighted and unweighted versions.

Table C.2. Comparing Mental Health of immigrants and natives before and during Covid-19 (Correlated random effects approach)

		Mental Health
Main effects		
Migrant Dummy		0.155
		(0.120)
Covid-19 Dummy		-0.604***
		(0.075)
Migrant × Covid-19 Dummy		0.127
		(0.135)
Controls		
Neighbourhood Embeddedness		0.300***
		(0.036)
Social Network Size		0.028***
		(0.009)
Homeownership		0.333***
		(0.084)
Employment Status	Employed(ref.)	
	Unemployed	-0.655***
		(0.196)
	Outside the labour market	-0.347***
		(0.105)
	Furloughed	0.032
		(0.094)
Covid 19 Symptoms		-0.548***
		(0.114)
Female		-0.762***
		(0.052)
Marital status Married (ref.)		
	Unmarried	-0.307***
		(0.074)
	Divorced	-0.276**
		(0.114)
Age		0.006
		(0.037)
Age Squared		0.000
		(0.000)
Healthy		0.576***
		(0.047)
Education	High degree (ref.)	
	No qualifications	0.666***
		(0.123)
	GCSE/Lower	0.259***
		(0.067)
	A level	0.220***
		(0.068)
(log) Current Household Income		-0.027
		(0.020)
Household Size		-0.031
		(0.027)
Wave Dummies		Yes
Means of Time Varying Variables		Yes
Observations		26,185
Number of persons		9,932

Estimates were obtained from correlated random effects. CRE stands for correlated random effects. Means of time-variant variables included in the regression include health, age, employment status, current household income, and covid-19 symptoms. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.3. The role of pre-pandemic neighbourhood embeddedness in mitigating the adverse well-being impact of Covid-19 (Correlated random effects approach)

		Mental Health
Migrant Dummy		0.744
		(0.546)
Covid-19 Dummy		-0.422**
		(0.209)
Neighbourhood Embeddedness (NE)		0.364***
		(0.048)
Migrant × NE		-0.182
		(0.161)
Covid-19× NE		-0.084
		(0.054)
Covid-19×Migrant		-0.383
		(0.596)
Migrant × Covid × NE		0.151
		(0.178)
Controls		
Social Network Size		0.027***
		(0.009)
Homeownership		0.334***
		(0.084)
Employment Status	Employed(ref.)	
	Unemployed	-0.729***
		(0.258)
	Outside the labour market	-0.428***
		(0.109)
	Furloughed	-0.096
		(0.095)
Covid 19 Symptoms		-0.478***
		(0.114)
Female		-0.752***
		(0.052)
Marital status Married (ref.)		
	Unmarried	-0.306***
		(0.074)
	Divorced	-0.278**
		(0.115)
Age		0.046
		(0.043)
Age Squared		0.000
		(0.000)
Healthy		0.582***
		(0.047)
Education	High degree (ref.)	
	No qualifications	0.631***
		(0.123)
	GCSE/Lower	0.252***
		(0.067)
	A level	0.227***
		(0.068)
(log) Current Household Income		-0.033
		(0.021)
Household Size		-0.030
		(0.027)
Wave Dummies		Yes
Means of Time Varying Variables		Yes
Observations		26,185
Number of persons		9,932

The table presents the estimation obtained from correlated random effects. Means of time-variant variables included in the regression are health, age, employment status, current household income, and covid-19 symptoms. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.4. The role of pre-pandemic social network size in mitigating the adverse well-being impact of Covid-19 (Correlated random effects approach)

		Mental Health
Migrant Dummy		0.117
		(0.233)
Covid-19 Dummy		-0.588***
		(0.132)
Social Network Size (SNS)		0.040***
		(0.013)
Migrant × Social Network Size		0.008
		(0.041)
Covid-19× Social Network Size		-0.021
		(0.014)
Covid-19×Migrant		0.016
		(0.257)
Migrant × Covid × Social Network Size		0.018
		(0.043)
Controls		
Neighbourhood Embeddedness		0.300***
		(0.036)
Homeownership		0.335***
		(0.084)
Employment Status	Employed(ref.)	
	Unemployed	-0.733***
		(0.258)
	Outside the labour market	-0.427***
		(0.109)
	Furloughed	-0.093
		(0.095)
Covid 19 Symptoms		-0.477***
		(0.114)
Female		-0.753***
		(0.052)
Marital status Married (ref.)		
	Unmarried	-0.302***
		(0.074)
	Divorced	-0.278**
		(0.115)
Age		0.048
		(0.043)
Age Squared		0.000
		(0.000)
Healthy		0.582***
		(0.047)
Education High degree (ref.)		
	No qualifications	0.634***
		(0.122)
	GCSE/Lower	0.251***
		(0.067)
	A level	0.228***
		(0.068)
(log) Current Household Income		-0.032
		(0.021)
Household Size		-0.030
		(0.027)
Wave Dummies		Yes
Means of Time Varying Variables		Yes
Observations		26,185
Number of persons		9,932

The table presents the estimation obtained from correlated random effects. Means of time-variant variables included in the regression are health, age, employment status, current household income, and covid-19 symptoms. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.5. Robustness check for selective attrition: Comparing life satisfaction of immigrants and natives before and during Covid-19

		Life Satisfaction	
		(1)	(2)
		May, July 2020	May, July, September 2020
Migrant Dummy		-0.049	-0.044
		(0.055)	(0.055)
Covid-19 Dummy		-0.217***	-0.207***
		(0.037)	(0.039)
Migrant Dummy × Covid-19 Dummy		-0.115*	-0.127*
		(0.070)	(0.077)
Socio-demographic controls			
Employment Status	Employed(ref.)		
	Unemployed	-0.196***	-0.276***
		(0.057)	(0.068)
	Outside the labour market	-0.023	-0.016
		(0.049)	(0.050)
	Furloughed	-0.113*	-0.154**
		(0.061)	(0.069)
Covid 19 Symptoms		-0.091	-0.139
		(0.072)	(0.086)
Female		0.015	0.027
		(0.025)	(0.026)
Marital Status	Unmarried	-0.419***	-0.406***
		(0.037)	(0.039)
	Divorced	-0.308***	-0.306***
		(0.051)	(0.053)
Age		-0.058***	-0.057**
		(0.021)	(0.023)
Age Squared		0.000***	0.000***
		(0.000)	(0.000)
Healthy		0.422***	0.438***
		(0.027)	(0.028)
Education	High degree (ref.)		
	No qualifications	-0.137**	-0.132*
		(0.070)	(0.075)
	GCSE/Lower	-0.082***	-0.077**
		(0.032)	(0.033)
	A level	-0.040	-0.030
		(0.032)	(0.034)
(log) Current monthly Household Income		-0.011	-0.009
		(0.012)	(0.015)
Homeownership		0.310***	0.339***
		(0.035)	(0.037)
Household Size		-0.059***	-0.061***
		(0.012)	(0.013)
Observations		19,867	16,037
Number of persons		9,794	9,327

Estimates were obtained from correlated random effects. Regression includes means of time-variant variables. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.6. Robustness check for selective attrition: The role of pre-pandemic neighbourhood embeddedness in mitigating the adverse well-being impact of Covid-19

	Life Satisfaction	
	May and July 2020	May, July, September 2020
Migrant Dummy	0.273	0.267
	(0.224)	(0.223)
Covid-19 Dummy	0.088	0.098
	(0.087)	(0.094)
Neighbourhood Embeddedness (NE_0)	0.236***	0.232***
	(0.022)	(0.022)
Migrant Dummy × NE_0	-0.104	-0.101
	(0.067)	(0.067)
Covid-19 × NE_0	-0.092***	-0.092***
	(0.025)	(0.026)
Covid-19 × Migrant Dummy	-0.790**	-0.731**
	(0.309)	(0.338)
Migrant Dummy × Covid Dummy × NE_0	0.210**	0.189*
	(0.093)	(0.102)
Observations	19,867	16,037
Number of persons	9,794	9,327

The table presents the estimation obtained from correlated random effects. Regressions include socio-demographic controls and means of time-variant variables which include health, age, employment status, current household income, and covid-19 symptoms. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.7. Robustness check for selective attrition: The role of pre-pandemic social networks size in mitigating the adverse well-being impact of Covid-19

	Life Satisfaction	
	(1)	(2)
	May and July 2020	May, July, September 2020
Migrant Dummy	0.099	0.115
	(0.096)	(0.097)
Covid-19 Dummy	-0.084*	-0.074
	(0.045)	(0.048)
Social network size	0.027***	0.026***
	(0.003)	(0.003)
Migrant Dummy × Social network size	-0.028*	-0.030*
	(0.015)	(0.015)
Covid-19× Social network size	-0.024***	-0.024***
	(0.005)	(0.005)
Covid-19×Migrant Dummy	-0.336***	-0.325***
	(0.104)	(0.125)
Migrant Dummy × Covid-19 Dummy × Social network size	0.042***	0.038*
	(0.015)	(0.020)
Observations	19,867	16,037
Number of persons	9,794	9,327

Estimates obtained from correlated random effects. Regressions include socio-demographic controls, wave dummies and means of time-variant variables including health, age, employment status, current household income, and covid-19 symptoms. We also control for pre-pandemic neighbourhood embeddedness. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table C.8. The role of an alternative composition of neighbourhood embeddedness (range from 1-30) in mitigating the adverse well-being impact of Covid-19

	Life Satisfaction
Migrant Dummy	0.394
	(0.248)
Covid-19 Dummy	0.148*
	(0.088)
Neighbourhood Embeddedness (NE_0)	0.051***
	(0.004)
Migrant Dummy × NE_0	-0.021*
	(0.012)
Covid-19 × NE_0	-0.015***
	(0.004)
Covid-19 × Migrant Dummy	-0.843***
	(0.298)
Migrant Dummy × Covid Dummy × NE_0	0.035**
	(0.014)
Observations	30,417
Number of persons	10,534

The table presents the estimation obtained from correlated random effects. Regressions include socio-demographic controls, wave dummies and means of time-variant variables which include health, age, employment status, current household income, and covid-19 symptoms. Robust standard errors in parentheses ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

References

Ager, A. and Strang, A., 2008. Understanding Integration: A Conceptual Framework. *Journal of Refugee Studies*, 21(2), pp.166-191.

Agudelo-Suárez, A., Gil-Gonzalez, D., Ronda-Pérez, E., Porthe, V., Paramio-Perez, G., García, A.M. and Garí, A., 2009. Discrimination, Work and Health in Immigrant Populations in Spain. *Social Science & Medicine*, 68(10), pp.1866-1874.

Ahmed, S., Ahmed, S.U. and Hasan, I., 2019. Transformation of Socio-Cultural Integration Policy and Inherent Political Theories in the UK: A Way Forward.

Aikawa, M. and Kleyman, K., 2021. Immigration, Coping, and Well-being: Implications for Communities' Roles in Promoting the Well-being of Immigrants and Refugees. *Journal of Prevention & Intervention in the Community*, 49(1), pp.81-92.

Akerlof, G.A. and Kranton, R.E., 2000. Economics and Identity. *The Quarterly Journal of Economics*, 115(3), pp.715-753.

Alba, R.D. and Logan, J.R., 1992. Assimilation and stratification in the homeownership patterns of racial and ethnic groups. *International Migration Review*, 26(4), pp.1314-1341.

Alesina, A. and La Ferrara, E., 2002. Who trusts others? *Journal of Public Economics*, 85(2), pp.207-234.

Ambrosetti, E. & Paparusso, A. 2019. "Measuring immigrants' subjective well-being". *Methodological, Ethical and Epistemological Issues*, No. 2.

Ambrosetti, E. and Paparusso, A., 2021. What are the Main Factors Associated with Immigrants' Subjective Well-being in Italy? Evidence from Self-reported Life Satisfaction. *International Migration*, *59*(4), pp.221-237.

Andersson, R., Magnusson Turner, L. and Holmqvist, E., 2010. Contextualising ethnic residential segregation in Sweden: welfare, housing and migration-related policies.

Andreoni, J., 1990. Impure altruism and donations to public goods: A theory of warm glow giving. *The Economic Journal*, 100(401), pp.464-477.

Andrews, G.J., Gavin, N., Begley, S. and Brodie, D., 2003. Assisting friendships, combating loneliness: users' views on a 'befriending'scheme. *Ageing & Society*, *23*(3), pp.349-362.

Angelini, V., Casi, L. and Corazzini, L., 2015. Life satisfaction of immigrants: does cultural assimilation matter? *Journal of Population Economics*, 28(3), pp.817-844.

Appau, S., Churchill, S.A. and Farrell, L., 2019. Social integration and subjective wellbeing. *Applied Economics*, 51(16), pp.1748-1761.

Arpino, B. and de Valk, H., 2018. Comparing life satisfaction of immigrants and natives across Europe: The role of social contacts. *Social Indicators Research*, 137(3), pp.1163-1184.

Asheim, G.B., Bossert, W., D'Ambrosio, C. and Vögele, C., 2020. The measurement of resilience. *Journal of Economic Theory*, 189, p.105104.

Bache, I., 2019. How does evidence matter? Understanding 'what works' for wellbeing. *Social Indicators Research*, *142*(3), pp.1153-1173.

Baert, S. and Vujić, S., 2016. Immigrant volunteering: a way out of labour market discrimination? *Economics Letters*, 146, pp.95-98.

Baltatescu, S., 2005. Subjective Well-Being of Immigrants in Europe and Their Evaluation of Societal Conditions. An Exploratory Study. *European Identity and Free Movement of Persons in Europe*, pp.128-143.

Bălţătescu, S., 2007. Central and Eastern Europeans immigrants' subjective quality of life. A comparative study. *Journal of Identity and Migration Studies*, 1(2), pp.67-81.

Banks, J. and Xu, X., 2020. The mental health effects of the first two months of lockdown during the COVID-19 pandemic in the UK. *Fiscal Studies*, 41(3), pp.685-708.

Barry R, C. and Miller, P.W., 2005. Do enclaves matter in immigrant adjustment? *City & Community*, 4(1), pp.5-35.

Bartling, B., Fehr, E. and Schmidt, K.M., 2012. Screening, competition, and job design: Economic origins of good jobs. *American Economic Review*, 102(2), pp.834-64.

Bartram, D., 2011. Economic migration and happiness: Comparing immigrants' and natives' happiness gains from income. *Social Indicators Research*, 103(1), pp.57-76.

Bartram, D., 2013. Happiness and 'economic migration': A comparison of Eastern European immigrants and stayers. *Migration Studies*, 1(2), pp.156-175.

Bartram, D., 2013. Migration, return, and happiness in Romania. *European Societies*, 15(3), pp.408-422.

Battisti, M., Peri, G. and Romiti, A., 2016. Dynamic effects of Co-Ethnic networks on immigrants' economic success (No. w22389). *National Bureau of Economic Research*.

Battu, H. and Zenou, Y., 2010. Oppositional identities and employment for ethnic minorities: Evidence from England.

Bauer, T., Epstein, G., & Gang, I. 2005. Enclaves, Language, and the Location Choice of Immigrants. *Journal of Population Economics*, 18(4), 649-662.

Bauer, T.K. and Sinning, M.G., 2011. The savings behavior of temporary and permanent immigrants in Germany. *Journal of Population Economics*, 24(2), pp.421-449.

Bavel, J.J.V., Baicker, K., Boggio, P.S., Capraro, V., Cichocka, A., Cikara, M., Crockett, M.J., Crum, A.J., Douglas, K.M., Druckman, J.N. and Drury, J., 2020. Using social and behavioural science to support COVID-19 pandemic response. *Nature Human behaviour*, 4(5), pp.460-471.

Baykara-Krumme, H. and Platt, L., 2018. Life satisfaction of immigrants, stayers and returnees: Reaping the fruits of migration in old age?. *Ageing & Society*, *38*(4), pp.721-745.

Bell, M.P., Berry, D.P., Marquardt, D.J. and Green, T.G., 2013. Introducing discriminatory job loss: Antecedents, consequences, and complexities. *Journal of Managerial Psychology*.

Berger, I., Foster, M. and Meinhard, A., 2005. Civic Engagement, Social Cohesion and Social Integration in Toronto, Canada. *Centre for Voluntary Sector Studies, Faculty of Business, Ryerson University*.

Berry, J.W. and Hou, F., 2016. Immigrant acculturation and well-being in Canada. *Canadian Psychology/psychologie canadienne*, 57(4), p.254.

Berry, J.W., Phinney, J.S., Sam, D.L. and Vedder, P., 2006. Immigrant youth: Acculturation, identity, and adaptation. *Applied psychology*, *55*(3), pp.303-332.

Berthoud, R. and Blekesaune, M., 2007. Persistent employment disadvantage. Department for Work and Pensions Research Report No 416.

Bertrand, M. and Mullainathan, S., 2004. Are Emily and Greg more employable than Lakisha and Jamal? A field experiment on labor market discrimination. *American Economic Review*, 94(4), pp.991-1013.

Bertua, C., Anderson, N. and Salgado, J.F., 2005. The predictive validity of cognitive ability tests: A UK meta-analysis. *Journal of Occupational and Organizational Psychology*, 78(3), pp.387-409.

Best, L.A., Law, M.A., Roach, S. and Wilbiks, J.M., 2021. The psychological impact of COVID-19 in Canada: Effects of social isolation during the initial response. *Canadian Psychology/Psychologie canadienne*, 62(1), p.143.

Beyer, R. (2017). The performance of immigrants in the German labor market. SOEP papers on Multidisciplinary Panel Data Research 892, Berlin.

Blackaby, D.H., Leslie, D.G., Murphy, P.D. and O'Leary, N.C., 2002. white/ethnic minority earnings and employment differentials in Britain: evidence from the LFS. *Oxford Economic Papers*, 54(2), pp.270-297.

Blagden, J., Krasniqi, F., and Tanner, W., 2020. Repairing our Social Fabric:Towards a new understanding of community strength. Onward [online].

Bloze, G. and Skak, M., 2010. Homeownership and subjective well-being. Discussion Papers on Business and Economics, 5.

Bobowik, M., Basabe, N. and Páez, D., 2015. The bright side of migration: Hedonic, psychological, and social well-being in immigrants in Spain. *Social Science Research*, 51, pp.189-204.

Bonomi Bezzo, F., Silva, L. and Van Ham, M., 2021. The combined effect of Covid-19 and neighbourhood deprivation on two dimensions of subjective well-being: *Empirical Evidence from England*. PloS one, 16(7), p.e0255156.

Borjas, G.J., 1982. The earnings of male Hispanic immigrants in the United States. *ILR Review*, *35*(3), pp.343-353.

Borjas, G.J., 1985. Assimilation, changes in cohort quality, and the earnings of immigrants. *Journal of Labor Economics*, *3*(4), pp.463-489.

Borjas, G.J., 2002. Homeownership in the immigrant population. *Journal of Urban Economics*, *52*(3), pp.448-476.

Borjas, G.J., 2014. Immigration economics. In *Immigration Economics*. Harvard University Press.

Borjas, G.J., Bronars, S.G. and Trejo, S.J., 1992. Assimilation and the earnings of young internal immigrants. *The Review of Economics and Statistics*, pp.170-175.

Bossavie, L., Garrote Sanchez, D., Makovec, M. and Ozden, C., 2020. Do immigrants push natives towards safer jobs? Exposure to COVID-19 in the European Union.

Boswick, W. and Heckmann, F.,2006. Integration of immigrants: Contribution of local and regional authorities. *European Foundation For the improvement of Living and Working Conditions*. Ireland: Cities for Local Integration Policy Network.

Bridge, G., 2002. The neighbourhood and social networks (Vol. 4, pp. 1-32). Bristol/Glasgow: ESRC Centre for Neighbourhood Research.

Brogårdh, C., Hammarlund, C.S., Eek, F., Stigmar, K., Lindgren, I., Schouenborg, A.T. and Hansson, E.E., 2021. Self-Perceived Life Satisfaction during the First Wave of the COVID-19 Pandemic in Sweden: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 18(12), p.6234.

Bryan, M., Roberts, J. and Sechel, C., 2019. *The Effect of Mental Health on Employment: Accounting for Selection Bias* (No. 19/14). HEDG, c/o Department of Economics, University of York.

Bryan, M.L. and Sevilla, A., 2017. Flexible working in the UK and its impact on couples' time coordination. *Review of Economics of the Household*, *15*(4), pp.1415-1437.

Brydsten, A., Rostila, M. and Dunlavy, A., 2019. Social integration and mental health-a decomposition approach to mental health inequalities between the foreign-born and native-born in Sweden. *International Journal for Equity in Health*, 18(1), pp.1-11.

Buddelmeyer, H. and Powdthavee, N., 2016. Can having internal locus of control insure against negative shocks? Psychological evidence from panel data. *Journal of Economic Behaviour & Organisation*, 122, pp.88-109.

Casey, T. and Dustmann, C., 2010. Immigrants' identity, economic outcomes and the transmission of identity across generations.

Casmon, N., 1981. Economic integration of immigrants. *American Journal of Economics and Sociology*, 40(2), pp.149-163.

Cebolla-Boado, H., Miyar-Busto, M. and Muñoz-Comet, J., 2019. How much can you take with you? The role of education in explaining differences in the risk of unemployment between immigrants and natives. Comparative Migration Studies, 7(1), p.41.

Chadderton, C., 2016. Volunteering, social cohesion and race: the German Technical Relief Service. *Voluntary Sector Review*, 7(3), pp.233-249.

Chaloff, J. and Lemaitre, G., 2009. Managing highly skilled labour migration: A comparative analysis of migration policies and challenges in OECD countries.

Charles, C.Z., 2003. The dynamics of racial residential segregation. *Annual Review of Sociology*, 29(1), pp.167-207.

Chen, L., Li, W., He, J., Wu, L., Yan, Z. and Tang, W., 2012. Mental health, duration of unemployment, and coping strategy: a cross-sectional study of unemployed migrant workers in eastern China during the economic crisis. BMC public health, 12(1), pp.1-12.

Chen, Y. and Li, S.X., 2009. Group identity and social preferences. *American Economic Review*, 99(1), pp.431-57.

Cheung, S.Y. and Phillimore, J., 2013. Social Networks, Social Capital and Refugee Integration, research report for Nuffield Foundation.

Chiswick, B.R. and Miller, P.W., 2002. Immigrant earnings: Language skills, linguistic concentrations and the business cycle. *Journal of Population Economics*, *15*(1), pp.31-57.

Chiswick, B.R. and Miller, P.W., 2003. The complementarity of language and other human capital: immigrant earnings in Canada. *Economics of Education Review*, *22*(5), pp.469-480.

Chiswick, B.R., 1978. The effect of Americanization on the earnings of foreign-born men. *Journal of Political Economy*, *86*(5), pp.897-921.

Chiswick, B.R., 1991. Speaking, reading, and earnings among low-skilled immigrants. *Journal of Labor Economics*, 9(2), pp.149-170.

Clair, R., Gordon, M., Kroon, M. and Reilly, C., 2021. The effects of social isolation on well-being and life satisfaction during pandemic. *Humanities and Social Sciences Communications*, 8(1), pp.1-6.

Clark, A. E. (2016). Adaptation and the Easterlin paradox. In T. Tachibanaki (Ed.), Advances in happiness research: A comparative perspective (pp. 75–94). Springer Japan. https://doi.org/10.1007/978-4-431-55753-1_6

Clark, K. and Drinkwater, S., 2007. Dynamics and diversity: Ethnic minorities in the labour market. Bristol/York: The Policy Press/Joseph Rowntree Foundation.

Clark, K. and Drinkwater, S., 2008. The labour-market performance of recent immigrants. *Oxford Review of Economic Policy*, 24(3), pp.495-516.

Clark, K. and Lindley, J., 2009. Immigrant assimilation pre and post labour market entry: evidence from the UK Labour Force Survey. *Journal of Population Economics*, 22(1), pp.175-198.

Coates, C. and Patel, R. (2020). Social Integration and Cohesion Policy Briefing: Summary from Insights 2020 event AUTHORS. [online] Available at: https://www.understandingsociety.ac.uk/sites/default/files/downloads/general/social_integration_and_cohesion_briefing.pdf [Accessed 26 Jul. 2020].

Constant, A. and Massey, D.S., 2005. Labor market segmentation and the earnings of German guestworkers. *Population Research and Policy Review*, 24(5), pp.489-512.

Constant, A. and Zimmermann, K.F., 2005. Immigrant performance and selective immigration policy: a European perspective. *National Institute Economic Review*, 194(1), pp.94-105.

Constant, A.F., Roberts, R. and Zimmermann, K.F., 2009. Ethnic identity and immigrant homeownership. *Urban Studies*, 46(9), pp.1879-1898.

Cook, J., Dwyer, P. and Waite, L., 2011. 'Good relations' among neighbours and workmates? The everyday encounters of Accession 8 immigrants and established communities in urban England. *Population, Space and Place*, 17(6), pp.727-741.

Council of the EU. (2004) . Common basic principles on immigrants integration. 2618th Meeting of the Justice and Home Affairs Council, 14615/04, 19 November. Brussels: Council of the European Union.

Craig, G., 2015. Migration and integration. A local and experiential perspective (Vol. 7). IRIS Working Paper Series.

Croucher, S.M., 2011. Social networking and cultural adaptation: A theoretical model. *Journal of International and Intercultural Communication*, 4(4), pp.259-264.

Dallimore, D.J., Davis, H., Eichsteller, M. and Mann, R., 2018. Place, belonging and the determinants of volunteering. *Voluntary Sector Review*, 9(1), pp.21-38.

Daly, A., Carey, R.N., Darcey, E., Chih, H., LaMontagne, A.D., Milner, A. and Reid, A., 2018. Workplace psychosocial stressors experienced by migrant workers in Australia: A cross-sectional study. Plos one, 13(9), p.e0203998.

Damm, A.P., 2009. Ethnic enclaves and immigrant labor market outcomes: Quasi-experimental evidence. *Journal of Labor Economics*, 27(2), pp.281-314.

Danzer, A.M. and Ulku, H., 2011. Integration, social networks and economic success of immigrants: A case study of the Turkish community in Berlin. Kyklos, 64(3), pp.342-365.

Danzer, A.M. and Yaman, F., 2013. Do ethnic enclaves impede immigrants' integration? Evidence from a quasi-experimental social-interaction approach. *Review of International Economics*, 21(2), pp.311-325.

Datta, K., 2011. Last hired and first fired? The impact of the economic downturn on low-paid Bulgarian migrant workers in London. *Journal of International Development*, 23(4), pp.565-582.

Dawel, A., Shou, Y., Smithson, M., Cherbuin, N., Banfield, M., Calear, A.L., Farrer, L.M., Gray, D., Gulliver, A., Housen, T. and McCallum, S.M., 2020. The effect of COVID-19 on mental health and well-being in a representative sample of Australian adults. *Frontiers in Psychiatry*, p.1026.

De Pedraza, P., Guzi, M. and Tijdens, K., 2020. Life Dissatisfaction and Anxiety in COVID-19 pandemic (No. 2020-03). MUNI ECON Working Paper.

De Vroome, T. and Hooghe, M., 2014. Life satisfaction among ethnic minorities in the Netherlands: Immigration experience or adverse living conditions?. *Journal of Happiness Studies*, 15(6), pp.1389-1406.

Dehejia, R., DeLeire, T. and Luttmer, E.F., 2007. Insuring consumption and happiness through religious organisations. *Journal of Public Economics*, 91(1-2), pp.259-279.

Delander, L., Hammarstedt, M., Månsson, J. and Nyberg, E., 2005. Integration of immigrants: The role of language proficiency and experience. *Evaluation review*, 29(1), pp.24-41.

Depalo, D., Faini, R. and Venturini, A., 2006. The social assimilation of immigrants.

Diaz-Serrano, L., 2009. Disentangling the housing satisfaction puzzle: Does homeownership really matter? *Journal of Economic Psychology*, 30(5), pp.745-755.

Diener, E. and Biswas-Diener, R., 2002. Will money increase subjective well-being?. *Social Indicators Research*, 57(2), pp.119-169.

Diener, E., Tay, L. and Oishi, S., 2013. Rising income and the subjective well-being of nations. *Journal of Personality and Social Psychology*, *104*(2), p.267.

Dolan, P. and Kahneman, D., 2008. Interpretations of utility and their implications for the valuation of health. *The Economic Journal*, *118*(525), pp.215-234.

Dolan, P. and White, M.P., 2007. How can measures of subjective well-being be used to inform public policy?. *Perspectives on Psychological Science*, *2*(1), pp.71-85.

Dolan, P., Peasgood, T. and White, M., 2008. Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), pp.94-122.

Drever, A.I. and Hoffmeister, O., 2008. Immigrants and social networks in a job-scarce environment: The case of Germany. *International Migration Review*, 42(2), pp.425-448.

Dustmann, C. and Fabbri, F., 2003. Language proficiency and labour market performance of immigrants in the UK. *The Economic Journal*, 113(489), pp.695-717.

Dustmann, C. and Frattini, T., 2011. Immigration: the European experience. Centro Studi Luca d'Agliano Development Studies Working Paper, (326).

Dustmann, C. and Frattini, T., 2014. The fiscal effects of immigration to the UK. *The Economic Journal*, *124*(580), pp.F593-F643.

Dustmann, C. and Glitz, A., 2011. Migration and education. In Handbook of the Economics of Education (Vol. 4, pp. 327-439). Elsevier.

Dustmann, C. and Preston, I., 2006. Is immigration good or bad for the economy? Analysis of attitudinal responses. *Research in Labor Economics*, 24(1), pp.3-34.

Dustmann, C., 1994. Speaking fluency, writing fluency and earnings of immigrants. *Journal of Population Economics*, 7(2), pp.133-156.

Dustmann, C., 1996. The social assimilation of immigrants. *Journal of Population Economics*, 9(1), pp.37-54.

Dustmann, C., Fabbri, F. and Preston, I., 2011. Racial harassment, ethnic concentration, and economic conditions. *The Scandinavian Journal of Economics*, 113(3), pp.689-711.

Eid, M. and Diener, E., 2004. Global judgments of subjective well-being: Situational variability and long-term stability. *Social Indicators Research*, *65*(3), pp.245-277.

Elgorriaga, E., Ibabe, I. and Arnoso, A., 2019. Mental health of Spanish immigrants in Germany and the UK in comparison to non-immigrants and migration protective factors. *Psychosocial Intervention*, 28(1), pp.19-27.

Elliott, R.J. and Lindley, J.K., 2008. Immigrant wage differentials, ethnicity and occupational segregation. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *171*(3), pp.645-671.

European Commission, 2012. EWSI Special Feature 2012/01: Immigrant Volunteering. European Commission, Brussels.

Fernández-Reino, M. & McNeil, R. (2020). Immigrants' labour market profile and the health and economic impacts of the COVID-19 pandemic. *Migration Observatory Report*, COMPAS, University of Oxford.

Fetzer, T., Hensel, L., Hermle, J. and Roth, C., 2021. Coronavirus perceptions and economic anxiety. *Review of Economics and Statistics*, 103(5), pp.968-978.

Filipp, S.H. and Klauer, T., 1991. Subjective well-being in the face of critical life events: The case of successful copers. *Subjective Well-being: An Interdisciplinary Perspective*, pp.213-234.

Finklestein, M., Laufer, A. and Solomon, Z., 2012. Coping strategies of Ethiopian immigrants in Israel: Association with PTSD and dissociation. Scandinavian *Journal of Psychology*, 53(6), pp.490-498.

Finney, N. and Simpson, L., 2009. 'Sleepwalking to segregation'?: challenging myths about race and migration. Policy Press.

Frank, K., Hou, F. and Schellenberg, G., 2016. Life satisfaction among recent immigrants in Canada: comparisons to source-country and host-country populations. *Journal of Happiness Studies*, 17(4), pp.1659-1680.

Frey, B.S. and Stutzer, A., 2002. What can economists learn from happiness research?. *Journal of Economic literature*, *40*(2), pp.402-435.

Frey, B.S. and Stutzer, A., 2010. Recent advances in the economics of individual subjective well-being. *Social Research: An International Quarterly*, *77*(2), pp.679-714.

Friedman, S. and Rosenbaum, E., 2004. Nativity status and racial/ethnic differences in access to quality housing: Does homeownership bring greater parity? *Housing Policy Debate*, 15(4), pp.865-901.

Frijters, P., Johnston, D.W. and Shields, M.A., 2014. The effect of mental health on employment: evidence from Australian panel data. *Health economics*, *23*(9), pp.1058-1071.

Gabriel, S.A. and Rosenthal, S.S., 2005. Homeownership in the 1980s and 1990s: aggregate trends and racial gaps. *Journal of Urban Economics*, 57(1), pp.101-127.

Galloway, S., Bell, D., Hamilton, C., & Scullion, A. (2006). *Quality of life and well-being: Measuring the benefits of culture and sport: Literature review and thinkpiece*. Edinburgh: Analytical Services Division, Scottish Executive Education Department.

Gilliver, S.C., Sundquist, J., Li, X. and Sundquist, K., 2014. Recent research on the mental health of immigrants to Sweden: a literature review. The European *Journal of Public Health*, 24(suppl_1), pp.72-79.

Glaesmer, H., Wittig, U., Braehler, E., Martin, A., Mewes, R. and Rief, W., 2008. Are immigrants more susceptible to mental disorders? Psychiatrische Praxis, 36(1), pp.16-22.

Gobillon, L. and Solignac, M., 2015. Homeownership of immigrants in France: selection effects related to international migration flows.

Goldin, I., Pitt, A., Nabarro, B. and Boyle, K., 2018. Migration and the economy: Economic realities, social impacts and political choices. *Citi GPS: Global Perspectives & Solutions*.

Greenglass, E.R., 2002. Proactive coping and quality of life management.

Greenspan, I., Walk, M. and Handy, F., 2018. Immigrant integration through volunteering: The importance of contextual factors. *Journal of Social Policy*, 47(4), pp.803-825.

Griffith, G.J. and Jones, K., 2019. Understanding the population structure of the GHQ-12: Methodological considerations in dimensionally complex measurement outcomes. *Social Science & Medicine*, 243, p.112638.

Haan, M., 2007. The homeownership hierarchies of Canada and the United States: The housing patterns of white and non-white immigrants of the past thirty years. *International Migration Review*, 41(2), pp.433-465.

Habersaat, K.B., Betsch, C., Danchin, M., Sunstein, C.R., Böhm, R., Falk, A., Brewer, N.T., Omer, S.B., Scherzer, M., Sah, S. and Fischer, E.F., 2020. Ten considerations for effectively managing the COVID-19 transition. *Nature human behaviour*, 4(7), pp.677-687.

Handy, F. and Greenspan, I., 2009. Immigrant volunteering: A steppingstone to integration? Nonprofit and voluntary sector quarterly, 38(6), pp.956-982.

Haque, Z., 2010. What works with integrating new immigrants. London: Runnymede Trust.

Hawryluck, L., Gold, W.L., Robinson, S., Pogorski, S., Galea, S. and Styra, R., 2004. SARS control and psychological effects of quarantine, Toronto, Canada. Emerging infectious diseases, 10(7), p.1206.

Heath, A. and Cheung, S.Y., 2007. Unequal chances: Ethnic minorities in Western labour markets.

Heckmann, Friedrich & Bosswick, Wolfgang. (2006). Integration of Immigrants: Contribution of Local and Regional Authorities.

Hendriks, M. and Bartram, D., 2016. Macro-conditions and immigrants' happiness: Is moving to a wealthy country all that matters? *Social Science Research*, 56, pp.90-107.

Hendriks, M. and Bartram, D., 2019. Bringing happiness into the study of migration and its consequences: What, why, and how? *Journal of Immigrant & Refugee Studies*, 17(3), pp.279-298.

Hendriks, M., Burger, M., Ray, J. and Esipova, N., 2018. Do international immigrants increase their happiness and that of their families by migrating. *World happiness report*, pp.44-65.

Hendriks, Martijn. 2018. Migrant Happiness: Insights into the Broad Well-Being Outcomes of Migration and Its Determinants. Rotterdam: Erasmus University.

Herrero, J., Fuente, A. and Gracia, E., 2011. Covariates of subjective well-being among Latin American immigrants in Spain: The role of social integration in the community. *Journal of Community Psychology*, *39*(7), pp.761-775.

Hewstone, M., 2009, January. Living apart, living together? The role of intergroup contact in social integration. In Proceedings of the British Academy (Vol. 162, No. 2008, pp. 243-300).

Hickman, M., Crowley, H. and Mai, N., 2008. Immigration and social cohesion in the UK. York: Joseph Rowntree Foundation.

Hobfall, S.E., 1989. Conservation of resources: a new attempt at conceptualising stress. American psychologist, 44(3), p.513.

Hobfall, S.E., 2011. Conservation of resources theory: Its implication for stress, health, and resilience.

Hobfall, S.E., Tirone, V., Holmgreen, L. and Gerhart, J., 2016. Conservation of resources theory applied to major stress. In Stress: Concepts, cognition, emotion, and behavior (pp. 65-71). Academic Press.

Holman, D., 2013. Job types and job quality in Europe. Human relations, 66(4), pp.475-502.

Holmes, E.A., O'Connor, R.C., Perry, V.H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R.C., Everall, I. and Ford, T., 2020. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. The Lancet Psychiatry, 7(6), pp.547-560.

Hooghe, M. and Vanhoutte, B., 2011. Subjective well-being and social capital in Belgian communities. The impact of community characteristics on subjective well-being indicators in Belgium. *Social Indicators Research*, 100(1), pp.17-36.

Hou, W.K., Liu, H., Liang, L., Ho, J., Kim, H., Seong, E., Bonanno, G.A., Hobfoll, S.E. and Hall, B.J., 2020. Everyday life experiences and mental health among conflict-affected forced immigrants: a meta-analysis. *Journal of Affective Disorders*, 264, pp.50-68.

Howard Ecklund, E., 2005. Models of civic responsibility: Korean Americans in congregations with different ethnic compositions. *Journal for the Scientific Study of Religion*, 44(1), pp.15-28.

Hu, Y., 2020. Intersecting ethnic and native–migrant inequalities in the economic impact of the COVID-19 pandemic in the UK. *Research in Social Stratification and Mobility*, 68, p.100528.

Hughes, R., Leslie, J., McCurdy, C., Pacitti, C., Smith, J. and Tomlinson, D., 2020. Doing more of what it takes. Next steps in the economic response to coronavirus. Resolution Foundation.

Iacobucci, G., 2020. Covid-19: UK lockdown is "crucial" to saving lives, say doctors and scientists.

Iceland, J., Kovach, C. and Creamer, J., 2020. Poverty and the Incidence of Material Hardship, Revisited. *Social Science Quarterly*.

Ivlevs, A. and Veliziotis, M., 2018. Local-level immigration and life satisfaction: The EU enlargement experience in England and Wales. Environment and Planning A: Economy and Space, 50(1), pp.175-193.

Jaspal, R., Silva Lopes, B.C.D. and M. Breakwell, G., 2020. British national identity and life satisfaction in ethnic minorities in the United Kingdom. *National Identities*, pp.1-18.

Jayaweera, H., 2014. Health of immigrants in the UK: what do we know. The migration observatory, University of Oxford. Accessed on, 11.

Jenkins, A., 2001. Companies use of psychometric testing and the changing demand for skills: A review of the literature (No. 12). Centre for the Economics of Education, London School of Economics and Political Science.

Johnston, D.W., Kung, C.S. and Shields, M.A., 2021. Who is resilient in a time of crisis? The importance of financial and non-financial resources. *Health Economics*, 30(12), pp.3051-3073.

Johnston, R., Forrest, J. and Poulsen, M., 2002. Are there ethnic enclaves/ghettos in English cities?. *Urban Studies*, 39(4), pp.591-618.

Kahneman, D. & Riis, J. (2005). Living and thinking about it: Two perspectives on life. In F. A. Huppert, N. Baylis & B. Keverne (Eds.), The science of well-being (pp. 285-304). Oxford: Oxford University Press.

Kaiser, H.F., 1974. An index of factorial simplicity. Psychometrika, 39(1), pp.31-36.

Kamerāde, D. and Bennett, M.R., 2018. Rewarding work: Cross-national differences in benefits, volunteering during unemployment, well-being and mental health. *Work, Employment and Society*, *32*(1), pp.38-56.

Kanas, A. and Van Tubergen, F., 2009. The impact of origin and host country schooling on the economic performance of immigrants. *Social Forces*, 88(2), pp.893-915.

Kapteyn, A., Lee, J., Tassot, C., Vonkova, H. and Zamarro, G., 2015. Dimensions of subjective well-being. *Social Indicators Research*, *123*(3), pp.625-660.

Khattab, N. and Johnston, R., 2013. Ethnic and religious penalties in a changing British labour market from 2002 to 2010: the case of unemployment. *Environment and Planning* A, 45(6), pp.1358-1371.

Khattab, N. and Lazarus, A., 2016. Overqualification and wage penalties among immigrants, native minorities, and majority ethnic groups. *In Socioeconomic inequality in Israel* (pp. 123-149). Palgrave Macmillan, New York.

Killgore, W.D., Cloonan, S.A., Taylor, E.C. and Dailey, N.S., 2020. Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry research*, 290, p.113117.

Kim, U., Bhullar, N. and Debra, J., 2020. Life in the pandemic: Social isolation and mental health. https://onlinelibrary. wiley. com/doi/pdfdirect/10.1111/jocn. 15290.

Kim-Prieto, C., Diener, E., Tamir, M., Scollon, C. and Diener, M., 2013. Integrating the diverse definitions of happiness: a time-sequential framework of subjective well-being. In *The Exploration of Happiness* (pp. 47-75). Springer, Dordrecht.

Kirmanoğlu, H. and Başlevent, C., 2014. Life satisfaction of ethnic minority members: An examination of interactions with immigration, discrimination, and citizenship. *Social Indicators Research*, *116*(1), pp.173-184.

Knabe, A. and Rätzel, S., 2010. Better an insecure job than no job at all? Unemployment, job insecurity and subjective wellbeing. Economics Bulletin, 30(3), pp.2486-2494.

Knabe, A. and Rätzel, S., 2011. Scarring or scaring? The psychological impact of past unemployment and future unemployment risk. *Economica*, 78(310), pp.283-293.

Knies, G., Nandi, A. and Platt, L., 2016. Life satisfaction, ethnicity and neighbourhoods: Is there an effect of neighbourhood ethnic composition on life satisfaction?. *Social Science Research*, 60, pp.110-124.

Kóczán, Z., 2016. (Why) are immigrants unhappy? *IZA Journal of Migration*, 5(1), pp.1-25.

Kong, E. and Prinz, D., 2020. Disentangling policy effects using proxy data: Which shutdown policies affected unemployment during the COVID-19 pandemic? *Journal of Public Economics*, 189, p.104257.

Korinek, K., Entwisle, B. and Jampaklay, A., 2005. Through thick and thin: Layers of social ties and urban settlement among Thai immigrants. *American Sociological Review*, 70(5), pp.779-800.

Kossoudji, S.A., 1988. English language ability and the labor market opportunities of Hispanic and East Asian immigrant men. *Journal of Labor Economics*, 6(2), pp.205-228.

La Ferrara, E. and Alesina, A., 2005. Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3), pp.762-800.

Lakey, P.N., 2003. Acculturation: A review of the literature. *Intercultural Communication Studies*, *12*(2), pp.103-118.

Lancee, B., 2010. The economic returns of immigrants' bonding and bridging social capital: The case of the Netherlands. *International Migration Review*, 44(1), pp.202-226.

Layard, P.R.G. and Layard, R., 2011. Happiness: Lessons from a new science. Penguin UK.

Lazear, E.P., 1999. Culture and language. *Journal of Political Economy*, 107(S6), pp.S95-S126.

Lee, J. and Cagle, J.G., 2018. Social exclusion factors influencing life satisfaction among older adults. *Journal of Poverty and Social Justice*, 26(1), pp.35-50.

Lee, S., 2022. Subjective well-being and mental health during the pandemic outbreak: Exploring the role of institutional trust. *Research on Aging*, 44(1), pp.10-21.

Lehmer, F. and Ludsteck, J., 2011. The immigrant wage gap in Germany: Are East Europeans worse off?. *International Migration Review*, 45(4), pp.872-906.

Leopold, L., Leopold, T. and Lechner, C.M., 2017. Do immigrants suffer more from job loss? Unemployment and subjective well-being in Germany. Demography, 54(1), pp.231-257.

Lewis, R. and Dupuis, D., 2008. Do you get what you ask for? An examination of three operationalizations of acculturation with immigrants in rural and urban Canada. *International Journal of Psychology*, 43(3-4).

Lissitsa, S. and Chachashvili-Bolotin, S., 2019. Cognitive skills and labour market experience of FSU immigrants in Israel. Current Politics and Economics of the Middle East, 10(3), pp.357-379.

Liu, X., Bowe, S.J., Milner, A., Li, L., Too, LS and LaMontagne, AD, 2019. Job insecurity: A comparative analysis between migrant and native workers in Australia. International journal of environmental research and public health, 16(21), p.4159.

Lockwood, D., 1964. Social integration and system integration. Explorations in social change, pp.244-257.

Longhi, S., 2014. Cultural diversity and subjective well-being. IZA *Journal of Migration*, 3(1), pp.1-19.

Lövdén, M., Fratiglioni, L., Glymour, M.M., Lindenberger, U. and Tucker-Drob, E.M., 2020. Education and cognitive functioning across the life span. *Psychological Science in the Public Interest*, 21(1), pp.6-41.

Luhmann, M., Hawkley, L. C., Eid, M., & Cacioppo, J. T. (2012). Time frames and the distinction between

Magnusson Turner, L. and Hedman, L., 2014. Linking integration and housing career: A longitudinal analysis of immigrant groups in Sweden. *Housing Studies*, 29(2), pp.270-290.

Maisonneuve, C. and Testé, B., 2007. Acculturation preferences of a host community: The effects of immigrant acculturation strategies on evaluations and impression formation. *International Journal of Intercultural Relations*, 31(6), pp.669-688.

Manatschal, A., 2015. Reciprocity as a trigger of social cooperation in contemporary immigration societies? Acta Sociologica, 58(3), pp.233-248.

Mandemakers, J.J., 2010. Does education buffer the negative influence of disability on psychological distress?.

Manley, D., Khattab, N. and Johnston, R., 2019. Whiteness, migration and integration into the British labour market. *Journal of International Migration and Integration*, pp.1-23.

Manning, A. and Roy, S., 2010. Culture clash or culture club? National identity in Britain.

Manning, A., 2010. Feature: the integration of immigrants and their children in Europe: introduction.

Martén, L., Hainmueller, J. and Hangartner, D., 2019. Ethnic networks can foster the economic integration of refugees. Proceedings of the National Academy of Sciences, 116(33), pp.16280-16285.

Matera, C., Stefanile, C. and Brown, R., 2012. Host culture adoption or intercultural contact? Comparing different acculturation conceptualizations and their effects on host members' attitudes towards immigrants. *International Journal of Intercultural Relations*, 36(4), pp.459-471.

Mazzucato, V., Dito, B.B., Grassi, M. and Vivet, J., 2017. Transnational parenting and the well-being of Angolan migrant parents in Europe. Global Networks, 17(1), pp.89-110.

Meng, X. and Xue, S., 2020. Social networks and mental health outcomes: Chinese rural–urban migrant experience. *Journal of Population Economics*, 33(1), pp.155-195.

Milligan, C., Dowrick, C., Payne, S., Hanratty, B., Irwin, P., Neary, D. and Richardson, D., 2013. Men's Sheds and other gendered interventions for older men: improving health and wellbeing through social activity-a systematic review and scoping of the evidence base. *Lancaster: Lancaster University Centre for Ageing Research*.

Moghaddam, M., 2008. Happiness, faith, friends, and fortune—Empirical evidence from the 1998 US survey data. *Journal of Happiness Studies*, 9(4), pp.577-587.

Muoka, M.O. and Lhussier, M., 2020. The impact of precarious employment on the health and well-being of UK immigrants: a systematic review. *Journal of Poverty and Social Justice*, 28(3), pp.337-360.

Nordenmark M (1999) Non-financial employment motivation and well-being in different labour market situations: a longitudinal study. *Work, Employment and Society* 13(4): 601–620.

Nowok, B., Van Ham, M., Findlay, A.M. and Gayle, V., 2013. Does migration make you happy? A longitudinal study of internal migration and subjective well-being. *Environment and Planning A*, *45*(4), pp.986-1002.

Nygaard, C., 2011. International migration, housing demand and access to homeownership in the UK. *Urban Studies*, 48(11), pp.2211-2229.

Obućina, O., 2013. The patterns of satisfaction among immigrants in Germany. *Social Indicators Research*, 113(3), pp.1105-1127.

Orrenius, P.M. and Zavodny, M., 2009. Do immigrants work in riskier jobs? Demography, 46(3), pp.535-551.

Osili, U.O. and Du, D., 2005. Immigrant assimilation and charitable giving.

Oswald, A.J., Proto, E. and Sgroi, D., 2015. Happiness and productivity. *Journal of Labor Economics*, 33(4), pp.789-822.

Ottaviano, G.I. and Peri, G., 2006. The economic value of cultural diversity: evidence from US cities. *Journal of Economic Geography*, 6(1), pp.9-44.

Owen, D., 2013. Future Identities: Changing identities in the UK–the next 10 years. Foresight.

Pager, D. and Shepherd, H., 2008. The sociology of discrimination: Racial discrimination in employment, housing, credit, and consumer markets. Annu. Rev. Sociol, 34, pp.181-209.

Painter, G. and Yu, Z., 2008. Leaving gateway metropolitan areas in the United States: Immigrants and the housing market. *Urban Studies*, 45(5-6), pp.1163-1191.

PeConga, E.K., Gauthier, G.M., Holloway, A., Walker, R.S., Rosencrans, P.L., Zoellner, L.A. and Bedard-Gilligan, M., 2020. Resilience is spreading: Mental health within the COVID-19 pandemic. Psychological Trauma: Theory, Research, Practice, and Policy, 12(S1), p.S47.

Pérez, D.J., Fortuna, L. and Alegria, M., 2008. Prevalence and correlates of everyday discrimination among US Latinos. *Journal of Community Psychology*, 36(4), pp.421-433.

Phillimore, J., 2012. Implementing integration in the UK: lessons for integration theory, policy and practice. Policy & Politics, 40(4), pp.525-545.

Phillips, D., Curtice, J., Phillips, M. and Perry, J. eds., 2018. British Social Attitudes 35. NatCen Social Research.

Pierce, M., McManus, S., Hope, H., Hotopf, M., Ford, T., Hatch, S.L., John, A., Kontopantelis, E., Webb, R.T., Wessely, S. and Abel, K.M., 2021. Mental health responses to the COVID-19 pandemic: a latent class trajectory analysis using longitudinal UK data. The Lancet Psychiatry, 8(7), pp.610-619.

Popova, O., 2014. Can religion insure against aggregate shocks to happiness? The case of transition countries. *Journal of Comparative Economics*, 42(3), pp.804-818.

Potter, M. and Hamilton, J., 2014. Picking on vulnerable immigrants: precarity and the mushroom industry in Northern Ireland. Work, employment and society, 28(3), pp.390-406.

Powdthavee, N., 2010. How much does money really matter? Estimating the causal effects of income on happiness. *Empirical economics*, *39*(1), pp.77-92.

Proto, E. and Quintana-Domeque, C., 2021. COVID-19 and mental health deterioration by ethnicity and gender in the UK. PloS one, 16(1), p.e0244419.

Putnam, R.D. ed., 2004. Democracies in flux: The evolution of social capital in contemporary society. Oxford University Press, USA.

Putnam, R.D., 2000. Bowling alone: America's declining social capital. In Culture and politics (pp. 223-234). Palgrave Macmillan, New York.

Rafael Di Tella & Robert MacCulloch, 2007. "Happiness, Contentment and Other Emotions for Central Banks," NBER Working Papers 13622, National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/13622.html

Raijman, R. and Semyonov, M., 1997. Gender, ethnicity, and immigration: Double disadvantage and triple disadvantage among recent immigrant women in the Israeli labor market. Gender & Society, 11(1), pp.108-125.

Raijman, R., Semyonov, M. and Schmidt, P., 2003. Do foreigners deserve rights? Determinants of public views towards foreigners in Germany and Israel. *European Sociological Review*, 19(4), pp.379-392.

Remennick, L., 2004. Language acquisition, ethnicity and social integration among former Soviet immigrants of the 1990s in Israel. Ethnic and Racial Studies, 27(3), pp.431-454.

Rivera, B., Casal, B. and Currais, L., 2015. Length of stay and mental health of the immigrant population in Spain: evidence of the healthy immigrant effect. *Applied Economics*, 47(19), pp.1972-1982.

Rivera, B., Casal, B. and Currais, L., 2016. The healthy immigrant effect on mental health: determinants and implications for mental health policy in Spain. *Administration and Policy in Mental Health and Mental Health Services Research*, 43(4), pp.616-627

Robinson, D., 2010. The neighbourhood effects of new immigration. Environment and Planning A, 42(10), pp.2451-2466.

Robinson, D., Reeve, K. and Casey, R., 2007. The housing pathways of new immigrants. York: Joseph Rowntree Foundation.

Roblain, A., Azzi, A. and Licata, L., 2016. Why do majority members prefer immigrants who adopt the host culture? The role of perceived identification with the host nation. *International Journal of Intercultural Relations*, 55, pp.44-54.

Roblain, A., De Guissmé, L., Azzi, A. and Licata, L., 2020. Being Forced (or Free) to Adopt the Host Culture: The Influence of Mandatory Integration Programs on Majority Members' Evaluation of Immigrants. *International Review of Social Psychology*, 33(1).

Ryan, A.M., McFarland, L. and SHL, H.B., 1999. An international look at selection practices: Nation and culture as explanations for variability in practice. Personnel psychology, 52(2), pp.359-392.

Safdar, S., 2008. Exploring acculturation conceptualizations with a sample of international students in Canada. *International Journal of Psychology*, 43(3-4).

Safi, M., 2010. Immigrants' life satisfaction in Europe: Between assimilation and discrimination. *European Sociological Review*, 26(2), pp.159-176.

Saggar, S., Somerville, W., Ford, R. and Sobolewska, M., 2012. The impacts of migration on social cohesion and integration. Final report to the Migration Advisory Committee.

Saltkjel, T. and Malmberg-Heimonen, I., 2017. Welfare generosity in Europe: A multi-level study of material deprivation and income poverty among disadvantaged groups. *Social Policy & Administration*, 51(7), pp.1287-1310.

Salvatore, M.A. and Grundy, E., 2021. Area deprivation, perceived neighbourhood cohesion and mental health at older ages: A cross lagged analysis of UK longitudinal data. Health & Place, 67, p.102470.

Sam, D.L. and Berry, J.W., 2010. Acculturation: When individuals and groups of different cultural backgrounds meet. *Perspectives on Psychological Science*, *5*(4), pp.472-481.

Sanchez, D.G., Parra, N.G., Ozden, C. and Rijkers, B., 2020. Which jobs are most vulnerable to COVID-19? What an analysis of the European Union reveals. What an Analysis of the European Union Reveals (May 11, 2020). World Bank Research and Policy Briefs, (148384).

Sandstrom, G.M. and Dunn, E.W., 2014. Social interactions and well-being: The surprising power of weak ties. *Personality and Social Psychology Bulletin*, 40(7), pp.910-922.

Schellenberg, G. and Hou, F., 2005. The economic well-being of recent immigrants to Canada. Canadian Issues, p.49.

Schimmack, U., Diener, E. and Oishi, S., 2009. Life-satisfaction is a momentary judgment and a stable personality characteristic: The use of chronically accessible and stable sources. In *Assessing well-being* (pp. 181-212). Springer, Dordrecht.

Schnell, P., Kohlbacher, J. and Reeger, U., 2012. Neighbourhood embeddedness in six European cities: Differences between types of neighbourhoods and immigrant background. *Polish Sociological Review*, (180), p.523.

Scott, S., 2017. Informalisation in low-wage labour markets: a case study of the UK food industry. *Population, Space and Place*, 23(7), p.e2043.

Shen, J. and Bartram, D., 2021. Fare differently, feel differently: mental well-being of UK-born and foreign-born working men during the COVID-19 pandemic. *European Societies*, 23(sup1), pp.S370-S383.

Shen, J. and Kogan, I., 2020. Job loss or income loss: How the detrimental effect of unemployment on men's life satisfaction differs by immigration status. *Frontiers in Sociology*, 5, p.10.

Shields, M.A. and Price, S.W., 2002. The English language fluency and occupational success of ethnic minority immigrant men living in English metropolitan areas. *Journal of Population Economics*, 15(1), pp.137-160.

Silva, L. and van Ham, M., 2021. The combined effect of Covid-19 and neighbourhood deprivation on two dimensions of subjective well-being: Empirical evidence from England.

Sinning, M., 2010. Homeownership and economic performance of immigrants in Germany. *Urban Studies*, 47(2), pp.387-409

Sirgy, M.J., Efraty, D., Siegel, P. and Lee, D.J., 2001. A new measure of quality of work life (QWL) based on need satisfaction and spillover theories. *Social Indicators Research*, 55(3), pp.241-302.

Skilling, D., 2004. It's Not Just about the Money: The Benefits of Asset Ownership. New Zealand Institute.

Smith, B.J. and Lim, M.H., 2020. How the COVID-19 pandemic is focusing attention on loneliness and social isolation. Public Health Res Pract, 30(2), p.3022008.

Smith, D.M., Langa, K.M., Kabeto, M.U. and Ubel, P.A., 2005. Health, wealth, and happiness: Financial resources buffer subjective well-being after the onset of a disability. *Psychological Science*, 16(9), pp.663-666.

Song, Z., Wanberg, C.R. and Kinicki, A.J., 2005. Psychological and physical well-being during unemployment: a meta-analytic study. *Journal of Applied Psychology*, 90(1), pp.53-76.

Spagnoli, P. and Molinaro, D., 2020. Negative (workaholic) emotions and emotional exhaustion: might job autonomy have played a strategic role in workers with responsibility during the Covid-19 Crisis Lockdown? *Behavioral Sciences*, 10(12), p.192.

Spense, M., 1973. Job market signaling. *The Quarterly Journal of Economics*, 87(3), pp.355-374.

Stiglitz, J.E., Sen, A. and Fitoussi, J.P., 2009. Report by the commission on the measurement of economic performance and social progress.

Stillman, S. and Liang, Y., 2010. Does homeownership improve personal well-being. Manuscript, Motu Economic and Public Policy Research.

Strandh M (2000) Different exit routes from unemployment and their impact on mental well-being: the role of the economic situation and the predictability of the life course. *Work, Employment and Society* 14(3): 459–479.

Sundeen, R.A., Garcia, C. and Wang, L., 2007. Volunteer behavior among Asian American groups in the United States. *Journal of Asian American Studies*, 10(3), pp.243-281.

Toma, A., Hamer, M. and Shankar, A., 2015. Associations between neighborhood perceptions and mental well-being among older adults. *Health & place*, 34, pp.46-53.

Tomlinson, F., 2010. Marking difference and negotiating belonging: Refugee women, volunteering and employment. *Gender, Work & Organization*, 17(3), pp.278-296.

Torres, J.M. and Wallace, S.P., 2013. Migration circumstances, psychological distress, and self-rated physical health for Latino immigrants in the United States. *American Journal of Public Health*, 103(9), pp.1619-1627.

Torres-Reyna, O., 2007. Panel data analysis fixed and random effects using Stata (v. 4.2). Data & Statistical Services, Priceton University, pp.1-40.

Trzebiński, J., Cabański, M. and Czarnecka, J.Z., 2020. Reaction to the COVID-19 pandemic: The influence of meaning in life, life satisfaction, and assumptions on world orderliness and positivity. *Journal of Loss and Trauma*, 25(6-7), pp.544-557.

Tubadji, A., 2021. Culture and mental health resilience in times of COVID-19. *Journal of Population Economics*, pp.1-41.

Turcotte, M., 2015. Volunteering and charitable giving in Canada.

Tversky, A. and Kahneman, D., 1991. Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, 106(4), pp.1039-1061.

University of Essex, Institute for Social and Economic Research (2020). Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]. 13th Edition. UK Data Service. SN: 6614, http://doi.org/10.5255/UKDA-SN-6614-14.

University of Essex, Institute for Social and Economic Research. (2021). Understanding Society: COVID study, 2020-2021. [data collection]. 11th Edition, UK Data Service.

Uslaner, E.M. and Conley, R.S., 2003. Civic engagement and particularized trust: The ties that bind people to their ethnic communities. *American Politics Research*, 31(4), pp.331-360.

Veenhoven, R. and Vergunst, F., 2014. The Easterlin illusion: economic growth does go with greater happiness. *International Journal of Happiness and Development*, *1*(4), pp.311-343.

Veenhoven, R., 1984. The concept of happiness. In *Conditions of happiness* (pp. 12-38). Springer, Dordrecht.

Veenhoven, R., 2009. How do we assess how happy we are? Tenets, implications and tenability of three theories. In *Happiness, Economics and Politics*. Edward Elgar Publishing.

Verdier, T., Bisin, A., Patacchini, E. and Zenou, Y., 2006. 'Bend it Like Beckham': Identity, Socialization and Assimilation.

Verkuyten, M., 2008. Life satisfaction among ethnic minorities: The role of discrimination and group identification. *Social Indicators Research*, 89(3), pp.391-404.

Vervoort, M., 2012. Ethnic concentration in the neighbourhood and ethnic minorities' social integration: Weak and strong social ties examined. *Urban Studies*, 49(4), pp.897-915.

Viswesvaran, C. and Ones, D.S., 2002. Role of General Mental Ability in industrial, Work, and Organizational Psychology: A Special Double Issue of human Performance. *Psychology Press*.

Waldron, S., 2010. Measuring subjective wellbeing in the UK. *Newport: Office for National Statistics*.

Walk, M., Greenspan, I., Crossley, H. and Handy, F., 2014. Canadian immigrants and their access to services: A case study of a social purpose enterprise. Social Purpose Enterprises: Case Studies for Social Change, pp.162-187.

Wanberg, C.R., Csillag, B., Douglass, R.P., Zhou, L. and Pollard, M.S., 2020. Socio-economic status and well-being during COVID-19: A resource-based examination. *Journal of Applied Psychology*.

Weishaar, H.B., 2008. Consequences of international migration: A qualitative study on stress among Polish migrant workers in Scotland. *Public health*, 122(11), pp.1250-1256.

Wessendorf, S. and Phillimore, J., 2019. New immigrants' social integration, embedding and emplacement in superdiverse contexts. *Sociology*, 53(1), pp.123-138.

Wheatley, D., 2017. Autonomy in paid work and employee subjective well-being. Work and Occupations, 44(3), pp.296-328.

Willsher, K. and Harrap, C., 2020. In a Paris banlieue, coronavirus amplifies years of inequality. The Guardian. https://www. theguardian. com/world/2020/apr/25/paris-banlieue-virus-amplifiesinequality-seine-saint-denis.

Witteveen, D., 2020. Socio-demographic inequality in exposure to COVID-19-induced economic hardship in the United Kingdom. Research in Social Stratification and Mobility, 69, p.100551.

Yaman, F. and Cubi-Molla, P., 2017. Why Do Immigrants Report Lower Life Satisfaction? (No. 001871). Andreoni, J., 1990. Impure altruism and donations to public goods: A theory of warm glow giving. *The Economic Journal*, 100(401), pp.464-477.

Yang, H. and Ma, J., 2020. How an epidemic outbreak impacts happiness: Factors that worsen (vs. protect) emotional well-being during the coronavirus pandemic. *Psychiatry research*, 289, p.113045.

Zheng, J., Morstead, T., Sin, N., Klaiber, P., Umberson, D., Kamble, S. and DeLongis, A., 2021. Psychological distress in North America during COVID-19: The role of pandemic-related stressors. *Social Science & Medicine*, 270, p.113687.

Zheng, L., Miao, M. and Gan, Y., 2020. Perceived control buffers the effects of the COVID-19 pandemic on general health and life satisfaction: The mediating role of psychological distance. *Applied Psychology: Health and Well-Being*, 12(4), pp.1095-1114.

Zhou, M. and Kan, M.Y., 2021. The varying impacts of COVID-19 and its related measures in the UK: A year in review. PloS one, 16(9), p.e0257286.

Zimmermann, K.F., Bauer, T.K. and Lofstrom, M., 2000. Immigration policy, assimilation of immigrants and natives' sentiments towards immigrants: evidence from 12 OECD-countries.

Zschirnt, E. and Ruedin, D., 2016. Ethnic discrimination in hiring decisions: a meta-analysis of correspondence tests 1990–2015. *Journal of Ethnic and Migration Studies*, 42(7), pp.1115-1134.