Wellbeing Determinants among Adults in Malta

The Malta Wellbeing INDEX Project

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The Malta Foundation for the Wellbeing of Society

Wellbeing INDEX

Indicators | Networking | Data | Exploration | eXchange

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Executive Summary

The measurement and analysis of factors that affect individuals' wellbeing are increasingly used to help shape policy decisions and ultimately help contribute to better lives. As part of the Malta Wellbeing INDEX project, this report presents an analysis of microdata on the wellbeing of the Maltese population collected by the National Statistics Office (NSO) through the Survey on Income and Living Conditions. The wellbeing indicators are based on respondents' own evaluation of wellbeing, referred to as subjective wellbeing.

In 2018, the reported overall level of life satisfaction among survey respondents is 7.5 out of 10; with eight being the most frequently reported score. Similar outcomes are noted for respondents' satisfaction with their financial situation, job, and use of time. These relatively high ratings suggest that the Maltese were, on average, satisfied with all these aspects of their lives. Moreover, when compared to the EU-average, the Maltese appear to have marginally higher levels of satisfaction in all domains except with the use of time. However, analysis beyond averages reveals that a significant portion of the population reports being less satisfied with certain aspects of their lives. For example, 25% of the population rate the satisfaction with their financial situation at a maximum of five out of 10.

The evaluation of SWB in Malta is based on indices that were constructed to capture the evaluative and affective domains of wellbeing and their relationship with various determinants of SWB across the different sub-groups of the population. Multivariate regressions revealed that while demographics play a role in predicting wellbeing (notably marital status and age), by far the strongest contributor is health. Illness, material deprivation, the inability to interact socially, and the inability to work due to disability all contribute to poorer wellbeing. Interestingly, districts emerge as powerful predictors of wellbeing, possibly capturing some of the unexplained variance. While some of the determinants contribute to emotional wellbeing and evaluative satisfaction in the same direction, some determinants are positively associated with one measure of wellbeing and negatively with another. For instance, higher income raises satisfaction, but not happiness. Labour market status matters most for satisfaction with financial situation and leisure time. Similarly, living in Gozo is associated with more positive affect but lower satisfactions relative to the other districts.

On the basis of the insights drawn from the analysis we recommend:

i. The systematic measurement of SWB on a regular basis, since the usefulness of SWB in guiding policy decision hinges on the ongoing monitoring of such indicators rather than ad-hoc analysis;

ii. A better capture of under-represented groups in the collection of data used for the development of SWB indicators, such as migrants, homeless and institutionalised individuals; and

iii. Greater use of SWB data in policy-making, especially for projects that suppress SWB of those groups whose SWB is already low (e.g., the ill, the materially deprived, the socially isolated).

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List of Abbreviations

EFA	Exploratory Factor Analysis
EU-SILC	EU Statistics on Income and Living Conditions
INDEX	Indicators, Networking, Data Visualisations, Exploration, eXchange
NSO	National Statistics Office
OECD	Organisation for Economic and Social Development
ONS	Office for National Statistics
SWB	Subjective Wellbeing
WHR	World Happiness Report

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1. Introduction

The measurement and analysis of factors that affect individuals' wellbeing have been on the research agenda of world-leading organisations for at least 15 years (see Stiglitz et al., 2009; OECD, 2011), with interest increasing considerably in recent years (Helliwell et al., 2022). A key aim of such endeavours is to help shape policy decisions and ultimately help contribute to better lives (Boarini, 2011).

The Malta Wellbeing INDEX project (focusing on Indicators, Networking, Data, Exploration, and eXchange), a collaborative effort between the Malta Foundation for the Wellbeing of Society and the University of Malta, intends to pave the way for the establishment of the measurement and analysis of wellbeing in the context of Malta. This report constitutes one of the research deliverables of the project.

The aim of this report is to provide an analysis of data made available from the European Union's Survey on Income and Living Conditions (EU-SILC) for Malta. The data was first collected by the National Statistics Office (NSO) in 2018, when a module that captures wellbeing was included across all countries participating in the EU-SILC (National Statistics Office, 2019). Thereafter, NSO continued to collect wellbeing data as part of the EU-SILC for Malta, making possible further data analysis.[1]

The analysis in this report falls within the scope of the approach known as Subjective Wellbeing (SWB), where the emphasis is on individuals' own evaluation of wellbeing. This data is used alongside information on a host of other individual characteristics (such as gender, income, and housing conditions) to better understand the determinants of the SWB of people in Malta, and to set up a model for the prediction of SWB in Malta.

The remainder of the report is organised as follows. First, Section 2 presents relevant literature on the measurement of SWB and its determinants. Section 3 then presents the descriptive statistics of the EU-SILC data for Malta, including the level of satisfaction of the Maltese population regarding specific aspects (e.g., life, income, working hours), as well as the frequency of positive and negative emotions and mood (e.g., happiness, loneliness). Section 4 goes on to use exploratory factor analysis to construct an SWB index based on a selection of satisfaction and emotion variables analysed in the previous section. This section also presents the main analysis – namely how this SWB index can be predicted by individual characteristics (e.g., income, gender, social relationships, etc.). Finally, Section 5 summarises the conclusions drawn from the analysis, making recommendations for policy and providing direction for future research.

[1] Thereafter, the full wellbeing module was included by Malta's National Statistics Office of Malta as a complementary module to its annual data collection for the EU-SILC. Most of the questions in the wellbeing module were also included in the EU-SILC 2019, 2020, and 2021.

2. Review of the Literature

2.1 Measuring Subjective Wellbeing

Wellbeing may be considered to be the human pursuit to achieve a state of balance (or equilibrium) between psychological, social, and physical resources and challenges (Dodge et al. (2012). Such a balance, in turn, can be captured through different accounts (Parfit, 1984; Dolan & Metcalfe, 2012). One account (known as the mental states account, or subjective wellbeing) is based on people's own evaluation - their overall life satisfaction, purpose, positive and negative experiences (happiness, anxiousness, etc.), as judged by themselves (Kahneman, 1994; Easterlin, 2001; Dolan et al., 2017).

In turn, it is possible to identify four states of SWB, namely life satisfaction, positive and negative affect and purpose, which can be seen to constitute a comprehensive measure of SWB (Layard, 2020). The UK's Office for National Statistics (ONS), provide an example of integration of these four elements of personal wellbeing into their surveys. The ONS-4, as they are called, aggregate a set of evaluative, experiential, and eudaimonic questions to give a measure of wellbeing (Dolan & Metcalfe, 2012). Similarly, the World Happiness Report measures SWB based on the three indicators of life satisfaction, positive and negative affect, but prioritises life evaluations as the more stable measure (Frijters & Krekel, 2021; Helliwell et al., 2021; Layard, 2020). The OECD reported increased use of evaluative, affective, and eudaimonic indicators in national frameworks and surveys since its 10 years of publishing the Guidelines on the Measurement of Subjective Wellbeing, noting convergence in the life satisfaction question, but less harmonisation in the affective and eudaimonic indicators (OECD, 2023). Indeed, the seminal Stiglitz-Sen-Fitoussi Commission report advocated in favour of a singular measure of wellbeing over a 10-point scale, that of life satisfaction (Frijters & Krekel, 2021).

While SWB measures have received criticism for their potential to produce differing outcomes depending on how they are measured (Cramm & Nieboer, 2012), on respondent honesty (Kenny, 2005) and even on mood (Yardley & Rice, 1991), they are generally considered to be valid indicators of happiness and life satisfaction and are widely used in research. Even if it is plausible that people are un/happy and not aware of it (Gilbert, 2006), SWB studies are often interested in the *conscious* experience of individuals. There is arguably no better way to find out how individuals are feeling than from the individuals themselves. On a more practical level, people's own evaluation of the quality of their lives does not only yield invaluable data but is also a relatively inexpensive channel of data collection (Helliwell et al., 2014).

It is worth noting that there are other approaches to the measurement of wellbeing. One approach, originating in the early work of welfare economics (Sen, 1973, 1976), defines wellbeing in terms of basic human needs and rights (e.g., income, housing, education, health and social networks) required for humans to flourish (Sen, 1999; Dean, 2009). A second account, predominantly used by economists, is that of preference satisfaction (Dolan & Metcalfe, 2012), which postulates that wellbeing is the product of the fulfilment of one's wants and desires (Parfit, 1984). Indeed some indicators, such as the OECD's Better Life Index, include both a question on life satisfaction as a measure of SWB as well as indicators on the conditions needed for humans to flourish (Layard, 2020; OECD, 2013). Similarly, for instance,

the Australian Unity Wellbeing Index uses its Personal Wellbeing Index as a basis, consisting of a direct measure of life evaluation, and seven personal life domains (Cummins et al., 2003).[2]

2.2 The Conditions that determine Subjective Wellbeing

A number of characteristics including demographics and lifestyles are known to correlate with SWB. In this section, we discuss some of these factors based on insights from literature in the field, and, in each section, we discuss any findings from Malta. The conditions examined are primarily demographics, income and employment, health and education, housing and environment, social interaction, religion, and crime, with some additional notes on the role of personality. These conditions broadly reflect Das et al. (2020), who suggest seven categories in their meta-analysis, namely demographics, socioeconomic status, health and functioning, geography and infrastructure, social support, religion and culture as well as personality.

2.2.1 Demographics

Evidence on the impact of **gender** on overall life satisfaction is mixed. For example, in a study covering the EU member states, Eurostat (2016a) reports that the difference between male and female respondents is marginal. In an earlier study, Inglehart (1990) draws similar conclusions regarding life satisfaction, but reports that, on average, females are happier than males. In contrast, in a study covering a much wider set of countries, Boarini et al. (2012) find that females have higher levels of life satisfaction, echoing work by Blanchflower and Oswald (2004). The latter also report a higher variance of life satisfaction among females. Overall, “somewhat surprisingly, average life satisfaction in most countries is very similar for men and women" (Layard & De Neve, 2023, p. 19). The difference in wellbeing for the non-binary gender has also received some attention. Jones et al. (2019) find that there is a significant inequality in overall life satisfaction between non-binary (and binary) transgender people, and cisgender persons. Insights on the demographic determinants of SWB from Malta suggest that differences between males and females are also not statistically significant (Briguglio & Sultana, 2015; Briguglio, Camilleri, et al., 2020), although females were found to have experienced lower levels of life satisfaction in the initial months of the Covid-19 outbreak (Briguglio et al., 2021).

Empirical evidence on how **age** correlates with SWB is more robust. Studies suggest that the relationship between life satisfaction and age is U-shaped (Blanchflower & Oswald, 2008; Dolan et al., 2008; Eurostat, 2016a). Life satisfaction is relatively high among young people, declines in middle-aged cohorts and increases again at older age. Similar to studies based on other countries, Briguglio et al. find similar U-shaped relationships of wellbeing with age, though people aged over 65 were found to be particularly unhappy during the Covid-19 outbreak in Malta – arguably due to the strict lock-down measures targeting this cohort (Briguglio et al., 2021).

[2] The elements of the Australian Personal Wellbeing Index are satisfaction with health, personal relationships, feeling safe, standard of living, life achievement, feeling part of the community, and future security (see Cummins et al., 2003, p. 171).

Empirical evidence also suggests that **household composition** matters – a factor that bears particular consideration in view of the evolving nature of the household (Eurofound, 2020). It is well-established that married people have a higher level of SWB than the never married, widowed, divorced or separated (Mastekaasa, 1993; Stutzer & Frey, 2006; Waite et al., 2009). Eurostat (2016a) reports that single-parent households have significantly lower levels of life satisfaction. The same study further reports that living in a household with children also lowers life satisfaction, but not to the same extent. In his review on parenthood and happiness, Hansen (2012) finds that while the general perception of parenthood is that children are key to living a meaningful and fulfilling life, according to most cross-sectional and longitudinal data, people are happier without children. Myrskylä and Margolis (2014) showed that there was an increase in parents' happiness before, and around the birth of the first child, then eventually decreasing to pre-birth levels. Briguglio and Sultana (2015), Briguglio et al. (2020) and Briguglio et al. (2021) draw similar conclusions on marital status to the international literature from studies on the Maltese population.

2.2.2 Income and Employment

The relationship between income and wellbeing has been the subject of numerous studies in economics. Early research concluded that the impact of income on life satisfaction was modest and tapered-off above a certain level of income (Easterlin, 1974). Several later studies suggest that it is mainly income relative to the income of others or relative to expectations that affects wellbeing (Clark & Oswald, 1996; Ferrer-i-Carbonell & Frijters, 2004; Luttmer, 2005). However, more recent research suggests that absolute income still plays a major role in determining wellbeing, irrespective of whether the comparison is between people in a single country or across countries (Deaton, 2008; Sacks et al., 2012).

There is, on the other hand, little doubt that unemployment has a very strong impact on life satisfaction (Clark & Oswald, 1994; Winkelmann, 2009). This is true even after controlling for income (Eurostat, 2016a) – particularly for young people, suggesting that employment *per se* is an important determinant of wellbeing (Bell & Blanchflower, 2011), with little adaptation over time. This negative effect is more significant than the negative effects of high inflation on wellbeing (Di Tella et al., 2001), and the life satisfaction declines are comparable with the death of a spouse (Layard & De Neve, 2023). The negative effects of unemployment on wellbeing tend to persist even once the person becomes re-employed, a phenomenon referred to as the 'scarring' effect of unemployment. Knabe and Rätzel (2011) find that this is mostly due to anxiety and fears of future unemployment. Others such as Luo (2019) argue that this long-term effect is mostly pecuniary in nature, while the duration of unemployment is another factor that cannot be neglected (Maier et al., 2006). Notwithstanding this, the literature also finds that working very long hours also impacts life satisfaction negatively (Clark, 1996; Clark et al., 1996; Chongvilaivan & Powdthavee, 2014), particularly for female employees working in excess of 50 hours per week (Booth & van Ours, 2009). Recent studies in Malta confirm a negative relationship between wellbeing and struggling to cope financially (Briguglio et al., 2021). Briguglio and Sultana (2015) and Briguglio et al., (2021) report similar findings for Malta on unemployment and wellbeing.

2.2.3 Health and Education

Good health is generally well-documented and uncontroversial as an important determinant of wellbeing (Dolan et al., 2008; Eurostat, 2016a; Ngamaba et al., 2017). The availability of administrative datasets capturing the health conditions of an entire population suggest that health may, in fact, be the best proxy available to predict wellbeing in the future (Bellet & Frijters, 2020). Furthermore, studies suggest that mental health explains more variation in wellbeing than physical health does (Bellet & Frijters, 2020; Clark et al., 2018). Echoing other contexts, studies in Malta also find a strong link between health and wellbeing in Malta (Briguglio et al., 2021; Briguglio, Camilleri, et al., 2020; Sultana, 2014; Vella, 2017).

In contrast, evidence on how education correlates with SWB is mixed. Several studies find a positive relationship between the level of education attainment and SWB (Cuñado & Pérez de Gracia, 2012; Eurofound, 2013; Eurostat, 2016a; Salinas-Jiménez et al., 2011). However, studies reporting a negative association between the level of education attainment and wellbeing are not uncommon (e.g. Gong et al., 2011; Kristoffersen, 2018). Negative relationships may seem counter-intuitive, but they are consistent with the idea that education is associated with higher expectations with respect to life circumstances (Kristoffersen, 2018). Adopting a life satisfaction approach, Salinas-Jiménez et al. (2011) conclude that the positive effects of education on SWB are stronger when there are fewer people with a given level of education and thus, positive effects are partly due to positional concerns. Consequently, education may be associated with greater SWB only insofar as the ability to meet (or exceed) expectations is improved. Studies in Malta also find conflicting results on education. While Sultana (2014) finds wellbeing to be negatively related to education, Vella (2017) finds that education has a positive influence on wellbeing. Tertiary education was found to be a positive correlate of wellbeing during the Covid-19 outbreak in Malta (Briguglio et al., 2021).

2.2.4 Housing and Environment

Housing conditions and characteristics appear to be important determinants of SWB. Studies show that poor quality of one's dwelling (measured by factors such as having damp walls in one's house and renting rather than owning a home where the norm is home-ownership) are negatively associated with wellbeing (Eurostat, 2016a; Hu & Ye, 2020). However, the literature also suggests that the relationship between housing and SWB is more complex. For example, Hu and Ye (2020) find that joint rather than sole ownership is positively correlated with SWB, and Bloze and Skak (2012) find a negative correlation between home ownership and psychological distress.

The literature on the relationship between the external environment and SWB suggests that variables such as high air pollution and other negative externalities (Di Tella & MacCulloch, 2008; Brereton et al., 2008; Yuan et al., 2018) tend to be negative determinants of wellbeing. Wu et al. (2020) find that perceived pollution hazards have a negative effect on life satisfaction. However, other studies suggest that the relationship is more complex. For example, by making use of variations in exposures to air pollution across similar respondents living in the same region, Zhang et al., (2019) finds that pollution reduces happiness and increases the rate of symptoms of depression - but it does not affect life satisfaction.

There is also some evidence linking noise pollution to SWB. In a seminal paper, van Praag and Baarsma (2005) estimate that noise generated from nearby aircraft can reduce wellbeing by 0.11 points on the 10-point Cantril ladder-of-life scale. More recently, Lawton and Fujiwara (2016) re-estimated the value of aircraft noise in the UK across all four measures of life satisfaction, eudaimonia, positive and negative affect. Their results indicated a consistent, negative impact from day-time noise. Dolan and Metcalfe (2008) probed the question of whether noise from neighbours alters SWB. Their results confirm the negative association between noise pollution and wellbeing, such that individuals who reported hearing noise from their neighbours were 0.22 points more unsatisfied with their lives than others.

Some studies have also focused their attention on the association between crime and SWB. In a cross-sectional survey on former Soviet countries, Stickley et al. (2015) highlight the negative influence of being a victim of a crime on SWB. Their results suggest that being a victim of physical violence can shed almost half a point off an individual's 10-point life satisfaction score. Similarly, Hanslmaier (2013) shows that victimisation experience and fear of crime leave a negative impact on satisfaction with life. However, the effects of crime on SWB can also be indirect. For instance, Fleming et al. (2016) find that greenspaces have a positive effect on wellbeing, however, if the greenspace is located in an area ranking high on crime perception, then "the positive life satisfaction effects of access to greenspace are almost completely forgone" (p. 8).

Studies in Malta find a positive relationship between engagement with the environment and wellbeing (Briguglio et al., 2021), as well as between living in the less urbanised island of Gozo and wellbeing (Briguglio, et al., 2020). Qualitative studies in Malta also find that the environment is mentioned in both a positive and negative frame in relation to wellbeing (Briguglio, 2015).

2.2.5 Social Interaction

Social interaction and participation in social activity are additional predictors of SWB (Cooper et al., 1992; Farrell et al., 2004; Blume & Durlauf, 2005; Klein, 2013). In particular, Bartolini and Bilancini (2010) report that social interaction, together with income, confidence in institutions and social comparisons, explain most of the variation in SWB. These interactions may occur through participation in various activities, such as sports, culture, art and religious activities, and their impact on wellbeing is likely dependent on the frequency of participation (Wheatley & Bickerton, 2017).

Evidence of the impact of volunteering on SWB also points to a positive association (Stuart et al., 2020), a positive association which gets stronger over time if regular volunteering is sustained (Binder & Freytag, 2013). A positive association also exists for more formal participation in voluntary work. For example, Kamerāde and McKay (2015) report that voluntary sector employees have higher levels of SWB - even though this appears to be unevenly distributed among male and female employees. Moreover, the benefits are distributed heterogeneously, whereby those with a lower level of wellbeing benefit more, including disabled people, the young, different ethnic groups and those experiencing serious mental health issues (Stuart et al., 2020). However, inequalities in access to opportunities cause barriers to those who stand to gain the most by volunteering, in their ability to do so (ibid.). Similarly, Lawton et al. (2021) discuss reverse causality in volunteering, in the sense that those who are happier tend to self-select and volunteer more.

In studies covering the Maltese population, participation in traditional cultural events is associated with higher levels of life satisfaction (Briguglio, Camilleri, et al., 2020; Briguglio et al., 2020). This is also true of regular engagement in sport (Briguglio et al., 2020). Social interaction is found to be a positive determinant of both happiness and life satisfaction in ordinary times in Malta, with its positive effects being neutralised during the Covid-19 outbreak (Briguglio et al., 2021). In qualitative studies, social interaction is mentioned both positively and negatively in the small densely populated context that is Malta (Briguglio and Brown, forthcoming). Volunteering was associated with higher levels of both happiness and life-satisfaction during the Covid-19 outbreak in Malta (Briguglio et al., 2021).

2.2.6 Other Determinants

Various other determinants and correlates of wellbeing have been studied in the literature.

For instance, in addition to the determinants discussed above, there is fairly strong evidence that individuals with strong religious beliefs have higher level of life satisfaction (Ellison, 1991; Villani et al., 2019); though the effect seems to be more based on attendance than belief (Stark & Maier, 2008). Engagement in religious activity is found to be a positive predictor of wellbeing in Malta (Briguglio et al., 2020).

Similarly, political beliefs are reported to be associated with different levels of SWB, but evidence is somewhat contradictory – with political scientists reporting that more liberal countries have higher levels of life satisfaction and psychologists reporting that more conservative views correspond in higher levels of social wellbeing (Okulicz-Kozaryn et al., 2014). A social media study also discovers that issues like bureaucracy, news, institutions, and lack of control influence wellbeing negatively (Briguglio, 2015). When measured, government trust is found to be an important determinant of wellbeing in Malta (Sultana 2014; Vella 2017), particularly of life satisfaction (Briguglio et al., 2021).

Research in psychology has focused considerably on the relationship between personality and SWB (Dolan et al., 2008). In a seminal review, DeNeve and Cooper (1998) showed that most studies demonstrated that personality was predictive of life satisfaction and positive affect, and to a significantly lesser extent, negative affect. In a subsequent meta-analysis, Steel et al. (2008) reaffirm the role of the Big Five personality traits in predicting SWB.[3] More recently, Anglim et al. (2020) looked at how the Big Five and the HEXACO personality domains correlate with the dimensions of subjective and psychological wellbeing.[4] In their results, extraversion emerges as a key trait in both the Big Five and the HEXACO models, with other traits like neuroticism emerging as important correlates in the BIG Five scale.

Finally, there are also differences between the SWB of native and immigrant populations. Using data from the European Social Survey 2002-03, Baltatescu (2005) and Tegegne and Glanville (2019) find that immigrants report lower levels of life satisfaction and happiness than others. Another study by Sand and Gruber (2018), that also covers the European region, finds that SWB of immigrants and natives varies significantly by country of origin and age. The 2021 World Happiness Report (WHR) suggests that the happiness levels of immigrants tends to

[3]The Big Five personality traits are: Openness, Conscientiousness, Neuroticism, Extraversion, and Agreeableness.
[4] Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), Openness to Experience (O).

move fairly quickly towards that of respondents in the destination country (Helliwell et al., 2021).

2.3 Key Insights from the Literature

The literature on the determinants of SWB is extensive, multidisciplinary, and in some cases inconclusive about the precise relationship between SWB and the many factors that affect it. In summary, it suggests that: (i) demographic factors such as being single, middle-aged, an immigrant and living in a household with children are all less likely to be associated with higher levels of SWB; (ii) the relationship between income and SWB is complex and both absolute and relative income seem to matter. Both unemployment and working too many hours, are negatively associated with SWB; (iii) health, both physical and mental, is possibly the best predictor of SWB, while the association between education and SWB is unclear sometimes negative, possibly reflecting higher expectations with respect to life circumstances; (iv) both internal and external living environments are related to SWB – the better the quality the higher the SWB; and (v) social interaction as well as volunteering and participation in sports, religious, cultural and other activities are all positively associated with SWB.

Studies on the determinants of SWB for the Maltese population yield very similar results. However, few studies have been carried out on a representative sample of the population (e.g., Briguglio et al., 2020), and even then, the number of observations may have been insufficient to yield comprehensive insights.

It is important to note that some of the above assertions about the determinants of SWB are based on correlations. While such observations are important because they help understand which members of society experience higher or lower SWB, a correlation between variables can be the result of other unaccounted-for factors. For example, the correlation between age and SWB may reflect the impact that working hours have on SWB because these tend to vary systematically with age. Consequently, the direction and the degree of association between life satisfaction and the many factors discussed above vary significantly between studies - depending on which factors are taken into consideration.

3. Method

3.1 Data Source and Preparation

The data source for this report is the National Statistics Office (NSO)'s 2018 Survey on Income and Living Conditions (National Statistics Office, 2019). This is an annual survey carried out by NSO in each member state of the European Union, aiming to collect timely data on income, poverty, social exclusion, and living conditions. Much of the data is collected annually, while the rest is made of modules that are collected every three or six years, or ad-hoc modules set up as a policy response.

In 2018, the EU-SILC included a module on wellbeing. This included questions on how the respondents assessed their overall life satisfaction, their satisfaction with the use of time, their job satisfaction, their satisfaction with their financial situation and their satisfaction with personal relationships (over the whole year). We refer to these as life evaluations. The survey also included questions about the respondent's positive and negative emotions, including feeling lonely, being very nervous, feeling down in the dumps, feeling calm and peaceful, feeling downhearted or depressed, and being happy (over the last four weeks). We refer to these as *affective* wellbeing.

Data were collected by a personal interview in 2018 for 3,823 households that together comprised 9,555 household members that are representative of the population.[5] The reference population of EU-SILC is all private households, excluding institutions, and the target population is their members residing in Malta at the time of the data collection. The NSO provided weights which were used to reflect population figures. Sampling weights are used to make the sample representative of the population.

3.2 Descriptive Statistics

Table 1 presents a summary of variables related to demography, household characteristics, income, health, housing conditions, participation in physical activities, personal relationships and other factors that can be expected to have an association with SWB based on the review of the literature and the data that is available. The table provides details on how each of these variables is measured and shows the variables' minimum, maximum and average values, standard deviation and number of observations.

The average person in the Malta EU-SILC sample was aged between 35 and 44 years, and the gender split of respondents was approximately equally distributed amongst males and females. The majority of respondents were Maltese (94%), with the single largest percentage residing in the Northern Harbour (32%) and married (53%). There was an equal split between households with no children (41%), and traditional households with children and more than one adult (41%). Single parent households constituted only 1.8% of all respondents.

[5] Income relates to 2017.

The sample offered a mix of people with different socio-economic characteristics. For instance, the sample included individuals with diverse economic status, health, internal/external environmental conditions, and extent of social interactions.

Table 1 – Descriptive Statistics

Variable	Obs	Mean	Sd	Min	Max
Wellbeing Variables					
Overall life satisfaction	8,373	7.5	1.9	0	10
Satisfaction with financial situation	8,375	6.8	2.1	0	10
Satisfaction with time use (amount of leisure time)	8,371	6.8	2.4	0	10
Satisfaction with personal relationships	8,394	8.6	1.5	0	10
Satisfaction with job	3,945	7.5	1.8	0	10
Being very nervous	8,350	2.5	1.1	1	5
Feeling down in the dumps	8,352	2.0	1.0	1	5
Feeling downhearted or depressed	8,298	1.6	0.9	1	5
Being happy	8,326	3.5	0.9	1	5
Feeling lonely	8,320	1.5	0.9	1	5
Demographics and Characteristics					
Age	9,815	3.6	2.1	0	6
Gender	9,721	0.5	0.5	0	1
Marital Status	8,542	1.9	0.8	1	4
Citizenship	8,477	1.0	0.3	1	3
District	9,810	2.5	1.5	0	5
Household type	9,815	2.3	1.3	1	4
Household size	9,815	3.2	1.3	1	9
Household disposable income (in logs)	9,815	10.2	0.6	5	12
Household is materially deprived (lacks three or more items)	9,815	0.1	0.3	0	1
Labour Status	8,542	4.8	3.8	1	11
Education	8,542	0.4	0.7	0	2
General Health	8,541	3.8	0.8	1	5
Limitation in activities because of health problems	8,541	0.3	0.6	0	2
Leaking roof, damp walls/floors/foundation, or rot in window frames or floor	9,815	0.1	0.3	0	1
Crime, violence, or vandalism in the area	9,815	0.1	0.3	0	1
Pollution, grime, or other environmental problem	9,815	0.3	0.5	0	1
Noise from neighbours or from the street	9,815	0.3	0.4	0	1
Material help	7,683	0.8	0.4	0	1
Non-material help	8,087	0.9	0.3	0	1
Perceived social inclusion	8,132	7.4	2.9	0	10
Trust in Others	8,114	3.9	2.9	0	10
Regularly participate in a leisure activity	8,489	1.5	0.7	0	2
Get-together with friends/family (relatives) for a drink/meal at least once a month	8,489	1.7	0.6	0	2
Main voluntary work done	8,896	0.1	0.3	0	1

3.3 Method of Analysis

The aim of the analysis is to understand SWB among people in Malta as well as its determinants.

To do this, we start with an examination of means and distribution of the data for each wellbeing variable. These are then contrasted with EU-wide averages given that data is available that allows this comparison to be undertaken.

Next, we conduct a bivariate analysis that involves measuring the degree of association between SWB and each *one* of its potential determinants. Bivariate analysis involves estimating correlation coefficients that reveal information about the direction and magnitude of the degree of association between two variables. We use the means to compare the satisfaction levels of different groups (for example, old/young; materially deprived/non-materially deprived). We also use the paired t-test to determine whether the difference between group means is statistically significant.

We then undertake exploratory factor analysis (EFA) to reduce the set of indicators on SWB into a single-variable index. The method of EFA entails identifying an underlying "factor" that influences the rating scores of all the measured items. It extracts a common variance from all survey questions into a unique score. Formally, for each wellbeing measurement, there exists a variance which can be expressed as a function of the common variance (that is the variance that is shared among all the indicators) and a unique variance (the remaining variance). Conducting an EFA involved measuring both portions. Formally,

$$\sigma^2 = \lambda^2 + \psi^2$$

Where:

σ^2 is the total variance;

λ^2 is the common variance (i.e., the variance that is shared among all the wellbeing items); and

ψ^2 is the unique variance (i.e., the proportion of total variance that is *not* common in the wellbeing items).

Conducting EFA is the process of measuring the parameters λ_j and Ψ_i.

As already outlined, the wellbeing indicators available from the EU-SILC wellbeing module, include both cognitive and affective items. An item relating to "job satisfaction" was excluded from the factor analysis because only individuals who are currently working were invited to answer that question. Including this item would have reduced the sample to this demographic.[6]

Equipped with this index (or indices), we then conduct a multivariate analysis that measures the degree of association between SWB and *several* of its determinants simultaneously, using a linear regression model. Starting with a conceptual model and using the data to fit the model enables us to analyse how a large number of potential determinants *jointly* explain variations in SWB and to isolate the effect of each while holding the others constant (a condition referred to as *ceteris paribus*). This has clear advantages over bivariate analysis. For instance, we may

[6] The overall factor loadings remain relatively unchanged when job satisfaction is included except for the factor loading of time use for life evaluation which decreases from 0.61 to 0.44. The high loading for job satisfaction shows that it is an important correlate of evaluation *for the employed*.

find that wealthier individuals are more satisfied with their lives not because they are richer per se, but because they have higher educational attainment, employment, live a healthier lifestyle, and so on.

In line with the literature, a regression model for SWB in Malta is specified as follows:

$$W_i = \beta_0 + \beta_1 D_i + \beta_2 Y_i + \beta_3 E_i + \beta_4 H_i + \beta_5 S_i + e_i$$

Where:

W_i measures individual i's SWB;

β preceding the individual sets of independent variables are a measure of the degree of association between SWB and the corresponding independent variable(s);

D is a set of variables capturing demographics (age, gender, marital status (as well as household type and size), nationality and district);

Y captures income and employment (namely household disposable income, material deprivation and economic status);

E captures education and health (including general health, limitation in physical activities, highest educational attainment);

H captures housing conditions and the external environment (including pollution, noise, state of dwelling);

S captures social interaction and voluntary work (including material help, non-material help, trust in others, perceived social exclusion, participation in leisure activities and meeting friends, doing voluntary work and crime); and

e_i is the residual that captures the variance in individual-level wellbeing that is unexplained by the model.

4. Analysis and Results

4.1 Analysis of Distributions and Means

The frequency distribution of the level of satisfaction (with life, finance, time, job satisfaction and personal relationships) of the Maltese population is shown in Figure 1A. In these questions, respondents chose values between zero and 10, with zero meaning *not at all satisfied* and 10 meaning *completely satisfied*. All distributions are negatively skewed; suggesting that the majority of the population are satisfied with the above identified aspects.

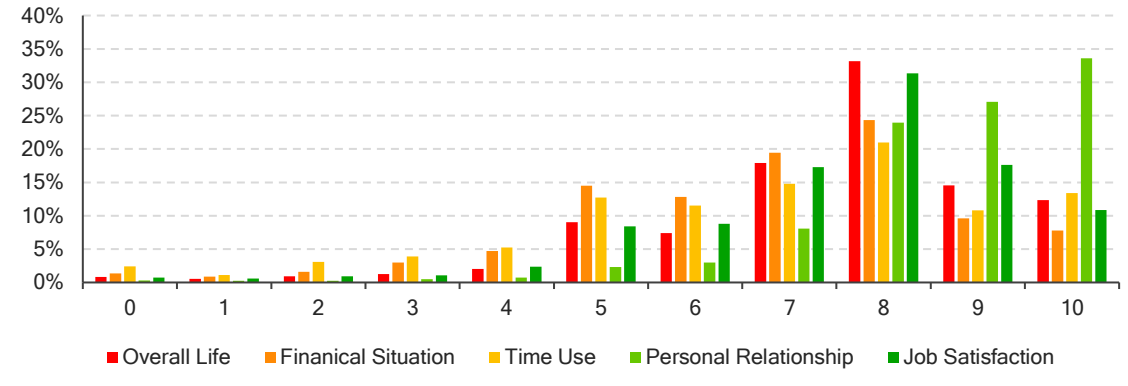
The overall level of life satisfaction is 7.5 out of 10; with eight being the most frequently reported score. Similar patterns are noted for respondents' satisfaction with their financial situation, job, and use of time, but a different pattern is observed for satisfaction with personal relationships. Around 85% of the population scored their satisfaction with personal relationship at eight out of 10 or higher, with Malta recording the highest share in Europe for respondents rating "high" as their level of satisfaction with relationships (Eurostat, 2020). The distributions show that, on average, the Maltese are relatively satisfied with all these aspects of their lives, but there are also persons who are less satisfied. For example, 25% of the population rate the satisfaction with their financial situation only five out of 10 or less.

The frequency distributions for the Maltese population's scoring on affective wellbeing and loneliness is shown in Figure 1B. Here, the responses were measured on a Likert scale ranging from one to five, with one meaning *none of the time* to five meaning *all of the time*. The graph shows that the average individual feels happy and calm; and the majority never feel alone or depressed. Feeling nervous, however, is a more common occurance.

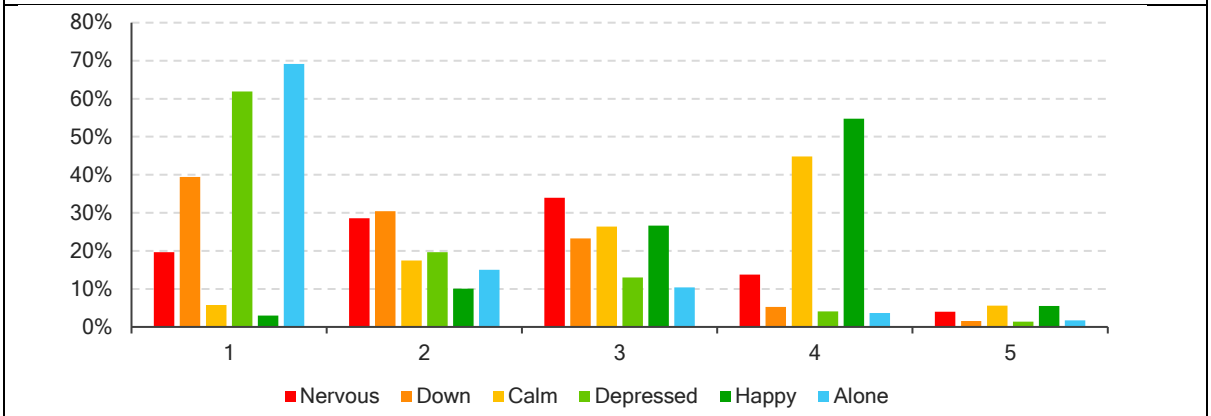
We note that the highest satisfaction, on average, is achieved in the domain of personal relationships while the lowest is in the domain of finance and time use. However, responses are more widely dispersed from the mean for the latter meaning there is more inequality in satisfaction. When it comes to emotions, people in Malta felt nervous more often than they felt other emotions.

Figure 1 – Wellbeing Distributions

1A Life Evaluation



1B Affective Wellbeing



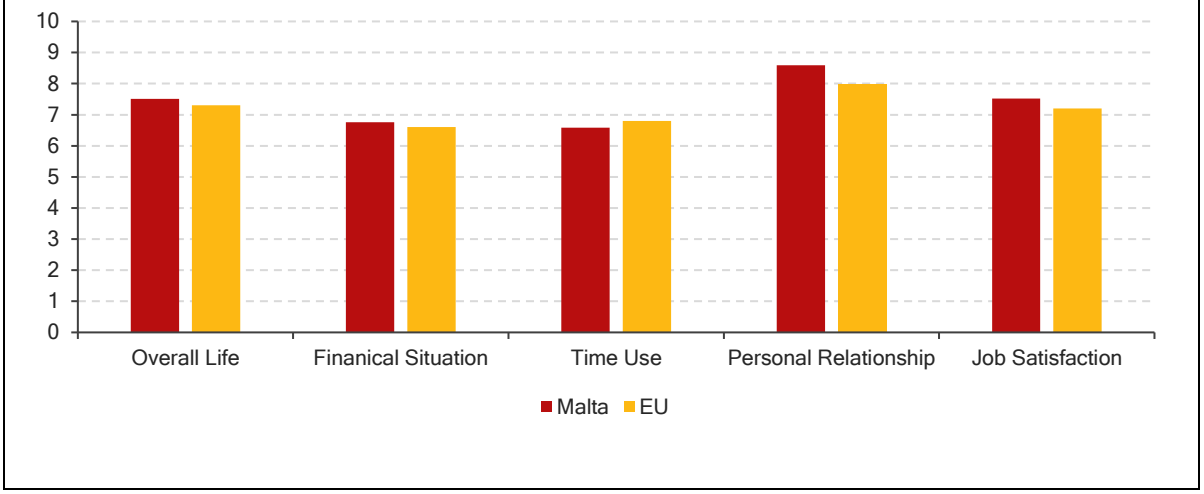
Source: (National Statistics Office, 2019)

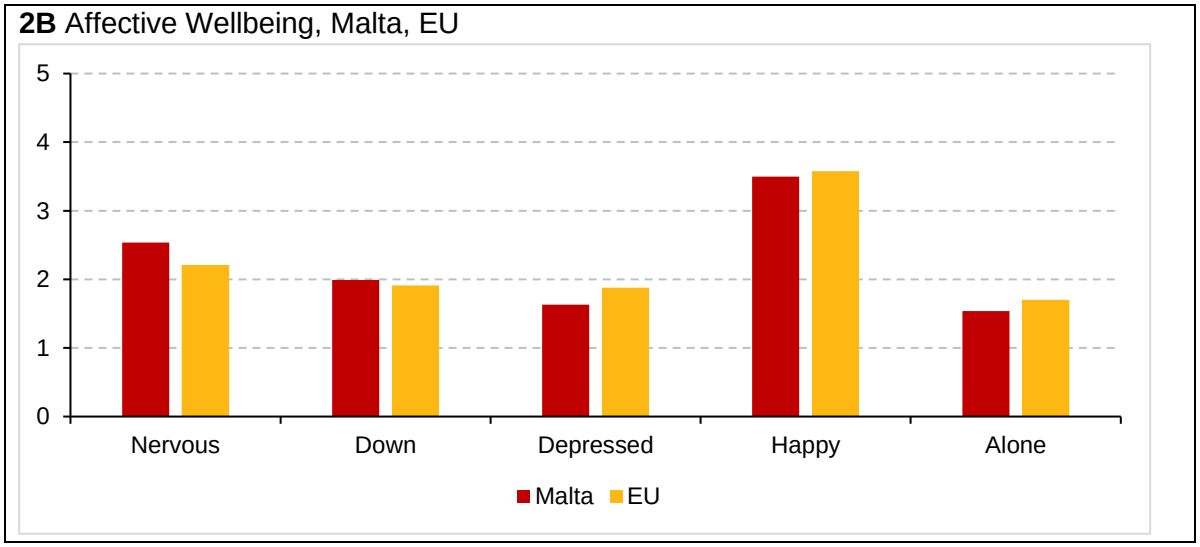
When compared to the EU-average, the Maltese appear to have marginally higher levels of satisfaction in all domains except satisfaction with the use of time. Overall life satisfaction in Malta stood at 7.5, marginally higher than the EU average of 7.3 for the same period. But the Maltese report having lower levels of satisfaction with their time use than their European counterparts, possibly reflecting the fact that Maltese people work longer hours than the EU average (Eurostat, 2021).

Comparisons for emotional wellbeing are presented in Figure 2B. Like other Europeans, people in Malta reported happiness as their most frequently felt emotion. Relative to the EU average, the Maltese felt nervous more often (Eurostat, 2020).

Figure 2 Wellbeing, Malta, and EU Averages

2A Life Evaluation, Malta, EU





4.2 Bivariate Analysis

Simple bivariate analysis indicates that individuals reporting higher overall life satisfaction tend to also be more satisfied with their financial situation, job, use of time, and personal relations. In addition, overall life satisfaction is positively associated with affective wellbeing. This is indicated in Figure 3. This figure depicts the lower triangle of the correlation matrix, whereby each coefficient signals the direction and magnitude of the relationship between each of the variables with all the others. Values (all significant) range between -1 and 1, -1 meaning perfect negative correlation, 0 meaning no correlation, and 1 meaning perfect positive correlation.

Figure 3 – Correlation Matrix of SWB Items

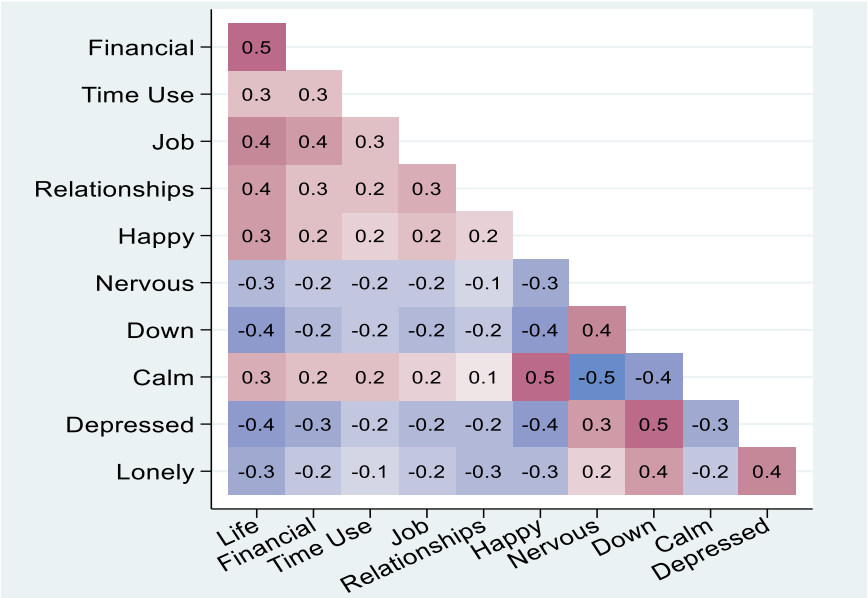


Table 2 examines the average score in each of the wellbeing items according to distinct groups. It also presents the p-value of the test for equality of means among the groups. A p-value less than 0.05 suggests that there is considered evidence to reject the null hypothesis, and that there is a statistically significant difference between the groups.

Several interesting insights emerge from this table. First, an examination of the p-values reveals that practically all the disaggregation (with the exception of gender for some of the satisfaction items) are meaningful insofar as the group means are significantly different. Examining the averages by gender reveals that there are no statistically significant differences between males and females for overall life satisfaction, satisfaction with time use, being happy, and feeling calm and peaceful. We find significant, albeit very small differences in other items, namely in satisfaction with financial situation, and affective components: feeling very nervous, feeling down in the dumps, feeling downhearted/depressed, and feeling lonely. The greatest differences, although still quite small, between males and females lie in job satisfaction, and satisfaction with personal relationships.

Looking at average values for each disaggregation reveals where the differences lie. For instance, looking at wellbeing by age shows that several SWB items are higher among younger people. However, older people are more likely to say they are more satisfied with their time use. Concerning marital status and children, we note that being separated/divorced is associated with a higher frequency of negative emotions and lower satisfaction in most domains. We also note that separated/divorced individuals in Malta report higher levels of job satisfaction. By contrast, widowers report lower wellbeing levels than others. Their life satisfaction stands at 7.1 in contrast with 7.6 for married individuals. Adults in households with no children average a life satisfaction of 7.5. Those residing in Gozo report lower levels of satisfaction, but are enriched with more positive feelings in almost every other domain. In general, the lowest life satisfaction scores occur among those whose general health is bad.

Low levels of wellbeing are strongly associated with material deprivation, defined as lacking three or more basic goods. Although fewer than 10% of the population is materially deprived, their satisfaction with finance and jobs are significantly lower than others', as is their satisfaction with relationships, with time and with life itself. Indeed, life satisfaction among the materially deprived stands at 5.9 compared to 7.6 for the non-deprived. People who are materially deprived also report feeling happy and calm less often than others do, and feel nervous, down, depressed, and lonely more frequently than those who are not deprived. Similar relationships are found when comparing wellbeing by household disposable income quantiles. As expected, the difference in means is not so pronounced at higher levels of income. This reflects findings in the literature where the positive association between income and wellbeing tapers off beyond a certain level of income.

The data also reveals that education is linked to more positive and less negative feelings. However, respondents with higher education and income levels have lower satisfaction with time use. The people that are most satisfied with their time use are the elderly (7.9 compared to 6.2 for the rest). However, loneliness is experienced in higher frequency in this group (1.8 vs. 1.5 for the rest).

If we examine the difference between employed people and others (e.g., retired, looking after the home, unemployed or unable to work due to disability), we find that people who *work* tend to report higher levels of overall life satisfaction. The inability to work due to disability is strongly correlated with lower satisfaction levels in most domains and with more negative and less positive emotions. Life satisfaction stood at 5.5 compared to others whose life satisfaction

stood at 7.5. However, the data shows that respondents feel less happy and are prone to more negative emotions, including loneliness, the longer their reported working hours.

The table also allows us to note that time use in general is the item with which people in Malta are least satisfied, while people score personal relationships considerably higher. People have a higher tendency to feel nervous than depressed, and a slightly higher tendency to feel happy than calm and peaceful.

Figure 4 complements the table above by illustrating some of the main differences in average SWB scores disaggregated across the main demographic sections. Figure 5 illustrates the disaggregation by material deprivation. Much starker contrasts in SWB can be observed here relative to demographics.

Table 2 - Average wellbeing scores by groups

	Overall life satisfaction	Satisfaction with financial situation	Satisfaction with time use	Satisfaction with job	Satisfaction with personal	Being happy	Being very nervous	Feeling down in the dumps	Feeling calm and peaceful	Feeling downhearted or	Feeling lonely
Total	7.5	6.8	6.6	7.5	8.6	3.5	2.5	2.0	3.3	1.6	1.6
Age											
15-24 (16%)	7.7	6.6	6.7	7.4	8.5	3.7	2.4	1.8	3.3	1.5	1.4
25-34 (14%)	7.6	6.7	6.0	7.6	8.5	3.6	2.6	1.9	3.2	1.6	1.4
35-44 (20%)	7.7	6.9	**5.8**	7.7	8.5	3.6	2.6	1.9	3.3	1.5	1.5
45-54 (20%)	7.4	6.7	6.0	7.4	8.4	3.5	2.7	2.1	3.1	1.6	1.6
55-64 (15%)	7.4	6.7	6.8	7.2	8.6	3.4	2.6	2.1	3.3	1.7	1.7
65+ (16%)	7.4	6.9	7.9	8.3	**8.9**	3.4	2.4	2.1	3.4	1.7	1.8
Test for equality of means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Gender											
Male (51%)	7.5	6.8	6.6	7.4	8.5	3.5	2.5	1.9	3.3	1.6	1.5
Female (49%)	7.5	6.7	6.6	7.6	8.7	3.5	2.6	2.0	3.3	1.7	1.6
Test for equality of means (p-value)	0.21	0.26	0.35	0.00	0.00	0.34	0.03	0.00	0.01	0.09	0.00
Marital Status											
Single (32%)	7.5	6.6	6.6	7.4	8.4	3.6	2.5	1.9	3.3	1.6	1.6
Married (53%)	7.6	7.0	6.4	7.6	8.7	3.6	2.6	1.9	3.3	1.6	1.4
Separated/Divorced (7%)	7.0	6.1	6.5	7.6	8.1	3.4	2.6	2.3	3.1	1.8	2.0
Widowed (8%)	7.1	6.7	7.8	7.5	8.9	3.3	2.4	2.2	3.4	1.8	2.4
Test for equality of means (p-value)	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Country of Birth											
Malta (94%)	7.5	6.8	6.6	7.5	8.6	3.5	2.6	2.0	3.3	1.6	1.6
EU (1%)	8.0	7.0	6.7	7.9	8.3	3.7	2.3	1.9	3.5	1.4	1.6
Non-EU (5%)	7.5	6.7	7.0	7.3	8.5	3.6	2.2	1.9	3.4	1.7	1.6
Test for equality of means (p-value)	0.40	0.00	0.01	0.17	0.15	0.01	0.00	0.03	0.00	0.09	0.59
District											
Southern Harbour (17%)	7.4	6.6	6.8	7.4	8.8	3.5	2.7	2.1	3.2	1.8	1.7
Northern Harbour (31%)	7.4	6.7	6.6	7.5	8.7	3.5	2.5	2.0	3.3	1.6	1.6

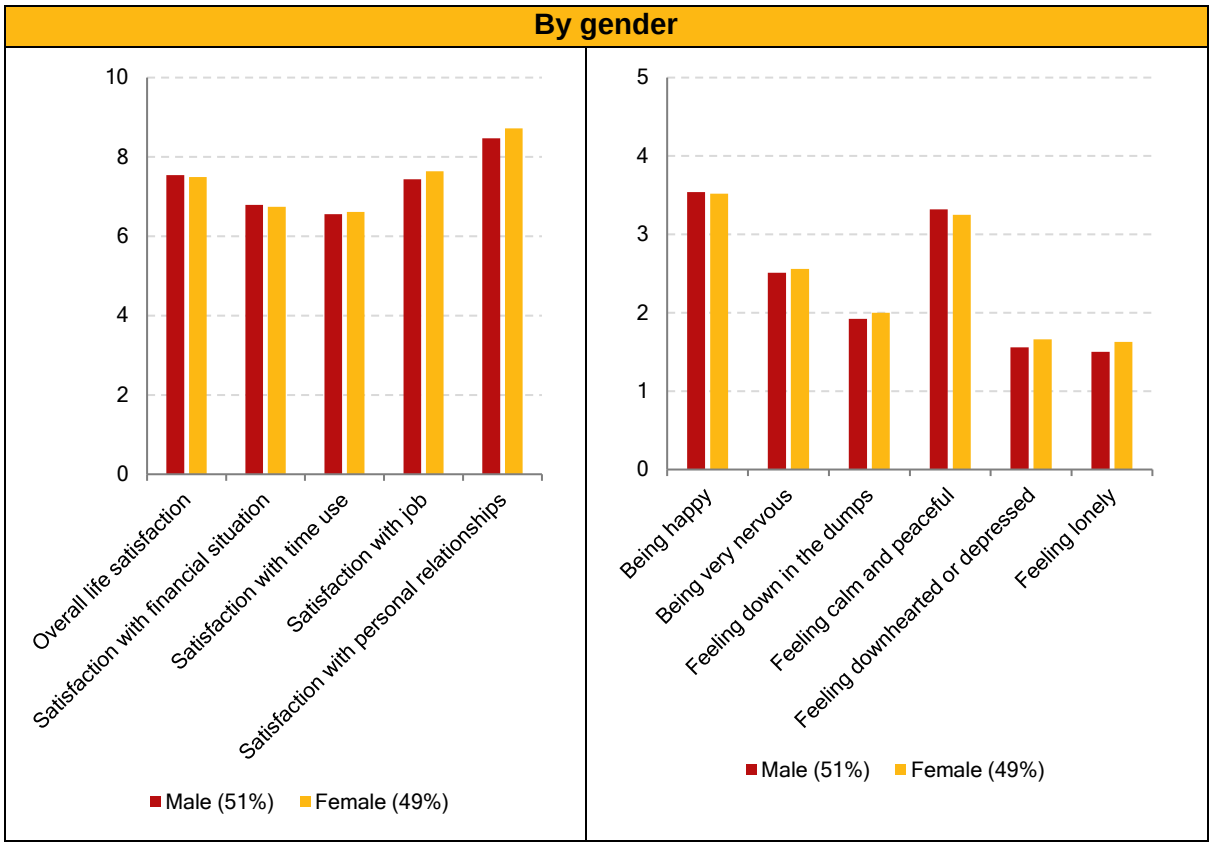
	Overall life satisfaction	Satisfaction with financial situation	Satisfaction with time use	Satisfaction with job	Satisfaction with personal	Being happy	Being very nervous	Feeling down in the dumps	Feeling calm and peaceful	Feeling downhearted or	Feeling lonely
South Eastern (16%)	7.8	7.0	6.3	7.7	8.7	3.6	2.7	2.1	3.2	1.6	1.5
Western (12%)	7.4	6.9	6.3	7.6	8.4	3.5	2.7	2.1	3.2	1.6	1.8
Northern (17%)	7.7	6.9	6.9	7.5	8.6	3.7	2.4	1.8	3.5	1.5	1.4
Gozo and Comino (7%)	7.3	6.5	6.4	7.2	7.8	3.6	2.1	1.6	3.5	1.4	1.4
Test for equality of means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household type											
Households with no children (41%)	7.5	6.7	6.5	7.4	8.5	3.5	2.6	2.0	3.3	1.6	1.6
Households with no children, 65+ (16%)	7.5	7.0	7.9	7.8	8.9	3.5	2.4	2.0	3.5	1.7	1.8
Single parent households (3%)	6.5	5.3	5.4	7.7	8.3	3.4	2.8	2.1	3.1	1.9	2.1
Households with children, more than one adult (41%)	7.6	6.8	6.0	7.6	8.6	3.6	2.6	1.9	3.2	1.5	1.4
Test for equality of means (p-value)	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household size											
1 (9%)	7.4	6.8	7.5	7.4	8.4	3.4	2.4	2.1	3.5	1.7	2.3
2 (26%)	7.5	6.8	7.0	7.5	8.8	3.5	2.5	2.0	3.3	1.7	1.5
3 (24%)	7.7	6.9	6.4	7.7	8.7	3.6	2.6	1.9	3.3	1.5	1.5
4 (27%)	7.5	6.7	6.1	7.5	8.5	3.6	2.6	1.9	3.2	1.6	1.4
5 (9%)	7.2	6.6	6.0	7.1	8.3	3.5	2.7	2.1	3.2	1.6	1.4
6 (3%)	c	c	c	c	c	c	c	c	c	c	c
7 (1%)	c	c	c	c	c	c	c	c	c	c	c
8 (1%)	c	c	c	c	c	c	c	c	c	c	c
9 (0%)	c	c	c	c	c	c	c	c	c	c	c
Test for equality of means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household Disposable Income											
1 quantile (25%)	7.2	6.3	7.3	7.0	8.6	3.4	2.5	2.1	3.3	1.8	1.9
2 quantile (25%)	7.3	6.5	6.6	7.5	8.6	3.5	2.6	2.0	3.2	1.7	1.6
3 quantile (25%)	7.7	6.8	6.3	7.6	8.7	3.6	2.5	1.9	3.3	1.5	1.4
4 quantile (25%)	7.8	7.4	6.2	7.6	8.5	3.7	2.5	1.8	3.3	1.4	1.4
Test for equality of means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Household is materially deprived (lacking three or more basic items)											
Not Materially Deprived (91%)	7.7	7.0	6.6	7.6	8.7	3.6	2.5	1.9	3.3	1.5	1.5
Materially Deprived (9%)	5.9	4.4	6.0	6.6	7.9	3.0	3.0	2.6	2.8	2.4	2.2
Test for equality of means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Self-defined current economic status											
Employee working full-time (45%)	7.7	6.9	6.0	7.5	8.5	3.6	2.5	1.9	3.3	1.5	1.4
Employee working part-time (3%)	7.7	6.7	6.2	7.3	8.7	3.7	2.5	1.9	3.3	1.5	1.4

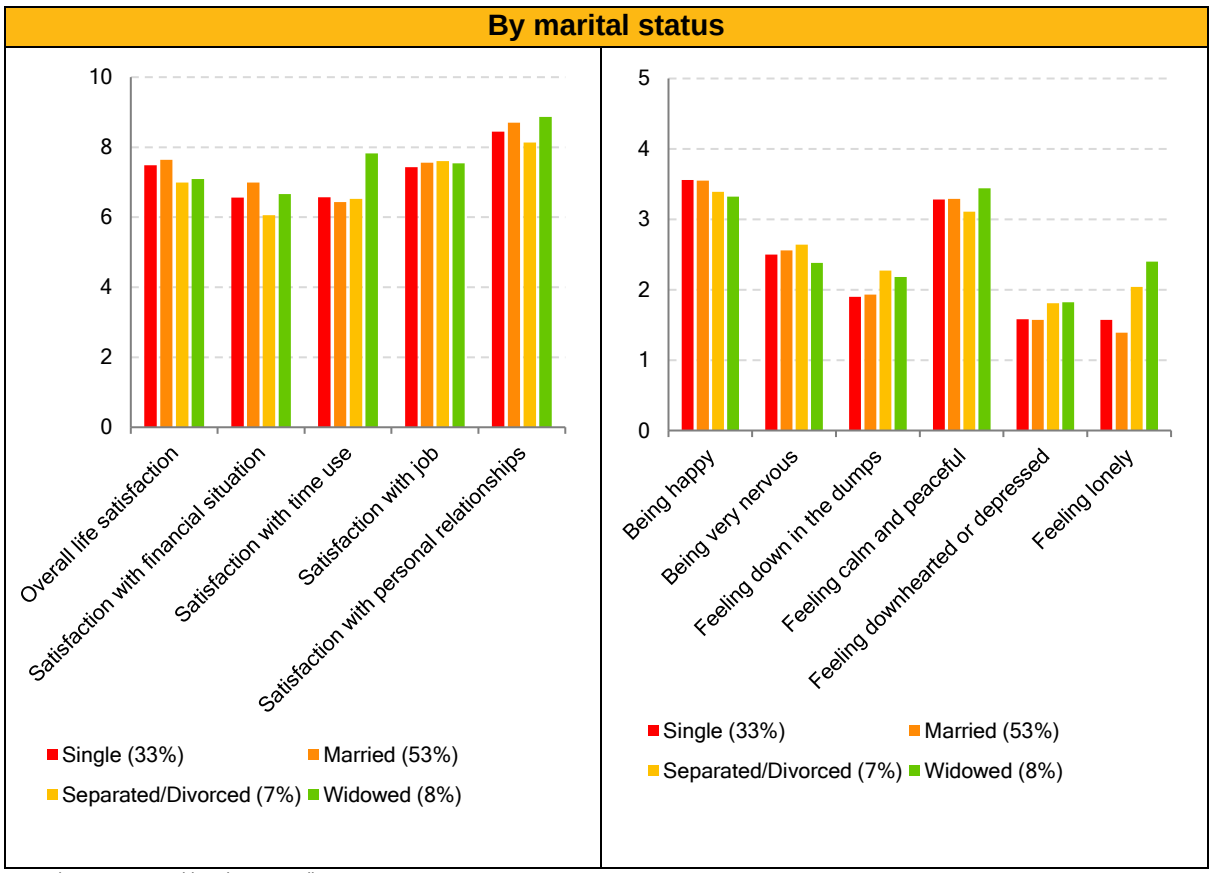
	Overall life satisfaction	Satisfaction with financial situation	Satisfaction with time use	Satisfaction with job	Satisfaction with personal	Being happy	Being very nervous	Feeling down in the dumps	Feeling calm and peaceful	Feeling downhearted or	Feeling lonely
Self-employed working (7%)	7.6	7.1	5.3	7.6	8.4	3.6	2.7	1.8	3.2	1.4	1.5
Unemployed (1%)	6.9	5.0	7.1	N/A	8.4	3.2	2.8	2.4	3.1	2.1	1.8
Pupil, student, further training or unpaid work experience (6%)	7.8	6.7	6.6	N/A	8.5	3.7	2.3	1.8	3.4	1.4	1.4
In retirement or in early retirement or has given up business (17%)	7.4	6.9	8.0	N/A	8.8	3.5	2.4	2.0	3.4	1.7	1.7
Permanently disabled or/and unfit to work (1%)	5.5	5.0	7.2	N/A	7.7	2.5	3.1	3.1	2.7	3.0	2.4
Fulfilling domestic tasks and care responsibilities and other inactive person (20%)	7.2	6.4	7.1	N/A	8.7	3.4	2.6	2.2	3.2	1.8	1.8
Test for equality of means (p-value)	0.00	0.00	0.00	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highest ISCED level attained											
ISCED 0-3 (1%)	7.4	6.6	6.7	7.4	8.6	3.5	2.6	2.0	3.2	1.7	1.6
ISCED 4 (17%)	7.7	7.1	6.2	7.7	8.6	3.7	2.5	1.9	3.3	1.5	1.4
ISCED 5-7 (36%)	7.9	7.4	6.2	7.7	8.5	3.7	2.5	1.8	3.4	1.4	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
General Health											
Very bad (1%)	4.7	4.2	5.0	6.4	8.1	2.7	3.5	3.2	2.6	3.1	2.6
Bad (4%)	5.4	5.4	6.6	5.6	8.1	2.8	3.1	2.9	2.7	2.6	2.5
Fair (21%)	7.0	6.4	7.3	7.0	8.6	3.3	2.7	2.2	3.2	1.9	1.8
Good (50%)	7.8	7.0	6.5	7.6	8.7	3.6	2.5	1.8	3.4	1.5	1.4
Very good (24%)	7.7	6.9	6.2	7.6	8.6	3.6	2.5	1.8	3.3	1.5	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Limitation in activities because of health problems											
No, not limited (88%)	7.7	6.9	6.5	7.5	8.6	3.6	2.5	1.9	3.3	1.5	1.5
Yes, strongly limited (3%)	5.7	5.5	6.2	5.8	8.3	2.9	3.1	2.8	2.8	2.5	2.3
Yes, limited (9%)	6.6	6.2	7.1	7.1	8.4	3.1	2.8	2.4	3.0	2.1	2.1
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leaking roof, damp walls/floors/foundation, or rot in window frames or floor											
No (93%)	7.6	6.9	6.6	7.5	8.6	3.6	2.5	1.9	3.3	1.6	1.5
Yes (7%)	6.6	5.5	6.7	7.3	8.1	3.2	2.9	2.3	3.0	2.0	2.0
Test for equality of group means (p-value)	0.00	0.00	0.88	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crime, violence or vandalism in the area											
Not a problem for household (88%)	7.6	6.8	6.6	7.6	8.6	3.5	2.5	1.9	3.3	1.6	1.6
Problem for household (12%)	7.2	6.3	6.2	7.2	8.5	3.4	2.7	2.1	3.2	1.8	1.6

	Overall life satisfaction	Satisfaction with financial situation	Satisfaction with time use	Satisfaction with job	Satisfaction with personal	Being happy	Being very nervous	Feeling down in the dumps	Feeling calm and peaceful	Feeling downhearted or	Feeling lonely
Test for equality of group means (p-value)	0.00	0.00	0.01	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.02
Pollution, grime or other environment problem											
Not a problem for household (70%)	7.5	6.8	6.6	7.5	8.6	3.5	2.5	1.9	3.3	1.6	1.6
Problem for household (30%)	7.4	6.7	6.5	7.5	8.6	3.5	2.6	2.0	3.2	1.7	1.6
Test for equality of group means (p-value)	0.00	0.00	0.36	0.66	0.15	0.01	0.00	0.07	0.00	0.00	0.20
Noise from neighbours or from the street											
No (23%)	7.6	6.9	6.7	7.5	8.7	3.5	2.5	1.9	3.3	1.6	1.6
Yes (77%)	7.3	6.5	6.3	7.5	8.4	3.5	2.7	2.0	3.2	1.7	1.6
Test for equality of group means (p-value)	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.14
Material help											
No (23%)	6.8	5.9	6.4	7.2	8.1	3.2	2.7	2.2	3.0	1.9	1.8
Yes (77%)	7.7	7.0	6.6	7.6	8.7	3.6	2.5	1.9	3.4	1.5	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-material help											
No (12%)	6.6	6.0	6.3	7.0	7.7	3.1	2.8	2.2	2.9	1.9	2.0
Yes (88%)	7.6	6.9	6.6	7.6	8.7	3.6	2.5	1.9	3.3	1.6	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regularly participate in a leisure activity											
No, cannot afford (14%)	6.4	4.9	6.1	7.0	8.4	3.1	2.8	2.5	2.9	2.2	1.9
No, other reason (22%)	7.3	6.8	7.0	7.3	8.6	3.4	2.6	2.1	3.3	1.7	1.7
Yes (64%)	7.8	7.1	6.6	7.6	8.6	3.6	2.5	1.8	3.4	1.5	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Get-together with friends/family (relatives) for a drink/meal at least once a month											
No, cannot afford (7%)	5.8	4.2	6.1	6.2	8.1	2.9	3.0	2.6	2.8	2.4	2.1
No, other reason (9%)	7.0	6.6	7.1	6.9	8.4	3.3	2.6	2.2	3.3	1.8	1.8
Yes (84%)	7.7	7.0	6.6	7.6	8.7	3.6	2.5	1.9	3.3	1.5	1.5
Test for equality of group means (p-value)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Main voluntary work done											
No (89%)	7.4	6.7	6.6	7.5	8.6	3.5	2.5	2.0	3.3	1.6	1.6
Yes (11%)	8.0	7.3	6.8	7.9	8.8	3.7	2.5	1.9	3.4	1.5	1.5
Test for equality of group means (p-value)	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.03	0.00	0.03	0.01

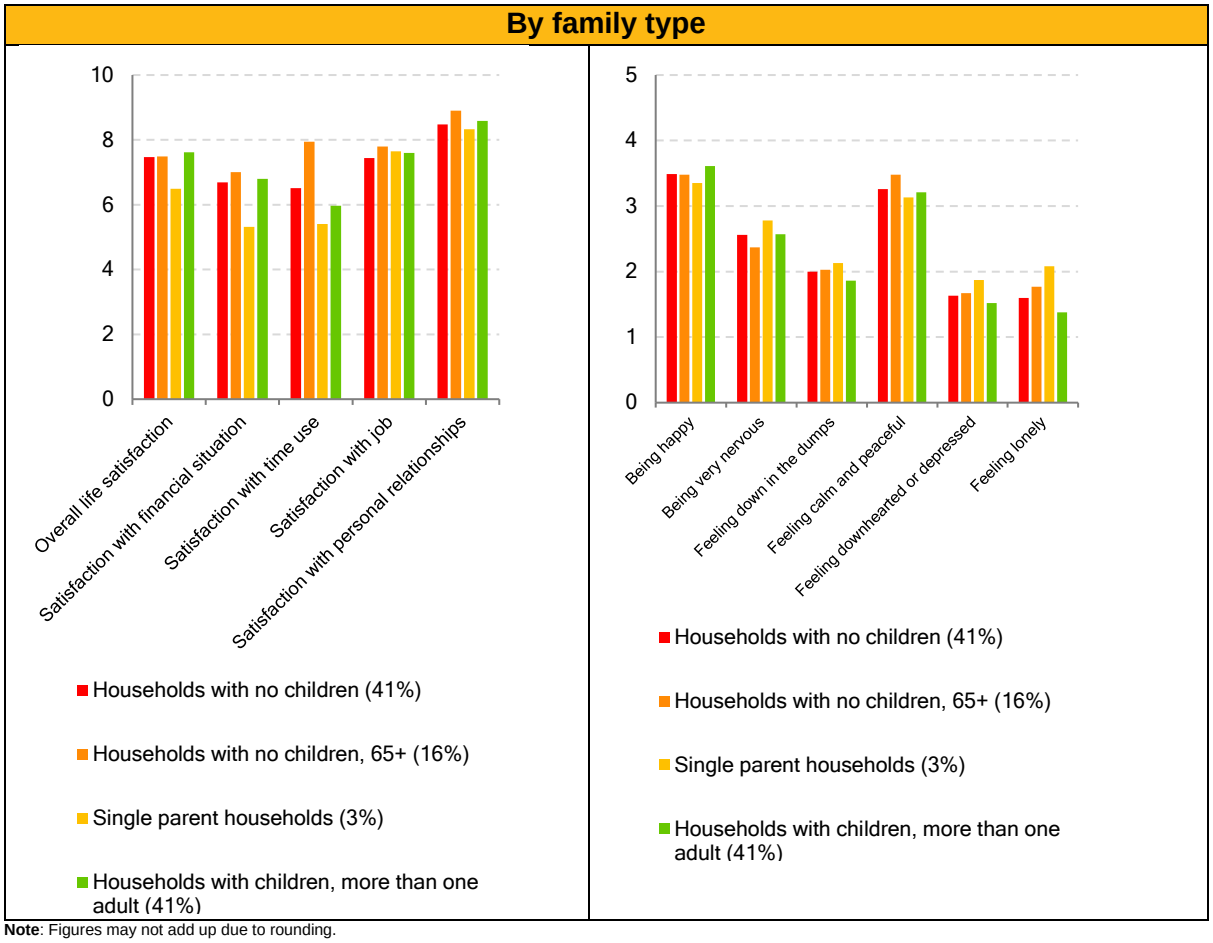
Note: C means confidential; N/A means not applicable

Figure 4 Disaggregated SWB items scores – main demographics



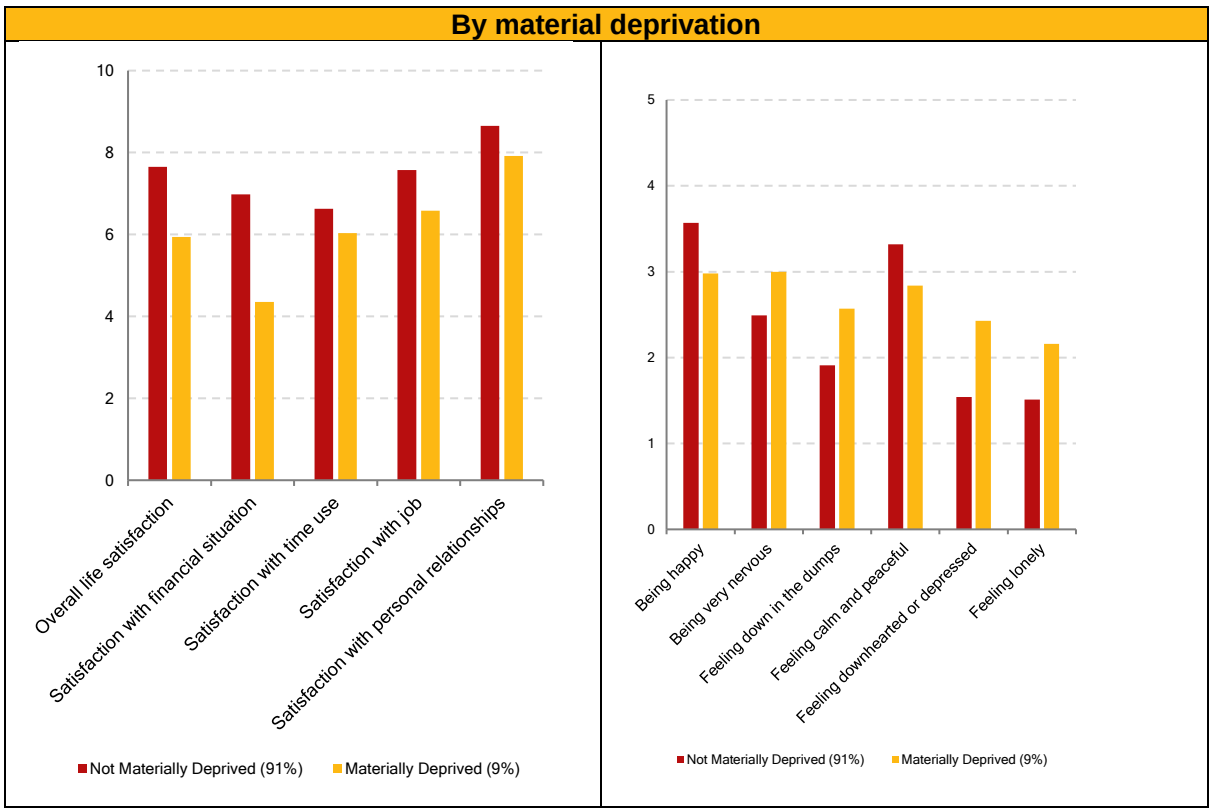


Note: Figures may not add up due to rounding.



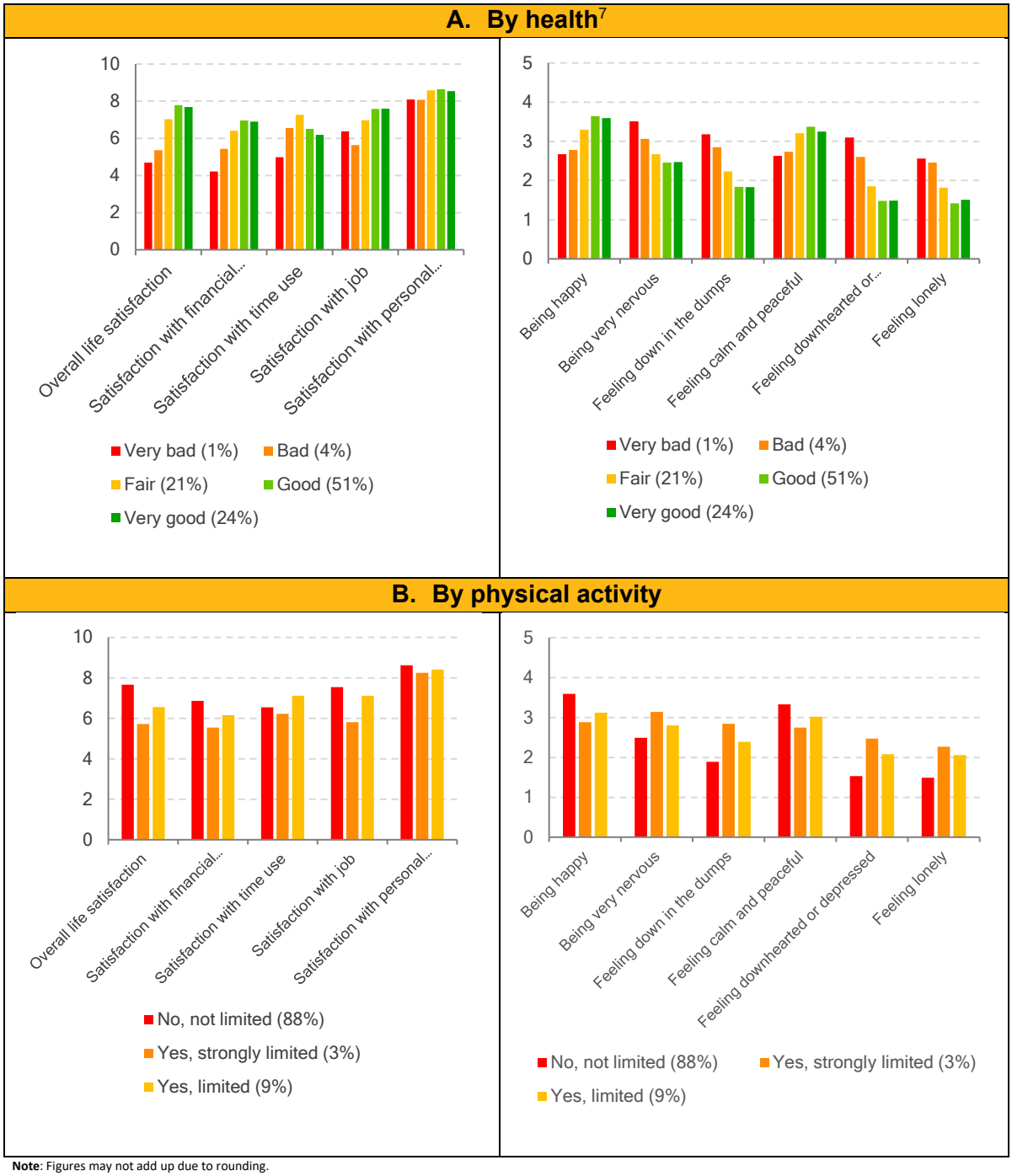
Note: Figures may not add up due to rounding.

Figure 5 Disaggregated SWB items scores – by material deprivation



Turning to health, the data shows that those who consider their health to be anywhere between fair and very good have a mean life satisfaction level of 7.5 compared to 5.5 for those who feel they have bad or very bad health. However, while there is a big gap between the wellbeing of people in poor or bad health and those with fair health, the differences for fair, good, or very good health are not so pronounced. These findings are illustrated in Figure 6.

Figure 6 Disaggregated SWB items scores – by health and physical activity



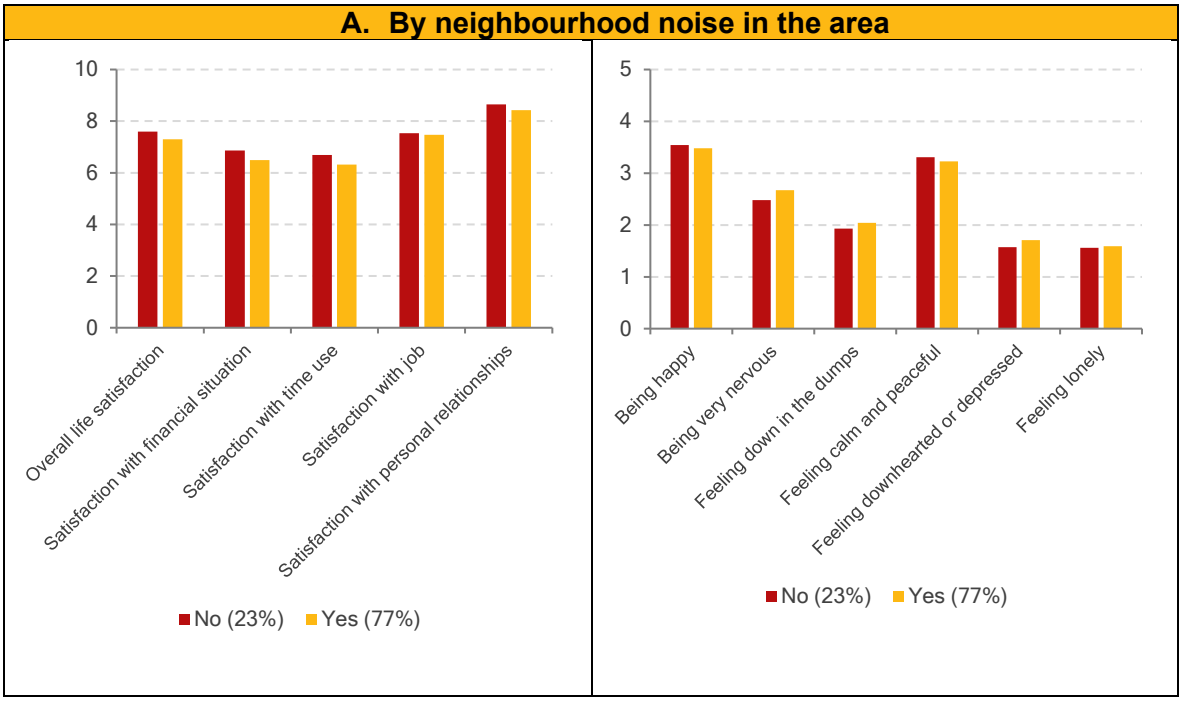
Note: Figures may not add up due to rounding.

[7] For charts on emotions (i.e., affective), the range of such variables is from 1-5, as indicated in Table 1. The axes of such charts should be interpreted accordingly.

On the links between the internal/external environment and wellbeing, our findings (illustrated in Figure 7) indicate that pollution is associated with more negative and less positive emotions. This reflects the main findings in the literature. We also find lower life satisfaction among respondents reporting past housing difficulties and poor housing conditions. Respondents declaring leaking roofs also report lower life satisfaction (6.6 vs. 7.6). Those who live in areas of crime and vandalism also have lower levels of wellbeing. There is, of course, a strong likelihood that these people also experience some level of material deprivation.

Finally, turning to social interactions (Figure 8), people who interact in social activities rate higher across all domains than those who do not. Likewise, voluntary work is associated with higher overall life satisfaction and being happy.

Figure 7 Disaggregated SWB items scores – by housing and environment



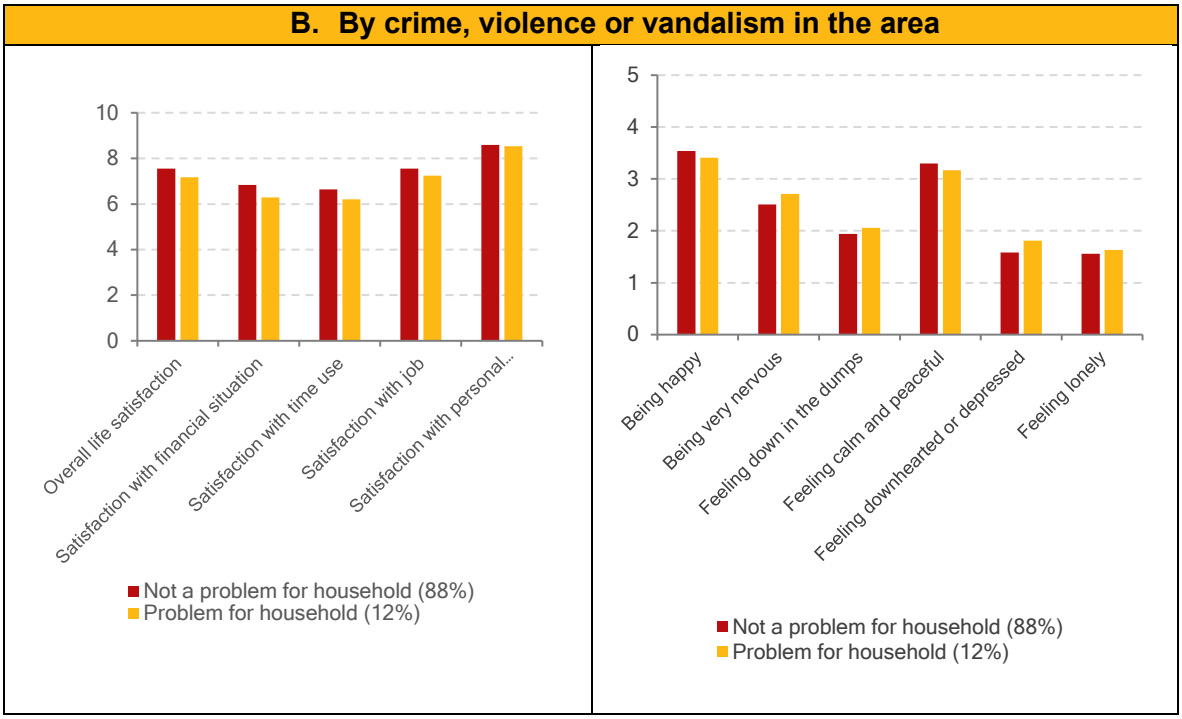
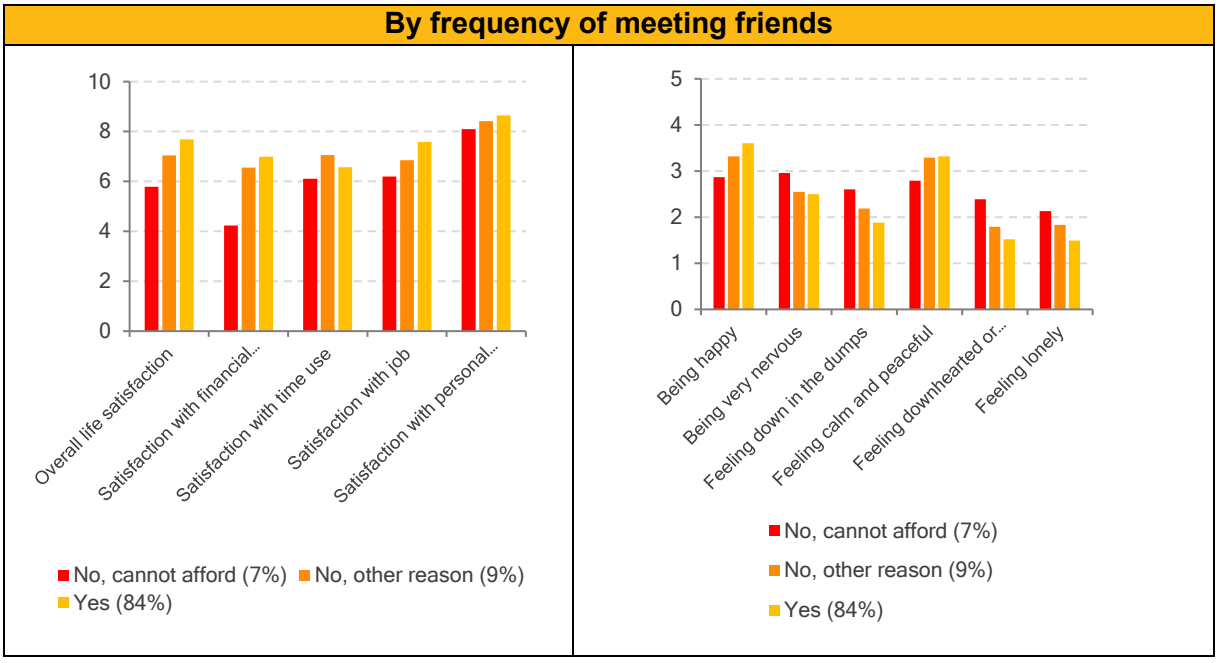


Figure 8 Disaggregated SWB items scores – by social interaction



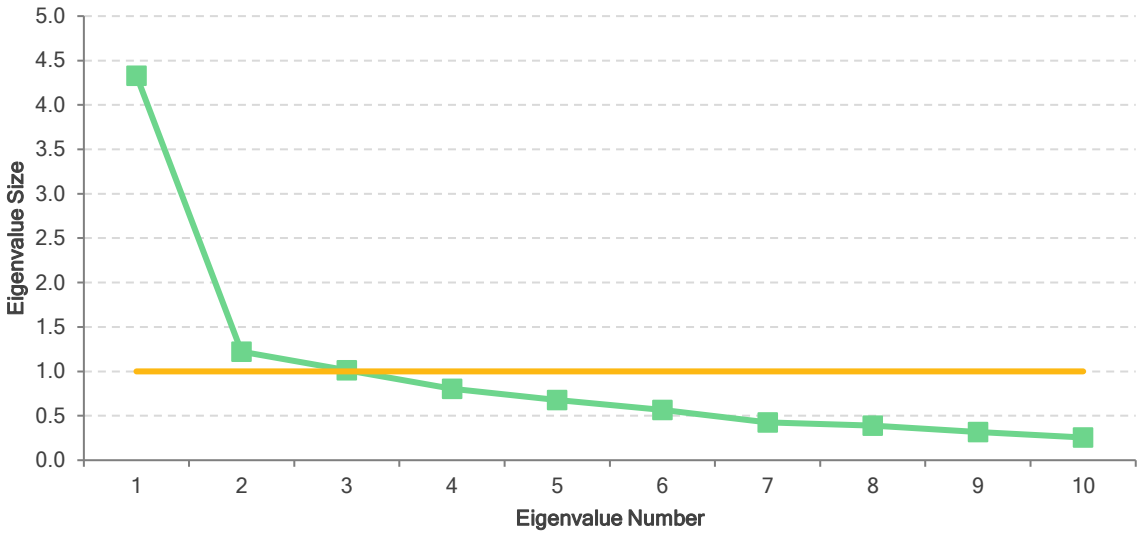
Together, these findings indicate some of the wellbeing inequalities that exist in Malta and highlight the importance of assessing wellbeing disaggregation beyond averages.

4.3 Factor Analysis – Creating an Index

The purpose of this component of the analysis was to synthesize the various wellbeing items into an index. Using the process of EFA, we found that our variables loaded highly on two "factors", **(**see **Figure 9)**.[8] Variables related to affective wellbeing load highly on one factor, while variables relating to cognitive appreciation or life evaluation load highly on a second factor. This suggests that among our respondents, life evaluation (linked to eudaimonic wellbeing) and affective wellbeing (linked to hedonic wellbeing) are conceptually distinct factors of SWB.

The Cronbach's alpha for each group of questions was computed as a test of internal consistency. For affective wellbeing this is 0.80, indicating good reliability, while for life evaluation this is 0.66, indicating an acceptable level of internal consistency.[9]

Figure 9 Eigenvalue size for each factor



After conducting the EFA, the extracted factor for *affective* wellbeing was reverse-scored so that higher scores for each identified factors are associated with increased wellbeing. For ease of interpretation, Table 3 shows the reverse-scored loadings. These factor loadings represent the variance explained by each item on a particular factor.

[8] Using the Kaiser Rule, we consider factors with an Eigenvalue greater than 1.

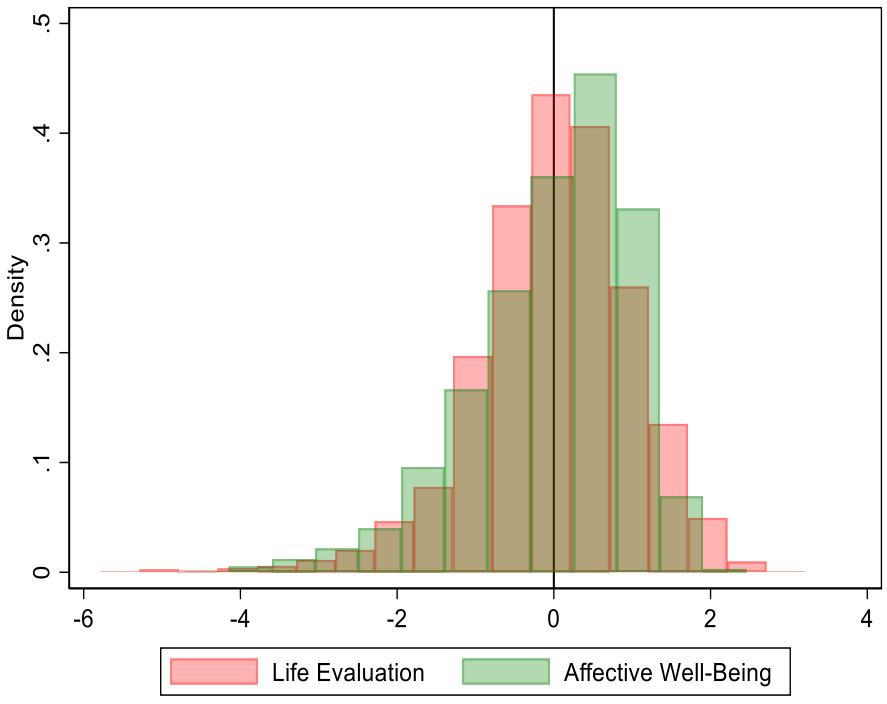
[9] Cronbach (1951) alpha values of 0.7 or higher indicate acceptable internal consistency. Values of alpha less than 0.7 are common for one-dimensional scales with less than ten items (Cortina, 1993; Sijtsma, 2009). Although a high value of Cronbach's alpha is desirable, there is no general rule where alpha becomes acceptable (Schmitt, 1996).

Table 3- Factor Loadings by the Principal Component Method for Wellbeing

	Loadings		Commonalities	Specific Variance
	Affective	Evaluation	h_i^2	ψ_i
	λ_{1j}	λ_{2j}		
Overall life satisfaction	.39	**.70**	.64	.36
Satisfaction with financial situation	.27	**.70**	.57	.43
Being very nervous	**-.71**	-.10	.52	.48
Feeling down in the dumps	**-.82**	-.17	.71	.29
Feeling calm and peaceful	**.72**	.14	.54	.46
Feeling downhearted or depressed	**-.80**	-.25	.70	.30
Being happy	**.74**	.21	.59	.41
Satisfaction with time use (amount of leisure time)	.05	**.61**	.37	.63
Satisfaction with personal relationships	.10	**.69**	.48	.52
Feeling lonely	**-.63**	-.21	.44	.56
Variance accounted for	3.518	2.034	4.914	
Proportion of total variance	.391	.226	.546	
Cumulative proportion	.391	.617		

Figure 10 illustrates the distribution of the two extracted factors, hereinafter referred to as the Index of Affect and the Index of Life Evaluation. Both factors are standardised, meaning they have a mean of zero and a standard deviation of one. The shape of the distributions reveals how individuals cluster along the spectrum of wellbeing scores. The skewness of the distributions suggests that respondents are clustered toward the top of the distribution and the average score is pulled down by the relatively fewer low-scoring individuals that form its tail.

Figure 10 – Histogram, Index of Affect and Index of Life Evaluation



4.4 Multivariate Analysis

In this section, we present estimates of the relationship between SWB and other socio-demographic and economic factors. While the primary focus of our model is on the created factor scores, we also test the model for the two single items, namely 'overall life satisfaction' and 'being happy', as scored directly by respondents.

Table 4 reports the predictive capability of each identified variable on the main wellbeing indicators. Models (1) and (2) explain 16.8% and 29.1% of the variation in the dependent variable. By corollary, this means that the explanatory variables are missing a proportion of the variance. This variance could be due to other known determinants which are not captured by the data, for instance personality and exposure to experiences – such as participation in arts, sports, and religion as well as personality. The data in the EU-SILC do not allow us to capture the impact of these variables individually on wellbeing.

Table 4 – OLS Estimates of Wellbeing

	(1) Index of Affect	**(2)** Index of Life Evaluation	**(3)** Overall Life Satisfaction	**(4)** Being Happy
	b/se	b/se	b/se	b/se
Demographics				
Age (Base: 15-24)				
25-34	-0.084	-0.195**	-0.209	-0.112*
	(-1.20)	(-2.48)	(-1.58)	(-1.87)
35-44	-0.038	-0.183**	-0.164	-0.157**
	(-0.49)	(-2.13)	(-1.13)	(-2.33)
45-54	-0.176**	-0.093	-0.134	-0.203***
	(-2.18)	(-1.10)	(-0.90)	(-2.95)
55-64	-0.017	0.014	0.026	-0.113
	(-0.20)	(0.15)	(0.16)	(-1.54)
65+	0.053	0.113	0.125	-0.069
	(0.49)	(0.95)	(0.59)	(-0.75)
Gender				
Sex (dummy, 1 = Female)	-0.093***	0.071***	0.012	0.005
	(-3.31)	(2.74)	(0.26)	(0.19)
Marital Status (Base: Single)				
Married	-0.007	0.066	0.123	0.029
	(-0.14)	(1.30)	(1.44)	(0.70)
Separated/Divorced	-0.196**	-0.162**	-0.297**	-0.040
	(-2.48)	(-2.18)	(-2.25)	(-0.61)
Widowed	-0.179**	0.014	-0.227	-0.086
	(-2.44)	(0.19)	(-1.61)	(-1.33)
Household Type (Base: Households with no children)				
Households with no children, 65+	0.027	0.166**	0.152	0.082
	(0.43)	(2.44)	(1.27)	(1.60)
Single parent households	0.141	-0.231	-0.379	0.063
	(1.04)	(-1.35)	(-1.22)	(0.56)

	(1) Index of Affect	(2) Index of Life Evaluation	(3) Overall Life Satisfaction	(4) Being Happy
Households with children	0.130**	0.071	0.348***	0.113**
	(2.57)	(1.26)	(3.50)	(2.44)
Household Size				
Household size	-0.018	-0.077***	-0.150***	-0.026
	(-0.93)	(-3.06)	(-3.71)	(-1.60)
Citizenship (Base: Maltese)				
EU	0.043	-0.004	0.021	0.089
	(0.21)	(-0.02)	(0.07)	(0.57)
Non-EU	0.215*	0.048	0.172	0.187**
	(1.79)	(0.45)	(0.98)	(2.14)
District (Base: Gozo)				
Southern Harbour	-0.646***	0.657***	0.252***	-0.084
	(-10.91)	(11.93)	(2.75)	(-1.62)
Northern Harbour	-0.407***	0.475***	0.160*	-0.049
	(-7.63)	(9.35)	(1.87)	(-1.04)
South Eastern	-0.644***	0.581***	0.307***	-0.074
	(-11.48)	(10.07)	(3.14)	(-1.43)
Western	-0.609***	0.441***	0.036	-0.115**
	(-10.09)	(7.25)	(0.35)	(-2.10)
Northern	-0.313***	0.467***	0.214**	0.077
	(-5.18)	(6.98)	(2.07)	(1.58)
Income and Employment				
Income and Material Deprivation				
Household Disposable Income (logs)	0.068*	0.084**	0.137*	0.047
	(1.80)	(2.11)	(1.93)	(1.43)
Materially Deprived	**-0.270*** **	**-0.431*** **	**-0.574*** **	**-0.163** **
	(-3.75)	(-5.73)	(-4.02)	(-2.52)
Labour Status (Base: Employed)				
Unemployed	-0.259*	0.127	0.096	-0.173
	(-1.69)	(0.85)	(0.38)	(-1.61)
Pupil/Student/Further training	0.072	-0.037	0.071	0.028
	(0.91)	(-0.43)	(0.50)	(0.42)
In retirement or in early retirement or has given up business	-0.054	0.243***	0.099	-0.013
	(-0.94)	(4.30)	(0.95)	(-0.26)
Permanently disabled or/and unfit to work	-0.670***	0.349***	-0.266	-0.484***
	(-4.54)	(2.59)	(-1.01)	(-3.30)
Fulfilling domestic tasks and care responsibilities	-0.094*	0.204***	0.075	-0.023
	(-1.92)	(4.06)	(0.81)	(-0.55)
Inactive, other reason	-0.026	0.247**	0.187	0.125
	(-0.18)	(2.33)	(0.75)	(1.14)
Education and Health				
Education (Base: ISCED 03)				
ISCED 04	-0.002	0.045	0.070	0.050
	(-0.04)	(0.89)	(0.64)	(1.00)

	(1) Index of Affect	(2) Index of Life Evaluation	(3) Overall Life Satisfaction	(4) Being Happy
ISCED 05-07	0.119***	0.018	0.148**	0.115***
	(3.06)	(0.48)	(2.21)	(3.37)
General Health (Base: Very Bad)				
Bad	0.037	0.369	0.382	0.016
	(0.16)	(1.44)	(0.70)	(0.08)
Fair	0.489**	0.726***	1.656***	0.282
	(2.27)	(2.91)	(3.14)	(1.35)
Good	0.739***	0.826***	2.113***	0.422**
	(3.42)	(3.29)	(4.03)	(1.98)
Very good	0.642***	0.855***	2.041***	0.335
	(2.93)	(3.38)	(3.86)	(1.56)
Limitation in physical activities (Base: Not limited)				
Yes, strongly limited	-0.316***	-0.130	-0.452**	-0.172*
	(-2.69)	(-1.21)	(-2.02)	(-1.68)
Yes, limited	-0.179***	-0.014	-0.274**	-0.142***
	(-2.97)	(-0.23)	(-2.50)	(-2.63)
Housing and Environment				
Leaking roof	-0.157**	-0.202***	-0.335***	-0.110*
	(-2.17)	(-2.86)	(-2.93)	(-1.74)
Crime	-0.024	-0.103*	-0.124	-0.051
	(-0.41)	(-1.91)	(-1.26)	(-1.07)
Pollution	-0.061	0.030	0.017	-0.033
	(-1.48)	(0.69)	(0.23)	(-0.91)
Noise from neighbours or from the street	-0.017	-0.137***	-0.151*	0.008
	(-0.42)	(-2.93)	(-1.89)	(0.21)
Social				
Regularly participate in leisure activities (Base: No, cannot afford)				
No, other reason	0.149**	0.194***	0.323**	0.144**
	(2.08)	(2.89)	(2.33)	(2.21)
Yes	0.118*	0.297***	0.462***	0.159***
	(1.85)	(4.95)	(3.65)	(2.73)
Get together with friends (Base: No, cannot afford)				
No, other reason	0.158	0.352***	0.577***	0.171*
	(1.54)	(3.69)	(2.87)	(1.94)
Yes	0.221***	0.405***	0.686***	0.275***
	(2.68)	(5.08)	(3.88)	(3.78)
Material help (dummy)	0.165***	0.132**	0.276***	0.144***
	(3.45)	(2.54)	(2.87)	(3.23)
Non-Material help (dummy)	0.036	0.266***	0.422***	0.187***
	(0.52)	(3.48)	(3.24)	(2.91)
Perceived social inclusion (dummy)	0.048***	0.032***	0.072***	0.039***
	(7.40)	(5.18)	(6.15)	(7.08)
Trust in Others	-0.003	0.024***	0.029***	0.001
	(-0.50)	(3.90)	(2.62)	(0.20)
Main voluntary work done	0.060	0.117**	0.295***	0.119***
	(1.36)	(2.46)	(3.96)	(2.87)

	(1) Index of Affect	(2) Index of Life Evaluation	(3) Overall Life Satisfaction	(4) Being Happy
Constant	-1.455***	-3.297***	2.147**	1.928***
	(-3.29)	(-7.22)	(2.48)	(4.81)
Observations	7056	7056	7255	7213
R-squared	0.223	0.228	0.237	0.173
Adjusted R-squared	0.217	0.223	0.232	0.168

Note: The table reports OLS coefficients; ***,**,* denotes significance at the 1%, 5%, and 10% level respectively.

Examining the outcomes reveals that, similar to other findings, happiness in Malta is lowest among people in their middle age (e.g., Dolan et al. 2008), *ceteris paribus*. In line with some of the literature, being female in Malta is associated with stronger scores on life evaluations but lower on affect. Relative to being single, being separated/divorced depresses live evaluation, life satisfaction and affective wellbeing. In Malta, relative to a household with no children, adults in a household with children report higher affect, life satisfaction and happiness. However, in larger households, there tends to be lower evaluative wellbeing and life satisfaction. Relative to Maltese, third country nationals report higher affective wellbeing and happiness. It is worth keeping in mind that people from different cultures or countries may interpret the question scales differently. Relative to living in Gozo, living in almost any other region yields more life satisfaction and evaluation but Gozo returns a more positive *affective* wellbeing.

Turning to income and employment, our results show that an increase in disposable income is significantly linked to both evaluative and affective factor wellbeing scores as well as with overall life satisfaction. It is not, however, linked with happiness. On the other hand, severe material deprivation has a strong negative effect on wellbeing across all domains. Holding other factors constant, those who are permanently disabled or/and unfit to work experience a lower frequency of happiness. Those who are unemployed and fulfilling domestic tasks and care responsibilities are less happy and have more negative affective scores than any other inactive persons. These results are consistent with evidence that being involuntarily out of work may drastically decrease people's wellbeing level (e.g., Clark & Oswald 1994; Winkelmann 2009). It is worth emphasizing that unemployment has a very strong effect on wellbeing even after accounting for income and education.

Moving on to education and health, the regression results confirm that tertiary education positively predicts higher life satisfaction and affective wellbeing relative to people with post-secondary, non-tertiary, or lower education. No statistically significant differences were found across education groups for life evaluation, possibly due to lower scores on time satisfaction. Tertiary education predicts wellbeing even after controlling for factors such as income and labour market status, illustrating that educational attainment is an important determinant of wellbeing. This finding is consistent with other literature that links educational attainment with life satisfaction at the individual level (e.g. Cardenas et al., 2008; Salinas-Jiménez et al., 2011; Cuñado & Pérez de Gracia, 2012). Health very strongly predicts wellbeing with considerably high and significant coefficients at every level of improvement beyond bad/very bad health

and for almost every indicator. In addition to this, being able to do physical activity also predicts additional wellbeing benefits.

The internal environment also turns out to be important determinant for all wellbeing indicators. The impact of leaking roof, damp walls or rot on the wellbeing indicators is negative as expected. Statistically significant findings also emerge with respect to the impact of neighbourly noise on life evaluation and overall life satisfaction. It is also worth noting that self-reported health status is also highly correlated with environmental problems.

On the social front, having the benefit of receiving help from others results in a life satisfaction that is higher by a significant amount. Voluntary work is associated with greater life evaluation, greater overall life satisfaction and higher frequency of feeling happy. In our model, a distinction is made between those who do not participate with friends and leisure activities for financial reasons, and those who do not participate for other reasons. People who get together with friends and/or participate in leisure activities have higher wellbeing scores across all domains. Those who voluntarily opt-out for any reason other than financial reasons still score higher on satisfaction and happiness than the reference group. Perceived social exclusion predicts all wellbeing indicators, though the effect is marginal. People who perceive themselves as less socially excluded are, on average, more satisfied with their lives and have happier lives. We also find that trust is associated with more positive wellbeing outcomes.

Figures 11 - 15 illustrate the impact of each of the models' variables on the life evaluation and affective wellbeing indices after controlling for all other variables. There is a 95% probability that the estimated parameter lies within the interval indicated. When the entire confidence interval (both ends of the spike) is above or below the zero-line, then the estimated parameter is statistically significantly different from zero.

Figure 11 Demographic predictors of wellbeing indices

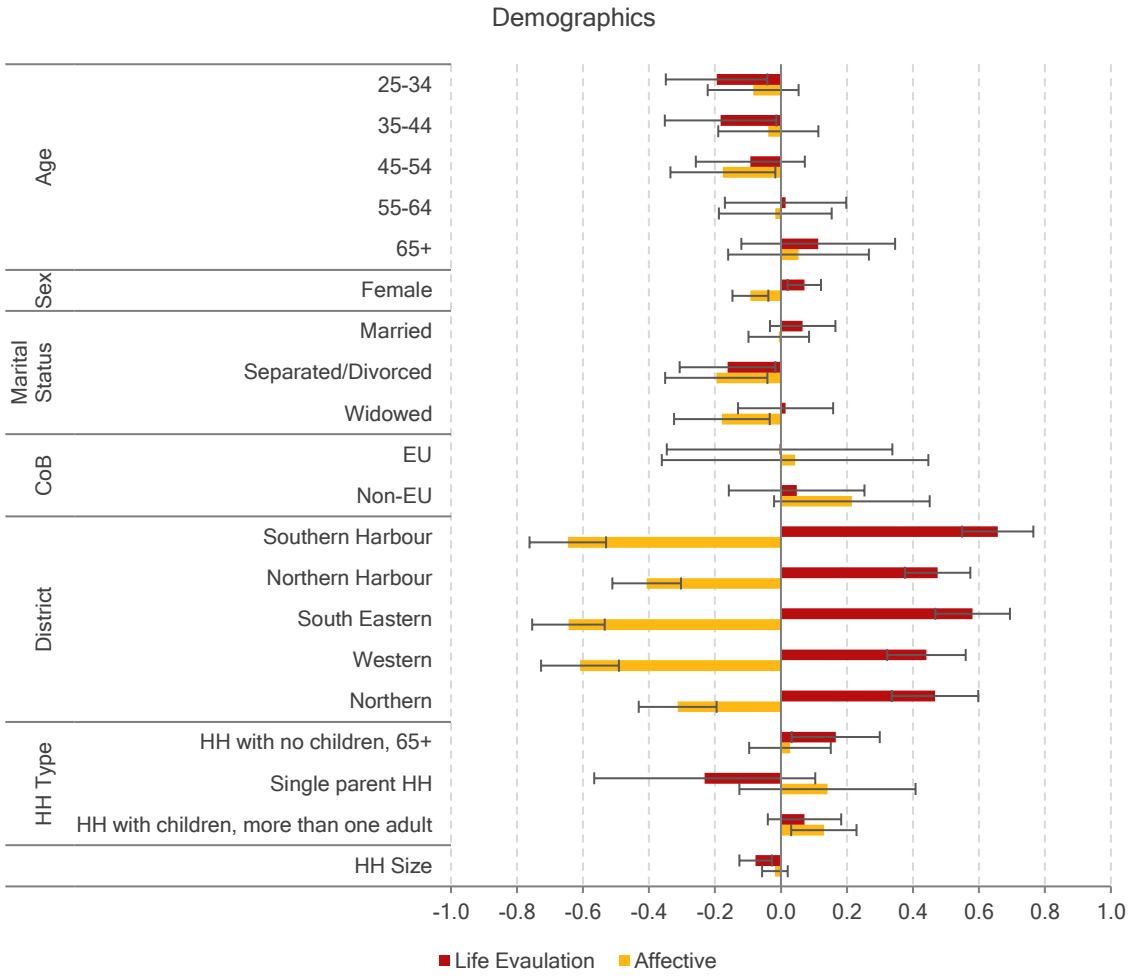


Figure 12 Income and employment predictors of wellbeing indices

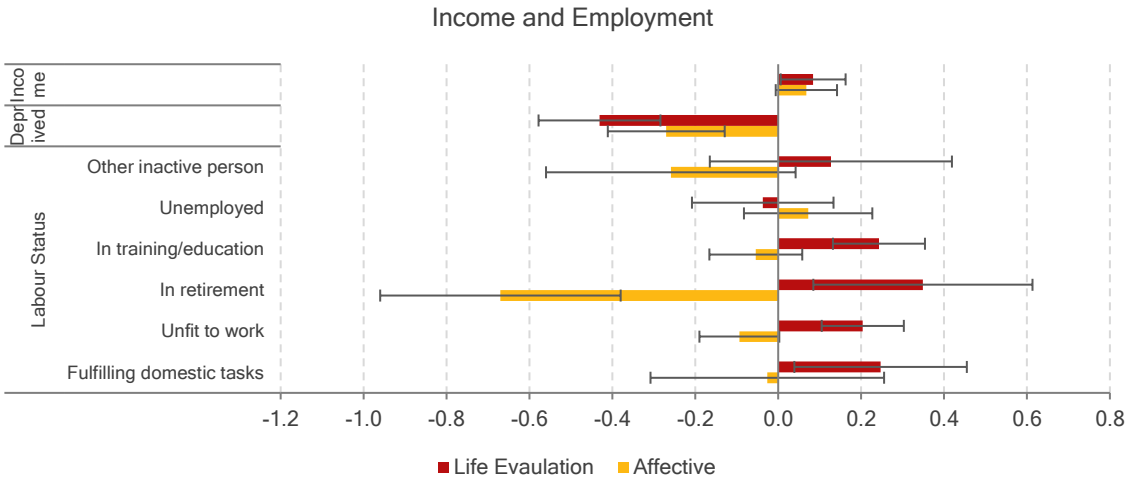


Figure 13 Education and Health predictors of wellbeing indices

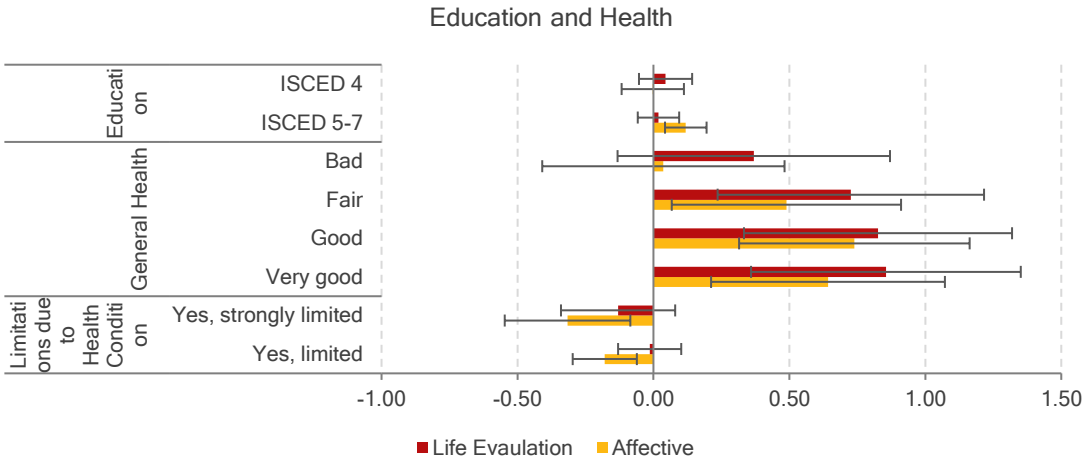


Figure 14 Environment and Housing predictors of wellbeing indices

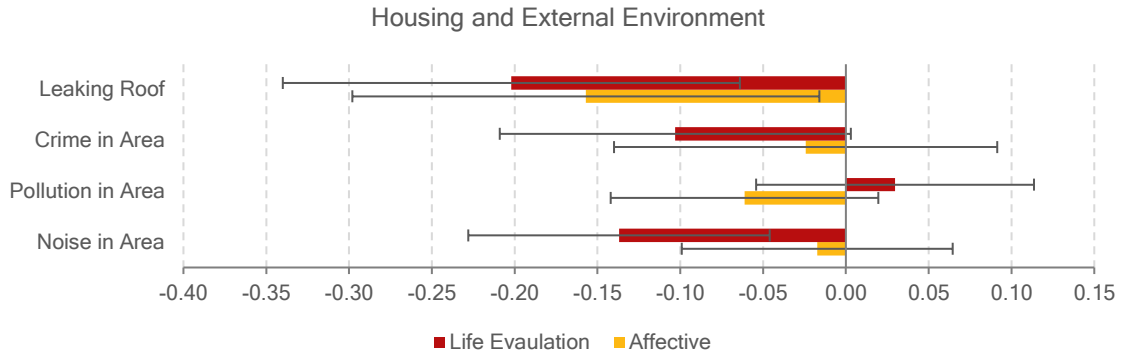


Figure 15 Social interaction predictors of wellbeing indices

Figure 15A Social Interaction predictors of wellbeing

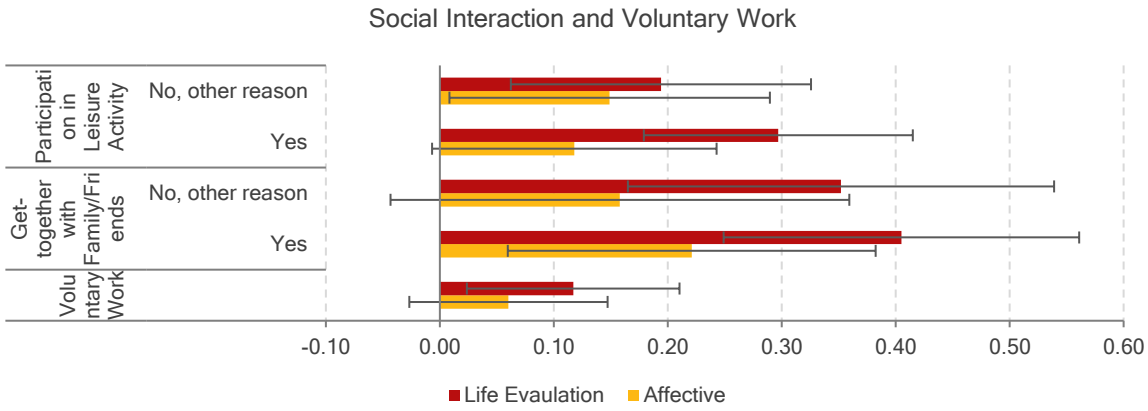
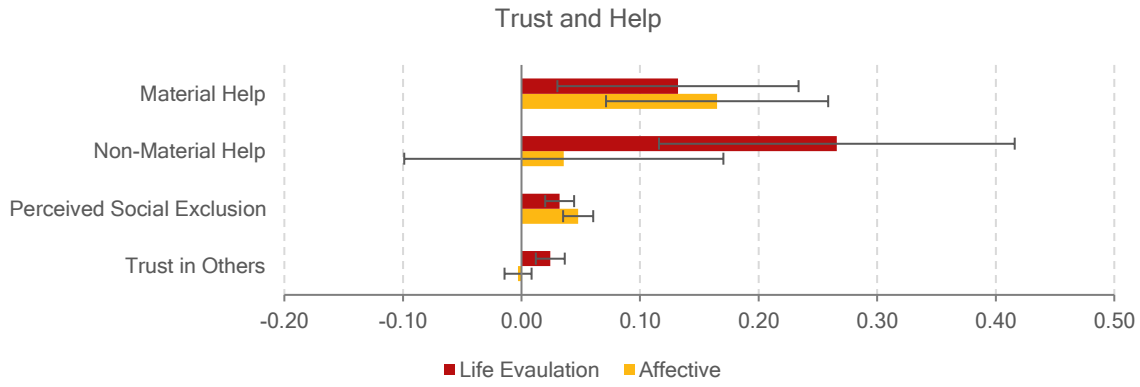


Figure 15B Trust and Help predictors of wellbeing



5. Discussion and Recommendations

5.1 Synthesis

The primary objective of this report was to evaluate the SWB scores collected in the ad-hoc module in EU-SILC 2018. In so doing, indices were constructed to capture the evaluative and affective domains of wellbeing. We noted a strong relationship between SWB and its various determinants across the different sub-groups of the population. The multivariate regression approach revealed that while demographics play a role in predicting wellbeing (notably marital status and age), by far the strongest contributor is health. Illness, material deprivation, the inability to interact socially, and the inability to work due to disability all contribute to poorer wellbeing. Interestingly, districts emerge as powerful predictors of wellbeing, possibly capturing some of the unexplained variance.

While some of the determinants contribute to emotional wellbeing and evaluative satisfaction in the same direction, some determinants are positively associated with one measure of wellbeing and negatively with another. For instance, higher income raises satisfaction, but not happiness. Labour market status matters most for satisfaction with financial situation and leisure time. These findings reveal that income is just a way of "keeping score" in life, and there might be little reason to care about further increases in income as far as one's day-to-day feelings are concerned. Similarly, living in Gozo is associated with more positive affect but lower satisfactions relative to the other districts.

5.2 Shortcomings and Mitigations

The findings in this report provide valuable insights, but we identify a number of limitations. The measurement of wellbeing was limited to the items included by the Survey of Income and Living Conditions. In using these items, we make assumptions about SWB itself, including the assumption that the wellbeing items can be measured in a cardinal manner, meaning that the difference in life satisfaction between two points on a scale has the same meaning across all points along the scale (*Kahneman et al.*, 1999; Clark & Oswald, 1996). When answering SWB questions, we assume that individuals' responses are internally comparable (Frijters & Krekel, 2021). The second assumption is that a value of eight by one respondent is valued equally by another respondent (ibid.). However, it is possible that this is not the case (Moro, 2021).

We also incur the methodological shortcomings involved in conducting the survey. Survey design can have a significant influence on respondents' answers (Frijters & Krekel, 2021). Respondents may be influenced by both survey mode (respondents answer differently when they are anonymous than during an interview), and item ordering (the items preceding the wellbeing questions can have a priming effect on respondents' replies) (Dolan & Metcalfe, 2012; Frijters & Krekel, 2021). Situational variations (for example, the mood of the respondent during the interview), acquiescence (respondents' tendency to agree with survey questions regardless of their true preference), bounded or extreme response (respondents' tendency to

select end-points of the response scale when answering questions) can also potentially influence the measurement of SWB.

In terms of sampling, as the EU-SILC survey is representative of the entire population in Malta, there is low coverage of minority groups, such as ethnic minority groups, young age groups with disabilities, the unemployed and the homeless. Culture differences are likely to influence responses. Owing to this, the interpretation of data for such groups needs caution, and the small sample sizes limit the possibility of detailed disaggregation of data. Furthermore, persons living in institutions are excluded from the analysis (Eurostat, 2016b).

The analysis of means and simple bivariate analysis offers interesting insights as to which groups, were experiencing different levels of wellbeing as at 2018. However, it does not offer any insights as to the drivers of such outcomes. For instance, single parents may demonstrate a low level of wellbeing due to income limitations as well as limitation on social interactions.

In trying to parse out the effects of each determinant, we followed other researchers in using a linear econometric model. However, it is plausible that there are more complex relations between wellbeing and its determinants. For example, the relationship between life satisfaction and its determinants may be non-linear. The key assumption in estimating a regression is that the disturbance term is independently and identically distributed across the individuals. We found this assumption to be violated in our data, and we therefore adopted a different estimation method with errors clustered by household, meaning that observations within households are recognised to be correlated in some way.

Furthermore, although a multivariate analysis improves upon the correlation analysis, there may still be some unmeasured (unobserved) differences between individuals or households. Such unobserved variables can mean that estimated parameters are biased. For instance, there may be personality differences which may be driving the findings. This phenomenon could not be explored with the existing data. All results, therefore, need to be interpreted with caution. Future editions of the EU-SILC survey which include the wellbeing module may consider including some of the other known co-determinants of wellbeing (such as artistic participation, sport, personality etc.)

Another concern is that causality may run in the reverse direction, that is, that wellbeing itself impacts phenomena like employment, income, socializing. Environmental, social, and economic conditions are not randomly assigned to individuals. This means that when looking at the impact of, say, income, noise, crime, or housing, one must bear in mind that less (or more) happy people might select into conditions that reinforce their current mental states. It is therefore important to resist the temptation of attributing causal interpretations to the estimated results. In other words, we should be reasoning that ‘SWB is higher among people with higher levels of education attainment’ rather than ‘a higher level of education attainment increases wellbeing’. Employing longitudinal data would allow for a better understanding of changes in wellbeing following external stimuli, including situations like becoming a parent, getting married or divorced, or transit from unemployment to employment.

Another consideration is the possibility that evaluative wellbeing scores are impacted by underlying mental health issues. To test for this, we re-estimated the models use the affective wellbeing indicator as a proxy for mental health. The effect size is 0.5, meaning a one-standard deviation increase in affect is related to a 0.5-point increase in the overall life satisfaction scale. The explanatory power of the model improves too, by approximately 5.9 percentage points. Importantly, however, the overall results remain relatively stable as to the main model.

5.3 Recommendations for policy

On the basis of lessons learnt from carrying out this study, as well as the conclusions we have drawn from it, we make a number of actionable recommendations.

First, we recommend the continued **systematic measurement of SWB on a regular basis**. The data used in this study was borne out of the 2018 ad-hoc module on SWB in EU-SILC. The usefulness of SWB indictors in guiding policy decisions hinges on the ongoing monitoring of such indicators rather than their ad-hoc measurement. Since most wellbeing domains require many items, surveyors may be compelled to either eliminate them from the questionnaire or use a highly abbreviated version of the measures at the cost of oversimplifying the overall constructs of wellbeing. To the contrary, we recommend the annual inclusion of the wellbeing module in the EU-SILC and the addition of questions on important co-determinants of wellbeing not presently captured (such as artistic participation, identity) by the survey. We also recommend the inclusion of a question on *purpose*, not presently captured by the wellbeing module (Eurostat, n.d.). With the EU-SILC set to serve as the core European instrument for wellbeing measurement (Eurostat, 2023), Eurostat has required member countries to report on life satisfaction annually as from 2021 (Eurostat, n.d.)

Secondly, we recommend that the measurement of SWB **better captures data on specific minority groups** such that it allows insights on all the population, including those in minorities. To evaluate policy, it is essential that such surveys can provide a reliable picture of the entire population and groups that are usually not easily captured by a representative sampling frame – possibly requiring a higher powering of certain sub-samples (e.g., people with disability, single parents, etc.). Furthermore, Malta's population has grown rapidly in recent years, particularly due to the strong influx of foreign workers. These remain underrepresented in the EU-SILC data. The latest census reveals that the foreign-born population in Malta now constitutes around one-fifth of the country's total population and it is therefore key to have their assessment of their own wellbeing adequately represented in the data (National Statistics Office, 2022).

We also recommend the **greater use of evidence-based SWB research for policy**, especially to assess projects that may suppress SWB among those groups whose SWB is already low (e.g., the ill, the materially deprived, the socially isolated), and more generally, using SWB to inform specific, target policy questions. To do this, it is not sufficient to understand the determinants of wellbeing, but it is also necessary to generate evidence-based insights on how interventions impact wellbeing, and in particular the wellbeing of those on the lower rungs of the wellbeing ladder, with a view to reducing misery.

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