Economic transition and happiness and life satisfaction in Algeria, Egypt and Morocco

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Abstract

The present research aims at examining the interaction between transition from centrally planned economies to market based economies and its subsequent effects on populations' happiness and life satisfaction in Algeria, Egypt and Morocco. It also aims at advising policy makers on how economic policies may affect population's subjective well-being. It is widely accepted that economic reforms affect individuals' lives. In contrast, the populations' values, attitudes and perceptions may also play a major role in the success of these reforms. The first study examines the determinants of happiness and life satisfaction by gender in Algeria and their attitudes and perceptions towards economic policies' reforms. The survey reports that the female population in Algeria is happier and more satisfied with life than its male counterpart. It has been found that healthier individuals and those in the medium level of income are most likely to be happier and satisfied with their lives. Also, happiness is inversely "U-shaped" in age for the female population contradicting previous studies. Although, both genders believe that rapid market reforms do not have a negative impact on national stability, and are confident with the major companies, privatisation is found to be most likely having a negative effect on the life satisfaction among the male population. The second study examines the changes in the levels of life satisfaction in Egypt and Morocco over the first decade of the present century. It has been found that Egyptian women' satisfaction with life is "U-shaped" in age, whereas in income that applies only to those at the medium, upper-medium and high levels of income. By contrast, Egyptian men are satisfied at all income levels. In Morocco, unemployed men and women are found to be satisfied with their lives in the beginning of the decade contradicting previous findings. While in the late 2000s, among the employed populations, females and males at the medium and the upper medium levels of income are satisfied, along with the lower level for women and the higher level for men. The third study examines the effect of relative income on individuals' self-reported life satisfaction, assuming that the individual's subjective judgement of his or her life satisfaction depends on both absolute and relative incomes. Absolute refers to the individual's income, relative is the income of others around him or her called a reference group. The findings are that Algerians and Moroccans feel ambitious when self-reporting their levels of life satisfaction and referring their income to others' income, but Egyptians feel jealous.

Contents

Acknowledgments

Abbreviation

BHPS: The British Housing Panel Survey

EU: The European Union

EVS: The European Value Survey

GSOEP: The German Socio-Economic Panel (Sozio-Oekonomisches Panel)

GSS: The General Social Survey

IFIs: International Financial Institutions

IMF: International Monetary Fund

KHPS: The Keio Household Panel Survey

MENA: Middle East and North Africa

RLMS: The Russian Longitudinal Monitoring Survey

SAPs: Structural Adjustment Programs

SHP: The Swiss Household Panel

SWB: Subjective Well-Being

UN: United Nations

W-B: Well-Being, and also wellbeing

WB: World Bank

WVS: The World Value Survey

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Chapter 1: Introduction

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This introductory chapter presents the research aims and objectives, the thesis outline and the research questions. It also draws attention to motivation behind this thesis.

1.1. Introduction:

The present thesis investigates the determinants of happiness and life satisfaction in economies in transition. It also examines the effect of such an economic transition on the populations' self-reported levels of happiness and life satisfaction. It assumes that there might be an interaction between transition on the one hand, and the determinants of happiness and life satisfaction on the other hand. Since it is widely accepted that transition affects populations' happiness and life satisfaction, the present thesis assumes that the success of the subsequent economic reforms in line with the transition depends on the populations' perceptions, attitudes, values and expectations, as well. In fact, this assumption is inspired from Hayo's (1999) argument that the central bank independence cannot be considered as the sole explanation of low inflation, but the population's values and attitudes towards inflation may also contribute to price-stability.

This thesis provides evidence from the Middle East and North Africa (MENA) region, which also could be considered as just North Africa. Precisely, it examines the interaction between the transition and the determinants of happiness and life satisfaction in Algeria, Egypt and Morocco. It is to note that it is the first macroeconomic happiness study that considers relative utility and the Hirschman and Rothschild (1973) "Tunnel Effect" in the MENA region.

In actual fact, these three countries have affinities in terms of language, culture, religion, geography and history. Whilst Algeria and Morocco are culturally and historically closely linked, Egypt exhibits some differences. These are mainly linked to its geostrategic situation in the region. Indeed, Egypt is at the heart of the political turmoil of the Middle East for the last fifty years and has been mainly influenced by the British, whereas Algeria and Morocco see themselves as players in the Maghreb and the Mediterranean and essentially influenced by France. Besides, Algeria and Morocco might also reveal some differences in terms of their choices of economic models. While Algeria as a republic adopted a socialist regime, Morocco as a monarchy adopted a mixed regime.

Therefore, the thesis analyses transition and happiness and life satisfaction in three countries showing similarities as well as differences at the same time. On top of that, the main common aspect of the three countries is that their economies shifted from centrally planned to market based economy between the 1980s and 1990s. Also, they were subject to the International Financial Institutions' prescription of privatisation, liberalisation and stabilisation. The three countries requested debts rescheduling programs and as a consequence had to adhere to the Structural Adjustment Programs.

The choice of Algeria was motivated by the fact that on the opposite of most countries that implemented the SAPs, the Algerian economy did not exhibit a straightforward "V-shaped" pattern in its GDP growth or substantial fluctuations. In general, countries that initiated economic reforms and put into practice the SAPs package observed volatilities in economic growth and stability only regains its natural course after a minimum period of three years, as declared by Pfeiffer (1999).

Moreover, Algeria experienced a positive economic growth since it first signed the stand-by arrangements with the IMF in 1994 and then in 1995 up to the present time as it is exhibited in Chapter 3, in which the economic development of Algeria is presented using charts and tables. In contrast, both Egypt and Morocco experienced an expected volatility and fluctuations in their economic growth after implementing the SAPs. Chapter 4 presents a detailed historical development of the two economies using charts and tables, too.

Consequently, a second motivation is to examine the three countries by comparing and analysing their transitions and the respective effects on the levels of happiness and life satisfaction among their populations, as well as the latter's perceptions, attitudes, and views of the economic reforms in order to build up a constructive inference on the interaction between the transition and happiness and life satisfaction. It is to note that the present thesis does not intend to compare between the three countries, but rather studies the three countries apart.

Also, a final motive for the choice of this region is due to the assumption of the existence of the Hirschman and Rothschild (1973) "Tunnel effect" as a result to these countries transitions towards market-based economies. Indeed, individuals observe each others in their reference group and as a consequence it either produces a positive effect of ambition or a negative effect of jealousy among individuals creating an interesting case study as it is discussed in chapter 5.

The traditional neoclassical view would examine the effect of transition using standard macro-economic and micro-economic measures, for instance GDP and GDP per capita. Other studies would rather exploit the private saving, the private consumption or the household's consumption, saving and expenditure. Topics such

as the effect of economic reforms on welfare, poverty, and inequality have been widely investigated. Yet, the neoclassical approaches are not entirely satisfactory, as declared by Slesnick (1998).

As a result, the present thesis uses subjective measurements of people's happiness and life satisfaction. It relies on individuals' self-report of their levels of happiness and life satisfaction. Chapter 2 provides a detailed discussion on subjective measurements. This subjective approach, as argued by Kahneman and Krueger (2006) is used as a means to explore the behaviour of individuals by "exploring their intentions" while making their choices. In reality, the rationale behind this approach is based on the fact that individuals themselves are making these choices for the sake of their happiness and life satisfaction. On the contrary, the traditional view of dealing with revealed preferences is "an objective approach to observe the present choices and behaviour rather than understanding their behaviour", as stated by Kahneman and Krueger (2006).

The resurgence of the interest in happiness, life satisfaction, wellbeing (W-B), and subjective wellbeing (SWB) is appearing as yet another revolution in the history of economics. The topic has supporters from other social sciences, mainly psychologists and sociologists confirming that economics, as a subject matter, is shifting towards a behavioural phase and a post-materialistic epoch. The cumulative effects of a number of socio-economic crises all over the world have led to various academic debates, which are illuminating the importance of this shift, and guiding it towards the economics of wellbeing.

Daniel Kahneman, a Nobel laureate in psychology in 2002, in an online interview in 2009, states that "the well-being movement is taking off. The fresh values in this new

era will be to provide additional statistics, not only for providing them per se, but the main objective is to focus on particular social groups and what is happening in their lives considering how this affects their well-being". He added that there is "an explosion in knowledge in a similar way to Galileo's stethoscope. Everything is becoming even more visible because of the huge circumstances."

In addition, policy makers are finally realising its incontestable significance and, hence, responses to these calls are starting to be observed. In fact, Stiglitz et al. (2009), in a report of the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP), recognise that "there is a large gap between the standard measures of important socio-economic variables, for instance economic growth, inflation and unemployment and widespread perceptions". Hence, individuals may not perceive what the standard measures are expressing. Stiglitz et al. (2009) add that "this gap is so large and universal that it cannot be explained by reference to money illusion or to human psychology". Consequently, it is having a frightening on impact on the population's perceptions of official figures leading to widespread scepticism about the findings of these statistics. In their report, Stiglitz et al. (2009) add that in some countries, for instance France and the United Kingdom, the population has become so sceptical about official statistics that only a third of it is confident about these official figures.

Furthermore, Stiglitz et al. (2009) stress on the inequality effect, which does not appear in the standard measures of the economy, and as a consequence, policies cannot be designed according to the real conditions of their population. It seems that the report evokes the last two decades' debate on the effect of trade liberalisation and globalisation on inequality in the developing world. Countries in a similar way to Brazil, India and South Africa, for instance, experienced enormous problems because

of their population's concerns about poverty and inequality gap. In fact, despite the increase of their GDP per capita, inequality between the rich and the poor had widened, and had subsequent impact on the population's daily lives, essentially in terms of wellbeing.

Since wellbeing studies accords a crucial attention to the determinants happiness and life satisfaction as well as to individual's values. These determinants aspire of the present thesis, which are also found in Stiglitz et al. (2009) recommendations by stating that "in addition to objective indicators of wellbeing, subjective measures of the quality of life should be considered".

What is more, Diener et al. (1996) state that "the growth in the field of subjective well-being reflects larger societal trends regarding the value of the individual and the importance of subjective views in evaluating life and the recognition that well-being necessarily includes positive elements that transcend economic prosperity".

It is in this context that politicians are following suit and at last recognising the urgent needs to focus on individual's wellbeing. Veenhoven (2007) state that "happiness is rising on the political agenda and this calls for measures of how well nations perform in creating the greatest happiness for the greatest number, analogous to measures of success in creating wealth, such as GDP".

Veenhoven et al. (1993) provide a detailed terminology and consider overall happiness as "the degree to which an individual judges the overall quality of his or her own life as a whole favourably", which is a subjective appreciation. They add that this cognition appraisal is based on aspirations, expectations, values, and average mood". Additionally, the overall happiness is life satisfaction, as mentioned in their work. In other words, according to Veenhoven (2000) happiness is "the degree to

which someone evaluates positively the overall quality of his or her present life as a whole." Additionally, Shin and Johnson (1978) state that life satisfaction is "a global assessment of a person's quality of life according to his chosen criteria" and Diener et al. (1985) add that life satisfaction refers to "a cognitive judgmental process and these judgments of satisfaction are dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard set by the individual in question". In short, Veenhoven et al. (1993) "happiness signals the degree to which innate needs are met, life satisfaction denotes how well we thrive".

In addition, Frey and Stutzer (2002) mention that "it makes little sense to try to define it from the outside, hence, simply to ask individuals how they feel about themselves". They add that it can be assumed that "they are the best judges of when they are happy and when they are unhappy".

Happiness and life satisfaction are mostly measured in economics by interviewing people in surveys using self-reported questions. There are various questions depending on the survey. However, the present thesis is using evidence from the World Value Survey as shown in the empirical chapters, in which there are two main questions addressed to respondents in order to assess their levels of happiness and life satisfaction. The first question is: "All things considered, how satisfied are you with your life as a whole these days?" This question aims to evaluate the respondent's level of life satisfaction. Then, the respondent is asked to use a card with a scale containing ten units and to locate the level of life satisfaction as self-judged. Likewise, the second question is meant to assess the level of happiness of the respondent. It is asked using the following words: "Taking all things together, would you say that you are happy or not happy at all?" These two possible answers are the two extremes on a scale of four.

This scale was developed by Diener et al. (1985) in order to measure global life satisfaction called "Satisfaction with Life Scale" (SWLS). They declare that among the various components of subjective wellbeing, the SWLS narrowly focuses on the assessment of global life satisfaction; hence, it measures the respondent's satisfaction with the life as a whole excluding positive affect or loneliness. However, the SWLS demonstrates "favorable psychometric properties, including high internal consistency and high temporal reliability". Likewise, Pavot and Diener (1993) state that the scale "does not assess satisfaction with life domains such as health or finances, but allows subjects to integrate and weigh these domains in whatever way they choose to".

In short, the present thesis is in line with Clark et al. (2008) statement that "massive progress realist economists are producing for the past two decades in building robust models and theories as a means to construct a reference index of subjective well-being. This necessitates a continuous testing and an investigating exercise"

1.2. Aims and objectives:

The present thesis examines the changes in the populations' self-reported levels of happiness and life satisfaction during and after the transition from centrally planned administration to a market based economy. This transition is accompanied by various economic reforms such as privatisation, liberalisation and stabilisation and also generating two groups, supporters and resistances. Therefore, the main aim of the present thesis is *to assess the effect of transition on the determinants of happiness and life satisfaction assuming that the populations' values, perceptions, attitudes and expectations might determine the success of the transition*, considering there is an interaction between the two, as no major work has been conducted along these lines.

In order to reach this aim, the present thesis sets as the main objectives the examination of the determinants of happiness and life satisfaction in countries in transition where basic needs have not been met yet, and investigates how transition may affect these determinants, and see whether the populations' self-reported aspirations are in line with the aims of the economic reforms. In order to meet these objectives, the present thesis addresses several points as follows:

- To scrutinise the determinants of happiness and life satisfaction during the transition.
- To examine the effect of economic reforms, in the aftermath of the transition.
- To investigate one of the major determinants of life satisfaction that is absolute income in comparison to relative income.
- To determine the effect of relative income on individuals' subjective judgment of life satisfaction.

1.3. Research questions:

The present section addresses the research questions that the thesis attempts to answer in order to meet the preset objectives and realise its aim.

Therefore, the research questions are:

- What are the determinants of happiness and life satisfaction in Algeria?

- Are these determinants different between male and female populations?

- What are the determinants of life satisfaction in Egypt and Morocco?

- Are these determinants changing over the first decade of the present century?

- Are these determinants different between male and female populations in Egypt and Morocco?

- Is absolute income the sole determinant of individuals' life satisfaction or does the relative income also plays a role?

- How is the relative income affecting Algerians, Egyptians and Moroccans?

1.4. Thesis structure:

The present thesis is divided into six chapters. Following this Introduction Chapter, Chapter 2 reviews the literature on happiness and life satisfaction. It, therefore, presents a historical development of the concept of utility, and then it reviews the major works on happiness studies including the various definitions of happiness and life satisfaction, their measurements and the areas of investigation.

Next, Chapter 3 examines the determinants of happiness and life satisfaction in Algeria by gender, and analyses the population's values, attitudes, perceptions and expectations.

Then, Chapter 4 investigates the differences between the determinants of life satisfaction in Egypt and Morocco by gender. In addition, it also examines whether these determinants have changed over the first decade of the present century.

Chapter 5 examines the effects of the relative income, which is the income of others called a reference group on individuals' self-judgment of their levels of life satisfaction in Algeria, Egypt and Morocco.

Finally, Chapter 6 presents the major conclusions that could be drawn out from the present research. It also puts forth some recommendations to policy makers, includes the areas for further studies and the thesis' limitations and shortcomings.

Chapter 2: Background and Literature review

Chapter 2: Background and literature review

The present chapter presents an overview of the literature on happiness. It is to note that happiness and life satisfaction are interchangeably used by economists, as mentioned in the previous chapter, and hence, the present discussion focuses on happiness since its roots are found in the Greek times. It is also to note that studies find that happiness and life satisfaction are correlated and feeling of happiness plays a substantial role in the self-reported levels of life satisfaction; yet, economists nowadays prefers to use life satisfaction as a proxy to measure individuals' utility.

This chapter is therefore divided into five broad sections that encompass the historical development of happiness, the development of the concept of utility in modern economics, the resurgence of utility in economics, the concept of happiness, its measurement, and the shortcomings, and it finishes by presenting previous findings in the literature on happiness and life satisfaction, which are part of macroeconomic happiness. This yields to the necessity of further empirical testing and a shift towards transition in economies in which only few studies are available in the literature.

Following this brief introduction, the first section explores the historical development of happiness since the Greek times reaching the introduction of the concept of utility in modern economics. Then, in the second section, the resurgence of the concept of utility in modern economics is presented. Next, there is a discussion on the concept of happiness and subjective measurements including the substantial value added of psychological studies. It also brings into light the nowadays happiness' position in economics and how it is widely accepted as a proxy measure of utility. The section also presents the critical aspect of happiness studies, which is considered through the

ongoing debates on the measurement of happiness and life satisfaction. Finally, a brief highlight of existing literature is presented guiding towards the revelation of the gaps that the present thesis modestly attempts to put in through the next three empirical chapters following this background and literature review chapter.

2.1. The historical development of happiness:

Historically, according to Diener (1994) happiness as defined by Aristotle is the "summum bonum" that is the Greek for "supreme good". It was explained as the final and sufficient value. Historical definitions of happiness could be found in Jones (1953), Tatarkiewicz (1976) and Veenhoven (1984) as quoted by the same author.

Since the classical period of the Greek civilisation, Aristotle (2009) in his studies on the Nicomachean ethics (work on ethics) on the ultimate objective of human existence founds that happiness is a centre point of human life and it is a goal in itself. Aristotle states that "all human activities aim at some good", and according to him, the human good is happiness (Eudemonia as living well and faring well). It is different of the definition of Eudoxus who considers the good as the pleasure.

Aristotle mentions that the human good "is generally agreed to be happiness, but there are various views as to what happiness is... and the many do not give the same account as the wise. For some it is the plain and obvious thing like pleasure, wealth or honour; they differ, however, from one another, and often even the same man identifies it with different things, with health when he is ill, with wealth when he is poor" (Aristotle, 2009).

White (2006) questions the motivation behind Aristotle's work, and he wondered the level of Aristotle's affect by an Athenian statesman quoted in his work who declares: "call no one happy until he's dead". Therefore, he decided to explore the concept of

happiness and concluded that it is "the cultivation of moral virtues and practical wisdom, it is then virtuous activity". He also considers these virtues as individualistic rather than social, which are reached by maintaining the mean between two excesses. In short, Aristotle concludes that happiness is most final.

Diener and Suh (1997) view that in Aristotle's concept of Eudemonia, in which "individuals were called on to realise their full potentialities in order to achieve a good life". Annas, mentioned in Helliwell and Barrington (2010) claims that Aristotle and other ancient philosophers put stock instead in how people would evaluate their lives as a whole, which is the centre point of today's debate of the measurement of happiness.

These Aristotle's thoughts are probably linked to Buddhism with regards to the concept of middle path that is a peaceful way of life. However, as Diener and Suh (1997) point out those Eastern philosophers, they focus more on the virtue of restraining individual desires, and hence, they set an ideology that "encouraged the equal distribution of resources among people".

Aristotle begins a trend of studies on happiness and utility, and shows that economic goods derive their value from individual utility, scarcity and costs could be found in his work, according to Oskar Kraus of Prague of the Austrian School of Economics, as stated by Kauder (1953).

The French, Italians and Swiss inspired by his philosophy and added further during the renaissance and enlightenment and could have inspired Adam Smith's (1759) work on "The Theory Moral Sentiments", according to Kauder (1953). The same author adds that Adam Smith argued that happiness is linked to wealth, and the happier an individual can be with more wealth that the "more is better". Oskar Kraus

adds that Smith based his "System of Political Economy" entirely on Aristotle's philosophy.

Most of the enlightenment academics, as pointed by Kauder (1953), for instance Bernoulli, Buffon, Condillac, Davanzatti, Galiani, Laplace, Montanari, Turgot, explored with scrutiny the concept of utility and its consequences, and Galiani and Turgot, as a result, developed an economic theory based on subjective valuation, which become a keystone for a method of thinking that is today's engine of the revolution in studying happiness and utility in economics.

The concept crossed the Channel, as mentioned by Stigler (1950), through Bentham's (1789) "an introduction into the principles of morals and legislation" who proposed, in England, a new morale principle stating that "the goodness of an action should not be judged by the decency of its intentions, but by its consequences on human happiness", meaning that the aim should be the "greatest happiness for the greatest number". Indeed he defines happiness as "the sum of pleasures and pains", which, as reported by Veenhoven (2007), is the "utilitarianism" philosophy since it focuses on the utility of behavioural consequences.

 This value added by Jeremy Bentham is confirmed in Stigler (1950) who declares that "Bentham suggested the measurement of quantities of pleasure and pain for the purpose of constructing a more rational system of civil and criminal law through the proposed four dimensions of intensity, duration, certainty and propinquity".

However, his theory was not applied in economics as it was first designed, as explained in Stigler (1950). Dealing with the problem of income, which raised the problem of comparisons between individuals who might differ was problematic. Jeremy Bentham could after that achieve interpersonal comparisons through

assumptions justified by the desirability, but not with the use of calculations, hence it was a failure to build a scientific basis for social policy.

It is Etienne Dumont (1802) "Traits de legislation", his disciple, who elaborated his theory to economic applications, as stated by Stigler (1950). Consequently, Bentham progressed in his work and wrote that "each portion of wealth has a corresponding portion of happiness… and of two individuals with unequal fortune; he who has the most wealth has the most happiness".

This was the source of modern studies in happiness, and he used some utility measurement to defend equality stating, as mentioned in Stigler (1950) that "the nearer the actual proportion approaches to equality, the greater will be the total mass of happiness… although utility does not increase as fast as income, for small changes the two move proportionally… so we may measure pleasure through the price they command".

Unfortunately, Bentham's work did not receive the expected interest in the mainstream arena, since the influential philosopher of the time David Ricardo, was not compassionate with his work neither his disciple James Mill at first, before showing an interest to utilitarianism and influencing his son John Stuart Mill (1963).

On the other hand, Jean Baptiste Say challenged to provide "Utility" a descent place in economic theory without success, in a similar way, of Bentham himself, Walras (1831) and Longfield (1834), Dupuit (1844) and Grossen (1854) as mentioned by Stigler (1950). It is until Jevons successful attempts following two failed efforts (1871, 1879) when he proposed a mathematical illustration of utility that it started to gain a place in economics with the help of Walras and Menger. (Stigler, 1950)

This revolution was followed by a consistent contribution of Edgeworth (1892) on preferences, and who accepted Bentham concept, as mentioned in Helliwell and Barrington (2010), who state that "Bentham and Edgeworth treated pleasure and pain symmetrically and defined utility as integral momentary measures". Since then, several economists such as Fisher, Cunyngham agreed on the concept.

2.2. The development of the concept of utility in modern economics:

The first statistical investigation designed to test utility was elaborated by Arthur Cecil Pigou, according to Stigler (1950). It is to note that Marshall and Pareto also contributed to the concept of utility and welfare economics, and Pigou, Marshall's disciple produced his contribution through his work on marginal utility by criticising Marshall's work. In short, utility become cardinal and ordinal.

With regards to welfare economics, Walras' consistent contribution was on the "Theorem on maximum satisfaction", in which he argues, according to Stigler (1950), that "in a free market competition, production is an operation by which the services may be combined in products of appropriate kind and quantity to provide the greatest possible satisfaction of needs, bearing that each product have only one price in the market, at which demand and supply are equal, and also the prices of the products are equal to their costs of production".

However, Robins (1932), and after him Hicks (1934), Allen (1934) and Samuelson (1938) who followed suit and joined the trend, become convinced that "utility could not be cardinally measured, as mentioned in Frey and Stutzer (2002). For instance, Hicks (1934) and Allen (1934) demonstrated that "demand theory can be entirely grounded on ordinal utility in the form of a preference index", according to same

authors, and with the assumptions of cardinal utility through the demand theory a welfare theory could be derived, as mentioned in Powdthavee (2007).

Furthermore, Frey and Stutzer (2002) and Clark et al. (2008) also refer to Samuelson (1938, 1949) respectively, who "formulated the general behaviouristic foundations of standard theory, in which utility is no more than preference. Hence, utility was related to choice behaviour." It is to note that, according to Frey and Stutzer (2002) Houthakker (1950) and Uzawa (1960) gave the preference theory its present form.

Indeed, as reported in Nattavudh Nick Powdthavee (2007) in his account on the history of utility, the concept that utility can be measured and is comparable between individuals started to lose weight with the rise of the neoclassical concept of "decision utility". Cardinality became problematic for most economists and was regarded as being "unscientific" because of the objectivity argument. Actually, it was argued that utility is not observable. As a consequence, this view dominated the subject of economics up to a recent time.

In fact, according to mainstream economists, there is inconsistency in the means to compare utility scales among individuals. In addition, this reluctance gained scale since Robbins (1938) adds that individuals with similar levels of income will receive equal levels of satisfaction when their income increases equally. Hence, the revealed preference concept colonised the field and ordinal utility prevailed on cardinal utility.

As a result, the analysis of consumer demand started to be linked with revealed preferences only, and the neoclassical microeconomic views renounced to preference index of ordinal utility that is cardinal utility, and maintained that utility cannot be empirically measured in terms of pleasure, happiness and satisfaction.

In addition, up to the 1950s, the application of utility theory was mainly applied to explain economic and demand behaviour in particular through theories of value in use. Then, secondarily it was also applied to justify economic policy, as stated by Stigler (1950). Thus, it was not applied to welfare economics.

Gary Becker (1962) aggravated the state of the concept of utility, when he demonstrated that, "Ceterus Paribus, a price rise induces a fall in demand, without using any concept of utility", as declared in Frey and Stutzer (2002).

In short, Economists become persuaded that "utility cannot be measured cardinally" except for the cost-benefit analysis. In actual fact, modern mainstream microeconomic textbooks, for instance, Pindyck and Rubinfeld (1997), Frank (2002) and Varian (2002), as mentioned in Powdthavee (2007), present an objective position founded on individuals' choices that are observed.

In contrast, psychologists took over economists, and developed further the concept of cardinal utility. They revolutionised it contradicting the path taken by economists as mentioned in Frey and Stutzer (2002). Likewise, Experimental Psychology, influenced behavioural economists and cardinal utility survived with the merit to scientific psychological methods, as reported by Easterlin (1974).

The next section deals with the resurgence of utility in economics before moving to the significant value added that psychologists provided to the measurement of happiness. In fact, studies in psychology are considered by Daniel Kahneman (2009) as being Galilee' stethoscope to social scientists willing to determine and measure individuals' happiness. It also presents both the objective and subjective methods of measuring happiness.

2.3. The resurgence of utility in economics:

In a similar way of the previous discussion, neoclassical thought considered utility depending on tangible goods and services and leisure, as reported by Powdthavee (2007). Since the approach is objective, observing individuals' preferences of bundles of goods constitute its heart. Rationality is the basis, and individuals' rational behaviour in choosing between alternative bundles of goods and services construct a utility function as an inference from observed behaviour.

Consequently, what utility equals to as a number, only pictures individuals' choices and preferences, as reported by Powdthavee (2007). Hence, nowadays' calls on adding a subjective measure based on individuals' self-report of their past experience emerged, in addition to the qualitative aspect of explaining human beings' behaviour is found in Clark et al. (2008). Additionally, recently in the past three decades, a shift in economics towards the consideration of happiness as a proxy to measure utility and measuring happiness through subjective data is reaching a large audience and it is becoming widely acceptable, as reported by Clark et al. (2008)

Moreover, the appeal's consistence and significance is somehow relevant and objective since individuals' behaviour is apparently not rational. Rationality cannot be assumed when real world individuals and economic agents are far from behaving differently. For instance, observing consumers' behaviour or the existence of asymmetric information or discounting the future excessively are all arguments provided by Powdthavee (2007), which are considered to be consistent.

Furthermore, observing the real world resulted in a trend in economics agreeing on individuals' behaviour is not only dependent on their own choices made separately from the environment surrounding them. In reality, individuals are not always

capable of choosing the optimal choice that maximises their utility. However, it has been shown in Duesenberry (1948) as well as in Hirsch (1976) and also by Clark and Oswald (1998) that the environment matters and contextual effects have been demonstrated in addition to habituation, which will be further discussed below.

It is within this context through the criticism of both theoretical and empirical objective approaches to study utility, also called "decision utility", and the behaviour of individuals that the subjective approach in dealing with economic agents aroused to integrate "experienced utility" attained by past activities and "procedural utility" derived from preferred activities, as reported in Powdthavee (2005), which could be considered the ultimate goal as mentioned by Aristotle. Hence, this approach is based on listening to individuals by providing them the opportunity to self-report their experiences.

 What is more, as Clark et al. (2008) conclude in their paper, human beings' minds are so complex that further insights are needed using self-reports and qualitative analysis in addition to the objective measures might help realism.

Indeed, it is the claim that most behavioural economists working on happiness studies led by psychologists who helped develop both objective and subjective methods of measurement of happiness are presenting.

2.4. The concept of happiness, its measurement and shortcomings:

The historical development of happiness presented above, shows that a wide acceptance in the subject of economics as a proxy to measure utility and in the sphere of the general public is growing and this could be assigned to studies in psychology. Indeed in order to understand the concepts of happiness, as Frey and Stutzer (2002) point out, it might be useful to first understand how it is measured. Therefore, a brief

discussion on the history of the measurement of happiness is introduced showing how psychologists took over economists in the 1950s and 1960s, and then its definition is introduced.

In the early works on happiness in the eighteenth century when it crossed the channel to England, Jeremy Bentham suggested that happiness is "the sum of pleasures and pains", as quoted by Veenhoven (2007). In reality, the aim of this suggestion was to "construct a more rational system of civil and criminal law through the proposed four dimensions of intensity, duration, certainty, and propinquity", as reported by Stigler (1950).

After that, Francis Ysidro Edgeworth (1892) suggested that "individual's happiness during a period of time to the sum of monetary utilities during the same time period, which is the temporal integral of monetary utility" as declared by Kahneman and Krueger (2006). They add that this could have be linked to what psychologists call "summing momentary utilities" over time, in which the study requests from the respondent " to sum the experiences and provide a judgment for the utilities received as a whole". Indeed, Helliwell and Barrington (2010) confirm the suggestions and mention that "Bentham and Edgeworth treated pleasure and pain symmetrically and defined utility as integral momentary measures".

In order to identify individual's happiness, researchers in psychology progressed during the 1950s and developed three approaches as mentioned by Frey and Stutzer (2002). Two of them are linked to objective measurements, while the third is associated with subjective measurements. In fact, happiness could be identified in the laboratory using scientific and objective methods by controlled experiments. In addition, it could also be reported by the individual through what is known as the

"individual's self report", and hence subjectively. It is to note that in economics, the source of debates between the traditional view of utility and the revolutionary movement lay in the acceptance of this subjective measurement.

Into the bargain, Kahneman and Krueger (2006) discuss the issue and distinguish between the laboratory and reported measurements. Indeed, they mention the "Moment-to-Moment" measurements and the "Global Retrospective Judgment" measurements as means to capture the individual's happiness.

In reality, the moment-to-moment measurement is based on measuring the "flow of pleasure or pain…continuously through the indication of the hedonic quality of their experience in real time on a scale containing extreme values ranging from the very pleasant to the very unpleasant and a neutral value." (Kahneman and Krueger, 2006) Similar studies are found in psychological experiments in consumer research and public opinion on live debates, and so on. This method is called, as reported by the same authors, "Experience Sampling Method" and the "Day Reconstruction Method" which are used, respectively, in Csikszentmihalyi (1990) and Stone and Shiffman (1994), and in Kahneman, Kruger, Schkde, Schwarz and Stone (2004).

Psychologists developed these methods in laboratories and through "unique effect of stimuli on individual" they could evaluate the individual's pains and pleasure, as stated by Frey and Stutzer (2002). This method was criticised since humans live in an environment and, hence, it does not necessarily provide a true inference on the individual's behaviour within another context, and according to Frey and Stutzer (2002), "it might be simply a moment-based measure relying on normative judgments".

As a result, researchers could make a differentiation between individuals' experienced and remembered utility by drawing a "temporal profile moment-to moment experiment in the real time. Kahneman and Krueger (2006) offer some solutions in their paper, for instance, they state that with regards to experience sampling, they propose the solution of repetitive assessment during a day or a week using a computer that the surveyor carries with. It is to note that most of their solutions are limited in terms of its implementation to large population samples.

In contrast, the global retrospective judgment methods, which lead economists to denote subjective well-being, measures "features of individuals' perceptions of their past experiences, but not their utility as economists conceive it", according to Kahneman and Krueger (2006). Adding that this method allows the exploration of the respondent's remembered utility. Critiques focussed on the fact that it requires "the respondent to remember the stream of experiences and aggregate them in some way to aggregate the experiences as a whole, which is "summing momentary utilities over time". Implicitly, it is in a similar way of the concept developed by Edgeworth. Hence, Kahneman and Stutzer (2006) state that the individuals' self reports are more accurate if they are reported close to the time and in direct reference to the actual experience.

Moreover, the retrospective evaluations of past experiences have "a weighted average of moment utilities, where the weights are not equal due to the neglect duration of the period of the pain or pleasure and the respondent's focus was at the peak or through or towards the end of the experience, as found in Kahneman, Fredrickson, Schreiber and Redelmeir (1993).

Furthermore, Kahneman and Thaler (2006) add that "individual's choices are affected by their remembered utility and not by the profile of their experience. Consequently, the intensity of the pain and pleasure can be measured in real time", in contrast to what retrospective assessment provide by assuming the sum of total's individual's experiences.

Likewise, Easterlin (1974) states that self-report measures are "sometimes designed avowed or reported happiness to underscore the possibility that they may not accurately reflect the true state of the respondents' feelings". Hence, this last method could not be a good measure.

On the other hand, Kahneman and Krueger (2006) also declare that studies comparing the real-time reports and retrospective evaluation of an experience provide the same results, despite some systematic biases. For economists, it is the sampling bias that is the problem, as declared by Powdthavee (2007).

Nowadays, happiness studies are based on this global retrospective measurement that is assumed to capture the experienced utility, also called "process benefits" in Courant and Dow (1985), as mentioned in Kahneman and Krueger (2006). They use surveys in a similar way of the World Value Survey, The General Social Survey in the United States and Canada, the GOSEP in Germany. These surveys use simple questions addressed to the respondents to report their levels of happiness and life satisfaction.

In reality, Kahneman and Krueger (2006) declare that since these questions are simple, respondents find it easy to answer. Consequently, the survey's retrospective judgment is built when the question is asked. Subsequently, it might be determined by the respondent's current mood, memory and immediate context, as well as, it

could be influenced by earlier questions in the survey on the top to the "fluctuation of life satisfaction in natural settings over short time period", as stated by Kahneman and Krueger (2006).

Concerning this issue, studies, for instance, Schwarz (1987) on the impact of the immediate context, Schwarz and Clore (1993) on the effect of the weather, and Lucas, Diener and Suh (1996) on the fluctuation of life satisfaction in natural settings over short time period, discussed this critical point, which are mentioned in Kahneman and Krueger (2006).

Although people's mood, duration and actual context produce fluctuations in people's day to day answers, and hence, it constitutes a limitation of the standard measure of happiness and life satisfaction. They conclude that they are "not grounds for dismissing the data as a whole". Indeed, the "idiosyncratic effects of recent irrelevant events are likely to average out in representative population samples".

Hence, subjective data are reliable for many purposes as they find "significance but lower correlation for repeat measures of life satisfaction". Additionally, it demonstrated its robustness concerning "subsequent choices, and future decisions, as find in Freeman's (1978) work on job satisfaction, who demonstrated a strong prediction of workers' turnover".

To sum up, subjective measures of happiness are linked to psychological measures, where objective measures are related to physiological methods of measurements. Additionally, experience sampling is in between and could be closer to the objective methods as mentioned in Frey and Stutzer (2002). In addition, subjective methods use global self-reports while objective techniques measures brain waves and are used in labs and capture the subject's level of happiness externally. Experience sampling

on the other hand, is carried several times, a day or a week, and capture individual's mood, emotions in random moments in individuals' daily lives.

On the other hand, economists' research aims and their interest in socio-economic aspects, direct them into favouring the subjective measures, while psychologists, for the complex purpose of their researches, may use more objective methods, as mentioned by Frey and Stutzer (2002).

It is to note that the present thesis assumes that individuals belong to specific environments and are assumed to exhibit changing attitudes due to the continuous changing subsequent socio-economic environments. Therefore, it uses subjective measures, which rely on a retrospective exercise that may include the effect of their changing environment such as their age, marital status, education, and employment status, and so on. In addition, this method permits to empirically measure the distribution of the levels of happiness and life satisfaction among respondents, and also permits the distinction between individuals.

What is more, since self-report happiness is based on the respondent's memory, and hence, it deals with the individual's cognition and retrospective report of self experiences that is memory rather than the affect; it could be of a great deal to economists. Frey and Stutzer (2002) add that such a cognitive method may differ among individuals and over time, which could be of great use in studying socio-economic aspects.

Additionally, the present thesis uses evidence from the World Value Survey (WVS), which is a comprehensive socio-economic survey conducted in 81 countries. The respondents were asked to report on their happiness and life satisfaction by answering the following two questions. Concerning life satisfaction, the question is:

All things considered, how satisfied are you with your life as a whole these days? A similar question was asked to specify only the past five years. With regards to happiness, the question is: "Taking all things together, would you say that you are happy or not happy at all?"

As a result, Veenhoven (2000) defines happiness as "the degree to which someone evaluates positively the overall quality of his or her present life as a whole." In addition, Shin and Johnson (1978) state that life satisfaction is "a global assessment of a person's quality of life according to his chosen criteria" and Diener et al. (1985) add that life satisfaction refers to "a cognitive judgmental process and these judgments of satisfaction are dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard set by the individual in question".

The revolution that has taken place since the 1960s and happiness and life satisfaction has become a proxy to measure utility making the measurability on a scale through individuals' self-reports and the comparability between individuals possible and meaningful. This has led to the rejection of the assumption that individuals have a rational behaviour.

The happiness studies according to Frey and Stutzer (2000) could be divided into three sets. The first set deals with individuals' personality and demographic aspects. This set uses approaches that are used in Psychology investigations as found in Wilson (1967), Diener (1984, 1985) and Myers (1993). The second set deals with institutional factors such as governance and population's wellbeing. Interest in governance is found in Bjornskov (2008), for instance. The third set dealing with micro and macro factors includes working conditions and unemployment. Easterlin (1974, 1995, 2005), Blanchflower and Oswald (2000), Clark and Oswald (1996,

1998) and Diener and Oishi (2000) are examples of works exhibiting interest in these topics.

In short, the present chapter reviewed the historical development of the concept of utility and presented the various ways of measuring happiness and life satisfaction allowing the three empirical studies to contribute on their related literature. The next chapter presents the first empirical study, which the determinants of happiness and life satisfaction in Algeria by gender as a proviso for the success of its economic reforms.

2.5. Empirical findings on macroeconomic happiness:

This final section of the present literature review part presents previous findings found in the literature leading to the conclusion that more empirical testing remains needed in order to help the strengthening of the theories on macroeconomic happiness and mentioned in Clark (2008) and to contribute to the gap found in the lack of studies on economies in transition. Although each of the empirical chapters provides its relevant literature review, the present section presents a broad highlight of previous works.

As mentioned above and also found in the previous chapter, happiness and life satisfaction are used interchangeably in the literature. In such studies that belong to macroeconomic happiness studies, most economists use life satisfaction rather than happiness as a variable under study; yet, a conceptual difference with happiness exists as discussed in the previous chapter.

With regards to the determinants of happiness and life satisfaction, a summary of empirical works can found in the literature in a similar way of Diener et al. (1999),

Frey and Stutzer (2002), Powdthavee (2007), Rodriguez-Pose and Maslauskaite (2011), and Snowball et al. (2011).

What is appealing in reviewing the existing literature is that a small number of studies present evidence from transition economies, in which studies on income comparison and the Hirschman and Rothschild (1973) ''Tunnel effect'' in the North African region is completely absent. This is representing a major gap in the literature that the present thesis is modestly but significantly attempting to fill.

Macroeconomic happiness studies and those on the determinants of happiness and life satisfaction could be divided onto two broad parts. The first part deals with the developed countries and the second with developing countries in which basic needs have not been met yet in many of such countries. First, the following discussion provides a sub-division of the literature according to the factors determining happiness and life satisfaction, which is mainly found in the first type studies that focus on developed countries. Then, another discussion will follow and presents the second type studies that deal with economies in transition.

In actual fact, the literature studying the determinants of happiness and life satisfaction can be divided according to the factors employed. There are four major factors and these are socio-demographic, or microeconomic, macroeconomic and institutional and political factors, as found in Frey and Stutzer (2002).

Studies that consider socio-demographic and individuals' factors examine mainly the effects of gender, age, health, marital status, education level, employment status, and the income level of the sample under study and attempt to generalise on the population. The data used to help researchers in analysing the determinants of happiness and life satisfaction of the studies populations are collected using surveys

in a similar way of the World Value Survey (WVS), the European Value Survey (EVS), the European Social Survey (ESS), and National Offices of Statistics. In addition, in terms of commercial means, Gallup also provides such data. Each of these factors has received a substantial interest and so far theories are constructed according to observations and empirical tests confirmed most of these theories. However, more empirical testing is encouraged as such studies are believed to be country and cultural specific, which provides a substance to the present thesis.

Starting with age as a socio-demographic and personal factor, studies on its effect on happiness and life satisfaction could be traced back to Wilson (1967) and Palmore and Luikart (1972). More recent studies are conducted, for instance, by Clark and Oswald (1996), Blanchflower and Oswald (2000), Clark (2002) and later Frijters et al. (2004) and Frijters and Beatton (2008). They found that age is associated to happiness and life satisfaction by showing a statistical significance and shows a non-linear U-shaped relation. Clark and Oswald (1994, 1996) and Clark (2002) found that individuals are more satisfied with their lives at their early twenties and at a later age, however, they are less satisfied with their lives at a middle age starting from their 30s and reaches the 50s. For males, this happens at an earlier stage than females in most cases. These results were further confirmed by Blanchflower and Oswald (2011). Frijters and Beatton (2008), on the other hand, provides a study in which they believe that this U-shaped curve of the relationship between age and life satisfaction is not completely certain since there might be a correlation between age and other socio-demographic and personal factors in a similar way of income, marital status, employment status, job position and so on. Hence, further tests are needed and happiness studies remain at an early stage.

Then, gender is also considered as a factor that determines happiness and life satisfaction. Clark and Oswald (1994) and Blanchflower and Oswald (2000) find that women record higher levels of happiness and life satisfaction than their men counterparts.

With regards to the effect of marital status, Edwards and Klemmack (1973) find that married individuals show higher levels of happiness and life satisfaction than unmarried. Barrett (1999) confirms this finding in a study on the never married. In addition, White (1992), Clark and Oswald (1994, 2002), Easterlin (2001) and Dolan et al. (2006) all find that married individuals are happier and more satisfied with their lives in comparison to their single, separated, divorced and widowed counter parts. Furthermore, Clark and Oswald (2002) provide a monetary value of the effect of being married on happiness and life satisfaction, and found that it is equivalent to an extra £70.000 per year. In short, it is widely accepted in the literature that life satisfaction is positively associated with marriage. In contrast, being widowed, Clark and Oswald (2002) provide a loss-value of £170.000 to reduce the loss of happiness.

In addition, the number of children also affects the levels of self-reported happiness and life satisfaction. Only there remain doubts about such an effect and varies depending on the marital status and the family's level of income. While in some studies, the number of children produces positive and significant results on happiness and life satisfaction, such as in Haller and Hadler (2006), other studies find that there is a negative association between the number of children and happiness and life satisfaction as found in Alesina (2001).

Concerning the health as another factor affecting individuals' self-reported happiness and life satisfaction, unanimously, all studies found that health is positively

associated with happiness and life satisfaction. Thus, Individuals with good health are found to be more satisfied with their lives, as mentioned in Veenhoven (1996).

These results are comparable, at some extent, with the education factor, in which the higher educated person is, the higher is happiness and life satisfaction of the individual. This is found in Diener et al. (1993), Clark and Oswald (1994), Diener et al. (1999) and Blanchflower and Oswald (2000). However, these results are yet to be confirmed since the effect of education depends on individuals' aspirations and expectations, and even more in the case of developing countries.

Regarding the employment status, empirical evidence shows that full-time workers are more happy and satisfied with their lives than the rest of the labour force. Studies in a similar way of Clark and Oswald (1994), Oswald (1997), Winkelmann and Winkelmann (1998), Stutzer (2001), Clark et al. (2001), Ravallion and Lokshin (2001), Lucas et al. (2004), Clark (2005, 2006) and Georgellis et al. (2008) find that there is a significant effect of being unemployed on the levels of happiness and life satisfaction of an individual due to its consequences on social status, self-esteem in addition to the loss of income. Also, past unemployment matters as found in Clark et al. (2001) and this might have a lower effect when it becomes socially acceptable as mentioned by Clark (2006).

In reality, these finding could be associated with the loss of income, which is found to be positively associated with happiness and life satisfaction at an individual level. In actual fact, the higher the income level of an individual, the happier and more satisfied the individual is more likely to be as mentioned in Oswald (1997) and it is even higher for the highest steps of income where earning is high. However, the percentage increase in income is found to be unequal with a similar proportional rise

in the levels of happiness and life satisfaction of an individual due to the concept of the diminishing marginal utility.

Also, another possible explanation lies in the context of expected utility due to past experiences. This is further discussed below when exposing the Easterlin paradox.

In addition to these factors, there are also studies that fall within this part of the literature that consider individuals' socio-economic and demographic factors and examine factors such as trust and religious beliefs on the levels of individuals' self-reported happiness and life satisfaction. Clark and Lelkes (2005, 2009) find that religious individuals are happier and more satisfied with their lives than non-religious. In addition, Helliwell and Putnam (2004) uncover the positive effect of both religion and trustworthiness and trust on happiness and life satisfaction.

Following the reviewing of happiness studies that consider the personal and socio-demographic factors in which microeconomic factors, next, is a discussion on studies that consider the macroeconomic factors. In actual fact, such studies have been dominating research on happiness and hence the appellation of macroeconomic happiness studies.

Gross Domestic Product was at the heart of the original happiness studies in economics since the 1970s. Together with the GDP per capita, they constituted the initial successful attempts of the resurgence of cardinal utility, and hence it has been used as a determinant of happiness and life satisfaction.

Subjective-well being is widely accepted as being affected by national income since populations are able to afford high standard education and welfare system, which in turns develop a better environment for individuals' lives, and hence higher levels of individuals' reported happiness and satisfaction with their lives.

The first influential study that considered GDP and GDP per capita could probably be assigned to Van Praag (1971) and Brickman and Campbell (1971) on "hedonic treadmill" and then Van Praag and Kapteyn (1973) and Easterlin (1974) on "adaptive expectations" using evidence from developed countries, in which they argue that after a certain level of increasing GDP and its consequent increase in individuals' recorded levels of happiness and life satisfaction, it reaches a certain level in which there will be no more increase in the levels of individuals' happiness and life satisfaction. Therefore, happiness and life satisfaction over time become flat as mentioned in Clark et al. (2008). This is more likely to happen under the non-linear relationship of GDP per capita and happiness and life satisfaction.

This has led Burchart (2005) to conclude that a negative association between income and happiness and life satisfaction is more likely to be more realistic, since an expected decrease in national income increases the likelihood of affecting individuals' happiness and life satisfaction, as mentioned by Rodriguez-Pose and Maslauskaite (2011).

In actual fact, Easterlin (1974) has opened a debate on the effect of GDP and GDP per capita on happiness and life satisfaction and several studies followed attempting to argue on the so called the "Easterlin paradox", as mentioned in Easterlin (1995). While DiTella et al. (2003), Frijters et al. (2004) and DiTella and MacCulloch (2005) have attempted to answer the Easterlin paradox and found that GDP per capita is positively associated with happiness and life satisfaction, support of Easterlin (1974) findings are uncovered in Frey and Stutzer (2000, 2002) and Van Praag and Ferrer-i-Carbonell (2004). A possible explanation of the "Easterlin paradox" could lie in individuals' aspiration and their expected utility due to experienced utility, which is also related to the concept of relative utility and could be linked to income as found

in Easterlin (2001) and Rablen (2008). This idea proposes that individuals compare the actual with the past and hence the expected future situations. In actual fact, this suggestion is related to studies on income comparison, which is discussed below, and introduces the assumption that individuals compare themselves and with others around them called "reference group". In other words, an individual has a remembered utility as a result of past experiences and together with the actual situation they produce an expected utility due to future expectations.

In addition, other studies that consider macroeconomic factors are those that regard the effect of inflation and unemployment rates on individuals' happiness and life satisfaction. Within this context, Clark and Oswald (1994), Kenny (1999), DiTella et al. (2001), DiTella et al. (2003) DiTella and MacCulloch (2005), Blanchflower (2007) expose the effect of inflation and unemployment rates on happiness and life satisfaction and discuss how each of them produces a different impact on individuals' self-reports. While inflation tends to be the concern of the highly educated, unemployment has a greater effect on individuals' happiness and life satisfaction since it is more concrete.

The final type of studies that provide evidence from developed countries, regardless of recent comparative studies with transition economies or those considering relative and expected utility, considers institutional factors. These are mainly found in Frey and Stutzer (2000, 2002).

In actual fact, recalling the studies on the international comparability of national income and GDP per capita, the difference in self-reported levels of happiness and life satisfaction in developed countries could be as a result of differences in governance, altering governments, corruption, crime and so on.

Frey and Stutzer (2000, 2002) provide a review of these effects, and for instance, Helliwell and Huang (2008) discuss the importance of institutional differences among developed countries and their impact on their populations' happiness and life satisfaction.

An important point to consider, as mentioned in Rodriguez-Pose and Maslauskaite (2011), is that there has been a debate on the control for national income, since it is also another determinant of happiness and life satisfaction, and while considering proxies for governance such as corruption, in a similar way of Tavits (2007) and Rothstein (2010). However, Welsch (2008) points out the fact that this is correlated with GDP per capita since corruption has an effect on economic growth and national income, and this could possibly distort the results on the relationship between corruption and happiness and life satisfaction. Hence, the findings of the effect of corruption on happiness and life satisfaction remain arguable.

In addition, government expenditure and the size of governments as a proxy welfare state were also considered as variables on the left hand side in studying the determinants of populations' levels of happiness and life satisfaction as found in DiTella et al. (2003) and Ott (2005).

Additionally, the effects of population and issues related to the environment, trade and economic openness and crime on happiness and life satisfaction is found to be negatively associated. This is found in, for instance, DiTella et al. (2003), DiTella and MacCulloch (2005), Powdthavee (2005) and Van Praag and Baarsma (2005).

A final type of studies, in which the present thesis attempts to provide a modest but a valuable contribution, provide evidence from transition economies. It is interesting to

notice that within the relatively growing literature on happiness and life satisfaction, a modest attention is provided to developing countries.

Regardless of Eastern European countries including Russia, which are nowadays considered as post-transition economies in the literature, and in which more attention has been provided in comparison to their other economies in transition counterparts, few studies provide evidence from South American economies and even fewer examined Africa or Asia. Yet, evidence from China is found, for example, in Knight et al. (2008), others such as Powdthavee (2007) studied happiness and life satisfaction in South Africa, while Graham and Pettinato (2002) and Graham (2008) provide evidence from South American countries.

Oddly enough, there was no study on the MENA region since the present thesis commenced in late 2007. It is therefore that in addition to the determinants of happiness and life satisfaction, the present thesis also examines relative income and the "Tunnel effect" (see chapter 5) in North Africa, which guarantees its uniqueness in terms of providing evidence from the region.

This thesis is aligned at some extent with happiness studies on economies in transition. As mentioned earlier, Eastern Europeans countries attracted more attention and this is found, for instance, in Lelkes (2005), Hayo (2006), Sanfey and Teksoz (2007), Easterlin (2008) and Senik (2010) among others as mentioned in Rodriguez-Pose and Maslauskaite (2011). Their studies confirm a statistical significance of age, education, health and income in explaining happiness and life satisfaction. While the rest of them are positively associated with happiness and life satisfaction, age presents a non-linear relationship and is U-shaped.

It is within this context, that this thesis first investigates the determinants of happiness and life satisfaction in each of the three countries under consideration that are Algeria, Egypt and Morocco in chapters 4 and 5. It also attempt to compare how these determinants have changed over time when possible, for instance, in the case of Egypt and Morocco, where data was available. This is achieved according to each of the economic specificity of these countries, as provided in chapter 3. Then, it introduces an examination of the Hirschman and Rothschild (1973) "Tunnel effect" in chapter 5, in which it consider the effect of relative utility in each of the three countries.

A final factor that is found in the literature and in which studies on income comparison and relative income could be aligned to is of the effect of income inequality on individuals' levels of happiness and life satisfaction, which in turn could be aligned to studies on social inequalities. In actual fact, Alesina et al. (2004), for instance, find that inequality is country specific, which means that it depends on the culture and other characteristics particular to each country.

In short, chapter 5 is aligned to studies on income comparison, and relative income in a similar way of Clark and Oswald (1996), MacBride (2001), Senik (2004, 2008), Layard (2005), Luttmer (2005) Rablen (2008) on relative utility and Caporale et al. (2009), Clark et al. (2008) and Clark and Senik (2010) using evidence from the ESS.

Following this literature review chapter, the next three chapters are the empirical chapters and present evidence using the world value survey from Algeria, Egypt and Morocco as an attempt to provide further empirical testing to happiness studies.

Chapter 3:

The determinants of happiness and life satisfaction in Algeria by gender as a proviso for the success of its economic reforms

The determinants of happiness and life satisfaction in Algeria by gender as a proviso for the success of its economic reforms

Abstract:

The present study aims at examining the determinants of happiness and life satisfaction in Algeria by gender using data from the wave four of the WVS. It is assumed that the success of the economic reforms depends on Algerians' perceptions and attitudes towards the country's aim in terms of economic achievements, and what is most important to them. Therefore, the present study scrutinises what Algerians are expecting through their subjective judgement of their happiness and life satisfaction. The survey reports that Algerian females are happier and more satisfied with their lives than the male population. Both genders believe that rapid market reform does not have a negative impact on national stability, and the stabilising the country's economy is more important than the fight against crime. Among the findings, healthier individuals and those in the medium level of income are more likely to be happier and satisfied with their lives. Happiness and life satisfaction is inversely "U-shaped" in age for the female population contradicting previous findings. In addition, although both sexes are confident with major companies, privatisation is significant and negatively associated with the life satisfaction of the male population.

3.1 Introduction:

The present study examines the interaction between the transition from a centrally planned to a market oriented economy and its subsequent effect on populations' happiness and life satisfaction in Algeria. It assumes the existence of an interaction between the transition process towards a market based economy and the population's perceptions, values and expectations in such a passage. Unlike the existing approaches in the literature dealing with such an effect of transition to capitalism on individuals' happiness and life satisfaction, since the transition to a market oriented economy in Algeria remains in its course, investigating the effect of economic reforms per se might be meaningless.

Therefore, the present chapter considers the following underlying assumption related to privatisation and stabilisation, which are two of the three pillars of transition via the Breton Woods institutions when considering liberalisation, as well. Hence, it also assumes that the success of the trade and economic openness in Algeria depends on the perceptions, attitudes and confidence of its population towards private ownership and major companies.

The present study investigates the determinants of Algerians' happiness and life satisfaction by addressing the following questions. First, what do the male and female populations aim for their country? Second, what is the most important to them? Third, how do they perceive market reforms? Fourth, would they prefer to increase private ownership of business over state enterprises? Fifth, how confident are they about major companies? Finally, what would they like out of their lives?

The majority of the existing traditional literature first measures individuals' welfare using the traditional GDP per capita, and only focuses on the effect of transition and economic reforms on people's welfare. While the first point is found in the modern literature lacking in scope in providing important insights on how people feel, the latter fails to determine whether individuals' welfare might influence the reforms.

Hence, the impact of the transition to capitalism, trade and economic openness on issues in a similar way to inequality and income redistribution, poverty and welfare costs attracted the attention of most traditional economists. For instance, Alesina and Rodrik (1994), Aghion and Commander (1999), Birdsall, Kelley and Sinding (2001), Eastwood and Lipton (2001), Johnson and Corcoran (2003), Keane and Prasad (2002), King and Rebelo (1990), and McCulloch, Winters and Cirera (2001) all investigated the issue.

Most of these academics centred their interest on macroeconomic concepts considering, for instance, private consumption expenditure, private saving and so on. Likewise, for example, Aghion et al. (1999), Edwards (1993, 1997), Galbis (1993), Kuznets (1995), Sachs et al. (2002) examined the effect of transition on economic performances using standard economic indicators such as growth, interest rates, inflation, unemployment, balance of payments and so forth. Also, there are some studies that centred their attention on the micro level such as Ostry and Reinhart (1992), Savastano (1995) and Ogaki et al. (1996), in investigating the effect of economic openness on household's income, domestic saving and investment. It is also the case of Norton and Bird (1998) in exploring issues on income inequality and poverty. Furthermore, topics such as winners and losers as the country engages in market based economic reforms gained greater coverage.

As a result, the effect of such an economic shift and its subsequent trade openness and privatisation on economic performance received substantial attention in traditional economics and a large literature has become available. Yet, in this voluminous literature, the effect of such a transition on populations' happiness and life satisfaction remains unclear a priori, as reported by Easterlin (2008). Moreover, Slesnick (1998) as quoted in Hayo and Seifert (2003) declares that the traditional economic approaches dealing with the measurement of welfare have found various difficulties in practice.

Furthermore, such traditional economic views are gradually losing their influence due to the gap between the mainstream economists and the real world. This gap can be found in the failure to explain and deal with the accumulations of the socio-economic crises and also in the irrationality of the behaviour of economic agents putting into question the traditional assumption of the rationality of the behaviour of

individuals. Including individuals' self-reports is providing substantial grounds to studies on happiness and life satisfaction.

Indeed, happiness studies, on the other hand, could provide a relatively in depth understanding since it takes into consideration the populations' judgment on their levels of happiness and life satisfaction. The subjective measures of individuals' well-being are meant to narrow the gap between the economists and the real world.

However, the purpose of the present exercise, as already mentioned, is nearer to the determinants of happiness and life satisfaction than to the effects of transition on such subjective well-being.

Recall from the previous chapter, Veenhoven (2000) defines happiness as "the degree to which someone evaluates positively the overall quality of his or her present life as a whole." In addition, Shin and Johnson (1978) state that life satisfaction is "a global assessment of a person's quality of life according to his chosen criteria" and Diener et al. (1985) add that life satisfaction refers to "a cognitive judgmental process and these judgments of satisfaction are dependent upon a comparison of one's circumstances with what is thought to be an appropriate standard set by the individual in question".

In terms of the determinants of happiness and life satisfaction, in contrast, a large literature is available as mentioned in the previous chapter and discussed below in the literature review section. The previous chapter shows that the early studies were led by psychologists, and even those by economists used multidisciplinary approaches including psychology. Most of them focused on affective factors as in Andrews and Withey (1976), Shin and Johnson (1978), Campbell (1981), Veenhoven

(1984), Diener (1984), Diener et al. (1985) and Emmons and Diener (1985) among others.

In the late 1980s and during the 1990s, the focus shifted to the domain satisfaction by examining the overall satisfaction at work, in marriage, family, and leisure activities, education level and income as found in Argyle (1989), Vermunt et al. (1989), Veenhoven (1996) and so forth. Ahn et al. (2004) add that the degree to which a judgement of the overall quality of life also depends on income, labour market status, job characteristics, health, leisure, family, social relationships, security, leisure, moral values and so on.

Therefore, regardless of the number of psychological approaches considering personality traits and cross-country and cross-cultural studies as in the works of Myers (1992), Easterlin (1995), Diener and Suh (1997), Schyns (1998), Nordhaus (1998) and Krueger and Siskind (1998), influential work in the nineties and the past decade focused on the contextual and situational socio-economic and socio-demographic factors mentioned earlier that determine happiness and life satisfaction such as age, marital status, health, employment status, education, and income. This is in addition to some micro and macro studies, as discussed in the previous chapter and below in the literature review section.

In contrast, only few works have been conducted using evidence from the developing countries. Most of the attention was focussed on the ex-Eastern block and economies in transition. The trend was probably influenced by the fall of the Berlin Wall and the collapse of the USSR; hence evidence is mainly from the Eastern European countries. Russia for instance, was at the heart of the works of Clark (1997) on well-being and wage arrears and Eggers et al. (2006) on subjective well-being and

unemployment using data from the Russia Monitoring Longitudinal Survey (RMLS). Similarly, Frijters et al. (2003) comparative study worked on the different impact of the reunification between East and West Germans, in a similar way to Easterlin and Zimmermann (2006, 2009) to name only few.

Then, a growing interest in the rest of the world came to prominence. The first of such studies is conducted by Allain et al. (1996) on the elderly in Zimbabwe. The rest of the works on Africa is carried out on the case of South Africa by Moller (2001), Powdthavee (2003), Hinks and Gruen (2007) and Moller and Radloff (2007). At the other side of the Atlantic, South American countries are also investigated through the works of Graham and Pettinato (2001, 2002) and Graham (2005). And even further away in Asia, China attracts the attention of Knight and Song (2004) and Zhang (2005), and in a similar way Thailand is examined by Jongudomkarn and Camfield (2006), and Kingdon and Knight (2003, 2004).

Taken together, these works have reached intriguing findings. It seems that since basic needs have not been met yet in most of the developing countries, the results of the above studies appear to be to some extent contradictory to what has been found when examining the developed world. Clark (1997) for example, mentions that there are some puzzles in his findings on well-being and wage arrears in Russia using evidence from RLMS, and so are the findings using the same survey of Eggers et al. (2006) on subjective well-being and unemployment. Indeed, in the regions where unemployment was high in Russia it was found that this does not necessarily imply lower reported levels of happiness and life satisfaction.

As a result, the determinants of happiness and life satisfaction could be considered country specific and more empirical tests are needed in order to increase the

consistency of the theories and widen the knowledge on these determinants, as stated in Clark (2007). As a consequence, the present chapter attempts to modestly contribute to the little available literature using evidence from the developing countries.

In addition, most of the studies on the effect of transition on happiness and life satisfaction assume a one way effect. Indeed, transition affects individuals' well-being. However, according to the author's knowledge, the only two studies that are found in the literature, and which puts forth a close assumption to the one that has been developed in the present study are conducted by Hayo (1999) and Fidrmuc (2000).

Various other studies investigate a number of issues related to transition. These include Blanchflower (2001), Hayo and Seifert (2003), Hayo (2004), Helliwell (2003), Namazie and Sanfey (1999), Falcetti, Raiser and Sanfey (2002), Falcetti, Sanfey and Taci (2003), Ravallion and Lokshin (2001, 2002) and Sanfey and Teksoz (2007), and so on, but the assumption that has been proposed in the present chapter has, by all indications, been little explored in their work.

In spite of Kenny (1999) who addressed the question of whether growth provides happiness or the other way around (though growth is not the central point of the present chapter) only Hayo (1999) and Fidrmuc (2000) has been found in the literature that assumes the two-way interaction between transition and the determinants of happiness and life satisfaction.

In reality, the determinants of happiness and life satisfaction themselves might play a major role in the success of the transition. Hence, the present chapter assumes that it might be a two-way interaction between the transition and happiness and life

satisfaction. In other words, it is widely accepted that transition affects individuals' well being, but conversely the success of the transition could depend on the determinants of individuals' happiness and life satisfaction.

Within this context, the present study aims to fill this gap by contributing to the modest literature in the area of transition and population's wellbeing. It uses evidence from Algeria since it exhibits, as analysed subsequently, unusual patterns in its macroeconomic development. Indeed, Nashashibi et al. (1998), declare that "somehow Algeria realised unusual performances" since its 3-year agreement with the IMF in 1995 officially starting its economic reform and transition towards a market based economy. The reason is that Algeria did not experience a negative economic growth since 1994, unlike the "V-shaped" GDP growth patterns noticed in other transition economies.

What is more, only few studies are found on the Algerian economy in the literature, in which attention to happiness and life satisfaction is nonexistent. These studies centre their attention on the political economy or are linked to socio-politics. Also, some researchers investigated the effect of economic openness on its economy. These contributions in a similar way to Auty (2003), Conway (1988), Deardorff (1999), Dhonte et al. (2001) Dillman (2000), Entelis (1992), and Testas (1999) show interest in structural changes or the political economy. Dhonte et al. (2001) for instance, examined the socio-demographic aspect considering unemployment and so on. Auty (2003), on the other hand, focused on the oil rent as a means to create a dynamic sector versus the political sector.

In short, the present study examines the determinants of happiness and life satisfaction in Algeria by scrutinising the population's perceptions, attitudes and

values with regards to privatisation and liberalisation using their responses to the World Value Survey conducted in Algeria in the wave four of the survey, which is from 1999 to 2004. Questions that are put forward to the respondents in the survey, relates to the aim of the country, the aim of the respondents and the most important for the respondent on issues such as economic growth, stability and market reforms.

In addition, there are also questions on confidence in major companies and whether the private ownership of business should be increased in comparison to state owned enterprises. The answers are analysed and included in the regressions in addition to the socio-demographic and situational variables such as age, gender, marital status and socio-economic status in an attempt to determine happiness and life satisfaction of Algerians. The questions as asked during the survey are found in Appendix 1.

The rest of the chapter is divided as follows. The next section briefly reviews the relevant literature since most of the literature is visited already in the previous chapter. Then, the Algerian economy is analysed highlighting its macroeconomic development. It is followed by a section describing the WVS data by presenting relevant descriptive statistics and cross-tabulations. After this, the model used in the econometric analysis is presented. Afterwards, the results are analysed, and the conclusion to conclude on the results and the study represents the final section.

3.2 Literature review:

The present section reviews briefly the relevant literature associated with the determinants of happiness and life satisfaction with a focus on economies in transition. It first, in a few words, reminds the development of happiness studies and the different approaches used in studying economics of happiness. Then, it highlights

some studies that helped in constructing the determinants of happiness and life satisfaction included in the econometric model.

The previous chapter presents a more comprehensive review of the literature on happiness and life satisfaction in which their determinants occupy a major place. Microeconomic theory and the concept of utility could be considered as the root of happiness studies in the modern era and provide its theoretical basis at some extent. In reality, the revolution in happiness studies raised the use of subjective measurement and self-reported levels of happiness and life satisfaction has gradually been driving away the economics of happiness from welfare economics and the standard neoclassical views of objective observations of individuals' behaviour to a more comprehensive manner of examining individuals' behaviour. The consideration of expressed preferences in the detriment of revealed selections made this possible. Indeed, the neoclassical consideration of utility as ordinal resulting from the scrutiny of economic agents' preferences of a bundle of goods over another and assigning a number of such preferences was substituted by expressed utility, which individuals' judgment of their utility, hence happiness and satisfaction, as reported by a number of economists, for instance, Powdthavee (2007).

The classical cardinal measurability of utility as pronounced by the Benthamists was abandoned by positivists as they considered it as "unscientific", according to Frye and Stutzer (2000, 2002) and Powdthavee (2007) among others. A revolution has taken place since the 1960s and happiness and life satisfaction has become a proxy to measure utility making the measurability on a scale through individuals' self-reports and the comparability between individuals possible and meaningful. Since such an assumption was rejected by economists, subjective data were treated quantitatively in econometric analyses, as reported by Frey and Stutzer (2002).

The assumption of individuals' rational behaviour rejected as observed in the real world, studies on the behaviour of economic agents evolved and happiness studies have contributed substantially in building a bridge linking economists to the real world, hence strengthening realism.

Nowadays, studies on happiness and life satisfaction could be grouped according to Frey and Stutzer (2000) in three sets, although increased to five in their book in 2002. The first set is related to individuals' personality and demographic aspects that uses a psychological approach in a similar way to Wilson (1967), Diener (1984, 1985), Argyle (1987), Diener et al. (1999) and Myers (1993). This set was divided into two sub-sets in their book (2002), which are individuals' personality aspects dealing with optimism, self-esteem, and so on, and socio-demographic such as age, gender, socio-economic status, and so forth. The second set deals with institutional factors in a similar way to governance and population's wellbeing as carried out in Bjornskov, (2008) and Ott (2005) to name only few. The third set related to microeconomic and macroeconomic factors, changed in their book (2002) to contextual and situational including working conditions, unemployment and so on in a similar way to studies by Blanchflower and Oswald (2000), Clark and Oswald (1996, 1998), Easterlin (1974, 1995, 2005), Diener and Oishi (2000), Kenny (1999) among many others.

Since the present study is mainly in relation with the determinants of happiness and life satisfaction, in which a large literature is available, only studies on the socio-economic and socio-demographic factors that are considered in the econometric model of the present study are reviewed. In reality, the literature on the determinants of subjective wellbeing has increased in the last two decades at an exponential rate as mentioned by Clark et al. (2008).

First of all, the present study includes "the Gender effect". Empirical evidence finds that women are to some extent are happier and more satisfied than men, according to Frey and Stutzer (2002) and Bell (2005).

Second, concerning the effect of "Age" on self-reported happiness and life satisfaction, according to Clark and Oswald (1996), Clark (2002) and a more recent study by Blanchflower and Oswald (2007) using data on 500.000 Americans and West Europeans and also from developing countries and Eastern Europeans, found that age is "U-shaped" over a life time, which means that young and old are happy but those in the middle age are less. Also the levels of their happiness and life satisfaction decrease up to the 40s, then, it increases again. Also, they found that the "U-shape" is more apparent in men than women. It is a result that has been confirmed by Helliwell (2003) mentioning that there is a positive relationship between age and happiness and life satisfaction for those who are young and old, hence, age is positively related and represented in a "U-shaped" curve.

Third, with regards to "Marital Status", Clark and Oswald (2002) declare that married individuals are found to be happier and more satisfied than those who never married, separated, widowed and divorced. Likewise, Helliwell (2003) using WVS data finds that living as married and being married are positively associated with happiness and life satisfaction, but being married has a strongest effect. Moreover, Frey and Stutzer (2005) add that on the top of what is found in the literature that marriage results in more happiness is people's lives, they also argue that happier people tend to have more chances to marry. Hence, marital status is positively associated with happiness and life satisfaction. In addition, Clark (1997) and Guven, Senik and Stichnoth (2009) using data on GSOEP, BHPS and HILDA (Household's

Income and Labour Dynamics in Australia) that married women are slightly happier than men.

Fourth, regarding the self-reported health condition, it is widely accepted to be positively associated with happiness and life satisfaction. Helliwell (2003), for instance, argue that health is strongly positively associated and significant in explaining happiness and life satisfaction. These are similar to the findings of Ott (2005) as well as Gwodzdz and Sousa-Poza (2009) who use data from the GSOEP and the Survey on Health, Ageing and Retirement in Europe (SHARE).

Fifth, higher income is found to be positively associated with higher levels of happiness and life satisfaction. However, Frey and Stutzer (2003) using evidence from the Eurobarometer argue that an increase is positively associated with happiness and life satisfaction at some extent. Also, while higher GDP per capita does not necessarily increase individuals' happiness and life satisfaction in Western Europe inferring that an increase in income has only a small impact on happiness and life satisfaction if individuals have high expectations. In reality, the effect of income on happiness and life satisfaction is widely documented in the literature. Indeed, it is in the tradition of economists to consider such a variable since it is observable. The previous chapter provides a more comprehensive review of the literature on income and subjective well-being considering the various findings including those who report that absolute income is not the sole determinant of happiness and life satisfaction. Relative income also plays a major role, and it is the central point of chapter 5 of the present thesis. In addition, some, for instance Layard (2005) and Ott (2005), argue that rich people make the rest of the society less happy in social comparison studies.

Sixth, unemployment is considered to be negatively linked to happiness and life satisfaction. Clark and Oswald (1994), Oswald (1997), Ravallion and Lokshin (2001), Frey and Stutzer (2003), Powdthavee (2003) and Graham (2008) all find that unemployment decreases the levels of happiness and life satisfaction. Clark and Oswald (1994) for instance, find that unemployment produces a larger impact on happiness and life satisfaction than income. In addition, Frey and Stutzer (2003) add that unemployment reduces the levels of happiness and life satisfaction even though if unemployed people receive similar levels of income as when they are employed. On top, the effect is even larger in countries with a limited unemployment benefit system, as found in Graham (2008). In contrast, Clark (1997) and Eggers et al. (2006) using data from RLMS find contradicting results in Russia, as in the regions where unemployment was high in Russia it was found that this does not necessarily imply lower reported levels of happiness and life satisfaction.

Seventh, education, on the other hand, is found by Helliwell (2003) as being insignificant in explaining happiness and life satisfaction.

Finally, Ott (2005) also argue that freedom form extreme materialism has a positive effect on happiness and life satisfaction.

In sum, as Wilson (1976) state that happy people are those who are young, intelligent, well-educated, well paid, worry-free, married and religious with high self-esteem of wither sex. Helliwell (2003) adds that on top of Wilson (1976) those who are optimistic with job morale, modest aspirations and with good health.

What is appealing in the literature is that no work is found that examines how people feel about privatisation and stabilisation. The only work including the private sector

is realised by Falcetti, Sanfey and Taci (2003) using evidence from South Eastern Europe, but it deals with firms and the development of the private sector.

What the present study attempts to examine is whether an increase in private ownership of business affects individuals' happiness and life satisfaction assuming that the success of the transition depends on how Algerians feel and what they would like out of their lives. In other words, it is about answering the question of how the population of Algeria perceive this change and what attitude towards major companies and the increase of private ownership of business Algerians have.

The next section presents the Algerian economy and highlights the macroeconomic changes since the 1980s using charts and data from the World Bank. It also introduces the process of the economic shift in Algeria with a focus on the period 1994 to 2000.

3.3 Background of the Algerian economy:

The present section presents an overview of the Algerian economy since 1980. It aims at highlighting the major events that changed the course of its general trend with an emphasis on the period 1994 to 2000 when the transition officially took place by apply for first a 1-year stand-by arrangement with the IMF then a 3-year agreement in 1995.

In reality, Algeria's initiative to shift its economy to a market based economy received several supports from "the World Bank sectoral lending programs, the Arab Monetary Fund, and other donors, extended debt rescheduling from the Paris Club official bilateral creditors and commercial banks, and also assistance from the European Union", as mentioned by Nashashibi et al. (1998)

As it moved gradually towards a market oriented economy, Algeria realised a comprehensive debt rescheduling for 22 billion in total, as reported by the same authors. Besides, they state that "Algeria's experience is somewhat different from the typical adjustment process that entails an initial contraction of the aggregate demand". Indeed, the Algerian economy did not observe a recession phase as the World Bank databank (2011) demonstrates in figure 3.1. Although it also shows a "V-shaped pattern" of GDP growth in a similar way to what is observed for usual countries in transition as mentioned by Easterlin (2008), but it happened three years following the first completed IMF agreement, and most importantly the economic growth has been positive since 1994.

  Figure 3.1 also includes include GDP per capita growth showing a volatile trend but in association with the general trend of the percentage changes in the GDP. The data collected by the World Bank databank are presented for the period 1980 to 2008.

Figure 3.1 GDP growth versus Oil prices (1980-2008)

Source: World Bank databank 2011

58
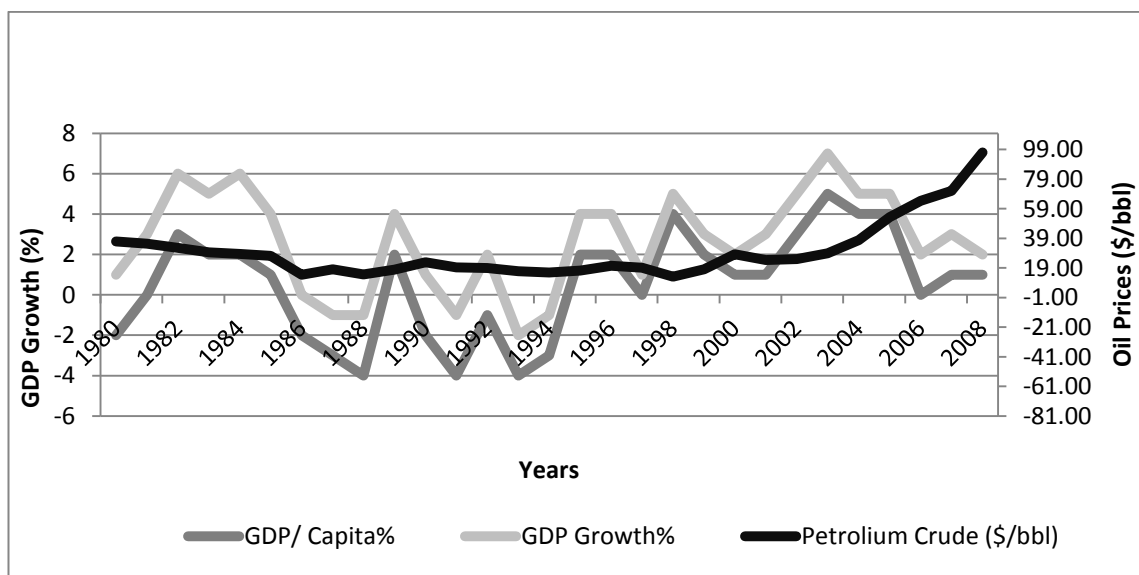
Figure 3.1 above shows the trend of economic growth (percentage change in GDP) and the growth of the Gross Domestic Product per capita (percentage change in GDP per Capita) plotted against oil prices on the secondary X-axis. In reality, the energy or hydrocarbon, mainly oil and gas sector accounts for 64 percent of government revenues, 38 percent of GDP and 98 percent of Algeria's exports, as reported by the World Bank databank (2011).

There is a clear association between the percentage change in GDP and the percentage change in GDP per capita as expected. However, the figure also shows that there is an apparent volatility of the two traditional economic indicators starting mainly towards the end of 1988 and early 1989.

In reality, the chart could be divided into three parts. The first part could be assigned to the period from 1980 to 1989. Then, the second follows from 1989 to 1999 and after that the third part is from 1999 to 2008. During the first part, it could be observed that the global debts crisis in 1982 affected the Algerian economic growth creating a slight "V shaped pattern". This was also associated with the changes in oil prices. Then, the accumulation of external debts linked to the decline in oil prices influenced the fall of the macroeconomic performance up to the 1988 financial crisis resulting in a jump in oil prices driving the economy upwards. Then, enter the second period where basic foodstuffs prices jumped mirrored in the increase of inflation as shown in figure 3.3 below, negatively affected the economic growth. As from 1989, the country entered in a significant political shift from a centrally planned administration and a unique party system to democracy affecting the economy. Consequently, figure 3.1 demonstrates the fluctuations of the percentage change in GDP, in which the IMF agreement in 1994 provided first a boost to the economy for the economy at first, then it passes by a flat phase, after that there is an observation

of a "V shaped pattern" of the percentage change in GDP. What is appealing in this second part of the analysis of figure 3.1 is the maintaining positive sign of the GDP growth. Afterwards, in the third part starting from 1999, the economy is shown to be stable up to the repayment of the foreign debts in 2005 offsetting them from 33 billion American dollars to just 5 billion as an unprecedented move in the history of the economy of Algeria, as reported by the World Bank.

Both external and internal shocks affected the Algerian economy due to, first, its dependence on the oil and gas exports, then because of the years of political instability in the country impeding the regular economic activities.

Moreover, a zoom into the period 1990 to 2000 provides a more comprehensive picture of the interaction between changes in oil prices and the percentage change in GDP. Hence, figure 3.2 demonstrates this interaction.

Figure 3.2 GDP Growth (%) versus Oil Prices (1990-2001)
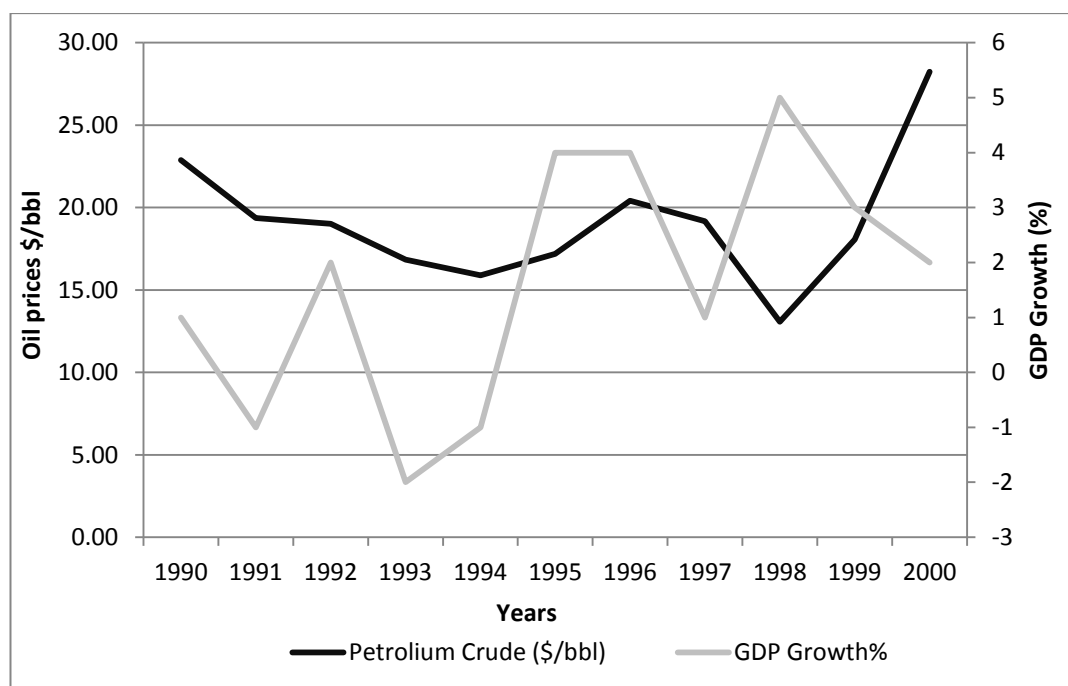
Source: World Bank database 2011

Despite a general association in the two trends, figure 3.2 above also shows that there are two sharp slumps in the percentage changes of GDP towards the end of 1992 and 1996. A possible explanation to these sudden falls could be linked to the political and security situation. Certainly, the annulations of the results of the first round of the general election of the 16th December 1991 on the 5th January 1992 when the former President Chadli Bendjedid resigned spread a wave of violence and as a consequence it destabilised the economy. Enterprises closed down for safety and security reasons and resulted in a massive internal migration affecting the level of production and the agriculture sector in addition to unemployment as shown in figure 3.3 below. With regards to the second sharp slump towards the end of 1996, a possible answer could also be related to the political and security situation of the country. Indeed, the slump in the economic activity due the political and security instability was as a result of an increase in external borrowing and imports of basic and military goods and services. It affected the balance of payments and had negative repercussions on the economy.

It is only in 1997 when the authorities initiated a peaceful solution by introducing a law that permits to the armed militants of the deselected political party of the 1991 general election to disarm in view of the organisation of a new general election on the 23rd October 1997. The stability regained the country, and the economic activity found back its natural course as shown in the same chart.

On top of that, as mentioned already above and reported by Nashashibi et al. (1998), concerning "the somehow unusual performances of Algeria", indeed, since the signature with the IMF and the implementation of the SAPs, the inflation dramatically dwindled from 39 percent in 1994 to 6 percent in 1997. Algeria's GDP remaining positive was traduced in decrease of the unemployment rate, as well, as shown in figure 3.3 below.

A closer analysis of the patterns of inflation and unemployment show somehow a negative effect between the two indicators exhibiting the trade-off concept. However, what is appealing is the convergence of inflation and unemployment towards controlled levels near 2008.

The political and security stability regaining its natural course towards mid-2000, has positively affected the economic situation yielding in a steady increase in the percentage change in GDP from the same period, as shown above in figure 3.1.

Therefore, figure 3.3 below shows the pattern of the inflation and the unemployment rates.

Figure 3.3 Inflation and Unemployment in Algeria (1989-2008)

Source: World Bank databank 2011

In reality, Algeria's economic reforms commenced gradually after the first oil shock in 1986, as reported by Nashashibi et al. (1998). They add that attempted structural adjustment programs in 1989 and 1991 failed for various reasons. It is in by one-year Stand-by Arrangement when it approached the International Monetary Fund in 1994 and received its first IMF support that Algeria entered a preliminary phase of its

transition towards the market oriented economy. Trade openness, privatisation and liberalisation resulting in an economic openness slowly gained the spirit of economic agents traduced in the increase in its percentage change in GDP as discussed and shown above in figure 3.2.

Besides, it is in May 1995 that Algeria signed a three-year arrangement under the Extended Fund Facility, as reported by the same author officially declaring the opening of its economy and the shift towards capitalism.

Within this context, a major concern lies in the population welfare. Hence, the question that is addressed in here is what happened to the Algerian population during this time. According to the traditional neoclassical view, there is an indicator that could provide an insight on the population welfare. Indeed, the GDP per capita adjusted to the Purchasing Power Parity might supply from a macroeconomic point how the living standard has been affected.

Figure 3.4 GDP Growth per Capita PPP versus Oil Prices (1980-2008)
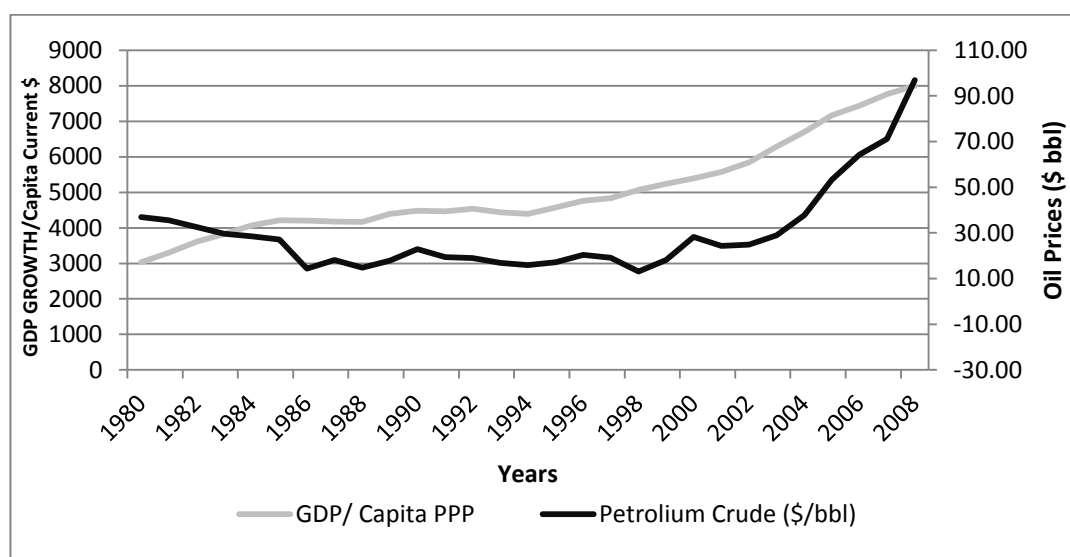
Source: World Bank databank 2011

Figure 3.4 demonstrates that Algerians' living standard, according to the traditional economists must have increased since it shows a continuous increase in its pattern

since 1980. Indeed, figure 3.4 above also demonstrates the association between the oil prices and the growth Gross Domestic Product per capita adjusted to the purchasing power parity. The inclusion of the oil prices is based on an attempt to translate the dependence on the energy sector. As already mentioned above, the Algerian economy depends on the rent of the oil and gas exports. This has a two-side effect. On the one hand, it permits to the country to prosper when oil prices are high in a similar way to the 1970s when large projects of infrastructure were designed and built such as universities, roads, bridges, sports' centres and so on. On the other hand, it weaknesses the economy, hence the population welfare, as it translation of oil prices are felt immediately.

Therefore, relying on the GDP per capita as a measure of population's welfare might be meaningless. Moreover, considering the private consumption expenditure and saving and so on might not provide the reality of individuals within the society. Furthermore, it might also be the case of considering the households' consumption and income as might leave a gap with the reality of individuals and how they feel.

As a result, the present study uses Algerians' self-report as a personal evaluation and judgment of their levels of happiness and life satisfaction. It is an approach that is based on a subjective measure by individuals themselves. Although criticism on this method of measuring happiness and life satisfaction aroused in the past on the grounds of the influence of morals and the society, the progress achieved by economists and psychologists in the last two decades is reducing these disapprovals as mentioned in Clark et al. (2007), Diener (2008) and Stiglitz (2009). In addition, in a similar way to most economists and psychologists in the subject mention, if individuals report that they are happy and satisfied with their lives, it should be

considered as they really are as quoted in Frey and Stutzer (2002) "happiness and life satisfaction is not an exact science".

Therefore, individuals were surveyed as it is discussed below in the data section in view of collecting information on their perceptions, attitudes and values on topics such as life, environment, work, family, politics and society, religion and morals, national identity and socio-demographic.

3.4. Data and descriptive statistics:

The present section deals with the data used in the present study. It first presents its source, and then it provides supporting information on the questionnaire and it also presents an analysis of the data collected using cross-tabulations.

3.4.1. Data:

The data used in the present investigation are of pooled cross-sectional survey nature extracted from the World Value Survey dataset (WVS), which is an investigation of socio-cultural and political change constructed by a network of social scientists. The WVS, as reported in its website, is the most comprehensive and wide-ranging survey of human values. It encompasses a total of five waves' surveys that have been carried out since 1981. The first wave was from 1981 to 1984, the second from 1989 to 1993, the third from 1994 to 1999, the fourth from 1999 to 2004, and the fifth and most recent was from 2005 to 2008.

According to the WVS technical support information, the survey on Algeria was translated in French including country specific questions. The sample was designed to be representative of the entire adult population that is 18 years old and older. 10 of the 48 provinces (wilayas) were purposively selected based on maximising diversity

with respect to economic situation, ethnic composition, population size, geographic location, level of urbanization and so on.

Districts (communes) were then selected in each province (wiliaya). The largest communes were selected and then a number of additional communes were selected randomly, the number being determined by the population of the wiliaya (province).

Respondents were selected by quota in each commune based on sex and age, with the proportion in each of the four age categories determined by the age distribution of the district as reported in the 1998 national census. They were sampled in a total of 36 communes without clusters. In each commune, an equal number of men and women were selected. Substitution was permitted at the end point of the sample and quotas were used to select respondents.

The interviews were face to face, and 50 percent of the interviews were supervised. Reliability checks were made on derived variables and data were also checked and edited to ensure that filter instructions were followed correctly, as well as, for logic or consistency, and to fall within the permitted coding ranges.

Distributions of happiness and life satisfaction for Algeria for wave 4 that is treating years from 2000 to 2004 are used in this model. It is to note that data on Algeria for wave 5 are not available. However, a new survey launched in December 2010 by the Office for National Statistics is undertaken and its results will be published in 2012. The author is planning a comparative study between the two periods to infer on the effect of economic reforms and their impact on the population happiness and life satisfaction that is well-being as soon as these data will be available.

Happiness and life satisfaction is measured by interviewing people in surveys using a single occasion, self-report questions. The collected data is cross-section. Happiness

takes scaled values from 1 to 4, where 1 represents a very happy response and 4 mean not happy at all. Life satisfaction, on the other hand, contains scaled values from 1 to 10, and 1 represents dissatisfied where 10 is satisfied. Therefore, Happiness and Life satisfaction are measured as ordinal discrete variables.

Respondents were asked to answer the following questions:

Question 1:

All things considered, how satisfied are you with your life as a whole these days? Please use this card to help you with your answer:

<div align="center">

1   2   3   4   5   6   7   8   9   10

Dissatisfied   Satisfied

</div>

Question 2:

Taking all things together, would you say you are:

<div align="center">

1   2   3   4

Happy   Not happy at all

</div>

Sources: Inglehart, R.: World Values Survey and European Values Surveys, 1999-2001.

Diener et al. (1985) developed this scale to measure global life satisfaction called "Satisfaction with Life Scale" (SWLS). They declare that among the various components of subjective wellbeing, the SWLS narrowly focus on the assessment of global life satisfaction; hence, it measures the respondent's satisfaction with the life as whole excluding positive affect or loneliness. However, the SWLS demonstrates "favorable psychometric properties, including high internal consistency and high temporal reliability". Likewise, Pavot and Diener (1993) in a paper reviewing the

Satisfaction with life scale state that the scale "does not assess satisfaction with life domains such as health or finances, but allows subjects to integrate and weights these domains in whatever way they choose". They add that the data that are presented for the scale are "normative data", and they are found to be as valid as the scales of the various types of evaluations of subjective well-being. They conclude that the evaluation of life Satisfaction using the SWLS demonstrates a degree of temporal stability. Also, it reveals "sufficient sensitivity to be potentially valuable to detect change in life satisfaction".

It is to note that the development of the SWLS was as a result of the missing suitable measurement of the third component of subjective wellbeing, which is life satisfaction. The other two are positive and negative affect and had received at the time more attention than life satisfaction when the scale was first developed in 1985.

Diener et al. (1985) mention that affect assessment could be found in Bradburn (1969), Kammann and Flett (1983) and Kozma and Stones (1980).

According to Jan OTT (2005), the 10-step response format, used without verbal specification per step, reduces the risk of differences in interpretation due to the different languages used by the respondents.

In addition, with regards to questionnaire in Algeria, according to the WVS supporting technical document, the quotas of sex and age were equal in each "commune" and were created based on the 1998 National Census. The following table shows the age and sex distribution in the World Value Survey in Algeria in 2002.

Table 3.1 Survey's Age distribution by Gender in Algeria (2002)

	1998 Census	Unweighted data
Gender	Percent (%)	
Female	50.40	49
Male	49.60	50.70
Age groups		
16-24	31	25.70 (18-24)
25-34	26	28.20
35-49	25	26
50 and over	18	20.10

Source: WVS wave 4 (2000-2004) on Algeria

Table 3.1 above presents the sex and age distribution used in the data collected from Algeria during wave four of the World Value Survey with a reference to the 1998 National Census. It shows that 50.40 percent of the respondents are from the female population and 49.60 percent are from the male population. It also demonstrates the age range of the respondents. In addition, 31 percent of the respondents are aged between 16 and 24 years old, in which 25.70 percent are in the range 18 to 24 years old. Concerning those who are aged 25 to 34 years old, they represent a percentage 26 percent out of the total number of the respondents. With regards to those who are aged from 35 to 49 years old, they represent 25 percent of the respondents. Finally, 18 percent of the respondents are aged 50 years old and over.

3.4.2. Descriptive statistics:

The present section presents an analysis of the descriptive statistics of the collected data. Tables showing the responses of the surveyed population are presented using cross-tabulations. Table 3.2 below shows the levels happiness as reported by the surveyed Algerian population by gender.

Table 3.2 Feeling of Happiness by Gender in Algeria (2002)

	Percent (%)		
	Gender		
Feeling of Happiness	Total	Male	Female
Very happy	16.7	14.2	19.4
Quite happy	66.9	64.6	69.3
Not very happy	12.4	16.1	8.5
Not at all happy	4	5.1	2.8
Total	1237 (100%)	628 (100%)	609 (100%)

Source: World Value Survey 2011 (value surveys databank)

Table 3.2 shows that out of the 1237 surveyed individuals, 66.9 percent report that they are quite happy and 16.7 percent declare themselves as very happy. This is also true for both the male and the female populations with slight higher levels of happiness for women than men. This implies that the Algerian population report itself as happy, and the female population is slightly happier than the male population.

With regards to Table 3.3 below shows the levels of life satisfaction as reported by the sample of the Algerian population during the survey. It demonstrates that the sample exhibits a general satisfaction with life as a whole. Although the mean is not the best indicator without an extra analysis of the distribution of the answers, it still describes an idea about the average answers on the satisfaction with life scale. Hence, it is reported that the average satisfaction of the total surveyed population is 5.7 out of 10 with a standard deviation of 2.86. However, the distribution of the data is skewed towards the satisfied level.

In addition, in a similar way to the findings in the previous table, the female population is slightly satisfied with their lives than the male population.

Table 3.3 Life Satisfaction in Algeria by Gender (2002)

	Percent (%)		
	Gender		
Life Sat Scale	Males	Females	Total
Dissatisfied	13.6	11.7	12.7
2	7.6	3.7	5.7
3	9.8	7.2	8.5
4	6	5.8	5.9
5	13.6	12.4	13
6	10.5	10.6	10.6
7	12.8	14.6	13.7
8	9.8	13.5	11.6
9	6.7	6.1	6.4
Satisfied	9.6	14.4	12
Observations	646 (100%)	623 (100%)	1282
Base for mean	646	623	1269
Mean	5.4	6.0	5.7
Standard Deviation	2.85	2.84	2.86

Source: World Value Survey 2011 (value surveys databank)

It is to note that the female population exhibits higher levels of satisfied number than their male counterparts at the extreme level of the scale, which 10. In contrast, the male population reveals a higher rate of dissatisfaction than women.

Figure 3.5 below shows the means of happiness and life satisfaction by gender in Algeria. It is to note that life satisfaction varies from 1 to 10 where 1 is dissatisfied and 10 is satisfied and happiness varies from 1 to 4, where 1 is happy and 4 is not happy at all. It also shows that by using the mean of life satisfaction, while males are scoring 5.37 out of a scale of 10, females are scoring a higher score of 6.11 indicating that they more satisfied than males on average.

Figure 3.5 also shows that the means of males and females populations are 2.10 and 1.92 respectively. Since being very happy score is 1, the figure illustrates the slightly

higher score of females on self-reported levels of happiness being happier then their males' counterparts.

Figure 3.5 Happiness and Life Satisfaction by Gender in Algeria (2002)
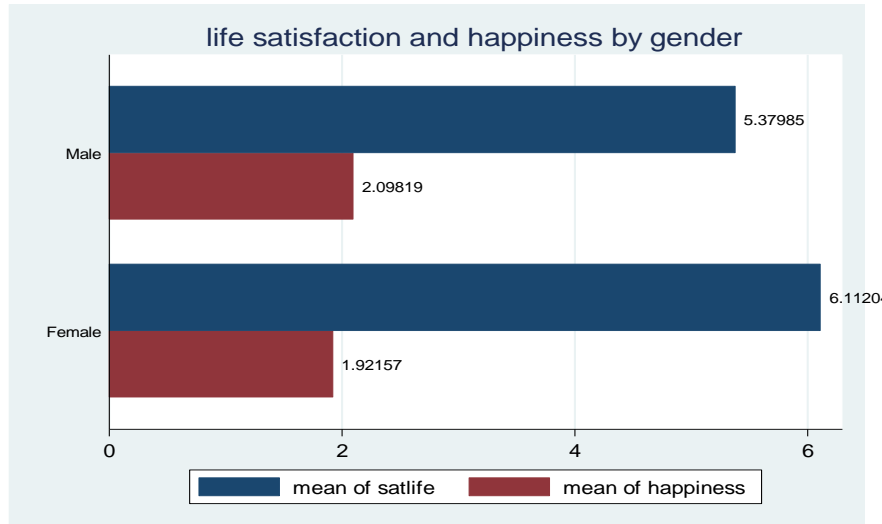
Source: produced with stata using data from the WVS wave 4 (2000-2004) on Algeria

Since Algerian females are happier and more satisfied than the male population, this suggests and confirms the existence of a correlation between happiness and life satisfaction.

The next table 3.4 below shows what the Algerian's population consider as the aim of their country. Out of the four possible answers including strong defence forces, the table shows that both sexes believe that the country should aim for a higher economic growth at 86 percent of the total population. The female population considers this aim at a slight higher rate than the male population. This result is considered to be the first aim and is followed by a strong defence forces then people have more say. In both these two last choices, the male population has provided a modest more interest. Finally, the last aim for the country is to make cities and the countryside look more beautiful, in which women reported a slight higher interest

Table 3.4 Aim of Country by Algerians by Gender (2002)

	Percent (%)		
	Gender		
Aim of Country	Total	Males	Females
A high level of economic growth	68	65.7	70.6
Strong defence forces	16.2	17.2	15.1
People have more say	12.8	14.4	11
Cities and countryside more beautiful	3	2.7	3.3
Observations	1246 (100%)	638 (100%)	608 (100%)

Source: World Value Survey 2011 (value surveys databank)

After that, Table 3.5 reports the respondents' aims. It shows that the majority of the surveyed population has as objective the maintaining order in the nation at 54.7 percent. It implies that the population might feel that the existing order is not satisfactory and an increase in the levels of order is requested. In contrast, giving people more say moved to the fourth choice in the aims of the respondents in contrast to the country's aim, and fighting rising prices is second. The third aim of the respondents is protect the freedom of speech at 12.7 percent and last is to give people more say at 12.4 percent.

Table 3.5 Aim of Algerians' Respondents by Gender (2002)

	Percent (%)		
	Gender		
Aim of Respondent	Total	Males	Females
Maintaining order in the nation	54.7	53.6	55.9
Give people more say	12.4	14.1	10.6
Fighting rising prices	20.2	19.6	20.8
Protecting freedom of speech	12.7	12.7	12.7
Observations	1252 (100%)	638 (100%)	614 (100%)

Source: World Value Survey 2011 (value surveys databank)

Table 3.6 below reports the most important for Algerians by gender. It shows that 54.4 percent of the respondents report that the most important for them is a stable economy. Men report a slight higher rate than the female population. What is appealing is that this is considered to be more important by the surveyed population than the fight against crime. The latest is supported by only 19.7 percent of the respondents and is positioned as a second choice.

Table 3.6 Most Important for Algerians by Gender (2002)

	Percent (%)		
	Gender		
Most Important First Choice	Total	Males	Females
A stable economy	54.4	56.4	52.4
Less impersonal and more humane society	16.4	14.7	18.1
Ideas count more than money	9.5	11.1	7.8
The fight against crime	19.7	17.7	21.7
Observations	1251 (100%)	638 (100%)	613 (100%)

Source: World Value Survey 2011 (value surveys databank)

Less impersonal and more human society is third in the choices of the respondents at 16.4 percent. It is to note that in these two last choices, the female populations reports more interest in them than men. The last most important for the respondents in the ideas count more than money at 9 percent, in which men show more interest than women.

Table 3.7 Effect of Rapid Market Reform on National Stability by Algerians (2002)

Rapid Market reform has a negative impact	Percent (%)		
	Gender		
	Total	Male	Female
Strongly agree	14.5	15.8	12.9
Agree	36.3	35.8	37
Disagree	41.3	41.4	41.3
Strongly disagree	7.8	7	8.8
Total	919 (100%)	500 (100%)	419 (100%)

Source: World Value Survey 2011 (value surveys databank)

Table 3.7 above shows the respondents answer on the effect of the rapid market reform on national stability. It demonstrates that rapid market reform is considered by the surveyed population that it does not have a negative impact on national stability at 41.3 percent, which is equally distributed between men and women. Those who strongly disagree represent only 14.5 percent, while the respondents who agree that rapid market reform total 36.3 percent.

The table shows that the respondents are divided between agreeing and not agreeing almost equally, but with a higher rate of those disagreeing with the statement.

Concerning market reform, Table 3.8 below shows that market reform is considered by the respondents as it will increase the gap between the rich and the poor at 43.4 percent. In contrast, 37.8 percent report that it will improve the lives of most people. While the latter is reported at a higher rate by women than men, the former is inversely considered by the male population than the female population. The table also demonstrates that the remaining 18.8 percent believe that it will not change the economic situation very much.

Table 3.8 Effect of Market Reform by Gender in Algeria

Effect of Market Reform	Percent (%)		
	Gender		
	Total	Male	Female
Increase gap between rich and poor	43.4	45.5	41.0
Improve lives of most people	37.8	36.4	39.3
Would not change economic situation very much	18.8	18.1	19.7
Total	1030 (100%)	547 (100%)	483 (100%)

Source: World Value Survey 2011 (value surveys databank)

Next, Table 3.9 shows the respondents' confidence in major companies. It demonstrates that while 29.8 percent trust major companies quite a lot, 30.8 percent report that they do not show confidence in them at all.

Table 3.9 Algerians' Confidence in Major Companies by Gender (2002)

Confidence in Major Companies	Percent (%)		
	Gender		
	Total	Males	Females
A great deal	12.7	11.8	13.8
Quite a lot	30.3	29.8	30.9
Not very much	30.6	27.7	33.9
None at all	26.4	30.8	21.4
Observations	1282 (100%)	578 (100%)	501 (100%)

Source: World Value Survey 2011 (value surveys databank)

In addition, 27.7 percent of the respondents report that they are not very confident in major companies. Despite the response none at all, which is reported higher in the female population than in the male population, the rest of the responses are provided in higher rates by men than women. In short, the surveyed population is divided between trusting or not major companies. It is to note that the answers were grouped to create fewer dummies for practical purposes as discussed in the results and analysis section. Hence, only two groups were left.

Table 3.10 Private versus State Ownership of Business in Algeria by Gender (2002)

	Percent (%)		
	Gender		
Private vs. State Ownership of Business	**Total**	**Male**	**Female**
Private ownership of business should be increased	23.2	23.7	22.6
2	7	8.2	5.8
3	5.8	6.8	4.7
4	6.1	7.2	4.9
5	15.3	14.0	16.6
6	10.7	9.8	11.6
7	6.7	5.6	7.9
8	3.8	3.9	3.7
9	5.8	6.6	4.9
Government ownership of business should be increased	15.7	14.2	17.3
Total	100%	100%	100%
Base for mean	1192	621	571
Mean	5.1	4.9	5.2
Standard Deviation	3.19	3.19	3.2

Source: World Value Survey 2011 (value surveys databank)

Table 3.10 above shows the respondents opinion on the increase of the private versus the state ownership of business in Algeria. It demonstrates that while the majority of the respondents at 23.2 percent at once consider the increase of the private ownership, 15.7 percent are situated on the other extreme of the scale and believe that government ownership should be increased. The rest are in between and 15.3 percent remains somehow without opinion. The mean is 5.1 and the standard deviation is 3.19 increasing the difficulty of inferring on the reported responses. It might imply that different groups in the society have various opinions depending on their own situation and context, and no general agreement is reached.

In addition, the econometric model that includes the latest two variables might provide more insights on the issue. It is also to note that the created dummies according to the responses and the proposed choices (scales) were grouped to create

fewer dummies for practical purposes as already mentioned and discussed in the results and analysis section. Therefore, concerning the private versus state ownership of business, only five choices were left as found in the regression results. Appendix 3 provides more information on the number of observations used in the model.

In sum, the present section presented the data and the descriptive statistics. The tables reported the different opinions of the respondents on various issues such as the aim of the country, the aim of the respondent, the most important for the respondent, and so forth.

The conclusion of the present analysis is that the majority of the respondents are happy and satisfied with their lives and women exhibit slight higher rates than men. In addition, the surveyed population reports that it aims a stable economy, higher economic growth, more maintaining of order. On the rest of the issue the respondents are mixed and the econometric analysis below might provide more insights.

On the limitations of the use of the self-reported data when individuals assess their levels of happiness and life satisfaction, some reluctance is observed in the literature.

Indeed, the personality traits and cultural issues might play an overwhelming part in answering the survey question as stated by Eggers et al. (2006). They report that Diener (1984), Clark and Oswald (1996) and Biswas-Diener (1999) highlight the unobservable variables' role in comparing individuals' subjective judgments of life satisfaction. However, they add that in case these unobservable characteristics are not correlated with independent variables, the regression will simply explain less of the data. The bias might happen in case they are correlated, when for instance observing that the weather has an effect on individuals' happiness and hence it also influences

income. The solution could be to use control of past responses or fixed effects estimator when using longitudinal data.

The present chapter uses evidence from Algeria and only one survey was conducted in 2002; hence, the study is governing by the data.

3.5. The empirical model:

The empirical model used in the present study is presented in this section, followed by a discussion on the model specification, the results and their analysis in the next section.

In order to illustrate the measurement's equation, happiness and life satisfaction are used as dependent variables. It is to consider, for instance, that the responses to the questions mentioned earlier such as whether you consider yourself happy is recorded on a scale varying from one to four where 4 marks a not happy at all state and 1 indicates very happy. Similarly, it is to regard as the response that is recorded on a scale one to ten for life satisfaction. Where 10 mean that the respondent is satisfied and 1 is dissatisfied.

Due to the ordinal nature of the data, the present study exploits an ordered probit model, which was first developed by Aitchison and Silvey (1957) in bio-statistics. Mckelvey and Zavoina (1975) were political scientists who first introduced such model in social sciences, as mentioned in Jackman (2000). This ordinal response model was introduced in terms of an underlying latent variable with observed ordered categories. Their study formulated a focus on the analysis of the determinants of congressional voting on the 1965 Medicare bill in the United States.

In short, Mckelvey and Zavoina (1975) emphasise that the use of an Ordinal Probit statistical model for studying ordinal data it is assumed that there is a latent, interval level dependent variable.

In order to describe the respondents' responses to happiness and life satisfaction, the surveyed individuals use a subjective integrated rule while describing their judgments about their lives. As already mentioned, their answers are coded to contain values from 1 to 4 concerning the response on whether you consider yourself happy, and with regards to the question related to life satisfaction, their responses are coded to comprise values from 1 to 10.

The analysis is organised by modelling the individuals' responses on whether they are happy and satisfied with their lives and their judgment is based on the assumption that it is possible to use an additively or a sum of separable utility functions on that is the sum of utility on each of the explanatory variables.

In short, the model used in the present econometric analysis is in line with Kahneman, Wakker and Sarin (1997), Blanchflower and Oswald (2000) and Caporale et al. (2009). Indeed Kahneman et al. (1997) review the theories linked to the concept of "Utility" and suggest the assumption that there is a time-neutral weighting of instants and derives temporal integration as the principle of global evaluation.

The model on the utility function of life satisfaction and happiness could be represented for each variable by:

$$U(x) = \sum_{i=1}^{k} U_i(x_i)$$

Where: x is a k dimensional vector of attributes of life satisfaction or happiness, x_i denotes the ith element of the vector, and U describes the non-stochastic part of an individual's utility, as mentioned in Caporale et al. (2009).

In addition, the present ordered probit model is used separately in examining happiness and life satisfaction since as reported it is suitable for estimation due to the ordinal nature of happiness and life satisfaction variables, as also mentioned by Blanchflower and Oswald (2000) Although the ordered probit and ordered logit models produce similar results, the difference sets in the assumption about the distribution of the error terms. In the ordered probit model, the errors are normally distributed with a mean equalling 0 and a variance equalling 1. In contrast, in an ordered logit model, the error terms are logistically distributed with a mean equalling 0 and a variance equalling $\pi^2/3$, as found in standard econometrics textbooks such as in Long (1997), Vogelvang (2005) and Long and Freese (2006).

The model is based on the transformation of the dichotomous dependent variable Y (L in case of life satisfaction and H in case of happiness) into a continuous variable Y` by the existence of a link function F(.) and $F(Y) = X\beta + $. This function links the observed Y variable to the estimated $Y*$ in the model. Given any real number, the cumulative normal distribution Φ can produce a probability acting as a link function, and hence, $F(\cdot) = \Phi(\cdot)$, the standard normal cumulative density function (c.d.f.) as found in Sala-i-Martin (1997), Petersen (2002), O'halloran (2005) and Armstrong and Jackson (2009). Given any Z-score, $\Phi(Z)$ for the dependent variable Y, which may take infinitely numerous values since Z-score   , it also belongs to the initial interval [1,4] in the case of happiness and [1,10] in the case of life satisfaction, and hence the following, as found in Petersen (2002):

$$Y_i=1 \text{ if } Z_i$$

$$Y_i=2 \text{ if } \quad Z_i$$

This continues up to $Y_i=10$ for life satisfaction and 4 for happiness, as discussed further below.

Therefore, there is a latent continuous metric or measure of the dependent variable, a proxy for utility, underlying the observed ordinal responses thresholds partition the real line into series of regions corresponding to the various ordinal categories, as mentioned in Jackman (2000), Petersen (2002), O'halloran (2005), Armstrong and Jackson (2009) and Caporale et al. (2009). It is to note that most of the present discussion is found in these works in addition to Long (1997), Vogelvang (2005), and Long and Freese (2006) textbooks.

The latent and discrete variable, Y^*, underlying the process that is not observed, as mentioned in Vogelvang (2005), is a linear combination of some predictors (independent variables), X, plus an error term (disturbance) that it is assumed to have a standard normal distribution, as mentioned above. Hence:

$$Y^* = X_i \beta` + e_i, \qquad \text{and} \quad e_i \sim N(0,1), \quad =1,\ldots,N$$

Where, X_i is a vector of explanatory variables describing individual characteristics, $\beta`$ is a vector of parameters to be estimated and e_i is an error term allowing randomness in the respondent's selection process. As already mentioned e_i is normally distributed as described in the Ordered Probit model (Mckelvey and Zavoina, 1975) and found in standard econometric textbooks.

Y_i (L_i for life satisfaction and H_i for happiness) the observed ordinal, coded and discrete dependent variable using cut points μ_j and takes on values from 1 to 10 for life satisfaction and 1 to 4 for happiness (the lower categories for happiness and life satisfaction being 4 and 1, respectively, and the upper categories are 1 for happiness and 10 for life satisfaction) according to the following scheme as mentioned in Jackman (2000):

$$Y_i = j \qquad \mu_{j-1} < Y^* \quad \mu_j,$$

Where: j= 1…10 (For life satisfaction) or j= 1…4 (For happiness)

Abusing the notation, as stated by Jackman (2000) in the pursuit of completeness, μ_{j-1} can be defined as - and μ_j as + .

Therefore, the observed and coded discrete dependent variable L_i for life satisfaction is determined from the model as follows:

$$L_i =$$

Where, μ_i represents thresholds (cut-off points) to be estimated, along with the parameter vector β.

It is to note that the sign of the regression parameters, β, can be interpreted as whether the latent variable, L^*, increases with the regressor. If βj is positive, then an increase in the dependent variable (in the present case, a respondent change status as the independent variables are dummies) necessarily decreases the probability of being in the lowest category of happiness or life satisfaction and increases the probability of being in the highest category of life satisfaction (similar to happiness below) This means that L is related to L^* in which the higher L^* is, L either remains unchanged or is higher.

Similarly, the Ordered Probit model is employed for examining happiness, where it becomes the observed and coded discrete dependent variable H_i taking values 1 for very happy, 2 for quite happy, 3 for not happy, and 4 for not happy at all, and the same above discussion applies. Therefore the observed and coded discrete dependent variable H_i for Happiness is determined from the model as follows:

$$H_i =$$

Where, μ_i represents thresholds to be estimated, along with the parameter vector β.

In a similar way of what was explained above, positive signs for the estimated parameters β point out the increase of being in higher levels of happiness as the value of the associated variable increases.

However, the concern is how changes in the predictors (independent variables) are translated into the probability of observing a particular ordinal outcome. (Jackman, 2000)

In actual fact, the probit coefficients are Z-score that can be transformed into predicted probabilities using any table of the standard normal distribution, as found in Long (1997), Jackman (2000), Long and Freese, (2006) and Armstrong and Jackson (2009).

In other words, the value of $X\beta$ is the value of the z-value of a normal distribution, with the event is more likely to happen when the values of $X\beta$ are higher.

This means that:

$P\ [Y_i=1] = P\ [\mu_1 < Y^* \quad \mu_0]$

$= P\ [- \quad < Y^* \quad \mu_0]$

$= P\ [Y_i^* \quad \mu_0]$

Since, $Y^* = X_i\beta + e_i$, and $e_i \sim N(0,1)$, $\quad =1,\ldots,N$

$P\ [Y_i=1] = P\ [X_i\beta + e_i < Y^* \quad \mu_0]$

$= P\ [e_i \quad \mu_0 - X_i\beta]$

$= \Phi\ (\mu_0 - X_i\beta)$

$P\ [Y_i=2] = P\ [\mu_0 < Y^* \quad \mu_1]$

$= P\ [\mu_0 < X_i\beta + e_i \quad \mu_1]$

$= P\ [\mu_0 - X_i\beta < e_i \quad \mu_1 - X_i\beta]$

$$= \Phi\ (\mu_{1}\text{-}\ X_{i}\beta)\ \text{-}\ \Phi\ (\mu_{0}\text{-}\ X_{i}\beta)$$

$$\text{P}\ [Y_{i}\text{=}j] = \Phi\ (\mu_{j}\text{-}\ X_{i}\beta)\ \text{-}\ \Phi\ (\mu_{j\text{-}1}\text{-}\ X_{i}\beta)$$

For life satisfaction j=10 (the highest category) and for happiness j varies from 1 to 4, and hence for the variable life satisfaction, for instance:

$$\text{P}\ [Y_{i}\text{=}10] = \Phi\ (\mu_{10}\text{-}\ X_{i}\beta)\ \text{-}\ \Phi\ (\mu_{9}\text{-}\ X_{i}\beta) = 1\ \text{-}\ \Phi\ (\mu_{9}\text{-}\ X_{i}\beta)$$

In addition, a unit variation in X_i leads to a β_i varies in the z-score of Y.

It is to note that there is an alternative approach, which is based on the odds ratio describing if some event occurs with probability p, then the odds of it occurring are:

$$\text{O}\ (p) = p\ /\ (1\text{-}p).$$

Finally, the values of the β coefficients are estimated using the Maximum likelihood estimation, also known as MLE. It is a method that makes the observed results the most probable. In other words, the observed variables have the greatest probability as the maximum likelihood estimation finds the β coefficients that maximise the likelihood of the entire sample, as found in Jackman (2000), O'Halloran (2005) and Armstrong and Jackson (2009). This is achieved by defining an indicator variable Z_{ij} that equals 1 in case Y_i = j and 0 otherwise. Therefore, the log-likelihood function is as follow:

$$\ln \mathcal{L} = \qquad \text{Zij} \ln [\Phi_{ij} - \Phi_{ij\text{-}1}]$$

Where: $\Phi_{ij} = \Phi\ [\mu_{j}\text{-}\ X_{i}\beta]$ and $\Phi_{ij\text{-}1} = \Phi\ [\mu_{j\text{-}1}\text{-}\ X_{i}\beta]$

Concerning the measures of fit, unlike OLS regressions, in logistic regressions, it is the pseudo-R^2 that measures the fit using the maximum likelihood estimation. However, since its interpretation is different than the R^2 for an OLS regression, thus, it is not reported in Table 3.13.

The explanatory variables used in the models are presented below and for a detailed list of the created dummy variables see Appendix 3. These variables used are aligned

with the empirical works as found in the literature in a similar way of Namazie and Sanfey (1998, 2001), Bjørnskov et al. (2006), Sanfey and Teksoz (2007) Sanfey and Teksoz (2008) and Caporale et al. (2009) to name only few.

Therefore, the present empirical model includes the following explanatory variables:

Table 3.11 Variables used in the empirical modelling

1	Age (in years and only 18-60 years old are left in the model)
2	Number of children
3	Marital status
4	Health
5	Education
6	Employment status (Only those in the labour force)
7	Income (scales)
8	Individuals' confidence in major companies
9	Belief in increasing Private ownership of business vs. Gov control

The original dummies that were created for the variables gender, marital status, education, employment status, income, confidence in major companies and increasing private ownership versus government ownership of businesses, are according to the available categories of each variable and the answers to each survey question. The questions are available in Appendix 1 and the variables categories with their frequencies are reported in Appendix 3.

The initial number of observation (sample size) before restricting the respondents to only those within the labour force and dropping the missing values is 1282. Summary statistics of the original data is provided in Appendix 3 in table 3.15.

After restricting the respondents to only those in the labour force that include age restriction (18-60, which is the range for the working age in Algeria) and employment status (students, housewives, retired) 396 observations were deleted, which 69 observations (age restriction) and 327 observations (labour force) This has reduced the original sample size to 484 observations for happiness and 494

observations for happiness, which represents an approximate 37 percent of the original sample size. It is to note that missing values are automatically dropped when running the model by stata since it uses metric measurement.

In addition, when considering the gender factor, the remaining observations are 291 for males and 193 for females in the case of the model of happiness and 295 and 199 observations for males and females, respectively, in the case of life satisfaction, since the missing values of the dependent variable are different.

Appendix 3 provides detailed summary statistics of the data in table 3.16 including the mean, the variance, the kurtosis, and the range and so on.

The next section provides the analysis and results of the present study, which aims at assessing the differences between the levels of feeling of happiness and satisfaction with the lives of the female and male populations in Algeria. In other words, the study aims at assessing the determinants of happiness and life satisfaction across gender in Algeria.

3.6. Results and analysis:

Results of the ordered probit regressions are as provided in Table 3.13 below. The table shows the regression results on happiness and life satisfaction.

Numbers in parentheses are robust standard errors and are below their relevant standardised β* coefficients. A "*" sign associated with a standard error shows significance at 5 percent and "**". In reality, these outcomes are exported from stata.

3.6.1. Determinants of Happiness:

From Table 3.13, Age is significant and positively related to happiness for the female population. This suggests that as women become older they are more likely to become happier. In contrast, the square of Age has a negative sign and is statistically significant as well, suggesting that old women are more likely to be less happy.

Consequently, the association between age and happiness is probably an inverse "U-shaped" relationship. This implies that the young and old female population are more likely to be less happy than the middle aged women. This result is in opposition of what is found in Clark and Oswald (1996), Blanchflower and Oswald (2000), Clark (2002) and later Frijters et al. (2004) and Frijters and Beatton (2008). According to their findings, age is U-shaped.

In addition, the number of children is significant and negatively associated with the happiness of the female population. This suggests that as women have more children they are more likely to become less happy. Contrasting this result with the literature, as mentioned in chapter 2, the effect of the number of children remains ambiguous, since it depends on the family's income level and the marital status as found in Alesina (2001) and Frey and Stutzer (2002), for instance, where poor families report lower scores of happiness as a result of the number of children.

In reality, this is in contradiction with what the female population reports in the survey. When they were asked whether a woman has to have a child to be fulfilled, 78.4 percent reported that children are necessary for a woman's happiness as shown in table 3.12 below.

Table 3.12 Children are a Need for Women in Algeria (2002)

	Percent (%)		
	Gender		
A woman has to have a child to be fulfilled	Total	Male	Female
Not necessary	18.8	16	21.6
Needs children	81.2	84	78.4
Total	1243 (100%)	624 (100%)	619 (100%)

Source: World Value Survey 2011 (value surveys databank)

The above table 3.12 shows that 84 percent of the male population and 74.8 percent of the female population report that children are necessary for a woman to be

fulfilled. Taken together, these proportions comprise 81.2 percent of the total population surveyed.

It is a clear contradiction with the regression findings. A possible explanation is that women would like to have children, but once they have them the whole burden of taking care of the children rest on them. This result is also found in Kahneman and Krueger (2006).

After that, marriage is found to be significant and positively associated with women's happiness. This implies that as women get married they are more likely to be happier. This is aligned with what is found in the literature, as mentioned in chapter 2, and married individuals are found to be happier than unmarried.

Concerning the health condition, very good health, good health and fair health are significant and positively associated with both sexes' happiness. This implies that as the male and female populations are healthier they are more likely to be happier. Indeed, it is in line with what is found in the literature, as mentioned in chapter 2.

With regards to the confidence in major companies, table 3.13 shows that it is significant and positively associated with the happiness of the female population. This implies that as women are more confident in major companies they are most likely to become happier since these companies could create jobs for them and their children.

On the other hand, the increase of private ownership of business and income is not significant in determining both male and female Algerians' happiness.

An important issue that needs to be raised is in relation to the number of insignificant variables. Following a close examination of the data, it is found that missing values were problematic. When dropping all of them manually, the results were more

statistically significant for males and less for females. Several attempts, which are not reported, were unsuccessful in producing significant results.

In actual fact, trials to substitute the reference variables or dropping variables such as the variable confidence in major companies or the variable private versus government ownership in order to run a Gets (General to Specific approach) as found in Barrell et al. (2010) were also unsuccessful in generating positive results. The author also attempted to group some predictors into a dummy variable in order to create fewer regressors, and this was also unsuccessful in producing substantial changes and having more significant variables.

On the other hand, the results shown in Table 3.13 include the grouping of some dummy variables into another dummy, and this is concerning the variables confidence in major companies and private versus state ownership of companies as shown in Appendix 3.

This suggests a possible future research to include the revisionary results using multiple imputations method by imputing the missing values. Another suggestion of using the two steps Heckman model (Heckman, 1979, 2000) linked to sample selection could be unnecessary as missing values at both at random (MAR) and not at random (MNAR). Hence, the first step of the Heckman method may not be worthwhile to endeavour.

Next is a discussion on the results of the ordered probit regression on life satisfaction.

3.6.2. Determinants of Life Satisfaction:

From Table 3.13 below, Marriage is significant and positively associated with life

satisfaction for the female population. This implies that as women get married they are most likely to become more satisfied with their lives.

It also shows that health condition is significant and positively associated with life satisfaction for both the male and female populations. This implies that as men and women are healthier they are most likely to become more satisfied with their lives.

The fourth and tenth steps of the income scale are significant and positively associated with life satisfaction for the male population. This implies that income alone does not provide life satisfaction, but rather the level of income is also important. Likewise, the fifth and seventh steps of the income scale are significant and positively associated with life satisfaction for both the male and the female populations. This also implies that the income per se does not necessarily bring about life satisfaction, but rather it is the income step.

In addition, these findings concerning the income are in line with the literature, for instance it is found in Clark and Oswald (1994, 1996), and since the middle and high income groups tend to be more satisfied with their lives than the low income groups. Moreover, the new trend suggests that absolute income is not the only determinant of individuals' levels of satisfaction; relative income also plays a role as it is investigated in Chapter 5.

Concerning the variable confidence in major companies, it is significant and positively associated with life satisfaction for both the male and female populations. This implies that Algerians are confident about major companies to create jobs, for instance, or to provide opportunities for the future generations.

With regards to the increase of private ownership of business, it is found that it is significant but negatively associated with life satisfaction for the male population.

This implies that as the private sector increases, the male population is most likely to be unsatisfied.

In sum, most of the results are in line with the expectations despite the exhibition of the age as an inverse "U-shaped" association with the happiness over the life time of the female population. In addition, what the results also demonstrates is that, the major companies are important in determining the happiness and life satisfaction of Algerians. However, increasing the private ownership of the business is likely to make the male population unsatisfied with their lives.

A similar discussion as found in the previous analysis of the results on happiness is valid for the interpretation of the results of table 3.13. The low statistical insignificance is more likely to be related to missing values, which a future research is planning to consider by using multiple imputations. An alternative approach would be to consider the sample selection and use the Heckman model. However, a tree showing the pattern of missing values, which was not reported, suggests that these cases are more likely to exhibit some missing not at random (MNAR) and others missing at random (MAR). Hence, multiple imputations would probably be the favourable method. In addition, there are missing values in both the dependents and independents variables, as reported in Appendix 3, in which the original dataset summary statistics table shows. In short, this is a common limitation in econometric modelling and the exercise is even more difficult when using cross-sectional data.

Next, Table 3.13 presents the results of the ordered probit model, in which happiness and life satisfaction are separately used as dependent variables. The table also shows the results by gender.

Table 3.13 Happiness and Life Satisfaction in Algeria 2002 (Ordered Probit)

Happiness and life satisfaction in Algeria (2002)	Satlife Males	Satlife Females	Happ.Males	Happ.Females
Age	0.072	0.045	0.035	0.184
	(0.045)	(0.063)	(0.051)	(0.081)*
Age Squared	-0.078	-0.038	-0.025	-0.221
	(0.058)	(0.079)	(0.067)	(0.102)*
Number of Children	0.088	-0.057	0.013	-0.235
	(0.059)	(0.073)	(0.070)	(0.092)*
Married	-0.128	0.530	0.183	1.099
	(0.215)	(0.265)*	(0.248)	(0.353)**
Living Together While Married	-1.368	-4.995	-0.207	1.092
	(0.838)	(89.064)	(0.926)	(1.102)
Divorced	-0.324	0.342	0.208	0.046
	(0.552)	(0.367)	(0.674)	(0.432)
Widowed	-0.226	0.025	1.001	0.653
	(0.649)	(0.518)	(0.817)	(0.659)
Health Very Good	0.926	2.309	1.907	2.210
	(0.311)**	(0.449)**	(0.349)**	(0.521)**
Health Good	0.804	1.421	1.225	1.887
	(0.293)**	(0.382)**	(0.319)**	(0.460)**
Health Fair	0.399	1.260	0.959	1.375
	(0.278)	(0.375)**	(0.300)**	(0.434)**
Education: Completed (compulsory) elementary education	-0.428	-0.334	-0.612	-0.209
	(0.359)	(0.625)	(0.412)	(0.752)
Education: Incomplete Secondary School, Tech	-0.130	0.627	-0.909	0.923
	(0.436)	(0.672)	(0.489)	(0.760)
Education: Complete Secondary School, Tech	-0.312	-0.205	-0.051	0.884
	(0.297)	(0.526)	(0.339)	(0.647)
Education: Incomplete Secondary School, University Prep	0.186	-0.660	0.067	-0.002
	(0.329)	(0.515)	(0.382)	(0.645)
Education: Complete Secondary School, University Prep	0.145	-0.374	0.053	-0.165
	(0.313)	(0.498)	(0.360)	(0.633)
Education: Some university without degree/Higher e	0.016	-0.106	-0.405	0.220
	(0.363)	(0.546)	(0.418)	(0.674)
Education: University with Degree	-0.198	-0.516	-0.039	-0.023
	(0.320)	(0.516)	(0.369)	(0.652)
Employment Status: Full-time	-0.070	0.421	0.187	0.463
	(0.222)	(0.275)	(0.247)	(0.350)
Employment Status: Part-time	0.181	0.049	0.005	0.103
	(0.246)	(0.290)	(0.278)	(0.360)
Employment Status: Self-employed	0.337	0.355	0.217	0.178
	(0.246)	(0.356)	(0.276)	(0.477)
Income Scale: Second Step	0.239	0.586	-0.121	0.493
	(0.253)	(0.381)	(0.286)	(0.436)
Income Scale: Third Step	0.432	-0.105	-0.185	0.252
	(0.258)	(0.371)	(0.291)	(0.418)
Income Scale: Fourth Step	0.749	0.224	-0.034	-0.112
	(0.300)*	(0.436)	(0.342)	(0.518)
Income Scale: Fifth Step	0.708	0.908	-0.066	0.736
	(0.345)*	(0.458)*	(0.390)	(0.542)
Income Scale: Sixth Step	0.822	0.465	-0.377	0.752
	(0.443)	(0.652)	(0.499)	(0.812)
Income Scale: Seventh Step	0.808	1.456	0.027	0.486
	(0.400)*	(0.684)*	(0.455)	(0.813)
Income Scale: Eight Step	-0.234	-0.028	-0.078	-0.703
	(0.652)	(0.559)	(0.788)	(0.636)
Income Scale: Tenth Step	1.507	0.366	-0.030	0.788
	(0.570)**	(0.868)	(0.644)	(1.115)
Confidence in Major Companies: Great Deal	0.526	1.186	-0.212	1.232
	(0.218)*	(0.305)**	(0.228)	(0.342)**
Confidence in Major Companies: Quite a lot	0.518	0.166	-	-
	(0.161)**	(0.236)	-	-
Private Ownership Business increase Scale: Should1	0.100	-0.049	0.136	-0.390
	(0.171)	(0.245)	(0.198)	(0.300)
Private Ownership Business increase Scale: Should2	0.091	0.112	-0.249	-0.659
	(0.235)	(0.334)	(0.271)	(0.431)
Private Ownership Business increase Scale: Should3	-0.593	0.015	-0.413	0.255
	(0.271)*	(0.374)	(0.296)	(0.491)
Private Ownership Business increase Scale: Should4	-0.248	0.039	-0.009	0.437
	(0.253)	(0.333)	(0.300)	(0.437)
Private Ownership Business increase Scale: Should5	-0.014	-0.109	-0.282	0.125
	(0.195)	(0.271)	(0.224)	(0.332)
N	295	199	291	193
Log likelihood:	-897.40675	-877.76207	-357.50227	-316.48987

Note: Robust SE in parentheses. Omitted variables are: single, no education, unemployed, first step income, not at all, government ownership. Statistical significance at: *** *p*<0.05; ** *p*<0.01**

3.7. Conclusion:

The present study investigates the determinants of happiness and life satisfaction in Algeria assuming that these determinants might affect the outcome of the economic reforms initiated in the country since 1995. The main aspects of these reforms are linked to the three pillars of the Breton Woods prescriptions to a transition from the centrally managed economy to a market based economy. These three pillars are privatisation, liberalisation and stabilisation.

The regression controls for the privatisation and also for the main socio-demographic factors in determining happiness and life satisfaction as provided by the theory.

Most of the determinants of happiness and life satisfaction are similar to those found in the Western World, with few exceptions. Concerning the condition of health, marital status and income, they are in line with the theory. For the male population for instance, lower-medium, medium and high levels of income are found to be more satisfied than those with low level of income. In contrast for the female population, only those with medium and upper medium levels of income are found to be satisfied with their lives. With regards to having children, women exhibit a bias. Indeed, the descriptive statistics show that 78.4 percent of the female population report that children are necessary for a woman to be fulfilled. However, the regression results show that as women have children they are unlikely to be happier and more satisfied with their lives. This suggests that women are keen to have children, but once they have them the whole burden of taking care of the children falls on them. This bias is also found in Kahneman and Krueger (2006). In addition, the results show that the young and old female population are most likely to be less happy than the middle aged women. Hence, it exhibits probably an inverted "U-shaped" relationship. This

result contradicts the theory and the findings of Clark and Oswald (1994). A possible explanation for such a result may lie in the cultural aspects of the Algerian society. In fact, the young female population are less independent than the middle aged women within the society in many aspects, and hence it may result in a feeling of less happiness in comparison to those who are in their middle age. In addition, the old female population may feel worried about the future of their children even when they are stable in terms of marital and financial situations, which is a cultural characteristic in the Algerian society. Thus, the results may reflect the cultural peculiarity of the Algerian society. Finally, concerning Algerians' attitude towards the major companies, the results demonstrate that the population has confidence in these companies. This suggests that they are most likely to become happier and more satisfied as the companies create more jobs and offer better opportunities for them and their children. In contrast, the male population is found to be less keen on the increase of the private ownership of business. This may suggest that men fear the exploitation by the private sector, which is most likely to decrease their life satisfaction.

In sum, the survey suggests that Algerians would aim for a stable economy for their country and maintaining order. The most important for them is economic growth, which is found to be more important than the fight against crime. They disagree with the statement that rapid economic reform has a negative effect, even though it will increase the gap between the rich and poor. They also exhibit a substantial confidence in major companies; however, the male population is reluctant on more privatisation.

What is more, since Algerians are keen to reform the economy, but at the same time there is an apprehension on the effect of privatisation and the increasing gap between

the rich and the poor, hence the suggestion is that policy makers should work on institutional improvements as argued by Frey and Stutzer (2000) as opposed to maximizing the welfare function as argued by DiTella, MacCulloch and Oswald (2001). Policy makers are therefore encouraged to create an adequate environment to increase the chances of success of these economic reforms by engineering an equal welfare system as a safety net towards those most vulnerable groups of the society especially the young and women. Also, reforming the social security system could help to offset the apparent male population reluctance to privatisation.

Chapter 4:

Transition and life satisfaction in Egypt and Morocco over the first decade of the present century

Transition and life satisfaction in Egypt and Morocco over the first decade of the present century

Abstract

The present study aims at examining the changes in life satisfaction in Egypt and Morocco over the first decade of the present century. It assumes that the effects of the 1980s and 1990s structural adjustment programs on the populations of the two countries could be observed in early 2000s. Almost ten years later, the levels of their populations' life satisfaction are assumed to have changed. The comparison between the early and the late 2000s finds that while the mean life satisfaction have slightly increased in both countries, its distribution is at the two extremes of the life satisfaction scale for Egypt, and widespread for Moroccans over the same scale. Egyptian women satisfaction with life is "U-shaped" in age in the late 2000s. Egyptian men are satisfied at all income levels while women are only satisfied at medium, upper-medium and high income levels in the same period. In contrast, unemployed Moroccans' men and women are found to be satisfied with their lives in the beginning of the decade contradicting the theory. Both female and male populations in Morocco are satisfied at medium, upper medium levels of income, including the lower level for women and the high level for men in the late 2000s.

4.1. Introduction:

The present study aims at exploring the changes in the population's self-reported levels of life satisfaction during the passing decade in Egypt and Morocco. In actual fact, it assumes that the economic policies undertaken through the Structural Adjustment Programs affected the populations' life satisfaction in the two countries. Hence, it intends to assess the effect of these policies on individuals' life satisfaction by observing the changes that happened between the early and late 2000s.

Indeed, a transition towards a market based economy affects populations' life satisfaction, and leads in some cases to socio-economic crises. Some economists argue that it is a transitory period before regaining the pre-transition levels observing

a "V-shaped" pattern life satisfaction, as mentioned in Sanfey and Teksoz (2007) and Easterlin (2008).

At a macroeconomic level, studies usually also find a "V-shaped" GDP growth. For instance, the newly Europeans' members observe such a shape in their GDP growth, as mentioned in Easterlin (2008). On the other hand, the effects on their populations' life satisfaction remain unclear, according to the same author.

The findings of the previous studies on the effects of transition on life satisfaction are somehow uneven. Indeed, Frijters et al (2004) using evidence from East Germany and data from the GSOEP found that the levels of self-reported Germans' life satisfaction have increased with the increase in income.

Likewise, Frijters et al. (2006) using evidence from RLMS and data on Russia find that the levels of life satisfaction in the post-transition period 1995-2001 that Russians report 100 percent increase in their average self-reported life satisfaction.

In contrast, Easterlin (2008) finds that there was a trade-off between the increase in the levels of life satisfaction with material possessions and the decrease of the satisfaction with life with work, health, and family life. He also finds that there is an increase in the inequality in life satisfaction and the losers of the transition are those who are less educated and over the 30s. The evidence he used is from Eastern European countries including East Germany with data from the WVS and the GSOEP.

Into the bargain, Orsolya Lelkes (2006) using evidence from The Hungarian Survey Data finds that the Hungarians' subjective judgment of their life satisfaction has decreased between the beginning and the end of the 1990s.

In addition, Bernd Hayo and Wolfgang Seifert (2003) find also that the levels of self-reported life satisfaction have declined in various Eastern European countries as their economies were growing. They used evidence from the Paul-Lazarsfeld-Society for ten Eastern European countries.

What is more, Sanfey and Teksoz (2007) using evidence from the WVS and comparing economies in transition with economies in non-transition find that on average the populations of the countries in transition self-report lower levels of life satisfaction in comparison to those in non-transition.

Within this context, the present study aims at investigating Egypt and Morocco, which are believed to represent a different situation. Firstly, these two countries experienced such a transition more than two decades ago. Secondly, they are regarded as the IMF success stories, as stated by Pfeifer (1999). So, what happened next? It is the question that the present study addresses.

Pfeifer (1999) argues that the financial backing to offset the costs of the transition could explain the rationale behind the success stories. Conversely, how the populations changed their perceptions and self-judgement of their satisfaction with their lives between the early and late 2000s is the core aim of the present study.

What is more, Egypt's economic development history offers a case with alternated economic systems. Indeed, it was among the first countries in the region to attempt nationalisation during the 1930s following its independence in 1922, which failed. In contrast a second attempt during the early 1960s ended by nationalising the major sectors of its economy, before a failing attempt to opening again since the early 1970s with President Sadat arrival to power, as reported by Toth (1994). In the 1980s Egypt gradually transited to a market based economic regime. Indeed, Egypt

requested the help of the Breton Woods institutions several times in crises times. It is, therefore, a case that might provide interesting insights.

In contrast, Morocco throughout its history has been an absolute monarchy in a similar way to the Gulf monarchies, for instance, Saudi Arabia and Kuwait. Indeed, it has a completely different system than Algeria, Egypt, Iraq, Libya, Syria and Tunisia, which were known during the 1970s as the Arab socialist nations, as reported by Hansen (1975). The Moroccan system is mainly dominated by private businesses, as mentioned by the same author. Also, in a similar way to Egypt, it requested the IMF, The World Bank and other private financial institutions, the Club of Paris, for example on various occasions since the 1980s. Pfeifer (1999) reports that it had three debts rescheduling by private international banks and six by the Club of Paris, as well as, several World Bank loans in addition to nine arrangements with the IMF between 1980 and 1996.

In fact, what the IMF mainly prescribes is the market based economic system, claiming that it is an impartial remedy to fuel economic growth, attract foreign direct investment, and encourage technological transfer, and so on. The structural adjustment programs, which are based on the three pillars of liberalisation, privatisation and stabilisation, are hence meant to cure the various accumulated economic problems, such as inflation, unemployment, budget deficit and so forth.

Besides, it is widely accepted that there are "winners" and "losers" in such a transition to a market economy. Losers suffer as a consequence of the costs of austerity plans to reduce budget deficits and other public spending problems.

As a result, there is a growing interest in the literature, which assesses how individuals judge and self-report their levels of life satisfaction as a means towards

the creation of human wellbeing development strategies rather than stable macroeconomic indicators development policies. The present study intends to contribute to such exercise, as well.

On top of examining individuals' self-reports of the levels of their satisfaction with their lives throughout time, the present study also matches the findings with the macroeconomic indicators, attempting to propose possible inferences on the effects of these economic conditions on the populations' wellbeing of both Egypt and Morocco.

Hence, it is an exercise of assessing the effects of macroeconomic changes on individuals' welfare using a triangulation methodology that is a quantitative analysis explaining what affects the populations' levels of life satisfaction combined with a qualitative explanation.

The next section explores the economic development of these two countries and also presents the various socio-economic problems faced before, during, and a decade after the transition to a market based economy. After that, it presents the data and its descriptive statistics. The econometric model is discussed afterwards. Then, the results are shown and analysed, before the concluding remarks in the final section.

4.2. The economic development of Egypt and Morocco:

The present section first presents the development of the Egyptian and Moroccan economies, then, it compares the two economies in order to match it with the populations' levels of life satisfaction. Although differences exist, it is found that both countries show similar trends to some extent.

Egypt presents a case where a country attempted to implement the import substitution policies during the 1930s as mentioned above, then, during the 1950s and early 1960s and then opening to foreign direct investment during the 1970s, but failed, to move towards a market based economy during the 1980s. It has, therefore, showed an alternate shift from capitalism to socialism and vice versa several times during the historical development of its economy.

Indeed, the 1950 general election and the entrance of nationalists to the political arena, resulted in a putsch by a group of military at the top of the hierarchy in 1952, and as a consequence, the down fall of the monarchy, and the Nasser nationalism era started. The economic structure did not change substantially since, despite the land reform that restricting private property of land to 200 feddans, as mentioned in Hansen and Nashashibi (1975). However, the private sector did not suffer with regards to international trade dealing.

It is in 1961 that a solid shift to Arab socialism was noticed following the growing state intervention calls of the nationalist government as a result of the 1956 Suez War. The state became the dominant player in major economic activities including international trade. The central administration controlled all matters related to national welfare comprising income distribution and resource allocation, and established a price control regime. What it supposed to be a socialist state was somehow a mixed economy at some extent regardless of the sectors linked to the welfare system.

The death of President Gamal Abd El Nasser in 1970 did not halt the expansion of the state control of the economy, as declared by Hansen and Nashashibi (1975) and Hansen (1975). A door opened to foreign direct investment and towards economic

openness evoking cheap labour, but inflexible regulations resulted in a failure, as stated by Toth (1994). Indeed, President Sadat, after him, inherited a difficult socio-economic and political situation due to the 1967 war. The country was in short of capital and turned at several occasions to the IMF, but failed to secure the needed capital each time, as declared by Hansen (1975). He also reports that 74 percent of output from manufacturing was produced by public companies in 1973. It is to note that in that year, oil prices tripled and Egypt was in need to supply its military expenses due to the 1967 and 1973 wars with its neighbouring Israel.

In addition, Egypt requested the IMF several times since the 1950s, and projects such as the import substitution industrialisation and the promotion of domestic products as well as the High Aswan Dam have been an important concern of Egyptian decision makers. President Sadat, for instance, attempted to increase imported goods' prices to promote national produced and agricultural goods, but his efforts led to an unprecedented riot in Cairo in 1977. In reality, the Egyptian economy as stated by Hansen and Nashashibi (1975) was based on agriculture exports such cotton and wheat flour, weak nationalised industries and a financial sector and tourism services, and few oil exports, too.

Following the unrest, the IMF's help was granted once more since Egypt external debts reached an alarming $40 billion in 1981, as mentioned in Toth (1994). On top, the Egyptian economy entered another era with the signing of the Camp David treaty as it lost its attractiveness of the Arab oil exporters' countries capital. Hence, it relied on the United States, the World Bank, The IMF and the European Union assistance in addition to nationals' remittances and Suez fees.

The arrival of President Hosni Mubarak to power in 1981 was the start of another new era. Egypt's access to the European market resulted in becoming a major supplier of wheat flour, for instance. In 1982, one sixth of wheat flour of world supply was from Egypt. However, in 1987, another wave of riots exploded as the prices of basic needs goods augmented and the economy was only relying on foreign financial aid, tourism, and nationals' remittances. In 1991, imported food taking into account wheat totalled 70 percent of Egypt's food consumption and the socio-economic situation degenerated mainly in deprived areas, as reported by Toth (1994).

Figure 4.1 below shows the inflation and unemployment rates for the period 1980 to 2008. The data are collected from the World Bank database. It is clear that the called transition's volatility effect, as mentioned in Pfeifer (1999) is present. The period 1980 to 1996 observed high inflation rates and relatively high unemployment rates, as well, despite the GDP growth, which is shown in Figure 4.2. Likewise, the figures suggest that the worse period was from 1986 to 1989 with high inflation rates and missing unemployment figures. It might also suggest that the Structural Adjustments Programs (SAPs) and their subsequent austerity plans, in addition, to the oil prices crises in 1986 and the decrease of Egypt's share of world exports and imports played parts at different extents in the critical figures.

Figure 4.1 Inflation and Unemployment in Egypt (1980-2008)
(Current International $)
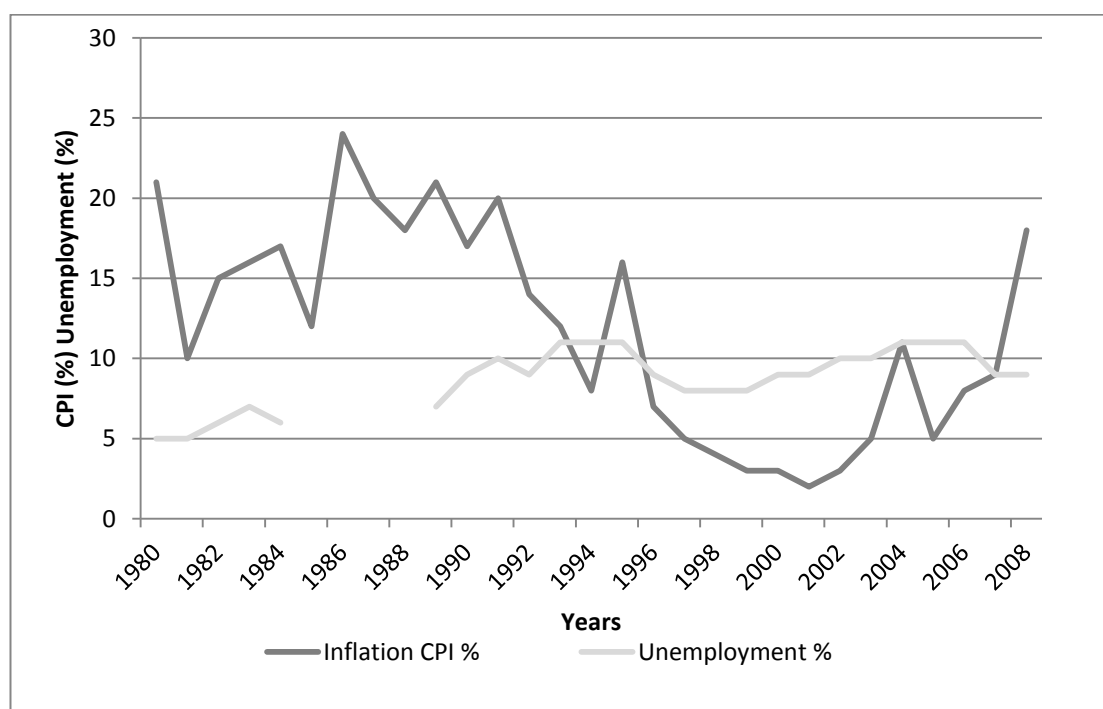
Source: World Bank Database 2011

In addition, in spite of Egypt's participation in the Iraq war, which resulted in debts relief from the Arab and the United States allies and a subsequent debt as percentage GDP, it did not improve its trade balance neither the profit to foreign investors nor the unemployment rates, as reported by Pfeifer (1999). However, it has always been considered as a success IMF story since it implemented most of the SAPs by lowering its trade barriers, privatising more than one third of its public enterprises, increasing interest rates, devaluating its currency and reducing its subsidies to basic need goods and other government spending, as declared by the same author. What happened to the population's wellbeing and their judgment of their levels of satisfaction with their lives is examined later in the present chapter.

In reality, in 1989, Egypt entered a fifth standby agreement with the IMF in order to find a solution of its $40 billion external debts, but the negotiations failed once more.

However, in 1991, Egypt accepted the IMF accord after the United States lifted-off $7 billion of its external debts following its participation in the first Gulf war, as mentioned by Toth (1994). Consequently, austerity plans commenced accompanied with other adjustment programs and Figure 4.1 above shows the clear straightforward effect of the elimination of the subsidies on food prices. Indeed, inflation, which was already at a record high level, jumped from 17 percent in 1990 to 27 percent in 1991.

Figure 4.2 below shows the fluctuations in the GDP growth and the GDP per Capita in percentage in Egypt for the period 1980 to 2008. The data presented in the figure are also collected from the World Bank data bank. It demonstrates the clear volatility in the economy. The GDP growth shows a "V-shaped" pattern as soon as Egypt signed the agreement with the IMF in 1991.

Figure 4.2 GDP growth (%) and GDP/Capita (%) in Egypt (1980-2008)
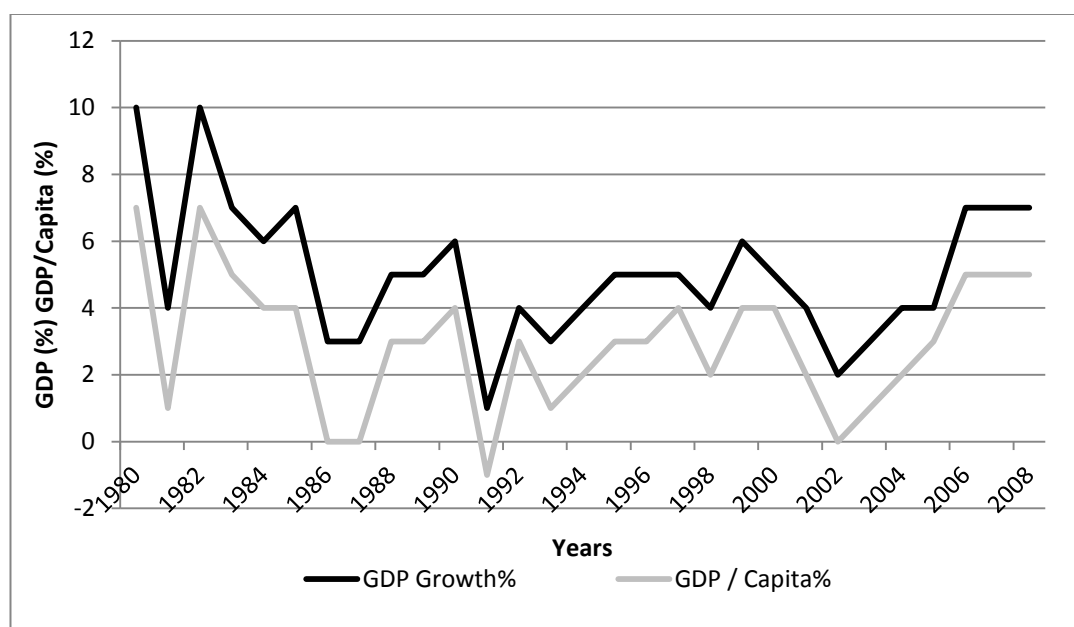
Source: World Bank Database 2011

In 1992, strikes were held as a result of the difficult economic conditions. Figure 4.2 demonstrates the strikes could be as a result of the sharp decrease in the economic

growth in 1991. Indeed, it plunged from 6 percent in mid-1990 to less than 1 percent in mid-1991.

As a consequence, President Mubarak announced a wage increase at the expense of the IMF' SAPs and against the logic of offering cheap labour to the world market. Subsequently, Egypt sent a wrong signal to foreign investors, as reported in Toth (1994). In different parts of the country, unrest was observed and Egypt started to also lose its key tourism industry when it decreased by 82 percent in 1992. Death sentences were granted to politically involved citizens.

During all these years where socio-economic crises accumulated and both and inflation reached unacceptable levels, the GDP per capita adjusted to the Purchasing Power Parity (PPP) did not stop from increasing as shown in Figure 4.3 below.

Figure 4.3 GDP per Capita in Egypt (1980-2008)
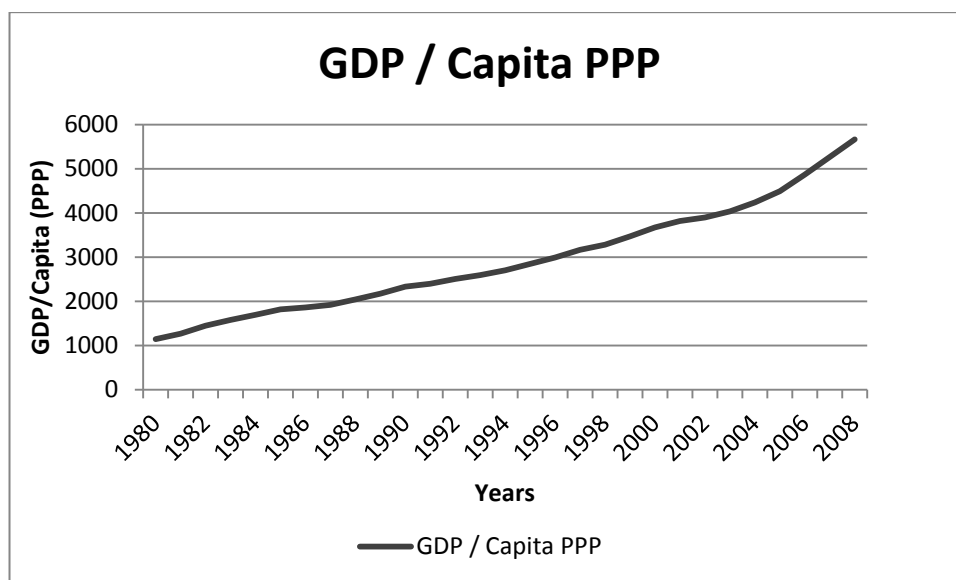
Source: World Bank Database 2011

Figure 4.3 above demonstrates the continuous increase of the GDP per capita (PPP) since 1980. It might confirm that the use of such measures to assess the population standard of living does not necessarily reflect the real world situation.

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What is more, it does not tell how the population feels. The present discussion presented the various socio-economic crises that happened in Egypt since the 1970s and the above figure is unable of observing such situations.

Likewise, Morocco also observed several socio-economic crises, and was hit by severe recessions consecutively since starting its structural adjustment following the 1979 and the 1982 debts crises. Consequently, it received substantial foreign aid. Indeed, as mentioned above, in spite of the three debts rescheduling by international private banks, in addition to six others by the Paris Club and nine arrangements with the IMF on top of various World Bank, European Union and United States financial and military assistance programs for the period 1980 to 1996, Morocco's debt to GDP ratio was greater in 1996 than in 1980, as stated by Pfeifer (1999).

Figure 4.4 GDP growth and GDP/Capita in Morocco (1980-2008)
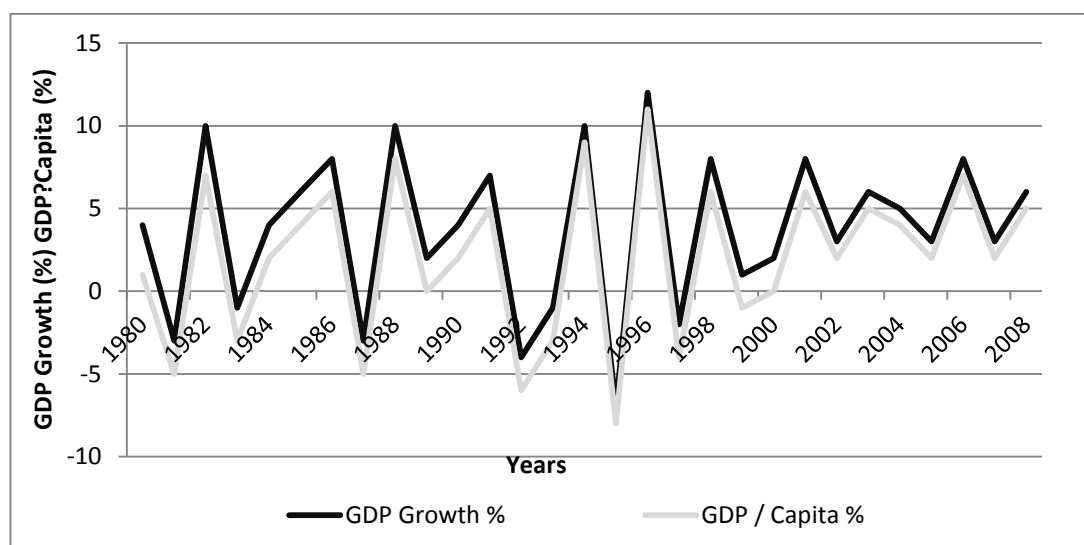
Source: World Bank Database 2011

Figure 4.4 above shows the GDP growth and GDP per capita in percentage in Morocco since 1980 to 2008. It clearly demonstrates the consecutive and continuous recessions since it started its structural adjustment programs.

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At various periods of the development of its economy, Figure 4.4 exhibits the sharp and sudden drop of the GDP growth.

Besides, the figure also shows that Morocco observed negative growth for several years. For instance, in 1992 it was negative four percent leaving the country in a recession for more than two years. The worst economic situation was in 1995, in which the country observed a negative seven percent and as a consequence unemployment rate, also, reached its pick, according to the available data, in the same year resulting in a 23 percent.

In contrast, what Morocco succeeded in controlling was the inflation level. Indeed, Figure 4.5 shows that the inflation rate seems to become under control since 1998, with a clear trade-off with unemployment at first in the short run, but also the unemployment rate is show to be at a decreasing level afterwards.

Figure 4.5 Inflation and Unemployment in Morocco (1980-2008)
(Current International $)
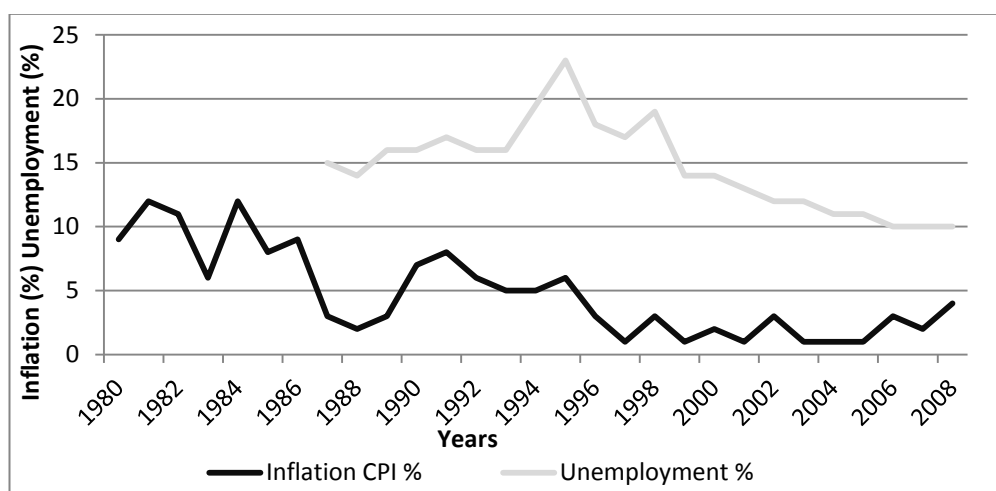
Source: World Bank Database 2011

Figure 4.5 above shows the inflation and unemployment rate from 1980 to 2008. While the Moroccan economy observed high levels on inflation in the early 1980s, with a missing unemployment rates, gradually it succeeded in lowering these rates in

the late 1990s. Likewise, after periods of high unemployment, the figure shows a gradual decrease of the unemployment rates in late 1990s.

Indeed, since 1998, the Moroccan economy observed a positive economic growth, and its macroeconomic indicators shows stability as shown in Figure 4.4. How its population perceives this stability, and how they evaluate their satisfaction with their lives since then, it is the question that the next analysis attempts to answer.

In reality, one of the most intensive adjustments Morocco engaged in was between 1988 and 1992, as mentioned in Pfeifer (1999). Figure 4.5 also shows that it is the period in which the unemployment rates were increasing to explode in 1995. In this period, the general price level increased and GDP growth rate decreased towards the end to enter in a recession in 1992.

On top, in 1989, the World Bank classified both Egypt and Morocco as lower middle income countries. However, there are few differences between the two countries and these are found in the Foreign Direct Investment and the manufacturing and agricultural goods exports. While Egypt has not observed a clear recession, it encountered a decrease in its FDI profit to investors, as reported by Pfeifer (1999). Morocco, on the other hand, exhibits an improvement between 1980 and 1996 in this domain. Into the bargain, Morocco's exports increased, while Egypt world supply market share declined, as mentioned by the same author.

It is this context, also by considering the inherited macroeconomic figures during the passage to the new millennium that the present chapter attempts to answer another question related to how Egyptians and Moroccans own judgments of their satisfaction with their lives have changed from the early 2000s to the late 2000s.

Finally, figure 4.6 below shows the GDP per capita (PPP) in Morocco for the period 1980 to 2008.

In a similar way to Egypt, it shows an increasing pattern while the economic situation was alarming.

Figure 4.6 GDP per Capita in Morocco (1980-2008)
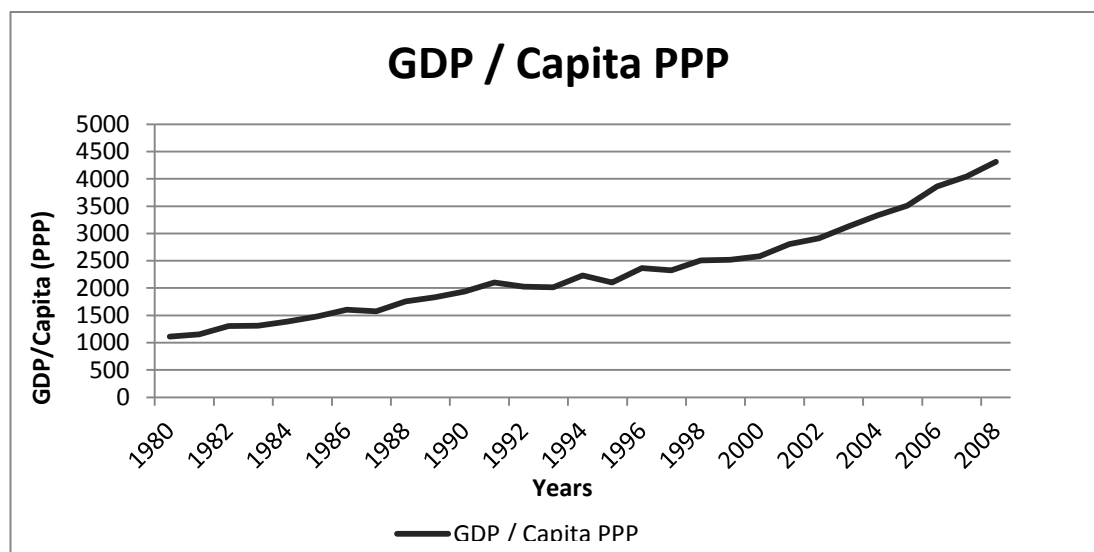
Source: World Bank Database 2011

For this purpose, the present study uses evidence provided by the World Value Survey (WVS) and it builds up an analysis in two steps. First, it discusses qualitatively a comparison between the levels of life satisfaction in Egypt in wave four and five and in Morocco, too. Then it provides a comparison between the descriptive statistics of the two countries and between the two waves. After that, it uses a classic ordered probit model, as governed by the data in order to investigate the changes in the determinants of life satisfaction for Egyptians and Moroccans during the last decade. Thus, the next section presents the data and descriptive statistics.

4.3. Data and descriptive statistics:

The present section deals with the data used in the present study. It first presents its source, and then provides supporting information on the questionnaire, after that it presents an analysis of the data collected using cross-tabulations.

4.3.1. Data:

In order to examine the effect of transition to a market based economy and its subsequent austerity and structural adjustment measures on the populations' levels of life satisfaction in Egypt and Morocco, the present study uses evidence from these two countries.

It focuses on the period from 2000 to 2008 as it is restricted by only two waves of the survey and data are only available for the mentioned period. The first survey in Egypt, for instance, was conducted in 2000 and belongs to wave four of the WVS, while Morocco's first survey was in 2001 and is from the same wave. The second survey in Egypt was during wave five that is 2008 and so is for Morocco, which was conducted in 2007.

The collected data through a pooled cross-sectional survey provided by the World Value Survey (WVS) of wave four (1999-2004) and wave five (2005-2008) which was conducted in 81 countries. According to Jan OTT (2005), the 10-step response format, used without verbal specification per step, reduces the risk of differences in interpretation due to the different languages used by the respondents.

Respondents were asked to answer the following question:

All things considered, how satisfied are you with your life as a whole these days?

Please use this card to help you with your answer:

1   2   3   4   5   6   7   8   9   10

Dissatisfied   Satisfied

Sources: Inglehart, R.: World Values Survey and European Values Surveys, 1999-2001.

A number of psychologists and economists argue, for instance, Frey and Stutzer (2002) that it is a simple question, in which individuals are supposed to be able to respond to it reliably. In addition, the judgment on how satisfied individuals are is left to the individual's self-report of how she or he feels about her or his own life. Hence, it is a subjective measure of owns' level of satisfaction with the life.

Other socio-demographic and socio-economic questions are also addressed to the respondents concerning, for example, their age, marital status, level of education, income level, and so on, and are also collected and analysed in the present study. These variables are included in the econometric model, which is discussed later in the present chapter.

In contrast, some variables cannot be observed such as personality traits, as reported by Frijters et al. (2004) and Ferrer-i-Carbonell (2005) and hence, they are not gathered.

In Egypt, the questionnaire was translated from English to Arabic and was adapted to the country specific questions. The sampling frame is the extended roaster for the national survey 2006. The lower age of the respondents is 16 years old and there was no mention of the higher age of the respondents. The first stage of the sampling was the stratification of primary sampling units, as mentioned in the WVS supporting technical document on the survey in Egypt. They identify 26 Governorates. Then,

they used a sample of census blocks in each governorate in order to include it in the dividing sample according to the educational level. Finally, they chose the person to be interviewed in each household. The first number of clusters was 9 using households as sample units. Randomly, they chose a sample of households in each primary stratification unit that is a number of 25 households, which were selected using systematic random sampling. The eligible individuals in each household were those who were aged 16 years old and over having at least a minimum level of education. Then the interviews were carried out. Substitution was permitted if in the selected household did not exist at the chosen address, therefore, another household was chosen from the same census block. The limit of this procedure was four times.

The census used as a reference in the survey is the national 1996 census for wave 4 (2000) and the national 2006 census for wave 5 (2008).

It envelops all governorates, which are 26 within 122 segments out of 480 according to the population distribution. It also covers urban areas, urban-rural areas, northern urban-rural areas and southern rural-urban areas. In total they were 56 urban areas and the balance for rural areas. The only limitation found in the survey in Egypt was the high proportion of housewives present at the time of the passage of the interviewer. (WVS technical supporting document)

In Morocco, on the other hand, face to face interviews were conducted, but the questionnaire was translated in French, in Arabic in some areas, and also in Barber. The sample was designed to be representative of the entire adult population that is 18 years old and older. 9 provinces (regions) were selected based on maximising diversity with respect to economic situation, ethnic composition, population size,

geographic location, level of urbanization and so forth, from both rural and urban areas.

Districts (communes) were then selected in each province (region). The largest communes were selected and then a number of additional communes were selected randomly, the number being determined by the population of the region (province).

Respondents were selected by quota in each commune based on a specific profile, according to their sex, age, education level, socio-economic and professional level and place of residence, with the proportion in each of the four age categories determined by the age distribution of the district as reported in the 1994 national census with a projection study for 2000, and then through the 2004 census for wave five. They were sampled in a total of 36 communes without clusters. In each commune, an equal number of men and women were selected. The interviews were face to face, and 50 percent of the interviews were supervised.

Next, a comparison between the levels of life satisfaction in Egypt in wave four and five is presented in a similar way to life satisfaction comparison in Morocco between the two waves, as well. In addition, a comparison is also made between the two countries in each wave.

4.3.2. Descriptive statistics:

The present section analyses the different levels of life satisfaction as reported by the respondents during the two waves four and five, and also between Egypt and Morocco in each wave.

Table 4.1 below presents the levels of life satisfaction as reported by Egyptians and Moroccans in wave 4. This wave four in the WVS was carried out in Egypt in 2000

and in Morocco in 2001. It also presents the responses of the surveyed Egyptians and Moroccans during the wave five of the World Value Survey, which was carried out in 2008 in Egypt and in 2007 in Morocco.

Table 4.1 Life Satisfaction in Egypt and Morocco (waves 4-5)

| | Percent | | | | Cumulative Percent | | | |
| | Egypt | | Morocco | | Egypt | | Morocco | |
Life Sat Scale\Years	2000	2008	2001	2007	2000	2008	2001	2007
Dissatisfied	2.3	10.3	5.4	2.3	2.3	10.3	5.4	2.3
2	42.9	4.1	3.4	2.6	45.2	14.4	8.9	4.8
3	2.4	7.7	6.9	9.6	47.6	22.1	15.8	14.5
4	2.2	8.4	7.5	16.3	49.8	30.5	23.3	30.7
5	*	16.7	32.1	31.2	49.8	47.1	55.4	61.9
6	6.7	10.3	10.5	17.2	56.5	57.4	65.9	79.1
7	0.1	14	8.8	10.9	56.6	71.5	74.7	90
8	*	12.2	6.7	4.8	56.6	83.7	81.4	94.8
9	43.3	5.4	4.3	1.8	99.9	89	85.7	96.7
Satisfied	0.1	11	14.3	3.3	100%	100%	100%	100%
Total	3000	3051	1251	1200	100%	100%	100%	100%
Base for mean	2998	3050	1251	1197				
Mean	5.4	5.7	5.8	5.3				
Standard Deviation	3.35	2.69	2.48	1.8				

Source: World Value Survey 2011 (value surveys databank)

Table 4.1 above presents the respondents' self-reported levels of life satisfaction in Egypt and Morocco during the two waves of the World Value Survey. It is to note that some data were missing in Egypt for the year 2000.

The table shows that the means of the self-reported levels of life satisfaction in Egypt have increased from 5.4 in 2000 to 5.7 in 2008. In addition, the standard deviation decreased from 3.35 in 2000 to 2.69 in 2008. This may suggest that Egyptians' self-reported levels of life satisfaction have positively increased from 2000 to 2008.

However, a closer attention to the two extremes of the "Satisfaction With the Life Scale" that are levels 1 and 10 in the table shows various distributions. Indeed, the

rate of the respondents who self-judged the levels of satisfaction with their lives as "Satisfied" has substantially increased from 0.1 percent in 2000 to 11 percent in 2008. Similarly, the rate of the responses of those who self-reported themselves as "dissatisfied" has also considerably increased from 2.3 in 2000 to 10.3 in 2008.

Additionally, in 2000, the responses are distributed towards the two extremes. The table demonstrates that 42.9 percent self-report their level of satisfaction with life in the unit 2 of the scale. That is one unit from self-reporting a total dissatisfaction. Also, 43.3 percent of the respondents self-judge their levels of life satisfaction in unit 9 of the scale. This implies that there are two groups in the surveyed population. The table shows that the surveyed population is divided in those who are satisfied and those who are dissatisfied.

In contrast, in 2008, the responses' distribution has changed and 16.7 percent of the respondents report the levels of their life satisfaction in unit 5 of the scale. In addition, the reports on the two extremes, the satisfied and the dissatisfied, have significantly dropped from 42.9 percent dissatisfied in 2000 to 4.1 percent in 2008, and from 43.3 percent satisfied in 2000 to 5.4 percent in 2008.

In short, the percentage of the respondents between 2000 and 2008 self-reporting themselves as extremely dissatisfied has increased substantially in a similar way to those self-judging their levels of satisfaction with life as satisfied. Also, at each step of the scale there is an increase in self-reported life satisfaction.

As a result, Table 4.1 shows that in Egypt the rate of respondents subjectively judging themselves are satisfied and dissatisfied have increased almost at equal rates.

On the other hand, in Morocco, the changes are more even than in Egypt. However, the table demonstrates that while there less self-report of dissatisfaction with life as

the rate of the respondents dropped from 5.4 percent to 2.3 percent for those who were at the extreme dissatisfaction, a similar observation is noticed on the other extreme of the scale. Those who self-reported themselves as extremely satisfied with their lives also dropped, but significantly from 14.3 percent to 3.3 percent.

In addition, while the surveyed population self-reporting themselves are neither satisfied or dissatisfied has slightly changed from 32.1 percent to 31.2 percent, the changes occurred in between steps 3 and 4 as well as in steps 6 and 7. The rates of the responses have increased in these four steps suggesting that more surveyed Moroccans are feeling dissatisfied with their lives in the middle steps, and so is the case of those who feel satisfied with their lives. Also, the most significant change is observed in those self-reporting themselves in step 4 driving the mean down from 2001 to 2007.

Table 4.2, on the other hand, shows the different aim of the country of Egyptians and Moroccans in wave 4 and wave 5 of the WVS.

Table 4.2 Aim of Country for Egyptians and Moroccans (waves 4-5)

	Percent (%)			
	Egypt		Morocco	
Aim of Country	2000	2008	2001	2007
A high level of economic growth	54.8	74.3	52.9	65.5
Strong defence forces	24.6	14.5	15.8	12.9
People have more say	10.3	8.2	12.2	12.7
Cities and countryside more beautiful	10.2	2.9	19.1	8.8
Observations	3000	3051	1251	1200

Source: World Value Survey 2011 (value surveys databank)

The table 4.2 shows that high level of economic growth is what both populations in both waves are aiming for their countries. Both populations exhibit a slight decrease between the two waves in reporting this aim in the detriment of people have more

say's option in wave 5. Likewise, the option of having beautiful cities and countryside is reported at higher rates in wave 5 than in wave 4.

In contrast, the respondents report as the aim of the country to have strong defence forces less in wave 5 than they did in wave 4.

This implies that while both Egyptians and Moroccans remain interested in higher economic growth, they also started to show interest in democracy in wave 5.

What are appealing in Table 4.2 are the similarities of the trends of the self-reported aim for the country.

In addition, Table 4.3 shows what the most important is for both populations in the two waves.

Table 4.3 Most Important for Egyptians and Moroccans (waves 4-5)

	Percent (%)			
	Egypt		Morocco	
Most Important	2000	2008	2001	2007
A stable economy	46.9	70.9	30	51.8
Less impersonal and more humane society	22.4	9.2	38.1	20
Ideas count more than money	7.4	4.9	8.7	7.7
The fight against crime	23.2	14.9	23.2	20.5
Observations	3000	3051	1251	1200

Source: World Value Survey 2011 (value surveys databank)

While Moroccans first exhibit an interest in less personal and more human society in 2001, both populations report that the most important is a stable economy. A significant increase in the rates of the responses in observed in the two countries.

It is to note that a stable economy is more important than the fight against the crime for the two populations in both waves.

Next, Table 4.4 demonstrates the aim of the respondents. It also compares the two waves in the two countries.

While in wave 4, both Egyptians and Moroccans demonstrate similarities in their responses by opting for a majority of maintaining order. In wave 5, on the other hand, Egyptians are shown to significantly aim at fighting the rising prices.

Table 4.4 Aim of Egyptians' and Moroccans' Respondents (waves 4-5)

	Percent (%)			
	Egypt		Morocco	
Aim of Respondent	2000	2008	2001	2007
Maintaining order in the nation	62.7	15.8	52.2	45.4
Give people more say	7.9	11.3	8.0	14.7
Fighting rising prices	18.3	70.3	25.1	34.4
Protecting freedom of speech	11.1	2.6	14.7	5.4
Observations	3000	3051	1251	1200

Source: World Value Survey 2011 (value surveys databank)

Indeed, 70.3 percent of the respondents reported this choice. On the contrary, only 34.4 percent of Moroccans' responses chose fighting rising prices.

Besides, protecting the freedom of speech also increased in the interest of the respondents in both countries in wave 5.

Table 4.5 Egyptians' and Moroccans' Confidence in Major Companies (waves 4-5)

	Percent (%)				Cumulative Percent (%)			
	Egypt		Morocco		Egypt		Morocco	
Confidence Major Companies	2000	2008	2001	2007	2000	2008	2001	2007
A great deal	8.7	8.7	13	9.1	8.7	8.7	13	9.1
Quite a lot	22.8	39.4	23	36.8	31.5	48.1	36	45.9
Not very much	28.6	30	27	35	60.1	78.1	64	80.9
None at all	39.9	21.9	36	19	100.0	100	100	100
Observations	**3000**	**3051**	**1251**	**1200**	**100 %**	**100%**	**100%**	**100%**

Source: World Value Survey 2011 (value surveys databank)

Table 4.5 above shows the Egyptians' and Moroccans' confidence in major companies in both waves. It demonstrates that both populations have similar trends in their responses.

Indeed, in wave 4, Egyptians show reluctance in trusting major companies at 39.9 percent. Adding the option not very much it totals 68.5 percent reporting not having confidence in major companies. Likewise, Moroccans in wave 4 report at 36 percent the lack of confidence in major companies. Similarly, if the option not very much is added, together they total 63 percent not having confidence in major companies.

In contrast, in wave 5, the majority of the two populations shift to report that they have confidence in major companies at 39.4 percent for Egyptians and 36.8 percent for Moroccans.

Table 4.6 Private vs. State Ownership of Business in Egypt and Morocco (waves 4-5)

	Percent (%)			
	Egypt		Morocco	
Private vs. State Bus.\Years	2000	2008	2001	2007
Private ownership of business should be increased	5.7	2.4	32.8	5.0
2	5.7	1.7	1.3	4.8
3	8.0	4.5	2.8	10.6
4	5.1	4.8	5.3	11.4
5	11.7	15.0	18	30.2
6	6.7	6.5	3.7	11.3
7	6.4	14.5	4.6	8.7
8	13.6	17.2	2.6	7
9	17.4	8.5	3.9	2.6
Government ownership of business should be increased	19.7	25	25	8.4
Observations	**3000**	**2996**	**1110**	**1012**
Mean	**6.7**	**7.2**	**5.2**	**5.3**
Standard Deviation	**2.87**	**2.41**	**3.58**	**2.29**

Source: World Value Survey 2011 (value surveys databank)

Table 3.6 demonstrates the two populations' responses on whether to increase the private ownership or to increase the state ownership.

The mean of the responses of Egyptians in wave 4 demonstrates that the majority of the respondents would rather prefer to increase state enterprises. This is also true for wave 5, in which the mean even increased higher from 6.7 in 2000 to 7.2 in 2008. It implies that Egyptians are less comfortable with privatisation.

Moroccans, on the other hand, are less definite than Egyptians in the two waves since the majority of the respondents reported step 1 on the scale in wave 4 step 5 on the scale in wave 5. This means that 32.8 percent in 2001 were in favour of an increase in private ownership. However, a significant sweepback is observed in 2007 when this rate on the same unit' scale dropped to 5 percent. The majority remained in between in wave 5.

Table 4.7 Competition Good or Harmful for Egyptians and Moroccans (waves 5)

	Percent (%)		Cumulative Percent (%)	
	Egypt	Morocco	Egypt	Morocco
Competition scale\Years	2008	2007	2008	2007
Competition is good	42.9	21.9	42.9	21.9
2	14.3	12.1	57.1	34
3	14.9	14.2	72	48.2
4	8	7.9	80	56.1
5	10.8	17.7	90.9	73.8
6	3.2	7.9	94	81.7
7	2.4	7.0	96.4	88.7
8	1.9	6.0	98.3	94.7
9	0.6	3.1	98.9	97.9
Competition is harmful	1.1	2.1	100%	100%
Total	**3051**	**1200**	**100%**	**100%**
Base for mean	**3026**	**1025**		
Mean	**2.7**	**4**		
Standard Deviation	**2.04**	**2.5**		

Source: World Value Survey 2011 (value surveys databank)

Table 4.7 above demonstrates the views of Egyptians and Moroccans on competition in wave 5, as governed by the data and shows whether competition is good or harmful.

In reality, both Egyptians and Moroccans report that competition is good. However, while Egyptians are definite, the Moroccan respondents are less at some extent. The cumulative percentage, however, shows that Moroccans cumulate 56.1 percent for the step 4 out of 10 on whether competition is good or harmful.

The present exercise permits to analyse the data as reported by the WVS during wave 4 that is 1999 to 2004 and wave 5, which is 2005 to 2008.

In sum, the descriptive statistics section also allows to highlight the changes in views, attitudes and perceptions from the early 2000s to late 2000s. In addition, it permits to compare the two populations as well. Indeed, both Egyptians and Moroccans exhibit similarities and changes in the same way from early 2000s to late 2000s in aiming high economic growth for their countries and a stable economy, in confidence in major companies. They also report that competition is good and would like to increase the public ownership of business. In contrast, dissimilarities are found what is the most important for them. While Egyptians would like to fight the rising prices, Moroccans are keener to maintain order. In addition, the self-reported levels of life satisfaction show differences in movement on the Satisfaction With Life Scale (SWLS). Egyptians, for instance, demonstrate a movement towards the two extremes of the scale dividing the respondents into two groups, but Moroccans converge towards the middle of the scale. However, both populations show an increase in the mean life satisfaction. This would necessitate further investigation in order to allow implications and inferences.

Therefore, the next section discusses the econometric model before presenting the results and their analysis afterwards.

4.4. The empirical model:

The present section discusses the econometric model used in the present study. The data governed the econometric analysis choice. In reality, the first aim was to integrate the macroeconomic variables such as GDP growth, Inflation rate, Unemployment rate, and GDP per capita. The intention was to use other econometric techniques and include year dummies in a similar way to Sanfey and Teksoz (2007). However, the data complicated the exercise and issues with multicollinearity added to the complication. Other difficulties with handling the data from Egypt, and various types of issues aroused while attempting to run the first model. Consequently, the complications met during the attempts left no choice, but to use a simple ordered probit model, assuming that the life satisfaction as a proxy for utility is the dependent variable explained by the socio-demographic and socio-economic variables.

Therefore, the model uses a latent variable and the term error absorbs the subjectivity of the responses, according to Blanchflower and Oswald (2000). The regressions control for age, the number of children, the marital status, health, education level, employment status, and income to be aligned with previous works.

Dummies are used for most of these variables and the utility function is similar to the study in chapter 3:

$$U(x) = \sum_{i=1}^{k} U_i(x_i)$$

Where: x is a k dimensional vector of attributes of life satisfaction or happiness, x_i denotes the ith element of the vector, and U describes the non-stochastic part of an individual's utility, as mentioned in Caporale et al. (2009).

The model is based on the transformation of the dichotomous dependent variable Y (L for life satisfaction) into a continuous variable Y` by the existence of a link function F(.) and F(Y) = $X\beta$ + . This function links the observed Y variable to the estimated Y^* in the model. Given any real number, the cumulative normal distribution Φ can produce a probability acting as a link function, and hence, F($\cdot$)=Φ($\cdot$), the standard normal cumulative density function (c.d.f.).

This is found in Sala-i-Martin (1997), Petersen (2002), O'halloran (2005) and Armstrong and Jackson (2009). Given any Z-score, Φ(Z) for the dependent variable Y, which may take infinitely numerous values since Z-score , it also belongs to the initial interval [1,10]. Abusing the notation, as stated by Jackman (2000) in the pursuit of completeness, μ_{j-1} can be defined as - and μ_j as + .

The latent and discrete variable, Y^*, underlying the process that is not observed, as mentioned in Vogelvang (2005), is a linear combination of some predictors (independent variables), X, plus an error term (disturbance) that it is assumed to have a standard normal distribution, as mentioned above. Hence:

$$Y^* = X_i\beta` + e_i,$$

Where, X_i is a vector of explanatory variables describing individual characteristics, β` is a vector of parameters to be estimated and e_i is an error term allowing randomness in the respondent's selection process. As already mentioned e_i is normally distributed as described in the Ordered Probit model (Mckelvey and Zavoina, 1975) and found in standard econometric textbooks.

It is to note that the sign of the regression parameters, β, can be interpreted as whether the latent variable, Y^*, increases with the regressor. If βj is positive, then an increase in the dependent variable (in the present case, a respondent change status as the independent variables are dummies) necessarily decreases the probability of

being in the lowest category of life satisfaction and increases the probability of being in the highest category. This means that Y is related to Y^* in which the higher Y^* is, Y either remains unchanged or is higher.

4.5. Results and analysis:

All the results of the ordered probit regressions are as provided in tables 4.8 and 4.9 below. Table 4.8 shows the regression results on life satisfaction for Egypt by gender for wave 4 that is in 2000, and it demonstrates the results of life satisfaction for wave 5, which is in 2008, as well. Results of the ordered probit regressions on life satisfaction for Morocco by gender for wave 4 that is in 2001 are provided in Table 4.9. It shows the regressions results on life satisfaction for Morocco by gender for wave 5, which is in 2007, too.

From Table 4.8, Unemployment is significant and negatively associated with life satisfaction for the male population. This suggests that as men become unemployed in Egypt in 2000, they were most likely to observe a decrease in the levels of their life satisfaction. The finding is in line with the theory.

For the female population, the second step of the Income scale is significant and positively associated with life satisfaction. This implies that at a low income level, Egyptian women in 2000 were more likely to be satisfied with their life.

With respect to Table 4.8, Age is observed to be significant and negatively associated with life satisfaction for the female population in Egypt in 2008. This suggests that as women become older, the most likely their levels of their life satisfaction decrease. On the contrary, Age Square is significant and positively associated with life satisfaction suggesting that older women are most likely to be more satisfied with their lives.

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Since Age is negatively linked with life satisfaction and Age Square is positively associated with life satisfaction, this implies a probable existence of a "U-shaped" relationship for the female population in Egypt in 2008. This conforms to the findings of Clark and Oswald (1994).

The results also show that Marriage is significant and positively associated with life satisfaction for women. This implies that Egyptian women are most likely to become more satisfied with their lives as they get married. This is also in line with the theory.

Furthermore, health is significant and positively associated with life satisfaction for both the male and female populations in Egypt in 2008. This suggests that as the state of health of Egyptians improves, they are more likely to become more satisfied with their lives.

Education is also important for life satisfaction. It is found that completion of secondary school is significant and negatively associated with life satisfaction. This implies that as Egyptian women complete their secondary schooling, they are most likely to become less satisfied with their lives. A possible explanation for this is that most of surveyed households found housewives present at the time of the interview.

Income at all steps with respect to Egyptian men in 2008 is found significant and positively associated with life satisfaction. This suggests that higher levels of income are more likely to increase life satisfaction. In contrast, the Egyptian female population are more likely to have life satisfaction at income levels above the fourth step. This implies that for medium and high levels of income, Egyptian women are more likely to be more satisfied.

In addition, from Table 4.9, the number of children is shown as statistically significant and positively associated with life satisfaction for Moroccan women in

2001. This suggests that women with children are more likely to be more satisfied in life.

Also, Table 4.9 shows that very good and good health is significant and positively associated with the Moroccan male population in 2001. This implies that men with higher state of health condition are most likely to be satisfied with their lives.

Being self-employed is also significant but negatively linked with life satisfaction for both the male and the Moroccan female population. This implies that being self-employed is most likely to become less satisfied with life.

In contrast, being unemployed is significant and positively associated with satisfaction in life for both men and women. This implies those who are unemployed are most likely to be satisfied with their lives. Although this is a puzzling result, a possible explanation is related to the culture aspect of the country. People tend to live in their family home up to advanced ages in life and parents, especially mothers, are happy to take care of their children at any age.

Concerning income, the results in Table 4.9 show that from step 2 to step 8 in 2001 in Morocco, for both men and women, it is found significant and positively associated with life satisfaction. This suggests that low, medium and upper medium levels of income are more likely to increase their levels of life satisfaction.

In addition, Table 4.9, health is significant and positively associated with life satisfaction for the Moroccan male population in 2007. This implies that as the state of health of men improves, they are most likely to become more satisfied with their lives.

It also shows that the income level from the fifth step to the ninth step is significant and positively associated with life satisfaction for the Moroccan male population in 2007. This suggests that the medium and high income levels for men are more likely to experience higher levels of life satisfaction.

For the Moroccan female population, on the other hand, from step three to step eight of the income levels are significant and positively associated with the satisfaction with life. This implies that medium and upper medium levels of income are more likely to be more satisfied with their lives.

Table 4.8 Life Satisfaction Egypt (2000/2008)
Ordered Probit Regressions

Life Satisfaction in Egypt	Males (2000)	Females (2000)	Males (2008)	Females (2008)
Age	-0.016	-0.049	0.022	-0.132
	(0.025)	(0.050)	(0.027)	(0.052)*
Age Squared	0.015	0.067	-0.009	0.155
	(0.029)	(0.065)	(0.032)	(0.062)*
Number of Children	0.014	0.091	-0.010	-0.039
	(0.025)	(0.057)	(0.024)	(0.051)
Married	0.125	-0.050	0.075	0.663
	(0.125)	(0.252)	(0.134)	(0.248)**
Divorced	-0.273	0.881	0.597	0.738
	(0.498)	(0.496)	(0.626)	(0.397)
Separated	-1.001	-0.635	0.510	0.566
	(0.644)	(0.594)	(0.727)	(0.859)
Widowed	-0.141	-0.335	-0.454	0.355
	(0.416)	(0.419)	(0.600)	(0.318)
Health Very Good	0.176	-0.262	0.940	1.893
	(0.168)	(0.354)	(0.172)**	(0.359)**
Health Good	0.212	0.151	0.488	1.469
	(0.160)	(0.335)	(0.154)**	(0.329)**
Health Fair	0.106	0.043	0.095	1.178
	(0.167)	(0.337)	(0.162)	(0.335)**
Education: Completed elementary education	-0.064	0.325	-	-
	(0.108)	(0.304)	-	-
Education: Incomplete Second School, Tech	0.253	0.643	0.109	0.136
	(0.195)	(0.743)	(0.119)	(0.321)
Education: Complete Secondary School, Tech	0.078	0.028	0.121	-0.075
	(0.089)	(0.162)	(0.143)	(0.430)
Education: Incomplete Secondary School	0.394	0.447	0.056	-0.618
	(0.722)	(1.120)	(0.158)	(0.221)**
Education: Complete Second School	0.136	0.225	-	-
	(0.217)	(0.301)	-	-
Education: Some University without Degree	-0.035	0.076	0.125	-0.140
	(0.146)	(0.284)	(0.081)	(0.156)
Employed Part-time	-0.031	-0.256	-	-
	(0.160)	(0.302)	-	-
Self-employed	-0.027	-0.281	-	-
	(0.093)	(0.331)	-	-
Unemployed	-0.265	-0.149	0.065	-0.033
	(0.135)*	(0.172)	(0.121)	(0.222)
Income Scale: Second Step	-0.026	0.895	0.589	0.331
	(0.188)	(0.440)*	(0.132)**	(0.297)
Income Scale: Third Step	-0.116	0.640	0.700	0.253
	(0.174)	(0.411)	(0.130)**	(0.307)
Income Scale: Fourth Step	0.052	0.605	0.817	0.442
	(0.172)	(0.369)	(0.128)**	(0.309)
Income Scale: Fifth Step	0.032	0.372	1.097	0.906
	(0.171)	(0.398)	(0.128)**	(0.286)**
Income Scale: Sixth Step	0.001	0.179	1.104	0.814
	(0.166)	(0.356)	(0.156)**	(0.315)**
Income Scale: Seventh Step	0.017	0.373	1.223	1.088
	(0.161)	(0.345)	(0.169)**	(0.335)**
Income Scale: Eight Step	-0.224	0.179	1.606	1.301
	(0.184)	(0.382)	(0.234)**	(0.485)**
Income Scale: Ninth Step	-0.219	0.340	1.520	1.272
	(0.184)	(0.383)	(0.378)**	(0.603)*
Income Scale: Tenth Step	-0.272	-0.069	6.787	1.576
	(0.300)	(0.496)	(172.480)	(0.667)*
N	1,082	334	916	262
Log likelihood:	-1478.7249	-1339.2956	-2246.6645	-3798.0851
Wald chi2(28):	228.28	350.47	223.32	357.34

Note: Robust SE in parentheses. Omitted variables: single, poor health, no formal education, full-time employed, income scale step 1. Other omitted variables are due to multicollinearity. Wald test was conducted and Prob. > chi2 = 0.000. Statistical significance is at: * *p*<0.05; ** *p*<0.01

Table 4.9 Life Satisfaction Morocco (2001/2007)
Ordered Probit Regressions

Life Satisfaction in Morocco	Males (2001)	Females(2001)	Males (2007)	Females (2007)
Age	0.013	-0.044	-0.039	0.038
	(0.028)	(0.039)	(0.035)	(0.037)
Age Squared	-0.012	0.026	0.056	-0.035
	(0.036)	(0.054)	(0.040)	(0.045)
Number of Children	0.017	0.170	0.052	-0.027
	(0.035)	(0.055)**	(0.048)	(0.050)
Married	0.075	0.074	0.100	0.175
	(0.128)	(0.158)	(0.165)	(0.152)
Divorced	0.847	0.190	0.555	-0.320
	(0.743)	(0.300)	(0.416)	(0.225)
Widowed	-0.004	-0.648	0.130	-1.166
	(0.312)	(0.609)	(1.143)	(0.619)
Health Very Good	1.031	0.576	1.370	0.775
	(0.214)**	(0.327)	(0.314)**	(0.396)
Health Good	0.800	0.337	1.090	0.445
	(0.206)**	(0.320)	(0.308)**	(0.385)
Health Fair	0.268	0.171	0.938	0.218
	(0.219)	(0.331)	(0.312)**	(0.387)
Education: Completed elementary education	0.039	0.081	0.149	-0.038
	(0.162)	(0.177)	(0.249)	(0.202)
Education: Incomplete Second School, Tech	-0.266	0.007	0.312	-0.772
	(0.174)	(0.211)	(0.267)	(0.530)
Education: Complete Secondary School, Tech	0.086	-0.042	0.493	0.239
	(0.266)	(0.301)	(0.277)	(0.362)
Education: Incomplete Secondary School	0.149	-0.110	0.288	0.127
	(0.196)	(0.219)	(0.308)	(0.282)
Education: Complete Second School	0.051	0.197	0.287	0.257
	(0.184)	(0.216)	(0.171)	(0.193)
Education: Some University without Degree	0.171	-0.119	0.869	-0.040
	(0.253)	(0.294)	(1.031)	(0.538)
Education: University with Degree	0.001	0.093	0.352	0.227
	(0.170)	(0.196)	(0.310)	(0.286)
Employed Part-time	0.010	0.081	0.240	0.630
	(0.097)	(0.139)	(0.400)	(0.364)
Self-employed	-0.678	-0.517	0.447	0.612
	(0.147)**	(0.188)**	(0.440)	(0.388)
Unemployed	0.491	0.701	0.391	0.712
	(0.213)*	(0.298)*	(0.403)	(0.383)
Income Scale: Second Step	0.761	0.614	0.122	0.537
	(0.195)**	(0.248)*	(0.429)	(0.357)
Income Scale: Third Step	0.542	0.666	0.295	0.941
	(0.198)**	(0.245)**	(0.430)	(0.353)**
Income Scale: Fourth Step	0.704	0.880	0.782	1.486
	(0.206)**	(0.250)**	(0.431)	(0.352)**
Income Scale: Fifth Step	1.064	1.309	1.254	1.581
	(0.219)**	(0.264)**	(0.422)**	(0.345)**
Income Scale: Sixth Step	1.243	1.410	1.621	2.272
	(0.287)**	(0.307)**	(0.434)**	(0.371)**
Income Scale: Seventh Step	1.376	1.656	2.252	2.482
	(0.351)**	(0.332)**	(0.464)**	(0.421)**
Income Scale: Eight Step	1.336	1.751	2.713	3.300
	(0.476)**	(0.602)**	(0.488)**	(0.451)**
Income Scale: Ninth Step	0.837	1.530	1.949	8.714
	(0.467)	(0.821)	(0.870)*	(118.522)
N	633	397	467	409
Log Likelihood:	-1428.0322	-1263.2317	-802.24389	-787.42121
Wald chi2(28):	128.15	88.40	133.66	97.12

Note: Robust SE in parentheses. Omitted variables: single, poor health, no formal education, full-time employed income scale level1. Wald test was conducted and Prob. > chi2=0.000. Statistical significance is at: * $p<0.05$; ** $p<0.01$

4.6. Conclusion:

The present study aims at examining the changes of the determinants of life satisfaction in Egypt and Morocco over the past decade. It compares the self-reported levels of life satisfaction in the two countries using the World Value Survey wave 4 (1999-2004) and wave 5 (2004-2008). The study finds that the determinants of life satisfaction in the two countries have changed over the decade. While in Egypt they have increased, the number of determinants of life satisfaction in Morocco has decreased.

In Egypt, while in the early 2000s, unemployed men were found to be dissatisfied with their lives, towards the end of the decade, the male population exhibits other determinants. Indeed, Egyptian males with very good and good health conditions are found to be satisfied. Also, the male population with the lower, medium and higher levels of income is found to be satisfied with life.

Egyptian women, on the other hand, in the beginning of the decade present a different picture, women with low-level income are found to be satisfied. While towards the end of the decade, the female population with medium, upper medium and high levels of income are the only satisfied group of the female population. In addition, married women and those with fair, good and very good health conditions are exhibiting more satisfaction with their lives. Furthermore, towards the end of the decade, life satisfaction for Egyptian women is "U-shaped" in age. In addition, those who completed secondary schooling are dissatisfied.

On the other hand, in the beginning of the decade, Moroccan women are satisfied with their lives at all levels of income along with those with children. In contrast, towards the end of the decade, only women with lower medium, medium and upper

medium levels of income are satisfied with their lives. Unconventionally, unemployed female population group is also satisfied with life. In contrast, the self-employed are found to be dissatisfied.

In 2001, Moroccan men with very good, good and fair health condition were most likely satisfied with their lives. Also, at all levels of income, the male population in early 2000s is found to be satisfied with life. Oddly enough, in a similar way to women, unemployed men are also found to be satisfied with life. Since both unemployed men and women Moroccans are found to be satisfied with their lives, this might imply that the social security system including the unemployment benefit system could be satisfactory.

In addition, in the end of the decade, male population with fair, good and very good health condition are found to be satisfied with life, and so are the groups of men at medium, upper medium and high levels of income.

In sum, the combination of the descriptive statistics and regressions' results demonstrate similarities and few differences between Egyptians and Moroccans. While the similarities are to be found in the improvement of the economic situation of the country, differences are found in what is the most important for them. Egyptians are worried about inflation, while Moroccans are keen to maintain order. The distribution of life satisfaction is also different in the two countries. Egyptians division into two groups, while the satisfaction with life in Morocco is widespread

In addition, the changes in each country' economy by observing the respective macroeconomic indicators demonstrate that while in Egypt both inflation and unemployment remained volatile and relatively high, in Morocco, although

unemployment also was comparatively high, as well, inflation has been under control since 1997 expressing stability of the economy to the general public.

As a conclusion, it appears that while in Egypt two groups in the society have been distinguished, Morocco exhibits a more equal distribution of population life satisfaction and it is widespread. It also seems that while one group in each of these societies is keen accept the market based rules, another group is reluctant and hence seeking public sector increase. Therefore, as recommendations to policy makers in Egypt is to create a system in which those vulnerable and less enthusiastic about the market oriented imperatives to be compensated, and satisfy the eager group of economic reforms with laissez-faire in order to reach equilibrium in the system. Morocco, on the other hand, according to the results, it is showing that its system is satisfying the unemployed as well as those at the different income steps. Matching these results with its macroeconomic indicators, in particular inflation, Morocco seems to keep a balanced system. However, it needs to work on improving the mean life satisfaction of its population.

In short, matching these economic situations with the findings, it seems that Egyptians necessitate a combination of maximising a welfare function directly, as found in DiTella, MacCulloch and Oswald (2001) and improve the institutions to protect the social welfare, as mentioned in Frey and Stutzer (2000) in order to work on the inequality found in Egyptians' self-reported life satisfaction. For Moroccans, the emphasis should be on improving the institutions to protect the social welfare, as well.

Chapter 5

Ambition versus Jealousy in MENA: the effect of relative income on life satisfaction

Ambition versus Jealousy in MENA: the effect of relative income on life satisfaction

Abstract:

The present study examines the effect of relative income on individuals' self-reported life satisfaction. It assumes that individuals' subjective judgement of their life satisfaction depends on both absolute and relative incomes, where absolute refers to their own income, relative is others' income around them called a reference group. If relative income has a positive impact consequently it generates ambition otherwise it causes jealousy. Using data on Algeria, Egypt and Morocco, the findings are that in 2002, Algerians' absolute income is significant and positively associated with life satisfaction, when it comes to relative income, they feel ambition. In 2000, Egyptians' own income is insignificant but in 2008, it is significant and positively associated with their life satisfaction, whereas the negative coefficient of the relative income shows that they feel jealous. In contrast, absolute income for Moroccans is significant and positively associated with their life satisfaction and the positive sign of the reference income demonstrates ambition in both waves of the World Value Survey.

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5.1. Introduction:

The present study scrutinises the effect of relative income on individuals' subjective judgment of the levels of satisfaction with their lives. It assumes the presence of the Hirschman and Rothschild (1973) "Tunnel effect", which is discussed below. This assumption invokes that individuals do not only observe their own income, but they also compare their own (absolute) income with the income (relative or reference income) of other individuals around them called the reference group. Hence, this might influence their self-reported levels of satisfaction with their lives. Consequently, their subjective judgement cannot only be explained by their absolute

income, but also through a relative or reference income. This study is aligned with previous work in the literature as in Clark and Oswald (1996), Caplin and Leahy (2001), Luttmer (2005), Senik (2004, 2008) and Clark et al. (2008). It also invokes the concept of relative utility as found in Van de Stadt et al. (1985) and later developed in Clark and Oswald (1996), Ferrer-i-Carbonell (2005), Senik (2004), Rablen (2008) and Caporale et al. (2009). Additionally, it brings into light the appealing findings that collected data on self-reported life satisfaction not only exhibits decision utility, but it also carries information on past experiences, hence experienced utility, and future expectations, thus expected utility, as found in Kahneman and Thaler (1991), Harsanyi (1997) and Rabin (1998), Easterlin (2001) and mentioned in Powdthavee (2007).

Therefore, this study uses evidence from selected countries of the Middle East and North Africa (MENA), precisely Algeria, Egypt and Morocco. These countries were included in the World Values Survey (WVS) in the wave 4 of the survey that is 1999-2004 and wave 5, which is 2004-2008 with the exception of Algeria that was only included in wave 4.

Following this introduction, there is a literature review and background section, in which a review of the already existing works on the effects of absolute and relative income is illustrated. Next, the construction of the model to test the effects of both absolute and reference income is exhibited. After that, the data is presented. Then, the results and analysis are discussed, and concluding on the findings in the conclusion section.

5.2. Literature review and background:

The cumulative effects of socio-economic crises in the MENA region resulted in each of these three countries to amass large external debts obliging them to search for international assistance. They approached the IMF and the World Bank seeking financial assistance and debts rescheduling. The Breton Woods institutions impose as precondition for assistance, the restructuring of the economy by privatising the state owned companies as a means to reduce the public deficit, opening the economy to trade by exposing it to the global market to increase the production efficiency, and finally stabilising the economy by controlling inflation and reducing unemployment. Indeed, these was the remedy that the IMF prescribed in its rescue package in order to ease the socio-economic tensions. The effects of these Structural Adjustment Programs on these countries' economies and societies were different due to the differences in their economies' structures and the severity of the crises they faced.

Egypt, for instance was the first on these three countries to approach the IMF since the 1950s as it engaged in building basic economic infrastructures. However, it is only during the late 1970s that a serious need of financial assistance proved indispensable. As a result, Egypt entered a transition and a shift from what used to be called the Arab socialism towards capitalism gradually took place.

Likewise, Morocco reached a similar situation in the 1980s following the global debts crises of 1979 and 1982. A similar rescue package was prescribed and the country gradually transited to a market based economy. Similarly, Algeria also approached the IMF and was advised to follow similar steps by engaging in large structural adjustment programs since 1995.

 In actual fact, during the 1970s, the populations of these countries experienced had feeling of hope in developing their economies and societies. However, as already

mentioned, the debts crises of late 1970s and early 1980s drove these countries towards debts rescheduling programs. These structural adjustment programs advised by the Bretton Woods institutions might have changed the income distribution of these countries. Therefore, the present study aims at investigating the consequences of such programs on the respective populations' life satisfaction.

In addition, these programs set in motion a transition from socialism to capitalism as a means to open new horizons for their economies. There exists a large literature on the effects of transition on economic performance from the neoclassical mainstream view points. Their approaches are different and so are the topics, and vary from assessing the effects of transition on GDP growth, productivity, poverty, but income inequality was a missing factor, which is probably a major concern since the general welfare of societies depends on it.

In reality, the selected countries represent an appropriate example of winners and losers as a result of economic openness and trade liberalisation, but the question that the present chapter examines is how the populations in each of these countries self report the levels of their life satisfaction when comparing themselves with others around them with similar productive characteristics that are called a reference group.

The present chapter therefore studies the effect of income on individuals' levels of life satisfaction, which is whether income is important on how people judge the satisfaction with their lives as a whole. Furthermore, it does not only examine the effect of income per se, which is considered as absolute income, but it scrutinises the effect of relative income, as well.

While absolute income refers to one's income, relative income is others' income around the individual called a reference group. The present study assumes that

individuals do not judge their levels of satisfaction with their lives by only considering their own income, which is the absolute income, but rather they also include the income of individuals around them that are the reference group. Hence, the income of others around them is called relative or reference income as the individual refers to it in self-reporting his or her own level of life satisfaction.

Besides, if the relative income has a positive impact on the individual's judgment of his or her satisfaction with life, consequently it generates positive feeling, hence increasing the expectations about the individual's future and his or her expected utility. Subsequently, it produces a feeling of ambition.

Conversely, if the relative income has a negative impact on the individual's judgment of his or her satisfaction with life, therefore, it produces a negative feeling. As a consequence, it reduces the individual's expectations about the future, and thus, causing a feeling of jealousy.

Therefore, a reference income is estimated from the observed absolute income including the assumed characteristics of what could be considered as the individual's reference group. Then, this estimated reference income is added to the explanatory variables of life satisfaction in order to assess its effect. If the sign of the coefficient of the relative income is positive, it suggests that the income of the reference group produces positive effects by creating good future expectations. Hence, it produces ambition. At the opposite end, if the sign of the coefficient is negative, then it signifies that other individuals' income generate a negative impact, hence, it produces jealousy. This exercise is possible in the case where the absolute income is found to be significant in explaining life satisfaction. The data used in the present study has been collected during waves 4 and 5 in the World Value Survey.

In actual fact, income distribution and its interdependence with social welfare have received a large attention since the 1960s. Studies by Van Praag (1968, 1973) who developed the "welfare function of income", for instance, and after that, Hochman and Rodgers (1969), Kapteyn et al. (1973, 1978, 1980) and later when transfer programs of redistributing personal income was at stake, set in motion a growing interest in the effect of income on individuals' welfare in the developed world.

However, it is Hirschman and Rothschild (1973), in their studies on developing countries, who put forward a concept labelled "the tunnel effect". This concept was developed through a simple, but valuable example found in their introduction. They analyse a situation of driving a car in a tunnel with two lanes and facing a traffic jam. The effect of observing the other lane moving first creates a positive effect that increases individuals' expectations, then, if the lane the observer is in does not move, it results in a negative impact since this observer remains in a jammed lane in comparison to drivers in the lane that moved. An analogy of this example on observed individuals' income and its effect on individuals' levels of happiness and life satisfaction that is the heart of this chapter.

In reality, in happiness studies, income is among the major determinants of happiness and life satisfaction together with age, employment, health, marital status, the number of children and so on, and has received a large attention and immense literature is available, since it is rooted in the concept of utility. Indeed, it is positively and significantly linked to happiness, but with a diminishing return.

In contrast, in spite of some attempts during the 1970s, relative income has received little attention since the early 1980s. It is Clark and Oswald (1994, 1996) that set in motion a new trend to explore the effect of income on the levels of happiness and life

satisfaction based on comparison and habitude. However, little attention has been awarded to this tunnel. In addition, Luttmer (2005) declare that economists nowadays, should accept that in the opposite of the neoclassical convention that individuals consider only their own utility in deciding on their consumption, it has been largely demonstrated that they also consider other groups utility, too. Likewise, Clark et al. (2008) state that studies on the impact of relative income on happiness and life satisfaction is the future revolution in happiness studies.

The present study, therefore, attempts to explain individuals' levels of happiness and life satisfaction when individuals compare their own income to other individuals' income, as they were in a two lanes of Hirschman's tunnel. The "traffic jam in a tunnel" example also shows than individual's happiness depends not only on the actual contentment, but also on the expected contentment. Hence, it results in what is called in psychological research "feelings of anxiety or anticipatory", as mentioned in Caplin and Leahy (2001).

In reality, the present chapter also find its essence in determining actual utility and expected utility, consequently it uses as a proxy income, in a similar way to Hirschman and Rothschild (1973), Luttmer (2005) and Senik (2008) to deal with the effect of relative income on happiness and life satisfaction based on the assumption that individuals subjective judgment on their levels of wellbeing is made through a comparison to the perceived other individuals' wellbeing.

The origin of this assumption that individuals' behaviour is perceived by other individuals is found in Kapteyn et al. (1978). However, the true root of relative utility, according to Arrow and Dasgupta (2009) is assigned to Veblen (1899) in his study on conspicuous leisure and conspicuous consumption as attempting to examine

other's wealth in an unobservable environment, and also in Duesenberry (1949) in comparing household consumptions finding that household consider both their own consumption and others' consumptions, too. Thus, individuals' income could also be assumed that individuals' income per se is not the only influence on individuals' happiness and life satisfaction, but it is also relative to others' income, too, falling under the concept of relative utility.

These other individuals are called in the jargon "reference groups". The introduction of this concept of reference group finds its root in Van Praag (1971) with the "preference drift effect", in which individual's welfare function of income shifts with other individuals income considered as a reference group, and has a negative association with the individual's utility, as stated by Arie Kapteyn, Bernard Van Praag, and Floor Van Herwaarden (1978). Therefore, it is in the same line that this chapter is basing its hypothesis.

Studies on social reference and reference groups in welfare economics are found since the 1950s in works on equivalence scales, for instance, Prais and Houthakker (1955), Presvelou (1968), Cramer (1969), Seneca and Taussig (1971), and Huib van de Stadt, Arie Kapteyn and Sara van de Geer (1985) in their paper on the relativity of utility, using evidence from a Dutch panel data, and so on. The interest in such studies progressed as empirical tests showed robustness. Indeed, one of the major contribution in the welfare function of income could be Van Praag (1968, 1971) developing the "Welfare Function of Income", followed by Kapteyn and Van Praag (1973, 1978) in which they used social reference space and equivalence scales based on Dutch data, in which12000 individuals over a five year.

According to Ravallion and Lokshin (2000), in their study on the "tunnel effect", in which they provide evidence from the 1996 Russian Longitudinal Monitoring Survey (RLMS) for 10035 individuals, mention that it could be considered that it is relative income that confines self-report happiness and life satisfaction to some reference group than absolute income.

However, this raises a crucial question of how to determine the reference group. Indeed, critiques claim that today's information society and social networks as well as the internet revolution have created an enormous scepticism as to what group the individual is referring. Likewise, Clark et al. (2003) mention that difficulties in a similar way to whether individuals are influenced and comparing themselves locally in their families, daily environments and communities or regionally or globally or in the media or with others with a similar age, ethnicity, gender, and whether the influence persist over time, as well as, the habituation effect, are all areas to be investigated.

In order to overcome these difficulties, psychologists and welfare economists, since the 1960s worked on developing different quantitative methods that have shown robustness in empirical studies, as mentioned in Van Praag (1991). In addition, Clark et al. (2008) view that such methods show more theoretical difficulties than in practice.

Indeed, a large concentration of studies dealing with relative income has also been conducted, since then. However, most of them provide evidence from single countries, for instance, Clark and Oswald (1996) exploiting the British Household Panel Study (BHPS) on 5000 British workers, McBride (2001) investigation using evidence from the United States General Social Survey, Blanchflower and Oswald

(2004), Luttmer (2005) in a regional study providing evidence from the National Survey of Families and Households (NSFH), Blanchflower and Oswald (2004) using evidence from the United States General Social Survey (GSS), Luttmer (2005) in a regional study exploiting the National Survey of Families and Households (NSFH), and Ferrer-i-Carbonell (2005) using the German Socio-Economic Panel Study (GSOEP), to name only few. Besides, most of the studies using panel data provide evidence from the developed and stable world.

In contrast, few works have been conducted using panel data on single developing country, for instance, Senik (2004) providing evidence from the Russian Longitudinal Monitoring Survey (RLMS), in which 4685 individuals were surveyed. It is Senik (2008) who is setting in motion investigation on cross countries at a large scale, in which she included an interesting number of countries providing evidence from the European Community Household Panel (ECHP), the European Social Survey (ESS) the French Institut Nationale des Statistiques et des Etudes Economiques (INSEE), the Estonia NORBALT II, the Russian RLMS, in addition to the American General Social Survey (GSS). It is in this line that the present study is drawn.

What is more, the effect of income on happiness and life satisfaction in developing countries is unlikely to be investigated and forward put a conclusion at a macro level, since basic needs have not been met yet. On the other hand, it might be appropriate to tackle the issue at a micro level, using socio-demographic subjective data by observing the effect of a comparison between individuals' own income with those who they refer to in their respective categories on their levels of life satisfaction.

As a result, the present chapter explores the question of the effect of income on happiness and life satisfaction based on individuals' own income and also through a comparison with a reference group using evidence from The World Value Survey (WVS) on Algeria, Egypt and Morocco.

5.3. Data:

The data used in the present study is from World Value Survey (WVS), which is an investigation of socio-economic and demographic survey conducted in 81 countries.

The present study inspects selected MENA countries, due to data restriction, and examines Algeria, Egypt, and Morocco.

Life satisfaction is measured by interviewing people using a single occasion and conducted in two waves for countries such as Egypt and Morocco, by a self-report question. It is in Diener et al. (1985) that this scale to measure global life satisfaction called "Satisfaction with Life Scale" (SWLS). They declare that among the various components of subjective wellbeing, the SWLS narrowly focus on the assessment of global life satisfaction; hence, it measures the respondent's satisfaction with the life as whole excluding positive affect or loneliness

The collected data is a panel data, where life satisfaction, contains scaled values from 1 to 10, and 1 represents the dissatisfied response and 10 is satisfied. Happiness and Life satisfaction are measured as ordinal discrete variables. In addition, according to Jan OTT (2005), the 10-step response format, used without verbal specification per step, reduces the risk of differences in interpretation due to the different languages used by the respondents.

Respondents were asked to answer the following question:

All things considered, how satisfied are you with your life as a whole these days? Please use this card to help you with your answer:

<div align="center">

1   2   3   4   5   6   7   8   9   10

Dissatisfied   Satisfied

</div>

Sources: Inglehart, R.: World Values Survey and European Values Surveys, 1999-2001.

In Algeria, the data belongs to wave four that is 1999-2004 and the sample size is 1282. In Egypt, there are two waves available. There are data for wave four (1999-2004), containing 3000 observations, and also for wave five that is 2005-2008. The number of observations in wave five for Egypt is 3050. Likewise in Morocco, two waves' data are available. Wave four 1999-2004, contains 1251 observations, and for wave five, 1200 observations were collected.

The survey on Algeria was translated in French including country specific questions, based on the WVS technical supporting document. The sample was designed to be representative of the entire adult population that is 18 years old and older. 10 of the 48 provinces (wilayas) were selected on purpose based on maximising diversity with respect to economic situation, ethnic composition, population size, geographic location, level of urbanization and so on.

Districts (communes) were then selected in each province (wiliaya). The largest communes were selected and then a number of additional communes were selected randomly, the number being determined by the population of the wiliaya (province).

Respondents were selected by quota in each commune based on sex and age, with the proportion in each of the four age categories determined by the age distribution of

the district as reported in the 1998 national census. They were sampled in a total of 36 communes without clusters. In each commune, an equal number of men and women were selected. Substitution was permitted at the end point of the sample and quotas were used to select respondents.

The interviews were face to face, and 50 percent of the interviews were supervised. Reliability checks were made on derived variables and data were also checked and edited to ensure that filter instructions were followed correctly, as well as, for logic or consistency, and to fall within the permitted coding ranges.

Regarding Egypt, as mentioned in the WVS technical supporting document, the sampling frame is the extended roaster for the national survey 2006. It envelops all governorates within 122 segments out of 480 according to the population distribution. It also covers both 56 urban areas and the balance for rural areas.

In addition, 25 households were selected using systematic random sampling. According to the WVS technical supporting document, concerning Morocco, similarly, face to face interviews were conducted using the French language. The questionnaire was also translated in French, in Arabic in some areas, and also in Barber. The sample was designed to be representative of the entire adult population that is 18 years old and older. 9 provinces (regions) were selected based on maximising diversity with respect to economic situation, ethnic composition, population size, geographic location, level of urbanization and so forth, from both rural and urban areas.

Districts (communes) were then selected in each province (region). The largest communes were selected and then a number of additional communes were selected randomly, the number being determined by the population of the region (province).

Respondents were selected by quota in each commune based on a specific profile, according to their sex, age, education level, socio-economic and professional level and place of residence, with the proportion in each of the four age categories determined by the age distribution of the district as reported in the 1994 national census with a projection study for 2000, and then through the 2004 census for wave five. They were sampled in a total of 36 communes without clusters. In each commune, an equal number of men and women were selected. The interviews were face to face, and 50 percent of the interviews were supervised.

In addition, some difficulties were encountered while running the estimations and the regressions. Indeed, since there are the work was on two different waves, some variables' names have changed. In spite of using the five wave aggregate, it complicated the exercise. Data has to be cleaned accordingly, and the income scales between the two waves were not classified in the same order. Also, the scales did not match. Re-arranging the variables and the observations was needed. Besides, data on Algeria are only available in wave 4.

Concerning the estimations and the regressions, difficulties in multicollinearity led to dropping some variables from the regressions' results as shown in Tables 1 to 5 below.

5.3.1. Descriptive statistics:

The present section presents some descriptive statistics of the data using cross-tabulations. This includes the satisfaction of the respondents with household's income, the respondents' perceptions and views of inequalities in their countries, income distribution and the accumulation of wealth. The data presented in the

following tables are from the WVS waves 4 and 5 and from the World Bank database (2011).

Table 5.1 below shows the respondents' satisfaction with their households' income in Algeria, Egypt and Morocco in the two waves 4 and 5. It also demonstrates the changes over the two periods in which the surveys were carried out in Egypt and Morocco, as the data on Algeria are only available from wave 4.

Table 5.1 Satisfaction with Household's Income Egypt and Morocco (waves 4-5)

	Percent (%)				
	Egypt		Morocco		Algeria
Life Sat Scale\Years	2000	2008	2001	2007	2002
Dissatisfied	3	14.4	8.3	2.2	10.1
2	40.5	8.8	5.3	7.8	5
3	3	10.6	10.6	13.3	7.8
4	3.6	9.3	9.2	12.2	6.9
5	*	18.6	33.8	30.8	11.8
6	10.2	10.1	9.3	15	13.1
7	*	11.1	8.8	9	12.8
8	0.1	8.9	5.2	5.4	12.2
9	39.5	3	2.3	2.3	7
Satisfied	*	5.2	7.2	2.2	13.4
Observations	**2998**	**3050**	**1248**	**1199**	**1273**
Mean	**5.3**	**4.8**	**5.1**	**5.0**	**5.9**
Standard Deviation	**3.26**	**2.59**	**2.32**	**1.90**	**2.79**

Source: World Value Survey 2011 (value surveys databank)

Table 5.1 above shows that the mean satisfaction with the household' income in Egypt has decreased from 5.3 in 2000 to 4.8 in 2008. What is appealing is that while in 2000 the respondents were divided in two groups through the responses that are on the two extremes of the scale. The table demonstrates that 39.5 percent of the respondents selected unit 9 of the scale, where 40.5 percent selected unit 2. In contrast in 2008, the rates of the responses are skewed towards the dissatisfaction

part of the scale suggesting that the Egyptian respondents felt less satisfied with their household's income.

From Table 5.1, Moroccans also demonstrate a similar trend in terms of the reduction of the mean of satisfaction with the household's income. However, the distribution of the responses is different than in Egypt. The table shows that responses converge towards the middle of the scale.

Concerning Algeria, only one wave data is available that is in 2002, and it shows that the responses are skewed towards the satisfaction with the household's income exhibiting higher mean satisfaction than Egypt and Morocco. Yet, 10.1 percent of the respondents report themselves as dissatisfied suggesting that there might be a group in the society that is having a different opinion than the majority regarding the satisfaction with household's income.

In addition, Table 5.2 below shows income inequality in Egypt and Morocco for the two waves and for Algeria from wave 4.

It demonstrates that while in the beginning of the decade the three populations express themselves, with a slight difference in the rates of the respondents, as they need of larger income differences as incentives, in Egypt in 2008, the mean has decreased from 8.2 percent in 2000 to 6.8 in 2008. However, the responses are skewed towards the need of more income differences.

Table 5.2 Income Inequality in Egypt and Morocco (waves 4-5)

	Percent (%)				
	Egypt		Morocco		Algeria
Income Inq. Scale\Years	**2000**	**2008**	**2001**	**2007**	**2002**
Incomes should be made more equal	2.6	6.8	11.9	12.6	4.7
2	1.2	2.9	0.7	9.7	1.7
3	1.6	5.6	3.7	7.6	1.5
4	0.8	5.8	4.3	6.4	2
5	3.1	10.3	7.6	16.6	6.3
6	3.7	8.0	3.3	8.7	6.8
7	10.4	13.4	7.9	11	9.6
8	23.1	14.9	5.1	12.8	7.9
9	20.8	9.0	6.4	6.7	9.8
We need larger income differences as incentives	32.8	23.2	49	8	49.8
Base for mean	**3000**	**3016**	**1205**	**1175**	**1261**
Mean	**8.2**	**6.8**	**7.4**	**5.3**	**8.1**
Standard Deviation	**2.05**	**2.76**	**3.21**	**2.81**	**2.57**

Source: World Value Survey 2011 (value surveys databank)

In Morocco, on the other hand, the table demonstrates that there is a division among the respondents. In 2001, while the distribution of the responses seems to be skewed towards the need of larger income differences resulting in a mean equalling 7.4 percent, there is a group of respondents reporting 11.9 percent of the income should made more equal. This rate has increased in 2007 to 12.6 percent, and the mean decreased to 5.3 percent, showing that the respondents feel a need of a more income equality.

Algeria, in contrast, in 2002, the mean 8.1 exhibits the view of the majority of respondents as they need larger income differences as incentives.

In addition, Table 5.3 below shows the income distribution in Egypt and Morocco during the last decade. Data on Algeria are unavailable.

Table 5.3 Income Distribution in Egypt and Morocco

	Egypt 2000	Morocco 1999	Egypt 2005	Morocco 2007
income share held by highest 10%	28	31	28	33
income share held by highest 20%	42	47	41	48
GINI index	33	39	32	41
income share held by lowest 20%	9	7	9	7
income share held by lowest 10%	4	3	4	3

Source: World Bank databank (2011)

Table 5.3 above shows that the income share in Egypt held by the highest 10 percent of the society has remained the same at 28 percent between 2000 and 2005. In contrast, in Morocco, it has increased from 31 percent in 1999 to 33 percent in 2007.

In addition, while the income share of the highest 20 percent in the society has decreased from 42 percent in 2000 to 41 percent in 2005, on the contrary, in Morocco it has increased from 47 percent in 1999 to 48 percent in 2007.

The table suggest that while a slight decrease in Egypt in income inequality happened during the period 2000-205, a slight increase happened in Morocco.

Finally, Table 5.4 shows the views of Egyptians and Moroccans on wealth accumulation in wave 5. It exhibits a difference in opinions between the two populations. In Egypt in 2008, the majority of the respondents report that people can get richer so there is enough for everyone as mirrored in the mean 7.8.

In contrast, in Morocco, the table demonstrates that the respondents report that people can only get richer at the expense of others translated in the mean 4.8.

Table 5.4 Wealth Accumulation in Egypt and Morocco (wave 5)

	Percent (%)		Cumulative (%)	
	Egypt	**Morocco**	**Egypt**	**Morocco**
Respondents views\Years	**2008**	**2007**	**2008**	**2007**
People can only get rich at the expense of others	5.3%	12.8%	5.3%	12.8%
2	1.7%	11.0%	7.0%	23.8%
3	3.8%	11.4%	10.8%	35.1%
4	5.2%	9.3%	16.0%	44.4%
5	10.0%	21.9%	25.9%	66.3%
6	5.1%	7.1%	31.1%	73.4%
7	12.7%	8.0%	43.8%	81.4%
8	19.3%	8.0%	63.1%	89.5%
9	9.1%	4.5%	72.2%	93.9%
Wealth can grow so there´s enough for everyone	27.8%	6.1%	100%	100%
Total	**3051**	**1200**	**100%**	**100%**
Base for mean	**3023**	**1056**		
Mean	**7.2**	**4.8**		
Standard Deviation	**2.62**	**2.62**		

Source: World Value Survey 2011 (value surveys databank)

In sum, the present section analysed some descriptive statistics and comparing the views of the respondents from the three countries as governed by the data. It has been found that the three populations neither are satisfied nor dissatisfied with their household's income, but this view has decreased in both Egypt and Morocco over the years. Also, while in Morocco the respondents are grouped in the middle of the scale, Egyptians are rather divided on the question. In addition, both Egyptians and Moroccans have switched their opinions over the period 2000-2008 on the need of larger income differences as incentives to more equal income, Algerians are rather reporting the need of larger differences. Additionally, Moroccans exhibit a slight greater inequality in terms of wealth accumulation, where Egyptians seem to be divided into two different groups.

The next section presents the econometric model used in the present study.

5.4. The empirical model:

The previous section presented the descriptive statistics by analysing various cross-tabulations and tables, the econometric model used in the present study and its construction is provided in the present section.

In the same line of previous studies, for instance, Clark and Oswald (1996), Blanchflower and Oswald (2004), Luttmer (2005) and Senik (2004, 2008) as mentioned above, the present study construct a two-step model's estimation entailing the concept of relative income in individual's utility.

The study attempts to examine the extent to which income explains individuals' life satisfaction. In addition, it assumes that absolute income is not the only determinant of life satisfaction, but relative income might also play a role.

In reality, this assumption could also be found in Bourdieu (1979) work on distinction, in which he states that "the working-class people expect every image to explicitly perform a function… and their judgments make reference, often explicitly"

In order to compare the effect of absolute and relative income on individual's happiness and life satisfaction, a utility function that includes both the absolute income and the relative income, which is derived from the individual's utility function.

According to Clark and Oswald (1996), the equity theory developed by Adam (1963, 1965) is a major contribution. The following model, on the other hand, is based on Akerlof and Yellen (1990), Clark and Oswald (1996) and Senik (2004, 2008) contributions.

The classical individual's utility function, as shown in equation (1) shows the levels of happiness and life satisfaction as a function of absolute income, age, number of children, health, education, employment, and marital status. Hence, the individual's utility function is:

$$U = f(y, a, m, n, h, e_d, o, e_m) \qquad (1)$$

Where, y is the absolute income, a is age, m is marital status, n is the number of children, h is the health, e_d is the level of education, o is occupation and e_m employment.

On the other hand, the utility that is considered in order to assess the effect of reference income on individuals' happiness and life satisfaction become:

$$U = f(y, y_R, a, m, n, h, e_d, o, e_m) \qquad (2)$$

Where, y_R is considered in equation (2) and represents the effect of reference income in addition to the already mentioned variables.

The coefficient of y_R could either be positive or negative referring to an increase or a decrease in individual's utility as compared to others' income. It, therefore, permits to show on whether the individual feels inspired by others' income or unsatisfied.

If the coefficient of the estimated relative income is positive, when the absolute income is significant in explaining life satisfaction, then it implies that the reference group inspires the individual and hence has a positive effect on the on the individual in question. This generates a positive feeling by illuminating the individual's ambition.

In contrast, if the coefficient of y_R is negative, when the absolute income is significant in explaining life satisfaction, then it suggests that the repercussions are negative on the individual are negative and causes a feeling of jealousy.

According to Clark and Oswald (1996) and Senik (2004, 2008), the individual, hence, feels either deprived and it will illuminate ambition, or feels that there is inequity, and consequently, become jealous.

In order to test for the effect of other individuals' income on the level of happiness and life satisfaction of another individual, the present study pursue Senik (2008) in first estimating the reference income that is the income of other individuals that one's compare with, and then control for this estimated reference income into equation (2) that shows the level of happiness and life satisfaction of an individual considering a reference income. Therefore, the reading is based on the sign of the coefficient of the estimated reference income, as mentioned above.

For this purpose, a reference income has to be defined, and then estimated. The present study considers individuals compare themselves to other individuals based on their various characteristics. However, for practical reasons, the present study considers that age, sex, education level, occupation, and the mode of employment could form a comparison basis. A possible rationalisation of this choice is that these attributes provide a natural standard that individuals use to compare themselves with other individuals.

$$y_R = f (a, x, e_d, o, e_m) \qquad (3)$$

Where, a is age, x is gender, e_d is the level of education, o is occupation and e_m employment.

Indeed, a comparison could be based on the same age, and hence, an individual could either feel satisfied (envy and ambition) when observing other individuals with a similar age succeeding, or might feel unsatisfied (Jealous and inequity), on the contrary. Likewise, the level of education also matters, since individuals might observe others with similar levels of education and compare themselves. Similarly, the employment status whether the individual is on full-time, part time, and self-employed.

Next the estimation is ran through the whole sample, with the exclusion of those who do not account their income, since the estimation is based on absolute income, as accounted and not as if the individual could have received if employed.

As a result, the estimated income is a function of age, sex, education level, occupation, and mode of employment.

After that, the reference income is predicted using a separately for each individual in each sample.

In reality, the rationalisation of the whole process is to include the reference income, which is the income that is a reference when individuals compare themselves. Hence, the life satisfaction is regressed.

After that, the estimated income is used as in equation (2), which means that other variables, such as marital status, the number of children, and health are also included.

It is to note that multicollinearity might influence the result, but the included variables in both steps are considered to be elements that might explain and affect individuals' life satisfaction. A possible assumption is that since these variables are included in the estimated income act on life satisfaction as a relative income.

Ideally, the regression would have been ran using an ordered probit or logit model since life satisfaction is measured on a scale 1 (dissatisfied) to 10 (satisfied) as it is mention in the data section, and hence, the ordinality of life satisfaction requires a latent models.

Indeed, Clark and Oswald (1996) and Ferrer-i-Carbonell and Frijters (2004) explore the methodologies that mirror assumptions set in the explanation of life satisfaction and on the impact of the unobservable, in the present study, reference income.

In reality, psychologists consider the measurement of life satisfaction as cardinal rather than ordinal as used by economists. However, Ferrer-i-Carbonell and Frijters (2004) is that it raises the possibility of observing the changes in life satisfaction and links them with changes in observables. Therefore, it might be appropriate in the present study uses a linear specification assuming that there are time-varying unobserved factors, which are linked to the observed, statistically.

Therefore, the present study uses a simple OLS regression to regress life satisfaction. Although the nature of the data might reveal the preference of using an ordered probit model, as found in Caporale et al. (2009), however, as mentioned by Ferrer-i-Carbonell and Frijters (2004), both OLS and ordered probit provides similar results when personality traits are not at stake. Also, the choice was motivated by the simpler interpretation the β coefficients when using OLS and this is aligned with what is found in Senik (2008).

 Additional exercises were needed when dealing with the data, which will be explained in the next section. In spite of the narration bellow, individuals' income was not declared through the whole survey and missing values were problematic. Consequently, the present study use clusters since the variable income is not

continuous, but rather defined as it is in a range between two figures. Hence, the reference income for an individual is another individual income in the same range.

5.5. Results and analysis:

The present section provides the results of the OLS regressions of the two-step exercise that is, first, when estimating the reference income and then when examining the association between reference income estimations and life satisfaction in Algeria, Morocco and Egypt. Therefore, Table 5.5 shows the results of reference income estimation in the three countries, and Table 5.6 exhibits the results of the association between the estimated reference income and life satisfaction. It is to note that the WVS data used in this study on Morocco and Egypt are available for the two waves 4 and 5, while in Algeria the data are only from wave 4. Finally, most of the discussion will be on the second step estimation, as the first step reference income estimation is an exercise to locate the reference group.

From Table 5.5, the results show the variables used in order to determine reference income by establishing what might be considered in individuals' reference groups. As discussed in the previous section, the study assumes that individuals compare themselves with others with a similar sex, education level, employment status, and profession. It is to note that in a future research Age will be included, since it might reveal that individuals also consider others with the same age.

The findings from this Table 5.5 show that gender, receiving a university degree and being manager are statistically significant, and hence this might constitute the respondents' reference group in Algeria. In contrast, in Egypt in 2000, almost all variables are statistically significant with the exception of incomplete secondary schooling and agricultural workers. This means that gender, almost all education

levels, profession, and employment status are all significant in Egypt in 2000. Fewer significant variables are provided in Table 5.5 in 2008. It is to note that some problems with missing values have complicated the exercise. Likewise, concerning data on Morocco, the table shows that there are also fewer significant variables in 2007 than in 2001 since it shows that being unskilled is significant in 2001 and it is not in 2007, for instance. Table 5.5 also shows that gender, almost all categories of education, being manager, unskilled worker and employed as full-time are all significant in Morocco in 2001. In contrast, in 2007, only completed their secondary schooling and receiving a university degree are significant. The next step is to examine the association between life satisfaction absolute income and this estimated relative income, and the results are presented in Table 5.6. It is to note that other variables that were included in the regression such as gender, education levels, professions, and employment status are not reported in Table 5.6 since the focus is mainly on life satisfaction and income comparison.

The results in Table 5.6 show that for Algeria, income is significant and positively associated with life satisfaction, and consequently, the sign of the coefficient of the relative income will determine how Algerians feel about others when self-reporting their levels of life satisfaction. In fact, the table shows that the sign of the coefficient of relative income is positive. Subsequently, Algerians are most likely to feel ambition when self-judging their levels of life satisfaction and referring to others' income.

In addition, health dummies are significant at 1 percent and positively associated with life satisfaction in line with theory.

In Morocco, Table 5.6 also shows that income is significant at 1 percent, and so is very good health, good health and self-employed. The main interest of the present study is income and relative income, and since income is significant and positively associated with life satisfaction, the next step is to observe the sign of the coefficient of the relative income, which is the estimated income.

The sign of the coefficient of the estimated income   is positive. Hence, the regression shows that income has a positive effect on life satisfaction in Morocco, and relative income, which is other individuals' income that are considered as a reference shows ambition based on the data in 2001.

 Likewise, in Morocco in 2008, the results in Table 5.6 show the similar findings, suggesting that ambition remains in individuals when referring to other individuals in the same category, as estimated by the model.

In contrast, in Egypt in 2000, only self-employment shows significance at 5 percent, as it is observed in Table 5.6 and hence, there is no association between income and life satisfaction, as suggested by the result.

Absolutely not, in 2008, the regression on Egypt shows in Table 5.6, income is significant at 1 percent, and so is very good health and good health, and all these variables are positively associated with life satisfaction in line with the theory.

Since income is significant, the interest is on the sign of the coefficient of the estimated income   that is the reference income.

Table 5.6 shows that it has a negative sign, as shown in the first column under the title "Coef." in the second row.

Consequently, the negative sign suggests that individuals are unsatisfied with their lives when comparing their own income to other individuals' income. Hence, the results show jealousy rather than ambition for Egyptians when judging their satisfaction with their lives.

Table 5.5 Relative Income in Algeria, Egypt and Morocco OLS (waves 4 and 5)

Relative income (OLS)	Alg2002	Egypt 2000	Egypt 2008	Mor2001	Mor2007
Gender	0.269	0.459	0.233	0.326	0.034
	(0.130)*	(0.147)**	(0.146)	(0.106)**	(0.102)
Education: Incomplete Secondary School, Tech	-0.590	0.010	-	0.497	-0.093
	(0.355)	(0.340)	-	(0.202)*	(0.312)
Education: Complete Secondary School, Tech	-0.173	0.776	0.507	0.580	0.923
	(0.244)	(0.155)**	(0.258)*	(0.315)	(0.316)**
Education: Incomplete Secondary School	0.125	-1.772	1.067	0.922	0.301
	(0.237)	(1.070)	(0.267)**	(0.222)**	(0.279)
Education: Complete Secondary School	0.266	1.744	0.535	1.293	0.662
	(0.231)	(0.326)**	(0.160)**	(0.226)**	(0.305)*
Education: Some University without Degree	0.249	1.475	-	1.334	0.768
	(0.297)	(0.261)**	-	(0.309)**	(0.597)
Education: University with Degree	0.626	2.151	1.726	2.039	1.203
	(0.239)**	(0.223)**	(0.213)**	(0.251)**	(0.400)**
Employer/manager of establishment with	3.373	2.466	0.004	0.922	2.365
	(0.576)**	(0.603)**	(0.630)	(1.196)	(1.320)
Employer/manager of establishment with	1.722	2.584	0.057	1.342	0.837
	(0.596)**	(0.418)**	(0.550)	(0.472)**	(1.123)
Professional worker	0.349	1.179	-0.564	-0.071	1.345
	(0.421)	(0.330)**	(0.533)	(0.319)	(1.113)
Supervisory Non manual-office worker	0.365	1.271	-0.383	0.252	1.228
	(0.488)	(0.347)**	(0.573)	(0.393)	(1.162)
Non manual-office worker	-0.155	1.678	-0.769	0.113	0.659
	(0.464)	(0.357)**	(0.550)	(0.316)	(1.085)
Foreman and supervisor	-0.024	1.637	-	-0.067	1.640
	(0.437)	(0.449)**	-	(0.470)	(1.147)
Skilled manual	0.077	1.614	-0.525	-0.078	0.089
	(0.442)	(0.325)**	(0.531)	(0.291)	(1.116)
Semi-skilled manual worker	0.061	1.129	-1.793	-0.188	-0.242
	(0.513)	(0.340)**	(1.037)	(0.316)	(1.116)
Unskilled manual	-0.544	1.457	-1.064	-0.772	0.218
	(0.479)	(0.346)**	(0.519)*	(0.279)**	(1.129)
Farmer has own farm	0.382	1.549	-0.669	-0.609	-0.371
	(0.530)	(0.393)**	(0.574)	(0.381)	(1.145)
Agricultural worker	-0.064	-0.190	-1.056	-0.688	-1.429
	(0.557)	(0.383)	(0.547)	(0.450)	(1.313)
Member of armed forces	0.435	1.489	-0.681	0.201	0.221
	(0.475)	(0.484)**	(0.669)	(0.636)	(0.155)
Employed Full-time	0.390	0.770	-	0.394	0.098
	(0.201)	(0.262)**	-	(0.158)*	(0.190)
Self-employed	-0.276	1.276	-	0.325	0.740
	(0.396)	(0.347)**	-	(0.174)	(0.868)
R^2	0.18	0.20	0.20	0.26	0.22
N	695	1,420	1,037	1,027	1,007

Note: Robust SE in parentheses, checked for outliers. Omitted variables: primary education (grouped with no education), never had a job, unemployed. Statistical significance at: * $p<0.05$; ** $p<0.01$

**Table 5.6 Relative Income and Life Satisfaction in Algeria, Egypt and Morocco
OLS (waves 4 and 5)**

Life Satisfaction	Algeria 2002	Egypt 2000	Egypt 2008	Morocco2001	Morocco2007
Income	0.194	-0.059	0.539	0.317	0.566
	(0.068)**	(0.042)	(0.042)**	(0.045)**	(0.031)**
Relative Income	0.475	-0.045	-0.059	0.400	0.294
	(0.160)**	(0.095)	(0.096)	(0.187)*	(0.066)**
R^2	0.04	0.00	0.16	0.15	0.35
N	695	1,420	1,037	1,024	1,007

Note: Robust SE in parentheses. Since the focus is on the effect of absolute and relative income on life satisfaction, other left hand side variables (regressor) are not reported but the regressions included them as shown in the model above. These are: gender, level of education, profession and employment status. Statistical significance is at: * $p<0.05$; ** $p<0.01$

5.6. Conclusion:

The present study examines the validity of the hypothesis that relative income has an effect on individuals' self-reported levels of life satisfaction. It uses evidence from the World Value Survey on three countries from the MENA region. It tests whether the individuals' judgments on the levels of their life satisfaction in Algeria, Morocco, and Egypt are influenced by other individuals' income around them, who are called a reference group. The results show that according to Algerians' self-reports on the levels of their life satisfaction, relative income, which is the income of other individuals that is considered as a reference is most likely to influence individual's judgments, since absolute income is found to be positively associated with life satisfaction. The results suggest that Algerians are most likely to feel ambition. Likewise in Morocco, the results show ambition for both surveys, in 2001 and in 2007. These findings suggest that individuals expect to receive similar income as other individuals and might feel satisfied about the income distribution in their country. In Egypt, in contrast, the results suggest that the population self-reported life satisfaction does not regard income as a significant determinant in their life satisfaction in 2000. However, in 2008, the findings show that when Egyptians are judging their levels of life satisfaction, not only income becomes significant, but relative income has a negative effect on their judgments. This suggests that they feel jealous rather than ambitious.

Finally, income inequality could be one of the major aspects of socio-economic crises. Consequently, policy makers are advised to work towards a more equal welfare system and create an adequate environment that allows social mobility.

Chapter 6: Conclusion

Chapter 6: Conclusion

This chapter presents the major conclusions that are drawn out of the present research. It is divided into four main sections. The first section highlights the overall findings of the study. The second section provides some recommendations to policy makers in Algeria, Egypt and Morocco. The third section reveals gaps and suggests areas for further research. Finally, the last section presents the limitations and the shortcomings of this thesis.

6.1. Conclusion:

This section reviews the goals in meeting the objectives set in the beginning of the present thesis and demonstrates the extent to which the research exercise has met them and advises on future research.

From the outset, this thesis has set itself the following points in meeting its objectives:

- To scrutinise the determinants of happiness and life satisfaction during the transition.

- To examine the effect of economic reforms, in the aftermath of the transition.

- To investigate one of the major determinants of life satisfaction that is absolute income in comparison to relative income.

- To determine the effect of relative income on individuals' subjective judgment of life satisfaction.

The results in Chapter 3 show that Algerians would aim for a stable economy for their country and prefer maintaining order. The most important to them is economic growth, which is found to be more essential than the fight against crime. They

disagree with the idea that rapid economic reform has negative effects, but will rather increase the gap between rich and poor. They also exhibit a substantial confidence in major companies; however, the male population is reluctant towards more privatisation. Into the bargain, Algerians women at the medium and upper medium levels of income are most likely to be satisfied with their lives. On the other hand, the male population at the lower medium, medium, upper medium and high levels of income are most likely to be satisfied with their lives.

In Chapter 4, the combination of the descriptive statistics and the regressions' results show that both Egyptians and Moroccans demonstrate similarities in the improvement of the economic situation of their countries. In contrast, differences are found in the aspects that are reported as the most important to them. Egyptians are worried about inflation, while Moroccans are keen to maintain order. The distribution of life satisfaction is also different in the two countries. Egyptians are divided into two groups, while the satisfaction in life in Morocco is widespread over the SWLS. In addition, the determinants of life satisfaction have changed over the first decade of this century. While in 2000 only Egyptian women at the lower step income were most likely to be satisfied with their lives, by contrast, in 2008, those at medium, upper medium and high levels of income were most likely to be satisfied with their lives. Also, the young and old women are most likely to be satisfied than those in their middle age. Egyptians men, on the other hand, are found to be most likely satisfied with their lives at all income levels in 2008 only.

Finally, the findings of the analysis that is developed in Chapter 5 show that according to Algerians' self-reported levels of life satisfaction, relative income which is the income of other individuals is most likely to have a positive influence in determining their levels of life satisfaction. This suggests the presence of the feeling

of ambition among Algerians, likewise, in Morocco; according to the surveys that have been carried out in 2001 and 2007, ambition appears to be the feeling that the population has when referring to others income in self-reporting their levels of life satisfaction. In contrast, in 2008 in Egypt, the results of the study show that when Egyptians are judging their levels of life satisfaction, relative income has a negative effect on their judgments. This suggests that an Egyptian is most likely to feel unsatisfied when comparing his or her own income with others' income in his or her reference group. This implies the presence of the feeling of jealousy.

In this respect, the goals set to reach the objectives have been met so far. As a result, the next section presents recommendations to policy makers.

6.2. Recommendations to policy makers:

The initial aim declared at the beginning of the present research is to assess the effect of transition on the determinants of happiness and life satisfaction in Algeria, Egypt and Morocco and investigate the interaction between the later and economic reforms. The results of the three empirical chapterss that have been presented above show specific issues are arising in each of these countries.

With regards to Algeria, since both genders at the medium and upper medium levels of income are more satisfied with their lives, and are keen to reform the economy of their country, but at the same time there is an apprehension on the effects of privatisation by the male population and its inevitable widening in the gap between the rich and the poor, policy makers should work on institutional improvements as argued by Frey and Stutzer (2000). They are therefore encouraged to create an adequate environment to increase the chances of success of these economic reforms. For instance, reforming the social security system could help to offset the apparent

male population reluctance to privatisation. On the other hand, there are lessons that should be taken from the cases of Egypt and Morocco since these countries were compared and investigated in two different times. Let's first exhibit the results on these two countries, then considering the lessons to be learned by Algeria.

Throughout the comparison between the early and the late 2000s in Egypt and Morocco; the determinants of life satisfaction have changed and so did the effect of relative income. Indeed, in Egypt, income was not a significant determinant in early 2000s. However, not only has it become significant in late 2000s, but relative income has been found to have a negative effect on population self-judgment of life satisfaction and causing a feeling of jealousy. This suggests that social mobility has become an issue. Whereas, in Morocco, on the contrary, the results show that between the beginning and towards the end of the last decade, income remained as a significant determinant of the population self-judgment of life satisfaction. On top of this, relative income has been found to be affecting this judgment positively and hence generating a feeling of ambition. This suggests that social mobility is most likely to be present in Morocco, but not in Egypt.

Additionally, since unemployed in Morocco have been found to be most likely satisfied with their lives, this implies that the social security system might be efficient, as well.

What is more, the survey descriptive statistics shows that Egyptians' respondents are divided into two groups at the extremes of the Satisfaction with Life Scale implying a satisfied and an unsatisfied group. While in Morocco, the distribution seems to be more widespread and balanced.

Therefore, with regards to Egypt, policy makers are in a need of a combination of maximising a welfare function directly, as found by DiTella, MacCulloch and

Oswald (2001) and improve the institutions to protect the social welfare, as mentioned in Frey and Stutzer (2000) in order to work on the inequality found in Egyptians' self-reported life satisfaction.

Regarding Moroccans, the emphasis should be on improving institutions to protect the social welfare, as well. In actual fact, inequality in income could be one of the major causes of socio-economic crises. Consequently, policy makers are advised on working towards a more equal welfare system by focusing on income inequality and income distribution.

Algeria on the other hand, since it exhibits similar results as in Morocco at the beginning of the century, policy makers are recommended to work on an equal welfare system as a safety net for those most vulnerable classes of the society, as well as, creating an adequate economic and social environment to allow social mobility for the most ambitious groups and sections of society, especially women, the educated, and the young.

In short, the three countries under study in the present thesis have a background in socialism hence the ideology is assumed to remain within certain sections in the society. Since, this socialism did not work and capitalism seems to divide the views among their populations, it recommended to policy makers to design a mixed policy aiming at satisfying everyone in their societies by firstly targeting the two groups that distinguish themselves, which are the socialist and the capitalist. As a result, the welfare system should be balanced the conflicting ideologies in order to satisfy the needs of the different social and economic protagonists within the society.

In addition, as a first step since the cumulative effects and the number of socio-economic crises all over the world have led to various academic debates, and which are illuminating the importance of a shift towards the economics of wellbeing in the Western World. As a result of this growing concern and consciousness, policy makers are recommended to initially follow the steps of the Scottish Executive, which requested the Centre for Cultural Policy Research to research on "quality of life" and "well-being". Indeed, a group of researchers led by Susan Galloway, David Bell, Christine Hamilton and Adrienne Scullion produced a report titled "Well-being and quality of life: measuring the benefits and culture and sports" in 2005, which was published in January 2006.

Similarly, the British Government, in 2005, as stated in Dolan (2006) also responded to the above stated alarms by committing itself in its sustainable development strategy of "Securing the Future" to provide a better understanding and focus on wellbeing. They requested, therefore, "a review of the evidence relating to the causative factors associated with various concepts and components of wellbeing", consolidated in a report produced by Paul Dolan and Mathew White, in 2006.

In the same way, across the Channel, the French President Nicholas Sarkozy, as mentioned above, called on wellbeing measures to replace Gross Domestic Product (GDP) measures in a television speech on the 14th September 2009 stating that "For years, people said that finance was a formidable creator of wealth, only to discover one day that it accumulated so many risks that the world almost plunged into chaos" adding that "the crisis doesn't only make us free to imagine other models, another future, and another world. It obliges us to do so" before declaring that "measuring well-being would make France's economy, famous for its short workweek and

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generous social benefits, hence, look more rosy" (Daily Mail, 2009) This speech was delivered on the following day of the reception of the report from the commission on the measurement of economic performance and social progress (CMEPSP). This exercise was produced as a consequence of growing concerns on the reports about the economy and the society. As a response, in February 2008, the French President Nicholas Sarkozy demanded Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi to "identify the limits of GDP as an indicator of economic performance and social progress… and to consider what additional information might be required for the production of more relevant indicators of social progress", as mentioned in Stiglitz et al. (2009).

In addition, Bakshi (2004) draws analogy between cancer cells and how they destroy themselves and the host body to the fast growing multinationals, and hence economies. Economic and socio-economic crises are alarming the world population, and the world economy cannot keep growing at its expense.

These growing concerns are the first real challenge to the United Nations System of National Accounts (UNSNA) which was activated, according to Waring (2003) "in 1953 with the aim of enabling comparisons to be made between national economies, and serving as a guide to countries developing their own accounting systems. The national economies were defined in terms of market transactions; consumption, investment, saving, income and production totals". As a matter of fact, it was not a new call for social indicators, but maybe it is time to renew with these views of implementing the GNH, for instance.

As a result, Algeria, Morocco and Egypt are advised to move from the traditional measures of welfare and implement other measures that might provide more real

information of their populations allowing them to be acquainted with their feelings and how satisfied they are with their lives.

6.3. Areas for further research:

The present research would suggest investigating the effect of reference groups in the self-evaluation of happiness and life satisfaction further. As Clark et al. (2008) suggest that the future is in reference groups. Likewise, unemployment remains a major issue worldwide; consequently, it is also an area that researchers are advised to focus on.

In addition, since the geostrategic situation of the MENA region influences the wellbeing of the European countries, mainly through immigration, researches are advised to investigate through comparative studies the differences in the values, perceptions and attitudes to different economic and political aspects of the two shores of the Mediterranean in order to create an environment where both the northern and the southern Mediterranean countries might converge in prosperity for the good of all. The disappointment of the initiatives such as the Barcelona Process and the Union for the Mediterranean are showing that subjective measurements and investigations might add substantial insights in succeeding to create a long-lasting and strong partnership that the geographic situation is imposing.

For this purpose, a multilevel econometric technique might be an appropriate modelling of the study. However, in order for this to be achievable, data has to be collected on a regular basis and made available to researchers. Countries of the southern Mediterranean are advised to gather more data and surveys are shown to illuminate essential issues that may lead if not considered on time to severe socio-economic crises.

6.4. Limitations and shortcomings:

Most of the limitations observed in the present thesis were linked to the availability of data and when available, they suffer missing values. Indeed, there was only one wave data available for Algeria. In addition, the data on Egypt proved difficult to handle, especially those in wave 4 in 2000.

In actual fact, a closer look at the data by drawing a pattern and a tree of the missing values, which is not reported in the present thesis reveals that some values are missing not at random (MNAR) where other are missing at random (MAR). This complicated further the exercise on how to deal with them.

Therefore, in a near future research, the author is planning to use multiple imputation technique, which might provide more significant results. The two-step Heckman method will also be looked at; however, this might not work since some data are MNAR.

Furthermore, problems of multicollinearity were presents, and this could be a common problem in cross-sectional data as mentioned in Caporale et al. (2009).

As a consequence, the data reduced significantly the possibilities of enhancing the scope and scale of the present thesis. Hence, the three countries are vividly encouraged to set a national observatory of socio-economic indicators, which might be responsible for collecting data on a regular basis allowing better insights on socio-economic and socio-demographic issues.

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Appendix 1:

The questions below are selected questions addressed during the survey in view of collecting the respondents' views, perceptions, attitudes, and expectations. The answers were used in each of the three studies of the present thesis. These questions are extracted from the world value survey website (www.wvs.org)

1. Happiness question:

Taking all together, would you say you are:

1- Very happy
2- Quite happy
3- Not very happy
4- Not at all happy

2. Satisfaction with your life question:

All things considered, how satisfied are you with your life as a whole these days?

Please use this card to help with your answer.

1 - Dissatisfied
2
3
4
5
6
7
8
9
10 - Satisfied

3. A woman has to have children to be fulfilled question:

Do you think that a woman has to have children in order to be fulfilled or is this not necessary?

Possible answers:

● Not necessary
● Needs children

4. Aims of country question: First choice

People sometimes talk about what the aims of this country should be for the next ten years. On this card are listed some of the goals which different people would give top priority.
Would you please say which one of these you, yourself, consider the most important?

Possible answer:
- A high level of economic growth.
- Strong defence forces.
- People have more say about how things are done.
- Trying to make our cities and countryside more beautiful.

5. Aims of respondent question: First choice

If you had to choose, which one of the things on this card would you say is most important?

And which would be the next most important?

Possible answers:

- Maintaining order in the nation
- Give people more say.
- Fighting rising prices.
- Protecting freedom of speech.

6. Most important question:

Here is another list. In your opinion; which one of these is most important? And what would be the next most important?

- A stable economy.
- Progress toward a less impersonal and more human society.
- Ideas count more than money.
- The fight against crime.

7. Rapid implementation of market performs have negative impact on national stability question:

Do you agree or disagree that rapid implementation of market economic reforms will have a negative impact on national stability?

Possible answer:

- Strongly agree.
- Agree.
- Disagree.
- Strongly disagree.

8. Effect market economic reforms question:

Which of the following statements best expresses your opinion about market economic reforms?

- The implementation of market economic reforms will increase the gap between rich and poor.
- The implementation of market economic reforms improves the lives of most (country) people.
- The implementation of market economic reforms will not change (country) economic situation very much.

It is to note that when creating dummy variables, responses were grouped together in order to only use fewer variables for practical reasons. Appendix 3 provides more details on dummies' generation concerning the next two questions.

9. Confident: Major Companies Question:

I am going to name a number of organisations. For each one, could you tell me how much confidence you have in them?
Is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? Major Companies.

Possible answers:

- Agree deal.
- Quite a lot.
- Not very much.
- None at all.

10. Private versus state ownership of business question:

Now I'd like to tell me your views on various issues. How would you place your views on this scale?

1 means you agree completely with the statement on the left; 10 mean you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between:

Private ownership of business should be increased versus Government ownership of business should be increased.

Possible answers:

1. Private ownership of business should be increased.
2.
3.
4.
5.
6.
7.
8.
9.
10. Government ownership of business should be increased.

Appendix 2:

Below are the questions asked during the survey in order to assess individuals' judgments on their financial situation of the households?

1. Satisfaction with financial situation of household question:

How satisfied are you with the financial situation of your household?

If '1' means you are completely dissatisfied on this scale and '10' mean you are completely satisfied, where would you put your satisfaction with your household's financial situation?

Possible answers:

1- Dissatisfied
2
3
4
5
6
7
8
9
10- Satisfied

2. Income equality question:

Now I'd like to tell me your views on various issues. How would you place your views on this scale?
1 means you agree completely with the statement on the left; 10 mean you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between:
Incomes should be made more equal versus. We need larger income difference as incentives

Possible answers:

1- Income should be more equal.
2
3
4
5
6
7
8
9
10 - We need larger income differences as incentives.

3. Income Scales in Algeria, Egypt and Morocco:

Since the income scales used in the regressions are mentioned by steps, below are these steps in each currency and it also provides the addressed questions during the survey:

Algeria: Country code (12) DZ

Currency: Algerian Dinar (DZD)

Please choose the appropriate answer for you:

1. Below 10.000 Dinar per month
2. 10,000 – 20,000
3. 20,000 – 30,000
4. 30,000 – 40,000
5. 40,000 – 50,000
6. 50,000 – 60,000
7. 60,000 – 70,000
8. 70,000 – 80,000
9. 80,000 – 90,000
10. 90,000 and more

Morocco: Country code (504) (MA)

Currency: Moroccan Dirham (MAD)

Please choose the appropriate answer for you:

1. Less than 5.000 DH per year
2. 5,000 – 10,000
3. 10,000 – 20,000
4. 20,000 – 25,000
5. 25,000 – 50,000
6. 50,000 – 100,000
7. 100,000 – 200,000
8. 200,000 –400,000
9. 400,000 – 600,000
10. More than 600,000 DH per year

Egypt: Country code (818) (EG)

Currency: Egyptian Pound (EGP)

Please choose the appropriate answer for you:

1. Less than 1000 Egyptian Pounds per year
2. 1001 – 1500
3. 1501 – 2,000
4. 2001 – 2,500
5. 2,501 – 3,500
6. 3,501 – 4,500
7. 4,501 – 6,500
8. 6,501 – 8,500
9. 8,501 – 12,500
10. 12,501 and more

How many children do you have	Freq.	Percent	Cum.
No child	342	45.72	45.72
1 child	76	10.16	55.88
2 children	82	10.96	66.84
3 children	70	9.36	76.2
4 children	61	8.16	84.36
5 children	42	5.61	89.97
6 children	39	5.21	95.19
7 children	15	2.01	97.19
8 or more children	21	2.81	100
Total	748	100	

State of health (subjective)	Freq.	Percent	Cum.
Very good	111	12.61	12.61
Good	289	32.84	45.45
Fair	420	47.73	93.18
Poor	60	6.82	100
Total	880	100	

Confidence: Major companies	Freq.	Percent	Cum.
A great deal	101	13.36	13.36
Quite a lot	222	29.37	42.72
Not very much	433	57.27	100
Total	756	100	

Private vs. state ownership of business	Freq.	Percent	Cum.
Private ownership of business should be	188	22.68	22.68
2	68	8.2	30.88
3	107	12.91	43.79
4	287	34.63	78.41
Government ownership should be	179	21.59	100
Total	829	100	

3.14 Summary statistics of variables in the original sample

Variable	Obs	Mean	Std Dev.	Min	Max
Satlife	1269	5.674547	2.864251	1	10
happiness	1237	2.03557	0.6697551	1	4
age	1282	35.57878	13.47078	18	88
agesq	1282	1447.17	1134.827	324	7744
marstat	1263	3.382423	2.373969	1	6
empstat	1282	3.388456	2.226894	1	8
sex	1282	1.49298	0.5001458	1	2
health	1273	2.523959	0.8114352	1	4
education	1277	2.084573	0.747444	1	3
income	1037	1.849566	0.8281558	1	3
confidence~s	1079	2.707136	0.995097	1	4
privatevss~e	1192	5.055369	3.193763	1	10

3.15 Detailed statistics of variables used in the empirical model

stats	satlife	happin~s	age	agesq	gender	empstat	health	marstat	educat~n	income
mean	5.640756	2.048319	35.28571	1354.45	1.403361	2.321429	2.426471	3.191176	12006.42	12003.28
se(mean)	0.130687	0.031327	0.479842	36.95214	0.022509	0.09001	0.037763	0.110277	0.094004	0.082287
p50	6	2	34	1156	1	2	3	1	12007	12003
sd	2.851249	0.683472	10.46892	806.2006	0.491088	1.963789	0.823889	2.405959	2.050913	1.795285
variance	8.12962	0.467134	109.5982	649959.3	0.241168	3.856466	0.678793	5.788638	4.206245	3.223047
skewness	-0.20522	0.850071	0.540001	0.985673	0.393984	1.650409	-0.25036	0.252206	-0.68202	1.565809
kurtosis	1.942003	4.553614	2.398794	3.045988	1.155223	4.385417	2.356842	1.121252	3.053421	5.690541
N	484	484	484	484	484	484	484	484	484	484
sum	2685	975	16796	644718	668	1105	1155	1519	5715056	5713559
range	9	3	42	3276	1	6	3	5	8	9
min	1	1	18	324	1	1	1	1	12001	12001
max	10	4	60	3600	2	7	4	6	12009	12010

stats	nchild	confid~s	privat~e
mean	1.865546	2.752101	5.14916
se(mean)	0.10023	0.045435	0.1471
p50	1	3	5
sd	2.186752	0.991276	3.209332
variance	4.781884	0.982627	10.29981
skewness	0.98581	-0.24152	0.167816
kurtosis	2.986708	1.982649	1.708962
N	484	484	484
sum	888	1310	2451
range	8	3	9
min	0	1	1
max	8	4	10