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Psychological Capital, Subjective Well-Being, and Educational System

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Abstract

This thesis presents a theoretical context in which two important concepts are combined, namely subjective well-being (SWB) and psychological capital. Starting from the premise that subjective well-being's improvement would influence nations' socio-economic prosperity, and that psychological capital is a means for its development, the present research proposes the integration of psychological capital teaching into the educational system. It begins by reviewing the principle of subjective well-being, then identifies the attributes of psychological capital by answering the following questions: What can we do to give a sense to our lives? How should we perceive ourselves, our circumstances, and abilities? How should we manage our feelings and others' feelings? Finally, a static model is proposed, which defines the best time allocation between teaching hours of technical skills versus psychological skills at school. To conclude, a discussion on the different cases of time allocation that depend on the elasticity of substitution and prices is presented.

Key words : Subjective Well-being, Psychological Capital, Personal Strivings Self-Efficacy, Optimism, Emotional-Intelligence.

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Introduction

The basis of contemporary macroeconomic thinking is centred on solving various problems emerging from different sectors. Whether it is a question of ensuring equity in wealth distribution, providing solutions to unemployment, or health problems, etc. The model is almost always the same, solving already existing problems. The human being, the primordial entity around which this economic thinking revolves, has rarely been introduced as an active player in the economic equation. The thesis starts from the assumption that nations' socio-economic prosperity can be built on the basis of people's subjective well-being (SWB). In other words, if people come to feel that they are living the life they have always wanted, they would play a key role in the development of the society in various fields. Being subjectively well reflects that the person is in line with her principles, values, and objectives. It also reflects the satisfaction that she has in different domains of her life. Thus, she can be efficient in her work, with her family, in her society, etc. The concept of subjective well-being has been studied in several disciplines, however each one treated it through its own glasses, using it in a partial and specific way. Psychology, for example, has been the leader in the investigation of the SWB concept. With the goal of discovering what makes people happy, psychologists have focused on finding the determinants of well-being from a psychological point of view. Economists, on the other hand, have recently begun to take an interest in this concept by studying its causes and consequences in relation to other economic subjects such as income, unemployment, or health, assuming that the causal link can sometimes go both ways. In this thesis, the development of SWB is proposed as a means of ensuring the prosperity of the human being as such, as well as the socio-economic prosperity of a country. More importantly, it is proposed to use a group of malleable and state-like psychological attributes that will be called psychological capital, for its development. These attributes have been chosen based on the answers they offer to the following questions: what can we do to give a sense to our lives? How should we perceive ourselves, our circumstances, and abilities? And finally, how should we manage our feelings and others' feelings? If it is assumed that people are able to live in harmony with their principles, values and potentials, one can assume that they will achieve high levels of subjective well-being. However, this is not sufficient. People need to learn how to perceive themselves and the environment around them. Therefore, getting to know one's strengths and developing them will ensure that the individual is able to exploit them to her advantage and be in control of her life. A final point, that is no less important than the previous ones, is our ability to manage and understand our emotions and those of others. For the development of psychological capital's attributes, a static model is proposed that adopts the accumulation of psychological capital in schools. The goal is to define the best time allocation between hours devoted to the learning of psychological skills versus hours devoted to the learning of technical skills. The possibility of substitution between them is then analysed with respect to prices and the elasticity of substitution. This work could be supported by further empirical research that would combine the four

psychological attributes proposed and SWB into a single model to identify their effect on it. Educational programmes could be proposed that would take into account the learning of these and other attributes to ensure a more holistic education for children and ultimately enable them to achieve high levels of well-being as young people and later as adults.

Chapter 1

Subjective Well-Being

1.1 Introduction

"SWB is a reflection of the quality of life of an individual and of societies. How people feel and think about their own lives is essential to understanding well-being in any society that grants importance not just to the opinions of experts or leaders, but to all people in the society" (Diener, Oishi, & Lucas, 2003). "A growing body of evidence suggests that high well-being and life satisfaction significantly improve life within the four areas of health and longevity, work and income, social relations, and societal benefits" (Diener & Ryan, 2009). In order to understand how people gain a higher well-being, different definitions of SWB will be reviewed, shedding light on the difference between the meaning of happiness and well-being, as well as the subjectivity and objectivity of well-being. The next step will be to investigate the different components of SWB and the relationship between them. The final part of the chapter will be dedicated to the discussion of different context theories related to SWB. A discussion about measures of Subjective well-being will however not be introduced in this thesis, as the aim of the research is to understand the nature of SWB, and then use it as a means. In other words, SWB will not be the end of this research, but a source of information to identify attributes that can help people improve their well-being.

1.2 Defining subjective well being

Many philosophers and social scientists have taken an interest in the definition of well-being and happiness. A first sense of happiness was defined by external criteria such as virtues. Happiness is not seen as a subjective state, but as possessing something desirable. Aristotle defined Eudaemonia[1] as having a virtuous life. According to him virtue is not a means that leads to joy, but a standard that is used to judge people's lives. This means that Eudaemonia is not happiness in itself, rather a desirable state judged according to a particular value framework. So the criterion of happiness in this context is not the subjective judgement of the actor, but the value framework of the observer (Ed, 1984).

The second sense of happiness has been given by social scientists who have focused on the question "what causes people to evaluate their lives in positive terms?". At this point, the definition of SWB was labelled "life satisfaction" and relies on the norms of the respondent to determine what the life is. Diener uses the definition of Shin and Johnson (1978) to reflect this aspect of subjective well-being which was developed by social scientists, "happiness is the overall assessment of the quality of life of the person, according to her own criteria" (Ed, 1984). A related definition given by Chekola (1975), states that "happiness is the harmonious satisfac-

[1] Sometimes anglicized as eudaemonia or eudemonia, is a Greek word commonly translated as happiness or welfare; however, "human flourishing or prosperity"and "blessedness" have been proposed as more accurate translations.

tion of the person's desires and goals" (Ed, 1984). One can notice from these definitions that happiness has been related to the person's subjectivity .

The third sense given to happiness and well-being attaches greater importance to emotions. In his article, Diener uses the definition of (Bradbun 1969), which defines happiness as the result of the preponderance of positive affects over negative affects. This means that the person has either experienced more positive emotions in her life than negative ones, or that she is predisposed to positive emotions whether or not she experiences them in the present (Ed, 1984).

In the previous definitions, the terms happiness and well-being have been used without distinction. However, according to psychologists, happiness is defined as "a state of contented pleasantness and is one of many specific emotions that people can feel in response to life events and daily experiences"(Diener et al., 2009).“It is a popular term that can refer to pleasant moods and emotions experienced at any given moment (positive affect), to general evaluation of life as life satisfaction, or to subjective well-being" (Diener & Ryan, 2009). The term happiness is not always used with precision. It can be used to express a broader meaning, something close to what can be called well-being. Definitions of well-being however, involve an evaluation, and differ in the object of the evaluation. For example, in a research related to quality of life in the health field, well-being can be defined as "being healthy". In the economic context, well-being is defined as "being rich". Nevertheless, a broader and more holistic definition can also be given to the term Well-being as "**the individual's global evaluation of her life across a variety of different aspects of that life**" (Diener et al., 2009). Thus, well-being can also refer to being well in general rather than being well in a specific context of life, for example being healthy, or being rich. It represents people's evaluations of their lives, both in terms of cognitions (e.g.,“My life is satisfying") and feelings (e.g.,“My experiences are pleasant and rewarding). It reflects people's beliefs and feelings about whether they are leading a desirable and rewarding life (Diener, 2012). These cognitive and emotional evaluations, concern events that happen to them, their body and mind, and the circumstances in which they live" (Diener, 2006), including judgements and feelings about life satisfaction, interest and engagement, affective reactions such as joy and sadness to life events, and satisfaction with work, relationships, health, recreation, meaning and purpose, and other important domains (Diener & Ryan, 2009).

1.3 Subjectivity and objectivity in definitions of well-being

In defining SWB, it is interesting to distinguish between objectivity and subjectivity. This distinction concerns the perspective from which life is being evaluated. Objective definitions would require an objective point of view, independent of the subjective values and norms of individuals. In other words, objective definitions would include characteristics that would be considered

as an ideal, regardless of the assessment of the individual who is experiencing those characteristics. Subjective definitions of well-being on the other hand, are based on the interests, needs, preferences and desires of the individual (Diener et al., 2009). In some cases, the two definitions may be found to align. For instance in various objective definitions, physical health is considered as an important component of well-being. At the same time, it would be difficult to say that a person's life is going well if she is not in good health. Health is considered to be objectively good, and potentially plays an important role in subjective definitions of well-being, as most people prefer to be healthy (Diener et al., 2009). The subjective definitions of well-being are mainly aligned with people's interests. Life does not go well unless the individual who lives it considers it good and evaluates it positively. Thus, a person could have a good health and financial situation however, she could judge that she is not satisfied with her life. Despite some alignments between subjective and objective definitions of well-being, the distinction between the two remains crucial.

1.4 The structure of subjective well-being

SWB includes a broad category of phenomena, including individuals' emotional responses, areas of satisfaction and overall life satisfaction. In his famous article "Subjective Well-Being" (Ed, 1984) uses the research results of Andrews and Withey (1976) to distinguish between the 3 components of SWB: Life satisfaction LS, Positive Affect PA, and negative affect NA. Years later, Diener and colleagues (1999) included a fourth component which is satisfaction in specific domains DS, such as satisfaction with health. In their definition of SWB, researchers refer to cognitive components (life satisfaction and domain satisfaction), and affective components (positive affect and negative affect). The cognitive components are based on people's evolving beliefs about their lives. The emotional components reflect the amount of pleasant and unpleasant feelings that people experience in their life (Eid & Larsen, 2008).

1.4.1 The structure of affective well-being

"Moods and emotions, which together are labelled affect, represent people's on-line evaluations of the events that occur in their lives" (Diener, Suh, Lucas, & Smith, 1999). In his famous article on SWB (Ed, 1984) Diener describes the various research studies that have addressed the question of the correlation between positive and negative affect. Some researchers have come to the conclusion that positive and negative affect are independent. Among those researchers who defended this result, Bradburn who found that positive and negative items are relatively independent, proposed that happiness consists of two separable components (positive affect and negative affect). He inferred that although positive and negative affect scales were practically uncorrelated, they each had independent and progressive correlations with overall well-being.

Bradburn's findings support the idea that the absence of negative affect does not equate to the presence of positive affect. According to Bradburn's results, measures that attempt to improve overall well-being should reduce negative affect and account for the increase of positive affect.

Researches done by Diener and Emmons (Ed, 1984) showed that negative and positive affect are negatively correlated. Unlike Bradburn, they conducted affect studies over varying periods of time from few moments to few weeks and measured the degree of negative and positive emotions felt by respondents. The results of their researches indicate that the correlation between the two natures of affect is negative at particular points in time. But that this correlation diminishes as the time interval becomes longer (weeks or more) in the person's life. So the average levels of positive and negative affect that a person can experience are independent, even though experiencing both affects at the same time is very unlikely. Average levels of affect refer to the frequency and intensity of each emotion. Based on the results found, Diener and colleagues proposed that only average levels of affect over long periods of time (weeks or more) are statistically independent of each other.

Because negative and positive affect are negatively correlated in frequency (it is very unlikely to experience negative feelings and positive feelings at the same time), their intensity should be positively correlated so that average affect levels become independent. This finding has been supported by series of other research studies done by Diener and colleagues. They found that intensity of positive and negative affect has a positive correlation of R = 0.70. People experience positive and negative affects with relatively the same intensity. Since the intensity and frequency of the appearance of affects are not correlated, when combined additively, their influence makes the average levels of positive and negative affects independent over time (Ed, 1984). Diener and colleagues concluded that although intensity is an important dimension of the experience of affect, it has no influence on general subjective well-being. What can, however, predict general well-being in terms of affective experience is the frequency of positive states compared to negative states in a person's life over time (Larsen & Eid, 2008).

Although positive and negative affect are negatively correlated in their frequency of occurrence, the amount of affect one person tends to have does not affect the amount of the other affect. This observation made it possible to conceptualize contributions independent of each affect to the hedonic component of overall subjective well-being. This hedonic component has been defined by researchers as the relationship between positive and negative affect over time in a person's life (Larsen & Eid, 2008).

1.4.2 The structure of cognitive well-being

A third dimension of SWB is "life satisfaction" (LS). It refers to a process of judgement, in which individuals evaluate the quality of their lives based on a set of criteria of their own. A comparison of perceived life circumstances with a set of self-imposed norms is made and if the conditions meet these standards, the person reports a high level of satisfaction in her life. Therefore, life satisfaction is a conscious cognitive judgement of one's life in which the criteria for judgement are up to the person. Although it could be agreed on the important components of a good life, such as having good health and fulfilling social relationships. Individuals give different weights to these components. They may also have unique criteria of what is a good life, criteria that in some cases may be more important than the common reference criteria (Pavot & Diener, 2009).

Bottom-up versus Top-down theories

Bottom-up theory states that people maintain a certain degree of well-being by summing up small pleasures. According to this theory, if a person wants to judge whether she is happy in life, a certain mental calculation is used to add up the momentary pleasures and sorrows. In contrast, the top-down theory states that there is an overall propensity to experience things positively, and this propensity influences the momentary interactions an individual has with the world. In this approach, overall personality characteristics influence the way individuals react to events (Ed, 1984). After the integration of Domain satisfaction (DS) into the structure of cognitive well-being, researchers have used bottom-up versus top-down theories to explain the nature of the structural relationship between the two elements. Bottom-up theory states that judgements of life satisfaction are based on satisfaction in a relatively limited number of life's areas. This is equivalent to saying that the correlation between LS and DS is only a reflection of the causal influence of DS on LS. For example, a person who has high satisfaction with her marriage, would experience high life satisfaction because her marital status is an important aspect of her overall life satisfaction. On the other hand, top-down theory supports the opposite direction of causality. A person who is satisfied with her life in general could evaluate the different areas of her life in a positive way. That does not mean that the general satisfaction is based on satisfaction with particular domains (Eid & Larsen, 2008).

The simplest of the top-down models states that people who are satisfied with their life are also satisfied with everything else. This means that there is a strong correlation between DSs. However, empirical research has shown the opposite. The correlation between DSs is small to moderate and many respondents reported high levels of satisfaction in some areas and low levels of satisfaction in other areas. In a study conducted by (Schimmack, 2006) on 1241 undergraduates, he asked them questions about their life satisfaction in general and about 9 domains (academic, recreation, romantic, family/parents, friendships, health, housing, traffic, and

weather). He found a mean correlation of R = .28 for all 9 domains of satisfaction. The simple top-down model also states that the correlation between LS-DS should be the same for all areas of satisfaction. Empirical studies have shown however, that there is a strong correlation between LS-DS in some areas considered important to respondents [2], and lower correlations between LS and other domains (Eid & Larsen, 2008). It is nevertheless possible according to Ulrich Schimmack (Eid & Larsen, 2008) to conceptualize a more sophisticated top-down model, which will take into account the results of the simple model, by adding two hypotheses:
1. The DSs are substantially influenced by factors specific to the domain.
2. LS has a stronger impact on DS in more important areas (family) compared to less important areas (Weather).

Schimmack obtained strong evidence by examining the pattern of correlations among several domains. He predicted DS-DS correlations in the 9 domains mentioned previously in a study on undergraduates. The results showed a correlation between the DS of the 9 domains with LS and the correlation of the DS of one domain with the other 8 domains. From these correlations, he created a variable that counts for the average correlation of the DS in one domain with the other domains. According to the top-down model, there is a high correlation between the mean variable of the correlation of the DS with the other domains and LS. Schimmack effectively found a supporting result with a correlation of R = 0.80 ($p < 0.05$). Both variables were also correlated with the importance of the domain (according to its average ranking among the respondents). This means that an important domain such as family has a high correlation with LS and the other domains compared to a less important domain such as the weather. These correlations would still imply that domain satisfaction has no causal effect on LS (Eid & Larsen, 2008).

In the experience of introspective evidence, researchers (Schimmack, (Diener and Oishi 2002)) used a more direct approach to determine the causes of LS. Researchers looked at what respondents were thinking when they answered questions about LS. Consistent with bottom-up theory, respondents reported thinking about important areas in their lives such as family more than other areas such as the weather. Thinking about important life domains, moderated the correlations between DS-LS. Moreover, the DS-LS correlations were low when respondents did not think about the domains in question. This result is a contrary evidence for the effect of the top-down theory, as the top-down effect does not require activation of domain knowledge during LS judgments (Eid & Larsen, 2008).

Based on the various findings on the bottom-up and top-down theory regarding the relationship between DS and LS. It can be deduced that there is a correlation between LS and some

[2] Schimmack investigated this question by examining the correlation between the ranking of satisfaction domains and the correlation of the LS-DS. He found a strong correlation between the importance of the domain and its correlation with LS.

DSs that are considered important to people. Although defining the causal links between the two variables remains ambiguous, it is interesting to include both theories in analyses related to cognitive well-being. Bottom-up and top-down theories have also been applied to subjective well-being in general. Concerning the bottom-up theory, it was a question of understanding the influence of external events, as well as demographics on subjective well-being. Studies conducted by Campbell, Converse and Rodgers (1976) showed that demographic factors such as age, sex, income, race, education and marital status explained less than 20% of the variation in SWB. Andrews and Withey (1976) found that these same variables accounted for 8% of the variance of the SWB (Diener et al., 1999). Given the modest effect of external objective variables, researchers turned to top-down theory to explain the variability of the SWB. They have investigated the structures that are part of an individual's personality and that determine how people perceive events and circumstances.

Answering the question of causality regarding the relationship between the elements of cognitive well-being would not give us a clear explanation about how people achieve satisfaction in a specific domain or in life in general. Since objective variables are responsible for only a modest percentage of the variance in SWB, the aim would be to know what characteristics drive people to be satisfied with their lives or with a particular domain.

1.5 Context theories of subjective well-being

In addition to bottom-up and top-down theories, there are other theoretical models that have examined the concept of subjective well-being under different angles, ranging from biological theories that have studied the genetic predispositions of happiness, to relative standards, which have examined the influence of the concept of comparison on individuals' well-being. In the hope of better identifying the variables that can have a substantial influence on the SWB, it is interesting to review some of the different theories of the SWB.

1.5.1 Telic theories

Most people experience a feeling of well-being after achieving a goal or fulfilling a desire. However, the relevant question that one can ask, is whether the achievement of goals will create considerable differences in SWB between people, or whether it only reflects a temporary change (in this case short-term mood elevation). Some theorists such as (Chekola 1975) support the idea that happiness (well-being) depends on the continual accomplishment of the life plan. In other words, the total set of the person's goals. So according to the "life plan" approach, SWB depends on the coherence of the goals in the person's life and their achievement (Ed, 1984).

According to Telic theory[3], people get to experience a certain level of subjective well-being when they reach their goals and desires. However, these objectives should be harmonious with each other throughout their life. They must be realistic, within their reach and correspond to their skills. In other words, they should not be very ambitious in comparison to the person's means and capacities, in order not to create a certain frustration due to their non-realization.

(Brunstein, 1993) conducted an empirical study on the relationship of goals to students' subjective well-being during the first semester (the attributes of subjective well-being as well as the measures of the 3 dimensions of personal goals were measured 4 times over the course of one semester). He examined the extent to which the 3 dimensions of personal goals - commitment, attainability and progress in achieving the goal - were predictive of students' subjective well-being over a one-semester period. Commitment to goals was found to moderate the extent to which changes in goal attainment explained changes in well-being. Progress in goal achievement mediated the effect of (the Goal Commitment times Goal Attainability) on SWB interaction. Concerning goal commitment and attainability of personal goals: a student indicating a high level of goal commitment in addition to favourable conditions to attain personal goals would display a moderate increase in subjective well-being from Time 1 to Times 2, 3, and 4, respectively. In contrast, a student who had a high level of goal commitment but unfavourable conditions to attain personal goals would show a marked decline in subjective well-being at each of the three testing periods. In comparison, subjective well-being of students who felt less committed to personal goals would be relatively insensitive to differences in the attainability of personal goals. Which means that students who both possessed a high level of goal commitment and experienced favourable conditions to attain personal goals displayed positive changes in well-being over time. In contrast, subjective well-being was impaired in students who indicated high levels of goal commitment in conjunction with unfavourable conditions to attain personal goals. From this study it can be concluded that setting goals and striving to achieve them is not enough to improve subjective well-being. In addition, there must be a commitment to achieve them and the ability to do so. Committing to objectives while lacking confidence in one's ability to achieve them will not allow one to get to the desired result (achieving the goal). It is therefore important to commit to personal goals with the precondition of having a high probability of being able to achieve them (favourable condition and adequate skills), in order to finally hope for an improvement in subjective well-being.

1.5.2 Activity theories

Activity theory reflects what Diener mentioned in his article (Ed, 1984) about the fact that subjective well-being could be the result of an evolutionary process towards the achievement of a goal. Activity theories or Autotelic theories state that happiness and in our case subjective

[3]Telic: tending toward an end or outcome

well-being, is only an auxiliary consequence (by-product) of human activity. Aristotle was one of the first defenders of this theory. According to him, human beings have certain abilities (capacities), and happiness will arise if these capacities are exploited in an excellent way. According to Diener, the most explicit formulation concerning activity and SWB, was proposed by (Csikszentmihalyi, 1975) in his Flow theory[4]. "Activities are seen as pleasurable when the challenge is matched to the person's skill level. If an activity is too easy, boredom will develop; if it is too difficult anxiety will result. When a person is involved in an activity that demands intense concentration and in which the person's skills and the challenge of the task are roughly equal, a pleasurable flow experience will result (Ed, 1984). Contrary to Telic theory, happiness according to activity theory is experienced when people are involved in interesting activities and not through the achievement of goals.

1.5.3 Cognitive theories

Several theories based on memory, conditioning or cognitive principles, which can be grouped under the rubric of associationistic models, state that some people are predisposed to have high levels of well-being. One of the explanations given for the weak correlation between objective circumstances and life events and people's well-being is that people do not react passively to these events. On the contrary, these life events are constructed and framed, evaluated and interpreted, contemplated and remembered. The reason why these objective variables such as wealth and health have small impacts on people's well-being is that different psychological treatments moderate the impact of events, life circumstances and demographic factors on well-being (Lyubomirsky, 2001). Cognitive theories focus on the power of cognitive processes to determine the individuals' well-being. The AIM (attention, interpretation, and memory) model of well-being is one such cognitive theories. It states that people with high SWB tend to direct their attention to positive stimuli, interpret events in a positive way, and remember past events with positive memory bias. People who testify high level of SWB, naturally interpret neutral and ambiguous events in a positive way. In addition, happy people are not different in terms of the number of positive and negative events they experience. However, they tend to remember events as if they were better than they actually were, which leads to a positive and protective memory bias (Diener & Ryan, 2009).

1.5.4 Temperament and personality

Temperament has a very important impact on the individuals' level of well-being. Studies on heritability on twins who have been raised in different environments have shown that both positive and negative affect have been strongly linked to the genetic basis (Diener, Suh, & Oishi,

[4]Flow is an optimal psychological state that people experience when engaged in an activity that is both appropriately challenging to one's skill level, often resulting in immersion and concentrated focus on a task. This can result in deep learning and high levels of personal and work satisfaction.

1997). In addition to the heritability factor, researchers have been interested in studying the influence of the big 5 personality traits on SWB. Among the most studied personality traits we find extroversion and neuroticism, which have been shown to be most related traits to SWB levels (Diener & Lucas, 1999; Rusting & Larsen, 1997). Extroversion has been shown to predict positive affects (Lucas & Fujita, 2000), while neurocticism has been shown to predict negative affects (Fujita, 199 1) (Diener & Ryan, 2009). Agreeableness and conscientiousness traits are also moderately correlated with SWB through environmental rewards. In most environments, people who are agreeable and conscientious can receive more positive feedback from their surroundings, which will allow them to experience higher levels of SWB (Diener et al., 1997). Other psychological characteristics seem to have their share of influence on the SWB. Self-esteem is one of the strongest predictors of SWB. Campbell et al. 1976, found that self-esteem was highly correlated with life satisfaction (Ed, 1984). This correlation is found to be of high magnitude in individualistic societies (Diner and Diener 1995). In collectivist cultures self esteem and life satisfaction are typically correlated but not as much as in individualist societies (Diener et al., 1997). Another personality characteristic that has been shown to have a relationship with well-being is internality. Internality is the tendency to attribute outcomes to oneself rather than to external circumstances. This variable often referred to as locus of control has been found to be related to subjective well-being in a number of populations. Internality can also be interpreted as the person's perception of having choice or control over her life. Other research has also shown that people's perceptions of their efficacy, personal resources and skills are also related to SWB (Ed, 1984). Another trait that could be directly related to SWB is optimism. It has been demonstrated in the USA that having unrealistic optimism and an exaggerated perception of control, function as a coping mechanism in order to restore or maintain psychological and physical health (Diener et al., 1997).

1.5.5 Relative standards

Theories of relative standards, state that well-being results from the comparison between certain standards, such as (the individual's past, other people's lives, goals, ideals, etc.) and current conditions. According to the social comparison theories, people refer to other people's lives as standards in their comparison. The person will feel better if she sees herself better than the person with whom she has compared herself and vice versa. Other theories, such as adaptation theories, state that the person's past is the standard of comparison. For example, if a person feels that her current situation exceeds the standards of the past, that person will experience a better level of well-being. However, adaptation theory also states that people will experience a high level of well-being for a limited period of time. Afterwards, once they have adopted new standards in relation to their new situation, the event that once provided them with a better well-being will no longer have this effect (Diener & Ryan, 2009).

1.6 Conclusion

In this chapter various theoretical concepts related to SWB were reviewed. In the first part, the focus was on the SWB's definition and structure. Affective Well-Being is reflected in a sum of emotional reactions which are often responses to immediate and short-term factors. In some cases, a person may feel sad or happy, without attaching a particular object to that feeling (this state can be named Mood) and in other cases, people ignore their emotions or are simply in denial. However, this does not prevent them from recognising the undesirable factors in their lives. Cognitive Well-Being however, is a person's conscious evaluation of her life's circumstances which reflects her conscious values and goals. Since emotional reactions reflect unconscious motives and influences of the body's condition (Diener et al., 1999) and since the notion of satisfaction reflects more of a long-term perspective, the next steps will analyse characteristics, attributes or processes that might lead people to be satisfied with their lives in a long-term perspective. In other words, the focus will be on the cognitive part of SWB, without studying how or why do people experience positive or negative affect. The last part of the chapter was dedicated to understanding how the different theorists tried to answer the question "why some people are happier than others". It has been found that there are a number of variables which in a complementary or separate way influence the levels of subjective well-being. Among these variables, there are components that are inborn in people, and whose goal of influencing them would be unrealisable. Variables such as personality traits which may also be unchangeable, are influenced by the culture and the environment in which people live. In fact, Diener and colleagues have come to the conclusion that people experience high levels of well-being when they live in environments that are congruent with their personality traits (Ed, 1984). The objective for the next chapters would be first to discuss what was discovered about SWB in an economical field and then to identify the variables which are defined as to be state-like and which could have an influence on SWB in general. To sum up, the next step will be to focus on the state-like attributes that can be learned or adopted whatever the personality of the individual is, and which could influence peoples' life satisfaction in a long run.

Chapter 2

Subjective Well-Being in Economics

2.1 Introduction

Subjective well-being in economics is translated into utility. Since utility has been the focus of economists' interest, it has been identified by the quantity of goods and services consumed by the individual. The choice of these goods and services revealed the preferences of individuals. In other words, the utility or well-being of agents is expressed by the satisfaction of their preferences. Economists start from the assumption that each individual is rational, has all the necessary information and always aspires to maximize her utility. However, several studies in behavioral economics and psychology show that people often make inconsistent decisions, do not learn from their experiences, base their own satisfaction on how their situation is compared to others' satisfaction and thus deviate from the standard model of the rational economic agent. If people exhibit limited rationality when it comes to maximizing utility, then their choices do not necessarily reflect their "true" preferences, and relying exclusively on choices to reduce what people want, loses some of its appeal (Kahneman & Krueger, 2006).

Economists long after psychologists have turned to other alternatives to measure individuals' utility. Direct reports of subjective well-being are beginning to gain interest and may play a key role in reflecting consumer's preferences and welfare. Many economists studied SWB's determinants, such as income/ relative income, unemployment and health. These kind of studies are based on the following general form:

$$\boldsymbol{SWB_{report} = r(h)}$$

The reported SWB, which often represents the answer to a single question about life satisfaction or happiness, is a function (r) of the true SWB(h). The true SWB is determined by a set of social, economic, and environmental factors (Xs). this relationship is modelled empirically as an additive function :

$$\boldsymbol{SWB_{it} = \beta_1 x_{1it} + \beta_2 x_{2it} + ... + \epsilon_{it}}$$

Individuals' differences in the reporting of their responses is captured in the error term (Dolan, Peasgood, & White, 2008). However, it should be pointed out that responses on the SWB are treated differently in terms of both the content of the response and the nature of the SWB variable. For example, some researchers treat SWB as cardinal, while others treat it as a latent variable and analyze the data with logit or probit models. Nevertheless, SWB is estimated by interpreting the different coefficients resulting from the empirical study. These interpretations are mainly based on the fact that the causal link passes from the explanatory variables to the dependent variable, and the unobserved variables are not correlated with the explanatory variables (Dolan et al., 2008). Another difficulty with the SWB study is that the results found so far, answer mainly the research question. In addition, different investigators measure different

concepts (e.g. happiness, distress, life satisfaction, etc.). It is therefore rare that a wide range of concepts are evaluated in a single study (Diener & Seligman, 2004). Furthermore, and despite the fact that in recent years researchers have been using different, more sophisticated methods such as panel data on large samples, these same methods also have certain limitations for example, controlling for time-invariant individual effects. Although the causal link will be further strengthened, the effect of variables that cannot be observed cannot be measured. This topic will be discussed in more detail at the end of the chapter.

2.2 The effect of income on SWB

Income was one of the first factors studied by researchers to identify its influence on the degree of people's well-being. One of the main triggers for research of the income effect on happiness was the article written by Easterlin (1974) which exposed the paradox of substantial growth in real incomes in Western countries [1] over many years (50 years), but without any corresponding increase in reported levels of happiness. Whereas richer people report higher levels of happiness than the poorer (Clark, Frijters, & Shields, 2008). The paradox states that at a point in time happiness varies directly with income both among and within nations, but over time happiness does not trend upward as income continues to grow. It is the contradiction between the point-of-time and time series findings that is the root of the paradox. see (figure 2.1) and (figure 2.2). As reported by (Frey & Stutzer, 2002) subjective well-being seems to increase with income. Since the relationship of the function between the two variables is concave, income provides happiness at low levels of development, but once a certain threshold is reached (around 10,000 $), average income in a country has little effect on average well-being.

In transition countries however, a stronger influence of income on welfare can be found, taking the example of post-reunification East Germany see (figure 2.3). East Germany observed a substantial increase in income between 1991 and 2002 and reported a considerable increase in life satisfaction (Clark et al., 2008).

Sophisticated researches using multiple regressions and controlling for several demographic variables have been able to prove that income does indeed play a role in increasing happiness, or well-being. A study conducted by (Blanchflower & Oswald, 2004) has shown that higher income is associated with higher happiness. However, more income will not lead to higher happiness in infinity. Indeed there is a non-linear relationship between the two variables. There is diminishing marginal utility with absolute income (Frey & Stutzer, 2002). The same proportional increase in income yields a lower increase in happiness at higher income levels. Other studies that have used panel data to control for the effect of unobserved variables have concluded

[1] this trend has also been observed in other countries such as Japan and European countries.

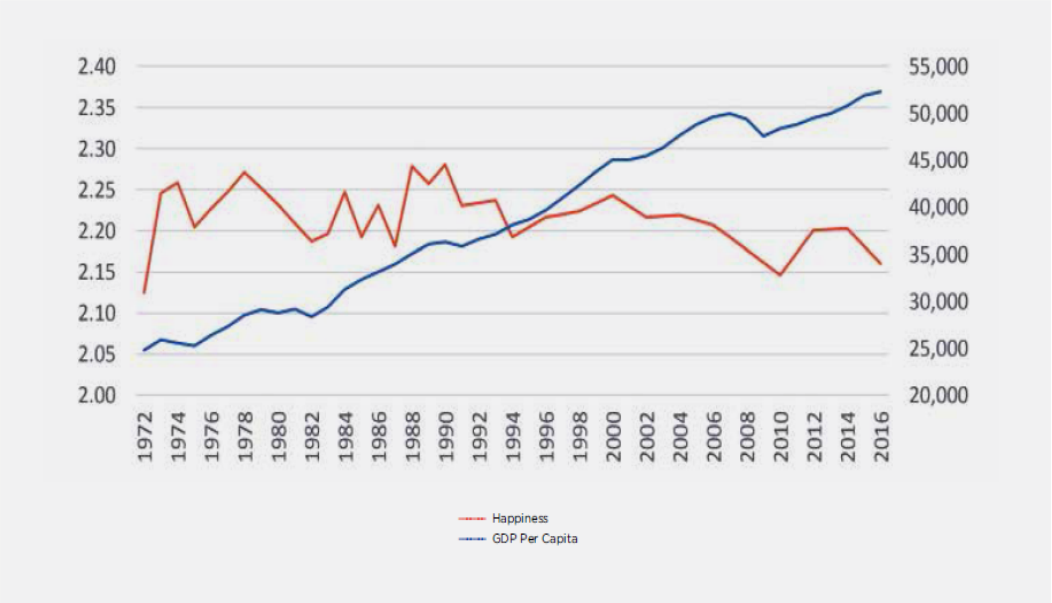

Figure 2.1: Average happiness (left scale) and GDP per capita, dollars, (right scale) in the US in 1972- 2016
Source: (Sachs, 2018)

that changes in income are correlated with changes in happiness. Using exogenous variations in income has allowed to demonstrate the causal link between income and happiness. Other researches using large samples and cross time cross country models that control for country fixed effects, were able to prove that happiness co-moves with macroeconomic variables including GDP and GNP (Clark et al., 2008).

One of the most widely adopted explanations about the stagnation in levels of happiness despite the improvement in income over the years, is the fact that income has an effect on happiness when individuals compare themselves to others. People may have increases in their income, but do not feel a better level of well-being when they compare themselves to others who have a higher income than their own. This comparison can even be extended to an international level. In a study conducted by (Blanchflower & Oswald, 2004), they have indeed found that relative income matters per se as opposed to absolute income. In (Clark et al., 2008) Clark and his colleagues conceptualized a model to explain the Easterlin Paradox. They used the concept of income comparison between self and others (a reference group), which they called social comparison, and between the person's current and past situation, which they called adaptation or habituation.

Regarding social comparison, the main prediction of their model is that the gradient between income and happiness will be more pronounced within a country at a given point in time than over time, see (figure 2.4). This is due to the fact that people with high incomes within a country enjoy a privileged status. It is essential to note however, that this status advantage has no over-

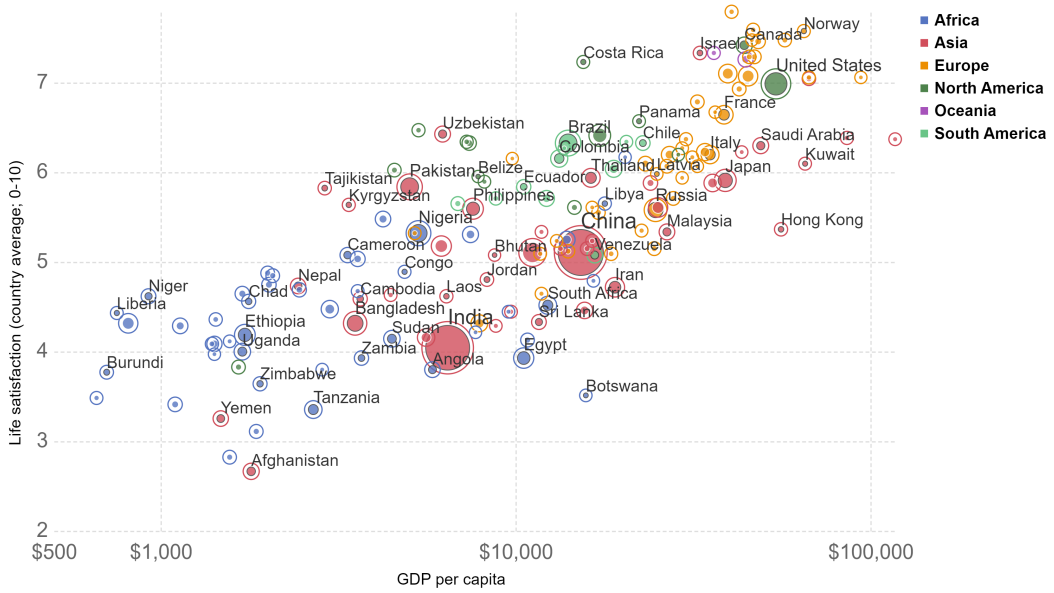

Figure 2.2: Self-reported life satisfaction vs GDP per capita, 2017
Source: World happiness report (2019), World Bank

all impact on happiness at the national level (in their model, the more status a person gains, the more status others will lose. Thus, status is a zero-sum game). Over time within a country, the only effect of income on overall happiness will be via the consumption component of the utility function. At a point in time, those with higher incomes enjoy higher consumption and higher status and are thus happier. However, over time as everyone becomes richer, as the amount of status is fixed, the only benefit to the country is from higher consumption, the value of which drops towards zero.

In the empirical field, much research has been conducted to test the effect of social comparison on happiness with respect to income. The challenging point was to identify the reference point, for which several approaches have been used. There are researchers who have predicted the income of "people like me" and then used it in the regression of the SWB. Others, on the other hand, have computed cell averages (for example, average wage by region, sex and education) (Clark et al., 2008). (Knight, Lina, & Gunatilaka, 2009) the authors of the study titled "Investigation on the subjective well-being and its determinants in rural China", introduced different forms of income comparison, in time and space. Unlike other studies, they asked respondents to compare their household income with the household income of other families in the village. The effect on happiness was in all cases not only satisitically significant but also powerful and monotonic. Having a much above-average income increased happiness by 0.22, and having an above-average income increased happiness by 0.11. Having an income below the average diminished the score by 0.27 and much below average by 0.84. In particular, it is the poor of the village who suffers as a result of making intra-village comparisons. Given that household income per capita was controlled, and that the villages differed greatly in their

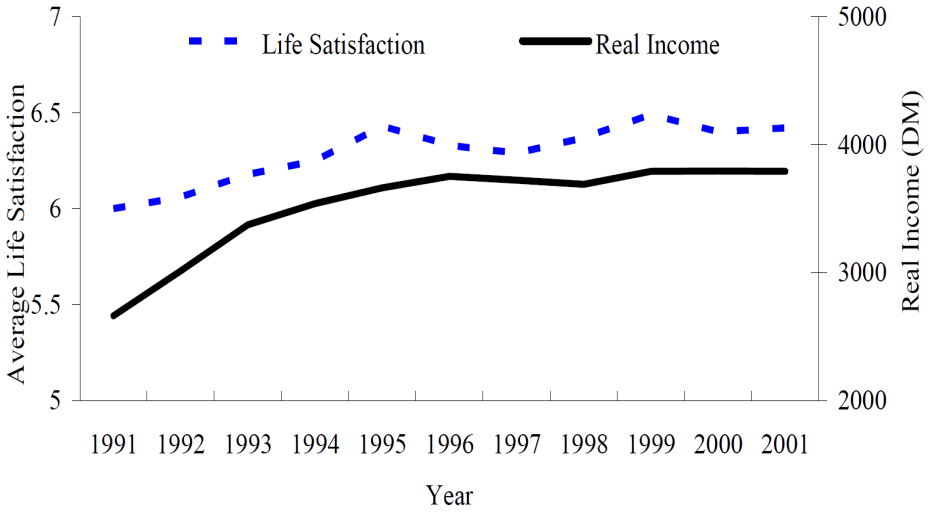

Figure 2.3: Life satisfaction and income in East Germany, 1991-2001
Source: (Clark et al., 2008)

average income, these results imply an effect of relative income rather than absolute income on the SWB.

In terms of adaptation, people get used to their circumstances. Thus, income will only have a transitory effect. People tend to feel a reduction in the emotional intensity of favourable or unfavourable circumstances. Once a certain time has passed they regain their basic hedonic level after temporary ups and downs of happiness. In the case of adaptation [2], the reference point for individuals is their past income. There is a large body of literature in psychology that addresses the issue of adaptation in different areas of life, however little research has focused on income adaptation. Perhaps the most famous article written on this topic was by Brickman et al.(1978), who used small sample of lottery winners (n = 22), and showed that this group with their positive income shock did not have significantly higher life satisfaction than the control group (Clark et al., 2008). The explanation proposed for this phenomenon is that winning money opens up new pleasures but also makes existing pleasures less enjoyable. Form the habituation perspective, winners get used to a new standard of living. (Di Tella, Haisken-De New, & MacCulloch, 2010) used individual-level panel data on happiness from households living in Germany between 1984 and 2000. Their objective was to identify whether income and status have long-lasting historical impacts on happiness or whether these dissipate over time. They ran series of regression specifications that include happiness as the dependent variable, and income and status as the two main explanatory variables. With respect to income adaptation, they measured it by cumulating the effects of the previous 4 years' income on current happiness.

[2]People may also have aspirations with which they compare their current income. In this case the reference point will be their aspired income.

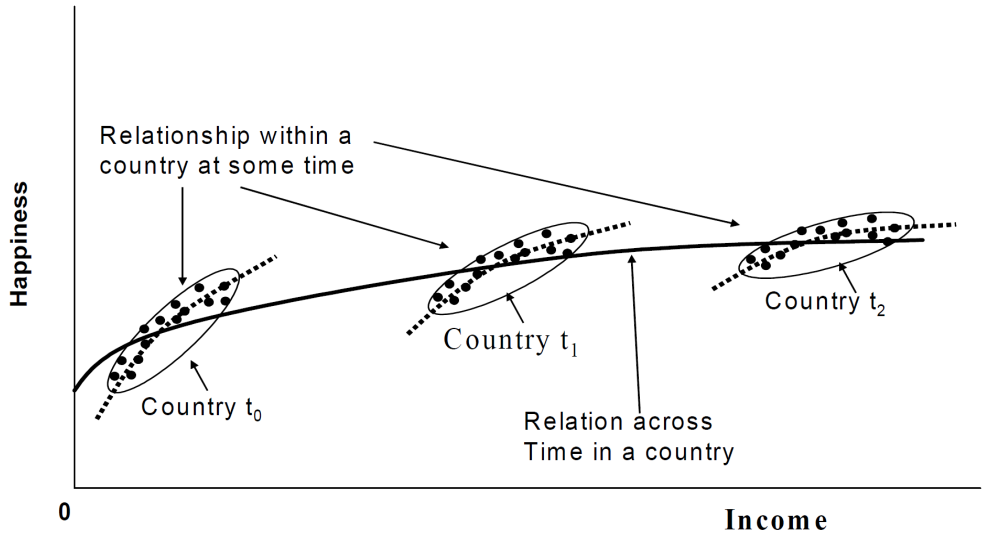

Figure 2.4: The relationship between income and happiness at the individual and the aggregate level

Source: (Clark et al., 2008)

They found that the effect of current income on current happiness is 0.23. The effect of income from other years is -0.04, -0.07, -0.06 and 0.02 from the first year to the 4th year (the last year) respectively. The magnitude of the adaptation of -0.15 was calculated by summing the effects of old incomes. As a result of the initial income impact, 65.2% is lost over the next four years, leaving a long-term effect of only 0.08.

Another important aspect which could affect SWB is the individuals' aspirations. For a given income level, having high aspirations and expectations could have a negative effect on SWB. Aspirations themselves seem to be partly motivated by past income, which implies an adaptation to higher income levels. The importance of aspirations reinforces the conclusions that the perception of the financial situation has a greater predictive power than the real income. These results imply that additional income for those who are not at low income levels is unlikely to increase SWB in the long run if the additional income is used to raise expectations (Dolan et al., 2008).

Finally, it can be said that people either adapt to their circumstances and hence end up no more satisfied than they were before, or they raise their financial aspirations which will make them feel less satisfied with their increase in income (Lamu & Olsen, 2016).

2.3 The effect of unemployment on SWB

Unemployment has drawn economists' attention as much as (if not more than) income in their search for the SWB's determinants. Whatever method of measurement is used in research, there is little doubt that unemployment causes deterioration in individual's well-being. Research that treat life satisfaction as a continuous variable tend to find that the unemployed have scores 5 to 15% lower than those who are employed (Dolan et al., 2008). In his article (Lelkes, 2006) used European data and after controlling for several variables such as income, labor market, housing, and health, he found that unemployment reduces the probability of high life satisfaction (8/10) by 19%, and overall happiness by 15%. Having a job seems to be an essential accomplishment for people. In other words, there is no situation where an unemployed person has better levels of subjective well-being than an employed person (Van der Meer, 2014). This finding is validated across countries, time period and data sources. Causality was also validated using longitudinal panel data. Unobservable individual heterogeneity have been shown to have no effect on the influence of unemployment on individual well-being. More importantly, unemployment causes lower personal well-being not only through the fall of income, but also through the loss of psychological benefits associated with work. In other words, having a job is a source of prestige and social recognition, providing self-respect and self-worth, apart from having a certain structure of the day, keeping a sense of purpose, and creating opportunities for social interaction (Shields & Price, 2005). Men are found to be more affected than women in the case of unemployment. Married men who are responsible for supporting their families report greater mental distress from becoming unemployed compared to women (Van der Meer, 2014). Using a fixed effects model, Wildma and Jones (2002) found that the negative coefficient of unemployment falls by 1.979 points to 0.989 for men, once satisfaction with financial position and expectations of future financial position were controlled (Dolan et al., 2008). Other differences in the impact of unemployment can be cited apart from gender differences. For example, the middle aged are found to suffer more than the young or the old. Those with high levels of education suffer more than others in Britain. The same is true for those with right wing political leanings in the US (Dolan et al., 2008).

In his article (Clark, 2003) found that unemployment and employment have the same effect on well-being in regions with an unemployment rate of 24%. In contrast, the effect of unemployment is 2.5 times higher in the data's lowest unemployment region (4%) than in the highest unemployment region (16%). This means that people compare themselves to others in their professional situation, taking unemployment as a reference or a social norm. If the person is in a region with a high unemployment rate, her individual well-being will not be affected as much as someone who is unemployed where most people are employed. This reinforces the idea that unemployment does not only affect the financial side of people's lives, but their social status also. Individuals tend to evaluate their own situation relative to other persons. For most

persons, unemployment lowers their happiness less if they are not alone in their fate. When unemployment is seen to hit many persons one knows or hears about, both the psychic and the social effects are mitigated. Self-esteem is better preserved because it seems that being out of a job is less one's own fault and more due to general developments in the economy. (Frey & Stutzer, 2002). (Clark, 2003) also found that people with unemployed partners experience less well-being, whereas people who are unemployed benefit from having a partner who is working. The same result is observed if other family members are unemployed. The well-being of the working person is negatively affected by the presence of unemployed family members. However, the welfare of the unemployed person is positively affected if another family member becomes unemployed. This does not exclude or negate the negative effect of unemployment on the person experiencing it (one's own unemployment still reduces one's well-being, even if all other adults in the household are unemployed).

At the macroeconomic level, people can be unhappy with unemployment even if they are not affected. They may be sad for the fate of people who are unemployed, they may also be worried about the possibility of becoming unemployed themselves in the future, they may also feel repercussions on the economy and society as a whole, they may dislike the increase in unemployment contributions and taxes that may occur in the future, they may fear that crime and social tensions will increase. In a study of 12 European countries in the period 1975-1991 (Di Tella, MacCulloch, and Oswald 2001), found that a percentage point increase in the general unemployment from 9% to 10% reduces stated life satisfaction by 0.028 units on the four scale-point scale applied. The small rise in the unemployment is equivalent to shifting more than 2% of the population downward from one life satisfaction category to another, keeping all other influences constant (Frey & Stutzer, 2002).

2.4 The effect of social relationships on SWB

There is growing evidence that social relationships are crucial to people's health and well-being. Social capital at the individual level can be defined as "the social skills and networks that enable an individual to access and/or mobilise the resources embodied in the social structure through targeted actions" (Lamu & Olsen, 2016). Social relationships have the power to influence identity and therefore are essential for the maintenance of mental health. Baumeister and Leary (1995) argued that the need to belong and to have close social relationships is a fundamental human motivation. The quality of social relationships has direct implications for individuals' health and well-being (Gleibs, Morton, Rabinovich, Haslam, & Helliwell, 2013). In their article (Lamu & Olsen, 2016) conducted a research based on a cross-sectional data set of 7933 people from 6 developed countries to explain the relationship between income, health and social

relationships with SWB using the multiple-item satisfaction with life scale measure [3] proposed by Diener et al.(1985). Social relations were measured by a composite score based on four questions from the assessment of quality of life instrument. Two questions consider the extent of enjoyment and satisfaction with one's close relationships, and two questions evaluate one's feelings with respect to isolation and exclusion. Among the main independent variables, social relationships show the strongest effect on SWB. They explain alone almost half of the variation in SWB. The researchers also studied the effect of the three independent variables on different levels of well-being and found that the coefficients change according to each level. However, the coefficient of social relationships is more stable across the SWB distribution, with a slightly stronger effect at lower level. The authors explain the effect of social relationships on SWB by the fact that social interactions offer the opportunity for self-realization and fulfilment and that takes place through shared identities such as families and communities, which will play a role in strengthening subjective well-being. The researchers also found that living with a partner would increase SWB by at least 4% more than living alone. Furthermore, there is evidence that the level of SWB associated with being an unmarried cohabitant depends on the degree of stability of the relationship. As opposed to unstable partnerships, stable partnerships are associated with similar levels of SWB as married partnerships. Therefore, the data suggest that objective circumstances (in this case marriage) do not always have direct effects on well-being and that it is important to know how these experiences are perceived (Dolan et al., 2008).

2.5 The effect of Health on SWB

Studies have consistently found a strong relationship between health and happiness (reported well-being). Indeed, the relationship between health and happiness is statistically more robust than between happiness and income. Good health is linked to high levels of well-being, and health shocks such as serious illnesses or disabilities have negative and often lasting effects on people's well-being. At the same time many studies demonstrated that happy people have better health, so the causal link seems to work both ways (Graham, 2008). However the effect size of health is substantial, suggesting that even taking into account the effect of well-being on health, health is still impacting on SWB (Dolan et al., 2008). This reverse causality can be explained by the effect of personality traits and other unobservable variables that are related to better health and higher happiness (Graham, 2008). The positive relationship between health and happiness tends to be stronger for psychological health than for physical health. Although some serious illnesses and disabilities have a strong negative impact on happiness, people who are subject to these illnesses often adapt to their situations and change their expectations for health status downward over time and return at least partly to their initial level of happiness. This is due to the fact that they change their reference group to groups that have the same illness or disability

[3] SWLS is designed to measure global cognitive judgements of satisfaction with one's life.

as them (Graham, 2008).

The same Easterlin paradox observed between well-being and income has also been observed between health (which is strongly correlated with happiness) and income. Angus Deaton found that Kenyans (82%) are more satisfied with their health than Americans (81%). The United States is ranked 81 out of 115 countries in the public confidence in the health system ranking below India, Malawi and Sierra Leone. Once a certain level of health and longevity standards are assured, there is no longer a cross-country relationship between health and happiness. However, within countries healthy people are happier than others (Graham, 2008).

In a study conducted by (Graham, Higuera, & Lora, 2011) they used a data set of 18 Latin American countries to study the relationship between health conditions (the EQ5D health measure which is based on self-reports and captures 5 dimensions of physical and mental health namely: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and (health and life satisfaction). In other words, their research question was how individuals' health status as measured by the EQ5D relates to more subjective assessments of life and health satisfaction. They found a strong correlation between the EQ5D score and subjective health status and life satisfaction. The negative effects of extreme self-care and mobility conditions on both dependent variables disappear once personal optimism is controlled[4]. People tend to adapt less to the unpredictability of certain health conditions than they are to the unpleasant certainty of others. The well-being of paraplegics for example, generally adapt to pre-accident levels, whereas many epileptics face a lifetime of uncertainty about the timing of seizures. These negative effects on quality of life and adaptation to uncertainty become more difficult as time goes on. The authors then interacted the variables (age, gender and income) with the 5 variables of the EQ5D measure, and found that age increases anxiety, income reduces the effects of extreme pain on life satisfaction, but increases difficulties in self-care. Finally, gender reduces mobility and anxiety problems: men seem to experience more negative effects of mobility problems than women, while women suffer more from anxiety. The authors also examined the effect of the reference group's health on life satisfaction. They found that unlike income, comparative health effects could have positive effects on life satisfaction because people tend to improve their health status when they see that their peers are healthy beside the fact that they enjoy seeing the others being healthy.

[4]In the absence of panel data, which allows for the inclusion of person fixed effects, they measure personal optimism as the tendency of the individual to respond affirmatively to a number of satisfaction questions in the Gallup survey.

2.6 Other Factors

In addition to the determinants outlined above, researchers have looked at many other factors that may influence subjective well-being. In the context of social relationships, trust is found to have an effect on people's subjective well-being. (Helliwell, 2006) found that trust in most other people is associated with higher levels of life satisfaction. Other studies have shown that political orientations have different impacts on social and economic circumstances through interaction effects. For example, being unemployed has a more negative effect on the well-being of people who consider themselves right wingers in the United States. On the other hand, inequality was worse in terms of life satisfaction for people who consider themselves left wingers in Europe (Dolan et al., 2008), meaning that The findings on political orientations also suggest that the impact of external circumstances is dependent on individuals' perceptions and attitudes towards those circumstances. Religion also plays a role in the levels of individuals' well-being, based on the idea that beliefs affect SWB, (Helliwell, 2006) found that belief in God was associated with high levels of life satisfaction. However, there is a tendency to find differences in SWB among population groups of the same religion, suggesting that people use religion or spirituality in different ways to cope with life's difficulties. In their article (Johnson & Krueger, 2006) used a nation wide sample of 719 twin peers from the National survey of mid-life development in the United states, to demonstrate that the perception of financial status and the perception of control over life completely mediated the association between financial resources and life satisfaction. Their analysis showed that objective indicators of environmental circumstances such as income and assets have very important psychological aspects. In other words, a person's annual salary of say $50,000 can have very different effects on life satisfaction than on another person's life satisfaction with the same salary. There are people who are materialistic, so their income will have an important impact on their life satisfaction because it will be the means that will allow them to satisfy their needs and desires. The greater the material desires are, the more material resources will be required for their attainment. If the gap between desires and financial situation is large, people who tend to be materialistic will perceive their financial situation as poor even if they earn a good living, which could have an negative impact on their life satisfaction. (Hayo & Seifert, 2003) conducted an ordered logit model study of Eastern European countries from 1991 to 1995 in order to identify the determinants of subjective economic well-being. Based on the hypothesis that individuals living in the countries in transition will compare their current conditions with the former socialist system, people will compare their subjective economic well-being over time and classify themselves as winners or losers depending on the transformation of the process. They have found that people take their expectations of the future into account when judging their actual economic SWB. The more optimistic the respondents were about the future, the higher was their current subjective economic well-being. In behavioral terms, this means that a seemingly unsatisfactory economic situation can become bearable if the respondent believes that the situation will improve in the future.

2.7 Discussion

According to the different researches done on subjective well-being in the fields of psychology and economics, it can be noticed that the results (the coefficients, their magnitude and significance) change according to the research method and the hypotheses adopted for each research question, which amounts to integrating different control variables, giving sometimes heterogeneous results. In their review of research done on SWB or Happiness to study the robustness of the findings, (Ferrer-i Carbonell & Frijters, 2004) found that psychologists interpret happiness responses as cardinal, in other words the difference between a level of happiness between 4 and 5 is the same as between 8 and 9 for all individuals. In economics, cardinality is viewed with suspicion. It is assumed that the answers on happiness can be interpreted only ordinally. Thus, the relative difference between answers cannot be known. The advantage of the cardinality hypothesis is that changes in happiness can be associated with changes in the variable(s) of interest. This means that any unobservable time-invariant effect disappears in the linear specification, which is why there are many articles in psychology that use econometric models with individual fixed effects. Economists however, consider happiness or SWB as a latent variable, and use latent variable models. In addition to the nature of the dependent variable (cardinal/ordinal) the models chosen are based on the nature of the statistical assumptions made by the researchers. These assumptions are based on the existence and effects of unobserved factors in the available data set. Two statistical hypotheses can be cited that show the reason for using different statistical models:

S 1 : There are time-varying unobserved factors that are related to the observable variables in an unknown way, this hypothesis is often raised in economic theory. People often make choices that are dependent on certain constraints and expectations. Anything that influences life satisfaction and can influence expectations and constraints will also influence decision making. Under S1 causal inferences cannot be made (Ferrer-i Carbonell & Frijters, 2004).

S2: There are time-invariant unobserved factors that are related to the initial level of observable factors. The unobserved factors can influence the level of other variables but not the change in these variables. A famous example of this kind of fixed unobserved factors in economic analysis are personality traits (Ferrer-i Carbonell & Frijters, 2004).

(Ferrer-i Carbonell & Frijters, 2004) have used the fixed effect ordered logit model, combining the ordinality characteristic of economic models with the fixed effects characteristics often used by psychologists. They found that assuming the cardinality or ordinality of responses on overall satisfaction is relatively unimportant to the results. What matters with respect to estimates is how to take into account time-invariant (variant) unobserved factors. Comparing the results of e.g. income between the fixed effect ordered logit model and the ordered logit model often

used by economists, it is found that the effect of income on general satisfaction falls by 2/3 (when allowing for fixed unobserved factors). The variable "having children" had a non significant positive effect on general satisfaction, contrary to its negative effect in the model without fixed effects. Therefore, it can be said that other variables that have been the subject of interest by other researchers may have different effects once the individual fixed effects are taken into account.

2.8 Conclusion

According to the studies brought to our knowledge, different results arise depending on the variable of interest as well as the method or model used for the data analysis. The unobservable time-invariant variables seem to affect the coefficients and their magnitude if they are not taken into account. Other aspects also seem to mediate the relationship between objective factors and SWB. People do not use their absolute income when they answer questions about their SWB, they compare their income to others (relative income), which creates the feeling of satisfaction or dissatisfaction. This comparison can be done in relation to old situations as well, or in relation to the person's aspirations. Adaptation and aspiration also mediate the relationship between income and subjective well-being. Once people adapt to their new income, they return to their old SWB level. Aspiration on the other hand, pushes people to have new desires that are above their current income, which in some cases will prevent them form not keeping the satisfaction of their situation despite the increase in income. Certain psychological characteristics also play a substantial role in determining SWB. People perceive circumstances differently, one can find individuals with average or precarious financial situations but who feel more satisfied with their lives and people who have a good financial situation but do not feel satisfied. Optimism and hope about future events also have an influence on individuals' SWB. Having the perception of control over one's life can help people limit the impact of external events over their life. These variables, whether they are related to personality traits (time -invariant unobservable variables) or psychological characteristics (time - variant un/observable variables) which effects cannot be accurately identified yet, seem to influence people's SWB levels, and above all might mediate the impact of objective circumstances on life satisfaction. In the next chapter four psychological variables, will be presented that might affect considerably SWB.

Chapter 3

Psychological Capital

3.1 Introduction

To be happy does not necessarily mean that the person has a purpose in life. One can find people who are happy, but who do not have goals in life (or do not function effectively) and do not seek fulfilment [1]. Also one can find people who are successful in their lives in many areas, but who do not necessarily feel joy in their lives. In addition to feeling good, being satisfied with one's own life in a holistic way includes the aspect of positive functioning. Ryff (1995) defines well-being as "the striving for perfection that represents the realization of one's true potential" (Lent, 2004). A life that is meant to be lived well, should reflect: autonomy, personal growth, self-acceptance, purpose in life, environmental mastery and positive relations with others (Lent, 2004). In other words, it can be said that well-being has two interconnected dimensions, which influence each other: the hedonic aspect which concerns pleasure and happiness and focuses on the balance between positive and negative affects, and the eudaimonic aspect which is characterized by the search for the actualization of human potential and the realization of one's own nature. The focus here is more on what the person is doing or thinking than on her feelings. In practice one can feel joy while pursuing challenging activities, and the pursuit of goals that are meaningful to oneself can offer a source of emotional satisfaction (Lent, 2004). In this chapter, Psychological capital which contains four attributes namely: Personal strivings, self-efficacy, optimism, and emotional intelligence, will be presented as a potential predictor of 40% of people's SWB.

3.2 Predictors of well-being

Researchers have studied a multitude of variables and processes that could predict and promote well-being. Three major categories emerge from this research: a) demographic variables, b) personality, emotions, and biological perspectives, and c) cognitive, behavioral, and social-relational variables. Several studies have shown that demographic variables such as income explain only a small portion of the variance in well-being, ranging from 10 to 15% (Sheldon & Lyubomirsky, 2007). Variables of a biological nature, specifically genes, have been shown to explain between 40 and 70% of the variations in well-being, with the most common figure being around 50%. In other words, there are people who are born with a predisposition for optimism and joy, while others are born with a predisposition for fearfulness, pessimism and depression (Sheldon & Lyubomirsky, 2007).

Given the results presented by research on genetic variables in the field of well-being, one might think that some people are born to be happy and live happily, while others are condemned to spend a sad life. This conclusion is not as simple and definitive as that, because there are reasons to believe that well-being can be influenced and even improved throughout

[1] Those with thought disorders or diminished reality-testing capacities (e.g., schizophrenics, manic states of bipolar disorder)

a person's life. Two reasons can be cited that support this statement. The first reason is that there are motivational and attitudinal factors that are related to well-being and that are likely to be voluntarily controlled. Examples of motivational factors include the successful pursuit of life goals that are intrinsic to the content, consistent with the person's interests, motivations and values (Lyubomirsky, Sheldon, & Schkade, 2005). Concerning the attitudinal aspect, one can find for example: the tendency to take an optimistic perspective regarding life situations, to avoid social comparison and the tendency to feel a sense of efficiency regarding one's life (Lyubomirsky et al., 2005). The second reason is that research has shown that older people tend to be happier than younger people. According to the socio-emotional selectivity theory [2], older people learn to structure their lives and pursue goals that maximize positive emotions. In their article "Getting older, getting better? Personal strivings and psychological maturity across the life span." (Sheldon & Kasser, 2001) found that age-related increases in well-being were partly mediated by volitional changes, including older people's ability to select more enjoyable and self-appropriate goals. Although some personality traits are seen to be stable over time, people are able through voluntary action and personal maturity, to pursue goals that give them greater satisfaction and positive emotions. Another argument that supports the idea that genes are not necessarily destiny is the fact that they seem to influence happiness indirectly, by influencing the kind of experiences or environment a person seeks to have (Lyubomirsky et al., 2005). As mentioned in the previous chapter, the effect of demographic factors is partly mediated by social comparison and adaptation. People feel dissatisfied because they compare what they have with other people who earn more than they do, or because they get used to their new state and return to their basic level of well-being. **It is clear that the perception of the current state affects people's judgement of their well-being**.

Given that the effect of demographic variables, personality and biological perspectives account for about 60% of the variance in well-being, and that they can be mediated by other cognitive, behavioural, motivational or emotional factors, the rest of this chapter will be dedicated to the search of these latter factors since they account for 40% of the variance in well-being, starting from the principle that they are malleable, can be learned and represent an element of control for people over the course of their lives and their ability to cope with difficulties.

[2]Developed by Stanford psychologist Laura L. Carstensen, is a life-span theory of motivation. The theory maintains that as time horizons shrink, as they typically do with age, people become increasingly selective, investing greater resources in emotionally meaningful goals and activities. According to the theory, motivational shifts also influence cognitive processing. Ageing is associated with a relative preference for positive over negative information. This selective narrowing of social interaction maximizes positive emotional experiences and minimizes emotional risks as individuals become older. According to this theory, older adults systematically hone their social networks so that available social partners satisfy their emotional needs

3.3 Attributes of psychological capital

In this section, some variables will be presented, that could considerably affect well-being. The aim is not to be definitive about them[3], but to focus on what people can do outside of their genetic predispositions and the demographic circumstances around them, to feel well. In other words, what are the actions, reflections and attitudes to adopt in order to improve or acquire higher levels of well-being. This leads us to ask the following questions:
1) What can we do to give sense to our lives?
2) How should we perceive ourselves, our circumstances, and abilities ?
3) How should we manage our feelings and others' feelings?

3.3.1 Personal striving: What can we do to give meaning to our lives?

Several theories on SWB are telic in nature, proposing that the satisfaction of needs, goals and desires are linked to the individuals' well-being. Goals refer to people's determination to produce a particular outcome or achieve a particular level of performance. They are "typically conceived as consciously articulated, personally important objectives that individuals pursue in their daily lives" (Lent, 2004). Individuals will find their lives meaningful when they have objectives congruent with their inner selves and they are committed to realizing them, thus reaching a successful self-actualization and the extension of their personalities. People's behaviors and emotions can be understood through the examination of personal striving. This can be done by observing what they try to do or avoid in different areas of their lives, and how well they manage to do it. Aside from their contribution to giving meaning to life, goals can be a barometer of how people are affected. People react positively when they progress towards the goal, and negatively when they do not (Klug & Maier, 2015).

In a study conducted by (Emmons, 1986), he examined the relationship between the characteristics of striving goals (e.g., importance, past attainment, effort) and SWB's components. Apart from coming to the conclusion that personal striving is a useful heuristic device for understanding individual differences in SWB, the additional following conclusions can be drawn from this paper:
1) Positive affect was most strongly associated with striving value, past fulfilment, and degree of effort that striving requires but not with probability of success.
2) Negative Affect however, was strongly correlated with lowered perceived probability of success, low instrumentality[4] (between-striving conflict), and striving ambivalence (within-striving conflict) meaning that individuals who experience much negative affect were characterized by

[3]Other variables can be integrated under the umbrella of the psychological capital. we are going to propose the ones we consider the most adequate for our research.

[4]The question related to instrumentality, "How much does trying to succeed in the striving change your chances of success in other strivings?"

ambivalence regarding their strivings, and possessed conflicting striving systems. Which supports the goal theorists‘ statement that conflict in the system (when two or more goals are incompatible) is psychologically injurious.
3) The mere presence of important personal strivings, independent of their past attainment, was associated with higher life satisfaction. Life satisfaction was found to be positively correlated with striving instrumentality, past fulfilment, and probability of future success.

In a study conducted by (Sheldon & Houser-Marko, 2001) on undergraduate students, they used a five wave panel design and path-modelling techniques to test a two cycle model, in which initial self-concordant motivation predicts good goal attainment during the first cycle. Attainment leads then to increased well-being. In other words, they wanted to check if striving for the right reasons, people may be able to initiate an upward spiral of positive outcomes. They found that those who began the semester with goals that matched their implicit values and interests were better able to attain those goals over the semester, which in turn led to increased adjustment (social- emotional and academic adjustment). Thus, it is not enough to just have personal goals in order to expect a better level of well-being. In addition to setting them, they should be consistent with the person's implicit interests, values, and growth trends. This is not often obvious, as it requires accurate self-perceptual abilities and the ability to resist social pressures that may sometimes push one in inappropriate directions.

Another aspect that would appear to be as important as the coherence between personal objectives and people's interests and values, are the resources[5] available to achieve this objective. Indeed, the more the available resources are used to achieve the personal goal, the more people will show higher levels of well-being. In other terms, "people who have relatively more of their resources in the areas that are relevant to their personal strivings, have greater SWB. In contrast, people who have their higher resources in areas that are less relevant to their strivings tend to have lower SWB" (Diener & Fujita, 1995). This suggests that the impact of objective variables may be partly mediated by personal goals. In other words, resources could increase well-being indirectly, by enabling individuals to achieve their personal goals (Diener et al., 1999).

The relationship between personal goals and well-being is far from being simple and straightforward. People can gain well-being by pursuing goals that are important to them and that reflect their values and interests. Progress towards the goal is also seen as an element that promotes better SWB levels. However, there can be many challenges between setting the goal and achieving it. People who have more goals find themselves living with higher levels of life satisfaction and self-esteem, but at the same time, they experience more anxiety in their lives (Diener et al., 1999).

[5]Resources are material, social, or personal characteristics that a person possesses that she can use to make progress toward her personal goals

Having consistent goals is proved to be a major factor in preventing people from experiencing frequent moments of negative affect. Choosing goals congruent with one's personal motives and values, self determined and pursued for intrinsic reasons, could also be a critical aspect for SWB. Having goals focused on challenging yet realistic activities, those that are consonant with but slightly beyond one's current skills, encourage people to acquire new skills and develop throughout the process. To sum up, one can consider that the pursuit of personal goals when accompanied by the right conditions as announced above, would allow people to experience higher and higher SWB, each time the goal is reached or even through the process of progress towards it. This well-being is reflected in the fact that the person has given herself a meaning to her life, she has gained a kind of structuring of her daily life and a permanent evolution.

3.3.2 Self-efficacy and optimism: How should we perceive ourselves, our circumstances, and abilities ?

The previous section talked about personal goals that emphasize the role that people can play as agents of their well-being through giving meaning to their lives and self-actualization. This means has also been accompanied by conditions for its impact to be effective on the well-being of individuals. Two other factors play an important role in mediating the impact of personal goals on SWB, but above all they also have a direct impact on it. On one hand people tend to pursue actions that they believe they are capable of undertaking. In other words, they perceive a certain probability of success for the action. This means that much of the achievement of an action relies primarily on the beliefs held about it. On the other hand, outcome expectancies allow people to pursue or give up the realisation of the action. In this section self-efficacy will be proposed as a psychological variable that represents control beliefs, and optimism that can influence outcome expectations.

Self-Efficacy

Efficacy is based on Albert Bandura's (1997) extensive research and social cognitive theory. It can be defined as "One's belief about her ability to mobilize the motivation, cognitive resources, and courses of action necessary to execute a specific action within a given context" (Youssef-Morgan & Luthans, 2015). Various self-referential processes allow people to function as self-regulatory agents who actively negotiate with the social world and exercise extensive control over their personal experiences. Among the self-referential mechanisms of personal agency, none is more influential than beliefs of self-efficacy. That is, the belief of individuals in their ability to exert control over events that affect their lives. Whatever other factors guide and motivate people's efforts to achieve desired outcomes, they are rooted in the fundamental belief that one has the power to produce effects through one's own actions (Caprara, Steca, Gerbino, Paciello, & Vecchio, 2006). This core belief is the foundation of human motivation, performance

accomplishments, and emotional well-being. Unless people believe they can produce desired effects by their actions, they have little incentive to undertake activities or persevere in the face of difficulties. The motivation behind each of our abilities to engage in activities is based on the likelihood that we believe our efforts will be successful. Albert Bandura (1997) referred to the probability that people estimate that they can take on a particular task as an estimate of their self-efficacy (Luthans, Youssef, Avolio, et al., 2007). The level of self-efficacy motivates people to welcome challenges and use their strengths and skills to meet those challenges. It encourages them to pursue their goals and invest the time and hard work that may be necessary to accomplish them. When having high probability regarding their ability to undertake an action, people can stand against obstacles and persevere in hard times (Luthans et al., 2007). Many theories recognize the importance of control beliefs for personal well-being. Bandura (1997) posits that self-efficacy beliefs play important roles in the self-regulation of affective states. Effectiveness beliefs influence the interpretation of life events as benign or distressing, the actions taken to overcome environmental barriers, and the cognitive and emotional strategies used to cope with events (Lent, 2004).

In a study conducted by (Caprara et al., 2006), with the aim of identifying the personal characteristics that lead to successful adaptation from childhood to adulthood, they tested a structural model with 664 Italian adolescents that utilises adolescents' beliefs in terms of emotional and interpersonal self-efficacy as proximal and distal determinants of positive thinking and happiness. Research results have shown that perceived self-efficacy in regulating affect and managing interpersonal relationships, influences adolescents' subjective well-being. Concurrently, each form of adolescents' self-efficacy beliefs exerted a positive influence on adolescents' positive thinking, namely on their positive view of themselves and their life, as well as on their positive expectations about their future. Adolescents' social self-efficacy beliefs also exerted a beneficial effect on adolescents' positive thinking measured two years later. Likewise, adolescents' affective and filial self-efficacy[6] beliefs influenced concurrently adolescents' happiness. Longitudinally, adolescents' self-appraised capability to manage communication with their parents and to cope successfully with stressful family situations exerted a significant influence on adolescents' happiness two years later. The results of the study clearly indicate that adolescents' beliefs about their ability to manage their relationships with peers and parents efficaciously contribute to their subjective well-being, thus confirming the important role of self-efficacy as one of the main indicators of effective individual functioning.

In addition to its influence on affects, happiness and the level of self-esteem and self acceptance (Caprara et al., 2006), self-efficacy can influence SWB across life domains, indeed, among the theories proposed to explain individuals' level of well-being one can find the bottom-up theory,

[6]The capacity to hold an open dialogue with their parents and to influence their parents' attitudes and behavior constructively.

which states that people overall feel happy or satisfied with their lives when they are happy or satisfied in areas of life that are important to them, such as family, work, and health. If a person feels efficacious in an area that is important to her, has control and agency over it, and can be satisfied with it, it will affect her overall well-being.

Generally speaking, a sense of self-efficacy is considered to influence different processes of human functioning: cognitive processes, motivation, affect, and selection on environments (Schwarzer, 2014). For example, in the health field, Craig Ewart has studied the role of self-assessments in the rehabilitation of myocardial infarction patients. Convalescence can be prolonged much longer than desired due to unwarranted fear of a new infarction when resuming normal activities. Improved self-efficacy accelerates progress in physical exercise and improves mood and well-being. Self-efficacy responses to treadmill exercise tests are better predictors of activity levels than medical data. Pre-workout self-efficacy levels predict post-workout gains in perseverance in demanding exercise regimens (Schwarzer, 2014). Halsted Holman and Kate Lorig launched an arthritis self-management program to teach patients how to cope with the consequences of their chronic disease. They found that patients' perception of their own effectiveness in coping with their disease was a key factor in the program's outcomes. This was particularly true for pain and depression. The more patients became self-sufficient during training, the more they were able to tolerate pain and the less depression was reported. The beneficial effects were maintained even after four years of follow-up (Schwarzer, 2014). Bandura's Findings from diverse lines of research have documented the influential role of self-efficacy beliefs in various other domains of functioning such as learning, work, sports, social adjustment, and well-being (Caprara et al., 2006). Thus, self-efficacy presents itself as an effective means to raise individuals' level of well-being, both through its involvement in the achievement of objectives, but especially through the possibility of its application in all areas of life, since it is domain specific.

Optimism

The term expectancies was used to refer to beliefs that desirable outcomes could occur, either through the efforts of the person or through other factors within the person's control. In the tradition of social learning theorists, Bandura differentiated between expectancies of self-efficacy (one's belief in one's ability to perform a specific behaviour) and expectancies of outcome (one's belief that a specific behaviour will produce a desired outcome) (Magaletta & Oliver, 1999). Most relevant in the present context is the idea that people's actions are greatly influenced by their expectations about the consequences of those actions. People who see desired outcomes as attainable continue to strive toward them, even when progress becomes difficult or slow. Alternatively, if outcomes seem sufficiently unattainable, people withdraw their effort and disengage themselves from the goals that they have set even if the consequences of such disengagement are at times severe. (Scheier & Carver, 1992).

A large body of research has shown that expectations about the future impact well-being in the present. People who are dispositionally optimistic, that is they have generally positive expectancies for the future, experience less stress across a wide range of situations, including stressful situations. Dispositional optimism is associated with better psychological adjustments to stressors. From general events such as entering university to extreme events such as experiencing trauma (Nes & Segerstrom, 2006). A direct influence of optimism or pessimism is noticeable in people's feelings when they encounter problems. When facing difficulties people's emotions vary between enthusiasm and desire and between anger, anxiety or depression. The balance in feelings is related to differences in optimism. Optimists expect good outcomes, even when things are hard. This yields relatively positive mix of feelings. Pessimists expect bad outcomes, which yields more negative feelings (Carver, Scheier, & Segerstrom, 2010).

One of the important domains in which the relation between optimism and SWB was investigated, is in the medical context, e.g., coronary artery bypass surgery, breast cancer, or in vitro fertilization. The results of the research support the idea that optimistic people felt less distress before their surgery and were more satisfied with their lives after surgery (Carver et al., 2010). Research on the link between optimism and subjective well-being in the medical field has focused more on patients' psychological well-being, their ability to cope with the disease and their ability to get on with their lives after surgery. Another study done by CABS; Scheier et al. (1989) with coronary artery bypass patients, who were interviewed one day prior to surgery, 6 to 8 days post-surgery, and 6 months later, showed that optimistic patients reported lower levels of hostility and depression compared to pessimistic patients. One week after the surgery optimistic patients reported feeling happy and relieved. They also reported greater satisfaction with the level of medical care and emotional support they received from family and friends. Finally, the optimistic patients reported a favourable quality of life after 6 months of the operation, unlike the pessimistic patients. Other findings related to optimism and subjective well-being were recorded among the optimistic patients compared to the pessimistic patients 5 years after the intervention, such as reporting that their life is interesting and diversified, free of pressures and inconveniences and that they are more satisfied with their social relationships and work (Scheier & Carver, 1992). The idea that optimism is related to lower levels of distress during difficulty is reinforced by another study by (Aspinwall & Taylor, 1992) who examined the impact of optimism, self-esteem, locus of control, and desire for control on psychological adjustment to college, health, motivation, and academic performance. The study was longitudinal and assessed personality predispositions, positive and negative affect, social support, and ways of coping, within days of 672 freshmen's arrival at college. Follow-up measures were obtained 3 months later, and academic performance was assessed 2 years later. Among the results recorded by the study after the initial control of positive and negative mood, the investigators came to the conclusion that optimism exerted a direct and positive effect on subsequent

adjustment to college. In another study conducted by (Scheirer and Caver 1985) with still undergraduates, the subjects who reported being optimistic early in the college semester were less likely to be bothered by physical symptoms at the end of the semester, than those scoring lower on the optimism scale, controlling for initial symptoms.

Although optimism and pessimism are classified as personality traits, interventions like cognitive therapies have proven to be effective in helping pessimistic people become more optimistic by helping them adopt more accurate and constructive explanations of events (Forgeard & Seligman, 2012). In addition to cognitive therapies, interventions have been developed that primarily target children and adolescents, such as the Penn Resiliency Program developed by Seligman and colleagues to teach adolescents to recognize the connection between thoughts and feelings, and to adopt more constructive beliefs when faced with difficult situations (Forgeard & Seligman, 2012).

3.3.3 Emotional intelligence: How should we manage our feelings and others' feelings?

Emotional intelligence (EI) can be defined as "the ability to monitor one's own and others feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions" (Salovey, Bedell, Detweiler, & Mayer, 1999). The skills of perceiving, understanding, using and managing one's own emotions effectively and those of others sum up the concept of emotional intelligence (Vesely, Saklofske, & Nordstokke, 2014). Competence in the perception of emotions involves the recognition of facial and vocal cues related to the emotions of others and awareness of one's own emotionally related body states. The skill of understanding one's own emotions and those of others consists of knowing the causes and consequences of different emotions and the ability to differentiate between them. The use of one's own emotions can be applied in the context of creativity, for example. Finally, managing one's own emotions and those of others means regulating them so that they are compatible with the demands/needs of the situation or the objectives of the individual (Vesely et al., 2014).

According to Daniel Goleman author of the famous book "Emotional Intelligence: Why it Can Matter More Than IQ", emotional illiteracy is responsible for many social evils including mental illness, crime, and educational failure. Furthermore, people at work often fall short of their potential through failing to manage their emotions appropriately. Job satisfaction and productivity are threatened by unnecessary conflicts with co-workers, failure to assert one's legitimate needs, and failure to communicate one's feelings to others (Zeidner, Matthews, & Roberts, 2012b). Emotional intelligence has been shown to be associated with a low propensity to experience negative emotions and a higher propensity to experience positive emotions, thereby contributing to a rich sense of emotional well-being. Being aware of one's own emotions in-

creases the likelihood of being able to regulate them, thus demonstrating low levels of distress and stress related to emotions (Zeidner & Olnick-Shemesh, 2010). Furthermore, moods make it easier to prioritise life's tasks. Emotions draw our attention to stimuli that need to be treated. Because moods and emotions sometimes arise when there is a mismatch between expectations and environmental realities, moods draw attention to oneself to possibly clarify the experience and facilitate adaptive responses to it (Mayer & Salovey, 1993). The same authors also found that happy and sad moods are followed by an inward shift of attention: such a shift seems to favour cognitive processes and behavioural activities that can maintain a pleasant atmosphere or relieve the unpleasant one. Finally, emotional individuals may emphasize higher-level processes regarding attention to feelings, clarity and discrimination of feelings, and beliefs about mood-regulating strategies. Individuals who have clear feelings and confidence in their ability to regulate their affect, appear to be able to repair their mood more quickly and effectively after failure or other disruptive experiences.

Advances in medicine in recent decades have dramatically changed the patterns of the disease in modern societies. Infectious diseases such as tuberculosis, cholera, and smallpox are no longer major causes of death in industrial societies. Today the main causes of morbidity are rather linked to chronic stress, lifestyles as well as unhealthy behaviours linked to health. Contemporary biopsychosocial models of disease interpret health and disease as an amalgam of biological, psychological and social factors, with a more recent emphasis on the role of emotions in these processes. The effect of EI does not only stop at physical and mental health. Other researches suggest that emotionally intelligent people report greater satisfaction in specific contexts such as work as well as social well-being and overall quality of life (Zeidner, Matthews, & Roberts, 2012a).

In a research conducted by (Chamorro-Premuzic, Bennett, & Furnham, 2007). The researchers examined the relationship between the big five personality traits, EI trait and happiness in a sample of 112 student and non-student participants. They found that EI accounted for 18% of the variance in happiness over and above the big five traits. Furthermore, a significant amount of shared variance between happiness and the Big Five was explained by the trait EI, which partly mediated the paths from stability and conscientiousness to happiness, and fully mediated the link between agreeableness and happiness. It has become obvious that to be successful in life, it is not enough to be intelligent in the logical and analytical sense. Different non-intellectual variants can contribute to the performance of individuals and their self-realization. Emotional intelligence, whether learned or considered as a personality trait, has proven its importance in various fields, starting from the organizational field such as leadership positions to more specific areas such as personal stress management. A good part of our well being is based on our ability to perceive our emotions, understand them and in a more subtle way use them in our favour. Training our ability to better manage our emotions will bring us benefits on a personal, social

and professional level. These are areas that could play a major role in improving our subjective well-being.

3.4 Conclusion

This chapter presented four psychological variables that could answer the above questions namely: 1) What can we do to give meaning to our lives? 2) How should we perceive ourselves, our circumstances, and abilities ? 3) How should we manage our feelings? We propose personal striving as a way to give meaning to one's life, we assume that when people follow goals that are coherent with their personal values and interests, they will achieve self-fulfilment on the one hand and development on the other hand, because pursuing personal goals should be accompanied by a degree of challenge and the opportunity to learn new skills. Objectives alone are not enough to ensure the well-being of individuals. One must ensure that one has a belief in one's own abilities to carry out the necessary actions that lead to the achievement of that goal. In addition to these beliefs, individuals need to have the ability to believe in positive results or outcomes after the action has been completed. Perceived self-efficacy and optimism are the essential elements for the achievement of a goal in a particular way and for the subjective well-being of individuals in an overall way. Believing in one's own abilities and the results that come from one's actions, allows the person to face obstacles, to make more effort and to persevere. In a study done by (Magaletta & Oliver, 1999), that examined the relationships between the components of hope that are will and way, the two constructs of self-efficacy and optimism, and general well-being. The authors found that self-efficacy accounted for 30% of the variance in general well-being followed by optimism with 8% variance in WB.
Emotions are an integral part of our life. They are a pillar of subjective well-being (affect). Having the ability to become aware of their existence, to be able to interpret them, and to use them in our favour to better understand ourselves and others, could be an essential asset for improving subjective well-being. The concept of emotional intelligence when developed in people could balance or improve the emotional aspect of subjective well-being, not to mention that it can have a positive impact on different areas of life such as health in the first place, work, education, etc.

The assumption is that the psychological capital that constitutes the four concepts of personal strivings, self-efficacy, optimism, and emotional intelligence, could be responsible for 40% of the variation in SWB in addition to mediating some of the impact of demographic variables and personality traits. Future studies on the same subject should focus the attention on this construct in conjunction with SWB. However, it is important to specify the possibility of integrating other psychological variables into the construct, or even to propose other components. Since the aim is not to define categorically the variables included in the Psychological Assets construct, the ultimate goal of this theoretical analysis is to attract attention on the influence of time-varying

variables such as those proposed in this chapter on SWB, in order to be able to undertake further research in this area and implement public policies that promote their development in individuals. Following on from this reflection, in the next chapter the introduction of psychological capital into the educational system is analysed.

Chapter 4

Psychological Capital in the Educational System

4.1 Introduction

In the first chapter, SWB has been defined as having two components. Affective well-being and cognitive well-being. The first component consists of having a balance between positive and negative affect. The second component is a general evaluation of the person's life. This evaluation can be done in a holistic way, as it can be done by evaluating each specific life domain separately. In the latter case there will be several areas of well-being, such as health-WB, economic-WB, social-WB, psychological-WB, etc. In other words, the SWB can be summarized in the following equation:

$$SWB_{it} = f(Affective.WB_{it}, Cognitive.WB_{it}) \tag{4.1}$$

$$SWB_{it} = f(Emotional.WB_{it}, Health.WB_{it}, Social.WB_{it}, Psychological.WB_{it}, Economic.WB_{it})$$

In each of the areas listed above, individuals need two kinds of knowledge or skills to ensure their development. On the one hand, they need technical skills TS specific to each domain. These skills reflect the knowledge acquired on a particular subject. For example, to stay healthy, individuals need to know what makes them healthier and what is detrimental to their health. In the social domain for instance, individuals will need to acquire technical skills such as communication. However, technical skills alone are not sufficient to ensure improvement in a specific domain of well-being. Take the case of communication, for example. It is possible to find a person who has mastered communication skills, but lacks social self-efficacy or does not believe that by using her skills she will be able to improve her social well-being. Thus, the technical tool is already available, but there is a lack of a psychological tool to accompany its use in order to achieve better levels of well-being. In other cases, one can find people who have several technical skills but at the same time feel unsatisfied with their lives. This kind of situation can be seen in people with a high level of intellectual and logical intelligence. The problem in this case does not lie in the inability to use one's technical competence, but rather in the fact that the person needs psychological skills PK to manage certain situations or improve certain areas such as emotional or social well-being. This means that in order to feel good or satisfied in life, people need to equip themselves with technical TS and psychological PK tools. Thus, SWB can be written as a function of TS and PK :

$$SWB_{it} = f(TS_{it}, PK_{it}) \tag{4.2}$$

4.2 Static model of SWB development

Integrating a program that offers psychological support can be done in a flexible way via for example counselling sessions[1]. Counselling is an intervention that children or teenagers can

[1]England is one of the countries that adopt programs such as "counselling in schools" to support pupils in different areas such as mental health, emotional well-being, resilience, development and the pursuit of personal

undertake voluntarily if they want to explore, understand and overcome problems in their lives that may cause them difficulty, distress and/or confusion". (for Education, 2015).

Parallel to counselling, a more rigorous form of a curriculum can be conceptualised, that focuses on pupil's technical and psychological skills and mental health. This program which is aimed to develop positive psychological resources, will consist of assisting children in achieving greater understanding of themselves and their relationship to their world, to create a greater awareness and utilisation of their personal resources, to build their resilience, and to support their ability to address problems and pursue meaningful goals. In other words, a pedagogical subject could be included, that would aim to teach pupils the accumulation of PK ($H_{PK,pub} > 0$).
In order to maximize their current and future SWB, one should find the best combination between hours dedicated to technical versus psychological learning ($H_{TS,pub}$, $H_{PK,pub}$) [2].

4.2.1 Optimal time allocation between technical and psychological learning skills at school

If we assume that SWB is a function of TS and PK (4.2), which means the more they are accumulated, the higher the level of SWB will be. In other words:

$$\frac{\partial SWB_i}{\partial TS_i} > 0, \quad \frac{\partial SWB_i}{\partial PK_i} > 0$$

And if we assume that the development of TS and PK is a function of schooling hours spent in learning them: $PK = g(H_{pk}, H_{ts})$ and $TS = g'(H_pk, H_ts)$, we can write SWB as a function of H_{ts} , H_{pk}.

Let us suppose that SWB follows CES function:

$$SWB = f(H_{ts,pub}, H_{pk,pub}) = [\gamma(H_{ts,pub})^{\theta} + (1-\gamma)(H_{pk,pub})^{\theta}]^{\frac{1}{\theta}} \tag{4.3}$$

Given that:
θ: is a parameter which reflects the elasticity of substitution between hours dedicated to psychological learning and technical learning.
γ: is a share parameter that governs the importance of H_{ts} in producing SWB.
Let I denote the investment a school makes for the development of pupils' technical and psychological skills. "I" can be viewed as the school budget, which is split between learning hours

goals. Example model:Place2B

[2]Assuming that the state has no control over hours spent on learning TS and PK at home ($H_{TS,priv}, H_{PK,priv}$).

of both TS and PK:[3]

$$I = P_{pk}H_{pk} + P_{ts}H_{ts} \tag{4.4}$$

P_{pk} and P_{ts} denote the unit prices of H_{pk} and H_{ts} respectively.
The objective thus, is to find the optimal allocation of time between TS and PK learning under the budget constraint (4.4), in order to insure SWB maximisation. To solve this maximisation problem, we use the Lagrange function:

$$L = SWB(H_{ts}, H_{pk}) + \lambda[I - P_{pk}H_{pk} - P_{ts}H_{ts}] \tag{4.5}$$

First order conditions give us:

$$\frac{\partial L}{\partial H_{pk}} = \frac{\partial SWB(H_{ts}, H_{pk})}{\partial H_{pk}} - \lambda P_{pk} = 0 \tag{4.6}$$

$$\frac{\partial L}{\partial H_{ts}} = \frac{\partial SWB(H_{ts}, H_{pk})}{\partial H_{ts}} - \lambda P_{ts} = 0 \tag{4.7}$$

$$\frac{\partial L}{\partial \lambda} = I - P_{pk}H_{pk} - P_{ts}H_{ts} = 0 \tag{4.8}$$

We use $\ln SWB(H_{ts}, H_{pk})$ to facilitate the first order conditions computation:

$$\ln SWB(H_{ts}, H_{pk}) = \frac{1}{\theta}\ln[\gamma(H_{ts})^{\theta} + (1-\gamma)(H_{pk})^{\theta}] \tag{4.9}$$

Dividing 4.6 over 4.7 we get :

$$\frac{\frac{\partial SWB(H_{ts},H_{pk})}{\partial H_{pk}}}{\frac{\partial SWB(H_{ts},H_{pk})}{\partial H_{ts}}} = \frac{P_{pk}}{P_{ts}}, \quad \frac{P_{pk}}{P_{ts}} = \overline{P} \tag{4.10}$$

Given that:

$$\frac{\partial lnSWB(H_{ts},H_{pk})}{\partial H_{pk}} = \frac{1}{\theta}\frac{\theta(1-\gamma)(H_{pk})^{\theta-1}}{\gamma(H_{ts})^{\theta}+(1-\gamma)(H_{pk})^{\theta}} \quad \& \quad \frac{\partial lnSWB(H_{ts},H_{pk})}{\partial H_{ts}} = \frac{1}{\theta}\frac{\theta\gamma(H_{ts})^{\theta-1}}{\gamma(H_{ts})^{\theta}+(1-\gamma)(H_{pk})^{\theta}}$$

We can rearrange 4.10 as follows:

$$\frac{(1-\gamma){H_{pk}}^{\theta-1}}{\gamma H_{ts}^{\theta-1}} = \overline{P} \quad \Longleftrightarrow \quad H_{pk} = (\frac{1-\gamma}{\gamma\overline{p}})^{\frac{1}{1-\theta}}H_{ts}, \quad (\frac{1-\gamma}{\gamma\overline{p}})^{\frac{1}{1-\theta}} = \alpha \tag{4.11}$$

Using 4.4 and 4.11 we find [4]:

$${H^*}_{pk} = \frac{I}{P_{pk} + \frac{P_{ts}}{\alpha}} = \frac{I}{P_{pk}[1 + (\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]} \tag{4.12}$$

[3]For convenience, we will not write the subscript "pub" in the equations, however the hours cited are learning hours spent at school

[4]See appendix for the detailed computations

$$H^*{}_{ts} = \frac{I}{P_{ts}[1 + (\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}}]} \tag{4.13}$$

Thus, the optimal ratio between the hours dedicated to psychological skills learning in comparison to the technical skills learning is:

$$\frac{H^*{}_{pk}}{H^*{}_{ts}} = (\frac{1-\gamma}{\overline{P}\gamma})^{\frac{1}{1-\theta}} = \alpha \tag{4.14}$$

From 4.14 we notice that the optimal ratio between H_{pk} and H_{ts} depends on the relative prices $\overline{P}$ and the parameter θ which reflects the ability of H_{pk} to compensate H_{ts} deficits in producing TS and PK and thus SWB. However, to determine to which extend H_{TS} can be substituted by H_{PK}, we have to examine the elasticity of substitution between them.
We have :

$$\varepsilon = \frac{d\ln(\frac{H_{ts}}{H_{pk}})}{d\ ln(\frac{SWB_{pk}}{SWB_{ts}})} = \frac{d\ln(\alpha)^{-1}}{d\ln\overline{P}} = \frac{(-1)(\frac{1}{1-\theta})d[\ln(\frac{1-\gamma}{\gamma}) - ln\overline{P}]}{d\ln\overline{P}} = \frac{1}{1-\theta} \tag{4.15}$$

Thus an increase in the relative prices of 1% will result in an increase in the ratio $\frac{H_{pk}}{H_{ts}}$ of $\varepsilon\%$.
We can write 4.14 as follows:

$$\frac{H^*{}_{pk}}{H^*{}_{ts}} = (\frac{1-\gamma}{\overline{P}\gamma})^{\varepsilon} \tag{4.16}$$

The next step after defining the optimal time allocation by solving the maximisation problem, and the elasticity of substitution, would be to examine the change of $H^*{}_{pk}$ depending on the change of P_{pk} and P_{ts}. We recall that :

$$H^*{}_{pk} = \frac{I}{P_{pk}[1 + (\frac{P_{pk}}{P_{ts}})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]} \tag{4.17}$$

We put $\frac{\theta}{1-\theta} = \varepsilon - 1$. The first derivatives of $H^*{}_{pk}$ with respect to P_{pk} and P_{ts} are:

$$\frac{\partial H^*{}_{pk}}{\partial P_{pk}} = \frac{-[1 + \varepsilon(\overline{P})^{\varepsilon-1}(\frac{\gamma}{1-\gamma})^{\varepsilon}]I}{[P_{pk}[1 + (\overline{P})^{\varepsilon-1}(\frac{1-\gamma}{\gamma})^{\varepsilon}]]^2} \tag{4.18}$$

$$\frac{\partial H^*{}_{pk}}{\partial P_{ts}} = \frac{-[(1-\varepsilon)(\overline{P})^{\varepsilon}(\frac{\gamma}{1-\gamma})^{\varepsilon}]I}{[P_{pk}[1 + (\overline{P})^{\varepsilon-1}(\frac{1-\gamma}{\gamma})^{\varepsilon}]]^2} \tag{4.19}$$

We assume that $\varepsilon \geqslant 0$. Thus: $\frac{\partial H^*{}_{pk}}{\partial P_{pk}} \leqslant 0$. Which means that whatever is the elasticity of substitution between the hours of psychological skills learning and technical skills learning, the number of $H^*{}_{pk}$ will decrease the more P_{pk} increases.
For $\frac{\partial H^*{}_{pk}}{\partial P_{ts}}$ we have the following cases:

1) If $0 < \varepsilon < 1 \Leftrightarrow 1 - \varepsilon > 0 \Leftrightarrow \frac{\partial {H^*}_{pk}}{\partial P_{ts}} < 0$: When there is a small elasticity of substitution between ${H^*}_{pk}$ and ${H^*}_{ts}$ that means that they are complements, therefore, when P_{ts} increases ${H^*}_{ts}$ decreases and so do ${H^*}_{pk}$.
2) If $1 < \varepsilon < \infty \Leftrightarrow 1 - \varepsilon < 0 \Leftrightarrow \frac{\partial {H^*}_{pk}}{\partial P_{ts}} > 0$. In this case the elasticity of substitution between ${H^*}_{pk}$ and ${H^*}_{ts}$ tends to be high, which means that if P_{ts} increases ${H^*}_{ts}$ will be easily substituted by ${H^*}_{pk}$. If ε approaches to ∞, there will be perfect substitution between learning hours dedicated to TS and PK in producing SWB.
3) If $\varepsilon = 1 \Leftrightarrow \frac{\partial {H^*}_{pk}}{\partial P_{ts}} = 0$. In this case there is an indifference between choosing ${H^*}_{pk}$ or ${H^*}_{pk}$ in producing SWB and ${H^*}_{pk}$ will not be affected by the increase of P_{ts}.

The occurrence of the previous cases depends on the nature of the skill learned. For instance, if we want to teach pupils how to set goals or seek for personal strivings, this skill can be taught at the same time as learning a technical skill. From being exposed to different subjects, pupils can discover which subject they feel they lean to (we claim however, that it is not always the case for all pupils to find their personal striving easily). Other skills like optimism or emotional intelligence are hardly replaced or acquired at the same time as other technical skills. In this case it can be said that the elasticity of substitution between the hours is close to zero. Therefore, dedicating a number of hours to the learning of these psychological skills is inevitable. Some skills such as self-efficacy are needed in the acquisition of technical skills such as math. At the same time, being good at math helps pupils improve their mathematical self-efficacy. Thus, there is a mutual influence between the two skills. To learn to believe in one's abilities with regard to self-efficacy, (Bandura, 1977) identifies 4 sources of information, the first of which is mastering experiences, which means that each time a person trains in a specific subject, in our case math, she will acquire mathematical self-efficacy. Thus, extra hours of learning can be offered to pupils who are weak in math, giving them more exercises to solve in order to strengthen their belief in their mathematical ability. In the same, it is the fact of having acquired mathematical self-efficacy that will help them overcome difficulties that arise when learning a new mathematical subject. Thus, aiming at reinforcing some psychological skills like self-efficacy from the first years of schooling is primordial for the acquisition of technical skills in the future. Because of their different nature, it is difficult to find psychological skills that can be completely substituted by other technical ones in producing SWB or vice versa. People can manage getting to some extent to a certain level of SWB, but if they do not use both psychological and technical skills, they will not reach their optimal SWB level. Skills like emotional intelligence or optimism will have an important role to play in children's' life as it becomes more complex with time. Teaching them how to acquire these skills from a young age, will not only help them at school, but in their lives in general.

4.3 Conclusion

The need to integrate psychological skills learning in school is becoming more and more evident, with all the challenges that individuals face at different stages of their lives. Subjective well-being depends to a large extent on the mental, psychological and emotional health of individuals. It is not enough to have a good socio-economic status to be able to say that people feel good about their lives. Physical and mental health play also a role, as do social relationships. School systems were designed to enable children to have an intellectual level that will open the doors to university and later on to a job. However, these same systems have not integrated the development of the skills we call here psychological skills, which will allow these pupils to give meaning to their lives by getting to know themselves, to develop goals that will be consistent with their strengths and be ready to face obstacles when they arise. In this chapter we have proposed a basic model through which our aim was to identify the best allocation of time between the hours dedicated to the learning of technical and psychological skills in order to maximize the subjective well-being. Other more sophisticated models can be developed in the same spirit of integrating the learning of psychological skills into the educational system. Questions such as: Which skills should we start with? Or which skills should be taught at which level, etc. can benefit from answers based on empirical research.

Conclusion

Public policies focus mainly on economic indicators, thereby failing to give importance to another aspect society values, namely individuals' well-being. This is often justified by the fact that economic indicators are more rigorous, widely available and frequently updated (Diener & Seligman, 2004). With the abundance of products and services especially in modern societies, people are refocusing their intentions on what is a good life, a life that is enjoyable, meaningful, engaging and fulfilling. This quest for satisfaction and joy is justified by the fact that in such societies, wealth is accompanied by mental and social ills. It is becoming increasingly important to consider indicators other than economic ones to measure the economic and social prosperity of societies. More importantly, refocusing the economic analysis on the subjective well-being helps to give individuals an active role in the society. The more investment is dedicated to their well-being, the more the emergence of major economic and social problems can be prevented . In this work the improvement of subjective well-being was proposed through the development of individuals' psychological capital. Four psychological attributes were chosen to answer the main questions asked in this thesis namely, personal striving for the question:"What can we do to give sense to our lives?", self-efficacy and optimism for the question: "How should we perceive ourselves, our circumstances, and abilities ?" and emotional intelligence for the question: "How should we manage our feelings and others feelings?". Among the methods that can be adopted to achieve this goal, the inclusion of the teaching of psychological capital in the school system was opted. This approach is supported by the belief that the sooner an individual is called to acquire the emotional and cognitive attributes of psychological capital, the higher will be the return on investment from this learning. The second argument that leads us to believe that this approach should be adopted, is the fact that it would not be optimal to leave this task to parents or to personal effort because of differences in the financial and intellectual capacities. Additionally, when it is adopted as a public policy, the government will call upon the expertise of various specialists for the implementation of a program that will ensure the development of psychological skills in a pedagogical way. An optimal time allocation between hours dedicated to technical and psychological skills learning was proposed as away to implement psychological capital accumulation in schools. Different cases regarding the time allocation, were discussed depending on the elasticity of substitution and prices. We came to the conclusion that there are some psychological skills that could be learned simultaneously with technical skills, whereas some others should be given a certain amount of time to be learned, this independently of technical skills learning. According to our knowledge, this work is one of the few researches that proposes individuals' subjective well-being as an asset to be developed, in order to ensure social-economic prosperity. More importantly, it proposes the integration of psychological skills learning in schools. We are convinced that it can open up other perspectives for empirical research, which will lead to the identification of a public policy oriented primarily towards the individuals' well-being.

References

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of personality and social psychology*, *63*(6), 989.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, *84*(2), 191.

Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in britain and the usa. *Journal of public economics*, *88*(7-8), 1359–1386.

Brunstein, J. C. (1993). Personal goals and subjective well-being: A longitudinal study. *Journal of personality and social psychology*, *65*(5), 1061.

Caprara, G. V., Steca, P., Gerbino, M., Paciello, M., & Vecchio, G. M. (2006). Looking for adolescents' well-being: Self-efficacy beliefs as determinants of positive thinking and happiness. *Epidemiology and Psychiatric Sciences*, *15*(1), 30–43.

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical psychology review*, *30*(7), 879–889.

Chamorro-Premuzic, T., Bennett, E., & Furnham, A. (2007). The happy personality: Mediational role of trait emotional intelligence. *Personality and individual differences*, *42*(8), 1633–1639.

Clark, A. E. (2003). Unemployment as a social norm: Psychological evidence from panel data. *Journal of labor economics*, *21*(2), 323–351.

Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the easterlin paradox and other puzzles. *Journal of Economic literature*, *46*(1), 95–144.

Diener, E. (2006). Guidelines for national indicators of subjective well-being and ill-being. In *Journal of happiness studies: An interdisciplinary forum on subjective well-being.*

Diener, E. (2012). New findings and future directions for subjective well-being research. *American psychologist*, *67*(8), 590.

Diener, E., & Fujita, F. (1995). Resources, personal strivings, and subjective well-being: a nomothetic and idiographic approach. *Journal of personality and social psychology*, *68*(5), 926.

Diener, E., Lucas, R., Helliwell, J. F., Helliwell, J., Schimmack, U., et al. (2009). *Well-being for public policy*. Series in Positive Psychology.

Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual review of psychology*, *54*(1), 403–425.

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African journal of psychology*, *39*(4), 391–406.

Diener, E., & Seligman, M. E. (2004). Beyond money: Toward an economy of well-being.

Psychological science in the public interest, *5*(1), 1–31.

Diener, E., Suh, E., & Oishi, S. (1997). Recent findings on subjective well-being. *Indian journal of clinical psychology*, *24*, 25–41.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological bulletin*, *125*(2), 276.

Di Tella, R., Haisken-De New, J., & MacCulloch, R. (2010). Happiness adaptation to income and to status in an individual panel. *Journal of Economic Behavior & Organization*, *76*(3), 834–852.

Dolan, P., Peasgood, T., & 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), 94–122.

Ed, D. (1984). Subjective well-being (1984). *Psychological Bulletin*, *95*(3).

Eid, M., & Larsen, R. J. (2008). *The science of subjective well-being*. Guilford Press.

Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social psychology*, *51*(5), 1058.

Ferrer-i Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal*, *114*(497), 641–659.

for Education, D. (2015). Counselling in schools: A blueprint for the future.

Forgeard, M., & Seligman, M. (2012). Seeing the glass half full: A review of the causes and consequences of optimism. *Pratiques psychologiques*, *18*(2), 107–120.

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

Gleibs, I. H., Morton, T. A., Rabinovich, A., Haslam, S. A., & Helliwell, J. F. (2013). Unpacking the hedonic paradox: A dynamic analysis of the relationships between financial capital, social capital and life satisfaction. *British Journal of Social Psychology*, *52*(1), 25–43.

Graham, C. (2008). Happiness and health: Lessons—and questions—for public policy. *Health affairs*, *27*(1), 72–87.

Graham, C., Higuera, L., & Lora, E. (2011). Which health conditions cause the most unhappiness? *Health economics*, *20*(12), 1431–1447.

Hayo, B., & Seifert, W. (2003). Subjective economic well-being in eastern europe. *Journal of economic psychology*, *24*(3), 329–348.

Helliwell, J. F. (2006). Well-being, social capital and public policy: what's new? *The economic journal*, *116*(510), C34–C45.

Johnson, W., & Krueger, R. F. (2006). How money buys happiness: genetic and environmental processes linking finances and life satisfaction. *Journal of personality and social psychology*, *90*(4), 680.

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic perspectives*, *20*(1), 3–24.

Klug, H. J., & Maier, G. W. (2015). Linking goal progress and subjective well-being: A meta-analysis. *Journal of Happiness Studies*, *16*(1), 37–65.

Knight, J., Lina, S., & Gunatilaka, R. (2009). Subjective well-being and its determinants in rural china. *China economic review*, *20*(4), 635–649.

Lamu, A. N., & Olsen, J. A. (2016). The relative importance of health, income and social relations for subjective well-being: An integrative analysis. *Social Science & Medicine*, *152*, 176–185.

Larsen, R. J., & Eid, M. (2008). Ed diener and the science of subjective well-being. *The science of subjective well-being*, 1–13.

Lelkes, O. (2006). Knowing what is good for you: Empirical analysis of personal preferences and the "objective good". *The Journal of Socio-Economics*, *35*(2), 285–307.

Lent, R. W. (2004). Toward a unifying theoretical and practical perspective on well-being and psychosocial adjustment. *Journal of Counseling Psychology*, *51*(4), 482.

Luthans, F., Youssef, C. M., Avolio, B. J., et al. (2007). Psychological capital: Developing the human competitive edge.

Lyubomirsky, S. (2001). Why are some people happier than others? the role of cognitive and motivational processes in well-being. *American psychologist*, *56*(3), 239.

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of general psychology*, *9*(2), 111–131.

Magaletta, P. R., & Oliver, J. (1999). The hope construct, will, and ways: Their relations with self-efficacy, optimism, and general well-being. *Journal of clinical psychology*, *55*(5), 539–551.

Mayer, J. D., & Salovey, P. (1993). *The intelligence of emotional intelligence.* Elsevier.

Nes, L. S., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and social psychology review*, *10*(3), 235–251.

Pavot, W., & Diener, E. (2009). Review of the satisfaction with life scale. In *Assessing well-being* (pp. 101–117). Springer.

Sachs, J. D. (2018). America's health crisis and the easterlin paradox. *World happiness report*, *218*, 146–159.

Salovey, P., Bedell, B. T., Detweiler, J. B., & Mayer, J. D. (1999). Coping intelligently. *Coping: The psychology of what works*, 141–164.

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive therapy and research*, *16*(2), 201–228.

Schwarzer, R. (2014). *Self-efficacy: Thought control of action.* Taylor & Francis.

Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment, and the pursuit of happiness: Can there be an upward spiral? *Journal of personality and social psychology*, *80*(1), 152.

Sheldon, K. M., & Kasser, T. (2001). Getting older, getting better? personal strivings and

psychological maturity across the life span. *Developmental psychology*, *37*(4), 491.

Sheldon, K. M., & Lyubomirsky, S. (2007). Is it possible to become happier?(and if so, how?). *Social and Personality Psychology Compass*, *1*(1), 129–145.

Shields, M. A., & Price, S. W. (2005). Exploring the economic and social determinants of psychological well-being and perceived social support in england. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *168*(3), 513–537.

Van der Meer, P. H. (2014). Gender, unemployment and subjective well-being: Why being unemployed is worse for men than for women. *Social Indicators Research*, *115*(1), 23–44.

Vesely, A. K., Saklofske, D. H., & Nordstokke, D. W. (2014). Ei training and pre-service teacher wellbeing. *Personality and Individual Differences*, *65*, 81–85.

Youssef-Morgan, C. M., & Luthans, F. (2015). Psychological capital and well-being. *Stress and Health*, *31*(3), 180–188.

Zeidner, M., Matthews, G., & Roberts, R. D. (2012a). The emotional intelligence, health, and well-being nexus: What have we learned and what have we missed? *Applied Psychology: Health and Well-Being*, *4*(1), 1–30.

Zeidner, M., Matthews, G., & Roberts, R. D. (2012b). *What we know about emotional intelligence: How it affects learning, work, relationships, and our mental health*. MIT press.

Zeidner, M., & Olnick-Shemesh, D. (2010). Emotional intelligence and subjective well-being revisited. *Personality and individual differences*, *48*(4), 431–435.

Appendices

Appendix A

Appendix

A.0.1 The maximisation problem

We recall that:

$$\frac{(1-\gamma){H_{pk}}^{\theta-1}}{\gamma H_{ts}^{\theta-1}} = \overline{P} \quad \Longleftrightarrow \quad H_{pk} = (\frac{1-\gamma}{\gamma\overline{p}})^{\frac{1}{1-\theta}} H_{ts}, \quad (\frac{1-\gamma}{\gamma\overline{p}})^{\frac{1}{1-\theta}} = \alpha \tag{A.1}$$

And:

$$I = P_{pk}H_{pk} + P_{ts}H_{ts} \tag{A.2}$$

We compute H_{pk} from A.1 and A.2:

$${H^*}_{pk} = \frac{\alpha I}{\alpha P_{pk} + P_{ts}} = \frac{\alpha I}{\alpha P_{pk} + \frac{P_{pk}}{\overline{P}}} = \frac{\alpha I}{P_{pk}[\alpha + \frac{1}{\overline{p}}]} = \frac{I}{P_{pk}[1 + \frac{1}{\gamma\overline{P}}]} \tag{A.3}$$

When we compute $\frac{1}{\alpha\overline{p}}$ we find :

$$\frac{1}{\alpha\overline{p}} = \frac{1}{\overline{P}[\frac{1-\gamma}{\gamma\overline{P}}]^{\frac{1}{1-\theta}}} = \frac{1}{\overline{P}(\overline{P})^{\frac{1}{\theta-1}}[\frac{1-\gamma}{\gamma}]^{\frac{1}{1-\theta}}} = \frac{1}{(\overline{P})^{\frac{\theta}{\theta-1}}[\frac{1-\gamma}{\gamma}]^{\frac{1}{1-\theta}}} \tag{A.4}$$

Thus ${H^*}_{pk}$ becomes as follows:

$${H^*}_{pk} = \frac{I}{P_{pk}[1 + (\overline{P})^{\frac{\theta}{1-\theta}}[\frac{1-\gamma}{\gamma}]^{\frac{1}{\theta-1}}]} \tag{A.5}$$

From the result of ${H^*}_{pk}$ we can compute c as follows:

$${H^*}_{ts} = \frac{{H^*}_{pk}}{\alpha} = \frac{I}{P_{pk}\alpha[1 + (\overline{P})^{\frac{\theta}{1-\theta}}[\frac{1-\gamma}{\gamma}]^{\frac{1}{\theta-1}}]} = \frac{I}{P_{pk}(\frac{1-\gamma}{\gamma\overline{P}})^{\frac{1}{1-\theta}}[1 + (\overline{P})^{\frac{\theta}{1-\theta}}[\frac{1-\gamma}{\gamma}]^{\frac{1}{\theta-1}}]} \tag{A.6}$$

We have $P_{pk} = Pts * \overline{P}$ thus ${H^*}_{ts}$ becomes as follows:

$${H^*}_{ts} = \frac{I}{P_{ts}\overline{P}(\overline{P})^{\frac{1}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}}[1 + (\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]} = \frac{I}{P_{ts}(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}}[1 + (\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]} \tag{A.7}$$

$$H^*_{ts} = \frac{I}{P_{ts}[(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} + 1]} \tag{A.8}$$

Now we compute $\frac{H^*_{PK}}{H^*_{ts}}$:

$$\frac{H^*_{PK}}{H^*_{ts}} = \frac{\frac{I}{P_{pk}[1+(\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]}}{\frac{I}{P_{ts}[(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}}+1]}} = \frac{P_{ts}[(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} + 1]}{\frac{I}{P_{pk}[1+(\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}}]}} \tag{A.9}$$

We have :

$$(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} = (\overline{P}^{\frac{1}{\theta-1}})^{\theta}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} = (\frac{1}{\overline{P}^{\frac{1}{1-\theta}}})^{\theta}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} = [\frac{1}{(\overline{P})^{\frac{1}{1-\theta}}}][\frac{1}{(\overline{P})^{\frac{1}{1-\theta}}}]^{\theta-1}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} \tag{A.10}$$

Thus:

$$(\overline{P})^{\frac{\theta}{\theta-1}}(\frac{1-\gamma}{\gamma})^{\frac{1}{1-\theta}} = \alpha\overline{P} \tag{A.11}$$

And we have:

$$(\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}} = (\frac{1}{\overline{P}^{\frac{1}{\theta-1}}})^{\theta}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}} = (\frac{1}{\overline{P}^{\frac{1}{\theta-1}}})^{\theta-1}(\frac{1}{\overline{P}^{\frac{1}{\theta-1}}})(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}} \tag{A.12}$$

Thus:

$$(\overline{P})^{\frac{\theta}{1-\theta}}(\frac{1-\gamma}{\gamma})^{\frac{1}{\theta-1}} = \frac{1}{\alpha\overline{P}} \tag{A.13}$$

Using the equations (1.36) and (1.37) in (1.34) we find:

$$\frac{H^*_{PK}}{H^*_{ts}} = \frac{1}{\overline{P}}\frac{[1+\alpha\overline{P}]}{[1+\frac{1}{\alpha\overline{P}}]} = \alpha = (\frac{1-\gamma}{\overline{P}\gamma})^{\frac{1}{1-\theta}} \tag{A.14}$$