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A Cross-Country Assessment of the Impact of Consumption on Subjective Well-Being in the Euromed Region

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A Cross-Country Assessment of the Impact of Consumption on Subjective Well-Being in the Euromed Region

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1 Summary of Main Findings

1.1 Research Framework

Research on how economic conditions influence Subjective Well-Being (SWB) has mainly focused on the role of income as a driver of SWB. Prior studies repeatedly found income to be a modest, but significant correlate of SWB. In this research, we view income as a means to enable consumption. We therefore focus on the impact of different types of consumption activities (utilitarian-, hedonic-, and conspicuous consumption) on SWB. Doing so is indicated because people can satisfy a variety of human needs through consumption rather than through income. For example, while income arguably enables people to buy leisure goods, it is the degree of satisfaction of related needs (such as social- or esteem needs) that lead to enhanced or reduced SWB. Operationally, while previous studies suggest policy makers may act on people's disposable income to influence SWB, this study shifts the focus to need satisfaction as the central variable. Focusing on satisfaction of needs opens up the means for action. For example, satisfaction of leisure needs might be enhanced through the development of public leisure equipments such as sports fields or recreation parcs. Hence, we attempt to improve the understanding of the process through which consumption activities explain their SWB.

Research into the impact of consumption on SWB is still in its infancy; the limited available evidence is ambiguous, suggesting that the important role of consumption as driver of need satisfaction is not fully understood. Our present investigation relies on a number of core research questions:

- How does consumption influence SWB?
- Do different types of consumption (consumption of basic-, leisure-, and status-goods) have the same impact on SWB? Which type of consumption is the main driver of SWB?
- What are the mechanisms through which consumption relates to SWB?
- Do the relationships between consumption activities and SWB vary across countries (with a particular focus on Euro-Mediterranean countries)?

- Do relationships between consumption and SWB vary across income groups (very low income to high income)?

While consumption activities and needs satisfaction are universal concepts, the relative importance or impact of these activities on Sujective Well-Being might be marked culturally. For example, status goods and Esteem needs are of key importance in highly developing countries such as China. Therefore, testing our model under different economic and cultural settings offers further validation of the model. Also, since consumption is linked to income, testing the model across income groups also offers further validation.

We distinguish three types of consumption activities: functional consumption, leisure consumption and status consumption, as widely suggested in the consumer behavior literature.

- **Functional goods and services** are essential and useful for most peoples' lives. These include food, water, shelter, kitchenware, detergents, furniture, clothes, medical care, public or private transportation, personal computers, etc.
- **Hedonic goods and services** provide people fun, excitement, sensations, positive emotions or pleasurable experiences. These include restaurants, movies, playing sports and sport equipment, vacations, leisure activities, sport cars, social outings, etc. Some of these activities also permit a healthier life and increased productivity which corresponds to functional goals
- **Status goods and services** involve the consumption of goods linked to self-enhancement such as designer clothes, luxury cars, luxury watches, membership in upscale clubs, upscale homes, expensive jewelry, etc.

We predict that SWB is impacted by the level of consumption on the three types of goods but only through the process of needs fulfillment:

Figure 1: Conceptual Model

Our conceptual model relates the consumption level of the three types of goods (utilitarian, hedonic and status) to the fulfillment of needs and ultimately to SWB. We measure consumption through consumption deprivation or the level of difficulty that individuals face to consume goods and services. Based on an extensive literature review, we differentiate four types of needs that may be satisfied through consumption activities:

- **Basic needs** (food, shelter and safety),
- **Social needs** (belongingness, relatedness and social support),
- **Esteem needs** (respect, status and autonomy), and
- **Actualization needs** (self-direction, freedom, mastery).

To test our model, we collected data on representative samples of the populations of four countries (in terms of age, gender, regions and revenus):

- **Tunisia and Morocco** as Euro-Mediterranean countries and representing an intermediate state of economic development,
- **France** as a Euro-Mediterranean country representing an advanced stage of economic development,
- **Benin**, a French speaking African country (as Tunisia and Morocco) and representing a developing economy.

The choice of the countries is justified first by the definition of our subject (Well-Being in the Euromed Region which concerns three of the four countries). Second, we chose to contrast

levels of economic development with a developed country (France), two emerging economies (Tunisia and Morocco) and a developing country (Benin). Benin was chosen for being an African country (as Tunisia and Morocco) and out of convenience since one of our team member is Professor in Cotonou and could manage to collect data at the national level.

We conduct multiple analyses, including Structural Equation Modeling at the aggregate level (four countries pooled together), at the country level, and for different income groups.

1.2 Main Results

1.2.1 Direct Effects of Consumption on SWB

It may appear reasonable to link consumption directly to SWB, without considering need satisfaction. In doing so we find that:

- Consumption deprivation (for all goods - basic, leisure and status goods) has a direct negative impact on SWB at the aggregate level. The more people are deprived of any type of consumption activity, the lower is their SWB.

- The strength of the relationship is almost the same for all three types of goods (basic, leisure and status). Hence, following this simple direct effect model, all types of consumption deprivation are equally important predictors of SWB.

1.2.2 Descriptive Analysis

The results from the descriptive analyses suggest that the measures used in the questionnaire reflect what could be expected, thereby suggesting high levels of measurement validity.

- The country comparison of consumption deprivation reveals that people in France are the least deprived (in all three categories of goods), followed by Tunisia and Morocco. Benin is the country which shows the highest deprivation level across the three goods categories.

- Across all countries, deprivation is higher for status goods than for leisure goods, and deprivation of leisure goods is higher than deprivation of basic goods.

- Both needs satisfaction and SWB are higher in France and in Morocco than in Tunisia and in Benin.

- Consumption deprivation is highly linked to income: consumption deprivation of basic-, leisure-, and status goods is higher when income is lower.

1.2.3 The Central Role of Need Satisfaction

We next include the different types of Need Satisfaction into the empirical model. That is, we now assess the relationships between Consumption Deprivation on Need Satisfaction to explain SWB, suggesting that Need Satisfaction mediates the impact of Consumption Deprivation on SWB.

- At the aggregate level, the influence of consumption on SWB is explained solely through Needs satisfaction. The direct effect of consumption deprivation on SWB disappears when we introduce Needs Satisfaction as a mediator between Consumption and SWB.

- At the country level, when including need satisfaction in the model, the direct relationships of basic goods deprivation and of leisure goods deprivation to SWB becomes non-significant for all of the four countries.

Therefore, if consumption is an important determinant of SWB, it only influences SWB through the mediating effect of Needs Satisfaction.

Consequently, Need satisfaction is an important concept to be considered in terms of public policy. However, while consumption is an important predictor of Need Satisfaction (and ultimately SWB), policy makers should consider that Need Satisfaction may stem from other influences as well.

For example, media consumption is known to alter consumption-related standards of reference and may therefore account for variations in Need Satisfaction. Also, esteem needs, for example, might be influenced by the way in which citizens are treated and managed by different administrative bodies or by the quality and availability of public services in the local community.

Both at the aggregate level (4 countries) and at the level of each single country, SWB is essentially determined by the satisfaction of:

- Basic Needs (food, shelter and safety), and of
- Esteem Needs (respect, status and autonomy).
- In contrast, satisfaction of Actualization Needs contribute to SWB to a much lesser extent, and (surprisingly) satisfaction of Social Needs does not contribute to SWB at all.

Hence, Satisfaction of Basic Needs and Satisfaction of Esteem Needs are the key drivers of SWB.

1.2.4 The impact of Consumption Deprivation on Need Satisfaction

Our results show that all three types of consumption deprivation act as significant divers of Need Satisfaction.

Aggregate level analysis:

- Consumption Deprivation of Basic Goods determines essentially Basic Need satisfaction, as expected.
- Consumption Deprivation of Leisure Goods acts essentially on Basic- and Esteem Need Satisfaction. The impact is however much stronger on Esteem Need Satisfaction than on Basic Need Satisfaction.
- Consumption Deprivation of Status Goods is essentially related to Esteem Need Satisfaction. Overall, the effect of is less important than the two effects described above.

Country level analysis:

- Consumption Deprivation of Basic Goods influences Basic Need Satisfaction in three countries out of four (France, Tunisia and Benin) and influences Esteem Need Satisfaction in three countries out of four (Morocco, Tunisia and Benin).
- Consumption Deprivation of Leisure Goods influences Esteem Need Satisfaction in three countries out of four and influences satisfaction of Basic Need Satisfaction in one country only (Morocco). This confirms the high importance of Leisure Consumption for the Satisfaction of Esteem Needs.
- Consumption Deprivation of Status Goods influences Satisfaction of Esteem Needs in two countries (Morocco and Benin) and of Basic Needs in one country (Benin).

Consumption of Basic Goods and consumption of Leisure Goods are the main drivers of Need Satisfaction. The role of Consumption of Status Goods as a Driver of Need Satisfaction is much less significant.

1.2.5 Country Specificities and Differences

France

- Consumption Deprivation of Leisure Goods has an impact on Esteem Need Satisfaction, but not on Basic Need Satisfaction, Contrarily to the other countries and to the overall pattern, Social Needs Satisfaction has an impact on SWB (with a limited magnitude),
- The key driver of SWB is Esteem needs satisfaction

M**orocco**

- Consumption Deprivation of Basic Goods impacts Social Need Satisfaction, as well as Esteem Need Satisfaction.

This may reflect the observation that in lower income societies some basic goods have characteristics of leisure goods. Cigarettes, coffee, tea may become leisure goods. Similarly in low income societies, generosity through food consumption offerings brings esteem to whomever offers. In addition food generosity to the poor brings also esteem need satisfaction.

- Consumption Deprivation of Leisure Goods is overall a very important driver of three types of Need Satisfaction (Basic-, Esteem- and Actualization Need Satisfaction),
- Consumption Deprivation of Status Goods impacts Social- and Esteem Need Satisfaction,
- The key driver of SWB is Esteem needs satisfaction

Tunisia

- Consumption Deprivation of Basic Goods is the most important driver of Needs Satisfaction overall,
- The other types of Consumption Deprivation have no effect on Needs Satisfaction,
- The key driver of SWB is Esteem Need Satisfaction, followed by Basic Need Satisfaction.

Benin

- Consumption Deprivation of Basic Goods is overall the most important driver of Need Satisfaction,
- Consumption Deprivation of Status Goods has a high impact on Actualization Need Satisfaction,
- The key drivers of SWB are Basic Needs Satisfaction followed by Esteem Need Satisfaction.

While some differences emerge between the countries, it overall appears that Esteem Need Satisfaction acts in all countries a key driver of SWB.

1.2.6 The role of Income

- Income is a significant predictor of all three types of Consumption Deprivation,
- Income is related to the Satisfaction of Basic and Esteem needs,
- Income is related to SWB.

1.2.6.1 Direct effects of Consumption Deprivation on SWB

- Consumption Deprivation of Basic Goods plays a significant role for the low income groups,
- Consumption Deprivation of Leisure Goods significantly impacts SWB for the low income groups,
- Consumption deprivation of Status Goods plays a significant role for the higher income groups.

1.2.6.2 The Role of Needs Satisfaction

- Basic Need Satisfaction significantly impacts SWB in three income groups (not for the very high income group),
- Esteem Need Satisfaction significantly impact SWB in three income groups (not for the very high income group),
- Social Need Satisfaction does not impact SWB in any of the four income categories,

- Actualization Needs Satisfaction is a significant driver of SWB in two income categories out of four. However, the path coefficients are very low relative to the two other types of Need Satisfaction.

Independent of income, the results confirm the utmost importance of Basic Needs Satisfaction and Esteem Needs Satisfaction for explaining SWB.

1.2.6.3 The Impact of Consumption Deprivation on Need Satisfaction

- Consumption Deprivation of Basic Goods influences Basic Need Satisfaction in two income groups out of four (Low and average/high incomes) and Esteem Need Satisfaction in one income group (average/high incomes).

- Consumption Deprivation of Leisure Goods influences Basic Need Satisfaction and Esteem Need Satisfaction in two income groups (very low and low income groups).

- Consumption Deprivation of Status Goods marginally influences Esteem Need Satisfaction in two income groups (low and average/high income groups) and does not influence Satisfaction of Basic Needs.

Overall, the pattern observed at the aggregate or at the country levels is confirmed at the income level, except for the very high income group for which needs satisfaction does not seem to be linked to consumption activities.

Consumption of Basic goods and of Leisure goods are key drivers of needs satisfaction.

1.3 Euro-Mediterranean Countries

1.3.1 Benchmark Country comparisons: France and Benin

The two benchmark countries: France (developed country) and Benin (developing African country) have different positions than the two North African Euro-Mediterranean countries (Tunisia and Morocco):

- Benin scores lowest on average SWB, on Basic-, Social- and Esteem Need Satisfaction, on Consumption Deprivation of Basic Goods (with Morocco), of Leisure Goods and of Status Goods.
- France is the highest on average SWB (with Morocco), on Basic Needs Satisfaction (with Morocco), and is second to Morocco on Social Needs and Esteem Needs Satisfaction. France is the least deprived country for the three types of consumption (Basic, Leisure and Status goods).

1.3.2 Euro-Mediterranean Country comparisons: Morocco and Tunisia

Although being two emergent Euro-Mediterranean countries situated in the same geographical area (North Africa), the profile of the two countries is quite different on the constructs studied:

- Morocco scores highest on SWB (with France), highest on Basic Needs Satisfaction (with France), and highest on Social- and Esteem Needs Satisfaction.
- Tunisia is third to Morocco and France on average SWB, is in the third place on Basic Need Satisfaction and Social Need Satisfaction (equal to Benin in this latter case).
- With regards to Consumption Deprivation, Morocco and Tunisia are very close (equal on Consumption Deprivation of Leisure- and Status Goods, second to France. Tunisia shows less deprivation of Basic goods than Morocco although the difference is small.

It appears that although consumption deprivation is similar in Morocco and Tunisia, (higher Consumption Deprivation than in France and less Consumption deprivation than in Benin), Morocco enjoys higher Needs Satisfaction than Tunisia, as well as a higher level of overall SWB.

This difference in needs satisfaction levels between Tunisia and Morocco given similar consumption levels is a clear indication that needs satisfaction is determined by other variables than consumption. In our case, the differences between the two countries might partly reflect present differences in economic and political conditions, since the data were collected late 2012/Early 2013. However, there are no measurements in the study which enables to formally explain the differences in needs satisfaction other than consumption.

Incidentally, this shows that policy makers could directly consider needs fulfillment beyond fiscal policies or revenue redistribution that would have an impact on consumption alone and on needs satisfaction through consumption.

Morocco and Tunisia also show similarities in the divers of SWB: in these countries SWB relies, in decreasing magnitude, on (1) Satisfaction of Esteem Needs, (2) Satisfaction of Basic Needs, (3) Satisfaction of Actualization Needs.

Satisfaction of Social Needs has no impact on SWB.

A key difference between the two countries is that the main driver of Needs Satisfaction in Tunisia is Consumption Deprivation of Basic Goods. In Morocco, Consumption Deprivation of Basic-, Leisure-, and Status Goods all drive needs satisfaction.

2 Policy Implications

Enhancing SWB has since long been a major explicit or implicit life-style and policy goal for individuals, communities and nations. In the popular press, quality of life is a critical element in the ongoing discourse on economic prosperity and sustainability, but it has often been subsumed under the heading of "economic growth", or under the assumption that more income and consumption equates to better welfare. This equation of consumption with welfare has been challenged by psychological research (Diener and Lucas, 1999; Easterlin, 2003; Sirgy et al. 1995).

For example, both the New York Times and the Wall Street Journal have carried articles about the country of Bhutan's decision to use "Gross National Happiness" as their explicit policy goal rather than GNP.

Policy makers have long used so-called objective measurements of SWB, i.e. quantifiable indices of social, economic, and health indicators that are aimed to reflect the extent to which human needs are or can be met. Objective measures include indices of economic production, literacy rates, life expectancy, mortality, criminality and others that can be gathered without directly surveying individuals. These measurements cannot incorporate many issues that contribute to SWB such as self-esteem, social relationships, and psychological security. Objective indicators merely assess the opportunities that individuals have to improve SWB rather than assessing SWB itself.

We argue that SWB improves according to policy-makers' ability to favor the meeting of Human needs.

Based on Maslow's need hierarchy theory and on Deci and Ryan's psychological needs theory, we derive the theoretical notion that the greater the degree of satisfaction of needs, the greater the SWB. We distinguish lower-order needs related to biological sustenance and safety (basic needs) from higher-order needs related to social belongingness (social needs), self-esteem (esteem needs) and self-actualization (actualization needs).

We demonstrate via extensive cross-cultural analyses that if consumption is an important determinant of SWB, it is so only through the mediating effect of Needs Satisfaction. This has been demonstrated in our surveys and models at the aggregate level (4 countries pooled), at the level of each individual country (France, Tunisia, Morocco, Benin) and the income group level (from very low income to very high income groups).

Therefore, needs satisfaction is the key concept to be considered in terms of public policy.

Human needs include a wide range of needs such as subsistence, reproduction, security, affection, understanding, participation, leisure, spirituality, creativity, identity, social

relationships, or freedom. We have modeled four categories of needs (basic needs, social needs, esteem needs and actualization needs).

In our survey of representative samples of the populations of four countries, it appears that two needs are of major importance for SWB: Satisfaction of Basic Needs and Satisfaction of Esteem needs.

Our findings are in line with Costanza et al. (2008) who argue that the role of policy is both to create opportunities for human needs to be met (understanding that there exists a diversity of ways to meet any particular need), and to create conditions that increase the likelihood that people will effectively take advantage of these opportunities. SWB is a function of the degree to which each identified human need is met and the importance of the need in terms of its relative contribution to subjective well-being.

In the countries we surveyed, public policies should be targeting basic needs fulfillment and esteem needs fulfillment.

However, both the current level of satisfaction of the needs and the relative importance of each need category varies both across countries and income groups. A detailed analysis of results should be conducted before designing a policy for a given targeted group of population.

We also establish that Consumption Deprivation is an important determinant of Need Satisfaction. In particular, the Consumption Deprivation of Basic Goods strongly influence Basic- and Esteem need Satisfaction and Consumption Deprivation of Leisure Goods significantly influence the fulfillment of Esteem Needs.

This is also a general pattern that should be refined depending on the target population. For example, in France, Consumption Deprivation of Basic Goods is not an important driver of Basic- and Esteem Needs Satisfaction while this type of Consumption Deprivation impacts Need Satisfaction in Tunisia and in Benin. In contrast, in Morocco, Consumption Deprivation of Leisure Goods seems to be more impactful.

Consumption activities that influence Needs Satisfaction and ultimately SWB also vary with income. It is well known that SWB of populations is linked to income with however modest correlations between SWB of populations and wealth of countries. Also, the increase in income of segments of populations is little related to increase in SWB due to the well-known hedonic treadmill effect. However, poverty and the lack of essential basic goods lead to dissatisfaction with life in general in all countries surveyed. Compared with other determining factors, material living conditions (satisfaction of basic needs) have the greatest impact on SWB. This is true irrespective of the general level of welfare in the country.

However, what needs to be understood is the process through which income and Consumption Deprivation of Basic- and Leisure Goods influence SWB.

Looking into the levels of Need Satisfaction and into the impact of the different consumption activities on Need Satisfaction enables unique insights into this process. Particularly, our analyses of lower income groups and the analyses of a relatively poor country (Benin) allow understanding the underlying processes and inform policy makers.

Governments are concerned with promoting the welfare of their people and how to best plan and adjust policy to take care of citizens' needs and wants. Therefore, policy makers require a solid empirical information base for action. The key role of needs satisfaction that we demonstrate here (rather than mere income or consumption) should alert Policy makers that they have other means to satisfy needs of the population than merely develop policies that are targeted at improving income or consumption, such as though income tax policies, redistribution of income across segments of the population or economic programs favoring some types of consumption such as housing, individual transportation, public transport, etc.

For example, community governments can assess the extent to which its many services are effective in serving the needs of community residents. These include services for fires fighting, rescue ambulance, library, sanitation/refuse, water, police, town or county administration, planning for land use, economic development, parks and recreation, employment and job assistance, street lighting, among others.

There are also community-related services such as alcohol/drug abuse services, crisis intervention services, family planning services, support groups, legal aid services, senior citizen services, adult education, food/shelter programs, hospice and nursering services, volunteer services, youth services, cultural/leisure services, among others that have an impact on needs satisfaction (Sirgy et al., 1995).

The long-term effectiveness of these community services can be assessed periodically through assessments of Need Satisfaction, as done in the present investigation.

Needs fulfillment can also be used to conduct program evaluation at regional- as well as at national levels. State governments can regularly assess the effectiveness of services available for state residents. The need fulfillment approach is useful in guiding the formulation of public policy such that industry and public policy officials specialized in some institutional sectors (nursing, healthcare, transportation, housing, safety) can use the needs fulfillment approach to formulate public policies and design programs that would encourage the business sector to develop goods and services to meet the spectrum of Human needs in target populations.

Lastly, our results show that each country or population segment requires to be studied in detail. It seems that the complex links between consumption, need satisfaction and SWB vary across populations and segments. A good illustrative example is that of the two Euro-Mediterranean countries we surveyed (Tunisia and Morocco). Although being generally considered as comparable in terms of many dimensions (geography, economic development, religion, climate, gender roles, etc.), the results we obtain are very different across the two countries and far reaching in terms of public policy implications. Although the two countries are very similar in terms of consumption activities, they substantially differ on overall SWB and on their levels of needs fulfillment. The types of needs that have the highest impact on SWB also differ. This calls for close scrutiny of results, a fine understanding of local situations, and a consequent adaptation of policies.

3 Research Context

Evidence suggests that the well-being of citizens is vitally important for decision makers who need to implement policies that help improving quality of life. However, more research is needed to address the concept of subjective well-being (SWB) and its antecedents, as well as the comparability of the relationships between SWB and its antecedents across countries and cultures (e.g., Kahneman and Krueger 2006; Malhotra 2006).

In this research, we focus on consumption activities as antecedents of SWB.

Economists and psychologists have been working for decades on life satisfaction and well-being of individuals. The traditional view to defining well-being is based on the satisfaction of preferences and the main assumption is that people will select goods and activities that most enhance their quality of life. Therefore, quality of life of a society is based on whether citizens possess the things they need or desire. This approach to well-being undergirds much of modern economic thinking. However, there are many limitations to a definition of quality of life that rests on economics and people's ability to obtain the marketplace goods and services that they choose.

Measuring utility based on people's choices or possessions rests on assumptions about rationality and transitivity of choices (Kahneman and Varey, 1991) and the analyses of a happy society only in terms of market factors clearly ignores important elements that influence quality of life such as self-development, social relationships or the psychological meaning of possessions.

Thus, researchers have increasingly turned to psychological approaches to defining and measuring quality of life and are turning to alternative ways of thinking about and measuring utility.

Self-reported measures of utility are familiar within psychology. Subjective well-being (SWB) is often used by psychologists as an umbrella term for how we think and feel about our lives (Diener, Suh, Lucas, & Smith, 1999) and there are now robust indicators of a person's SWB where an individual's well-being is viewed as the overall assessment of quality of life.

We follow this definition of quality of life in terms of the experience of individuals. If a person experiences her life as good and desirable, it is assumed to be so. This approach to quality of life is associated with the subjective well-being tradition in behavioral sciences. Subjective well-being is therefore concerned with individuals' subjective experience of their lives.

It is therefore appropriate to measure directly how people feel about their life in the context of their own standards, because a sense of satisfaction with one's life is derived from the context of one's values and goals (Diener, 1984; Diener and Suh, 1997; Myers and Diener, 1995).

Our focus is on the impact of consumption activities of individuals on SWB. It is almost obvious to all policy makers that economic growth and increase in consumption of goods and services is necessary for nations, households and individuals. Behavioral scientists have frequently studied the extent to which monetary wealth increases quality of life and subjective well-being (SWB). It is established that people in wealthy nations are, on average, happier than those in poor nations, and there is a small yet positive association within nations between income and happiness (Diener & Biswas-Diener, 2002). However, there is much conjecture and little scientific understanding about how consumption and well-being are related. In this study, we provide initial answers to such fundamental questions about the relationships between consumption and well-being.

We attempt, through a scientific enquiry to answer such questions as:

- **Does consumption increase SWB?**
- **Do different types of consumption (consumption of basic goods, leisure goods, or status goods) have the same impact on SWB?**
- **What are the mechanisms through which consumption activities are related to SWB?**
- **Do relationships between consumption activities and SWB vary across income groups (very low income to high income)?**

- **Do the relationships between consumption activities and SWB vary across countries (with a particular focus on Euro-Mediterranean countries)?**

This field of enquiry is not only important from an academic point of view but also from a public policy perspective. The general belief is that higher consumption levels of individuals will generate higher levels of well-being. This would mean that policy makers could enhance well-being by facilitating consumption. However, we argue that the relationship between consumption and subjective well-being is not a direct one. Following the bottom-up spillover theory of life satisfaction (Sirgy 2001), we propose that consumption activities are directly related to the satisfaction of human needs. Following the need theories of Maslow's (1954) and Ryan and Deci (2000), we predict that the satisfaction of human needs will in turn influence Subjective Well-Being. Stated differently, theoretical evidence suggests that when consumption does not fulfill human needs it cannot inform well-being.

From a public policy perspective, it is important to determine how consumption activities influence need satisfaction and ultimately SWB. Some consumption activities might be more important than others to satisfy some types of needs. Some types of needs in turn might be more or less influential on SWB.

Since policy makers are ultimately interested in the SWB of their people, understanding this chain effect from consumption activities to SWB might provide guidance into what consumption activities should be developed and prioritized.

Also, establishing the mediation of need satisfaction between consumption activities and SWB might conduct policy makers to focus more on need satisfaction than on consumption activities per se. There might be other means to satisfy needs of individuals than merely favoring consumption or intervening on disposable income.

First, we examine whether different types of consumption activities are equally related to well-being. In particular, we distinguish between utilitarian, hedonic and conspicuous consumption activities. Second, we introduce mediators of the relation between consumption and

well-being. For example, we examine whether the association of utilitarian consumption activities are related to the satisfaction of basic needs and if the consumption of conspicuous goods/services are linked to the satisfaction of esteem needs. We also investigate satisfaction with life domains as another possible mediator between consumption and well-being. SWB is traditionally based on the notion that life satisfaction is based on satisfaction of various life domains such as social life, self enhancement, family life, work life, etc. (Alfonso, Allinson, Rader and Gorman 1996; Sirgy 2002). We therefore test if better predictions of well-being may be achieved by assuming a double mediation of need satisfaction and satisfaction with life domains in the relationship between consumption activities and well-being.

Third, we analyze how universal are the relationships between consumption activities and well-being. We focus on Euro-Mediterranean countries with varying levels of economic development (Tunisia, Morocco as emergent economies, and France as a developed economy), which we also contrast with a poorer country from the same continent as Tunisia and Morocco (Benin). If the relations vary, it would suggest that context, general economic conditions and culture may influence the relationships between consumption and well-being. For example, is consumption of basic goods more important to well-being in poor nations where fulfillment of basic need is a bigger issue, and is consumption of leisure goods determinant in emerging countries? Are the relationships between consumption and SWB the same across income groups?

4 Research Objectives

The research objectives are:

1. To improve understanding of how consumption relates to SWB,
2. To model the process through which consumption may impact SWB in introducing theoretically based mediators between consumption and SWB,
3. To distinguish the relative impact of the three types of consumption on SWB (basic goods, leisure goods, and status goods),
4. To empirically test our model in various Euro-Mediterranean countries (Morocco, Tunisia, France) and a developing country (Benin),
5. To conduct model comparisons across homogeneous population segments (income-based groups),

6. To identify opportunities for societal developments that should promote well-being of populations.

5 Research Method

The research project is grounded on extensive literature research conducted by the authors, the broad experience of our team members in the fields of subjective well-being and quality of life (Dr. Merunka, Dr. Sirgy), measurement scale development and the analysis of psychometric data in cross-cultural settings (Dr. Bartikowski), as well as culture-specific knowledge of the Euromed region (Dr. Ghali) and of other benchmark countries (Dr. Sogbossi-Bocco) and the opportunity and ability to collect relevant and quality data in our four target countries (Morocco, Tunisia, Benin, and France).

We started this research project in early 2011 following the proposal submitted to FEMISE and the support of FEMISE.

The research was conducted following three major steps:

1. **Theoretical and conceptual developments including:**
    - An extensive literature review enabled to cover the concept of SWB, the theory of SWB, the theories of need fulfillment and models linking any type of consumption activities to SWB,
    - An identification of concepts considered as mediators between Consumption activities and SWB and having potential to explain through which chain of effects consumption might influence SWB,
    - An identification of measurements and scales applied to the concept we deal with (consumption, need fulfillment, satisfaction with life domains, SWB),
    - The development of the research model linking consumption activities to SWB. The original research model includes two mediators (need satisfaction and satisfaction with life domains),

2. **The Initial test of the Research Model, including:**
    - The translation to French and adaptation of measurement scales,
    - The building of the questionnaire,
    - Collection of data on a large sample representative of the French population (n=800 individuals),
    - Scale purification,
    - Estimation of the model through Structural Equation Modeling techniques (SEM),
    - Refinement of the research model
    - Model testing on homogeneous segments and understanding differences across groups.

3. **The Final test of the Model across 4 countries, including:**
    - The revision of some measurement scales,
    - The development of the new questionnaire,
    - The translation of the questionnaire in Arabic for data collection in Tunisia and Morocco,
    - Collection of data in 4 countries on large representative samples of the French, Moroccan, Tunisian and Benin populations (n=500 to 800 individuals),
    - Scale purification,
    - Test of cross-cultural measurement invariance,
    - Estimation of the model through Structural Equation Modeling techniques (SEM),
    - Model testing at the aggregate level (all countries pooled), at the country level, and on homogeneous income groups,
    - Understanding main effects and effects across nations and groups.

6 Conceptual Development

6.1 The Concept of Well-Being

Well-being may be defined in terms of objective-list accounts, or in terms of subjective mental-state accounts (e.g. Parfitt 1984). Policy makers routinely adopt objective accounts to target poverty, unemployment, literacy rates, or violent crime. However, too little attention has been paid to understand how people actually feel. This lack of attention may lead to misguided and unsustainable policies (Diener and Seligman 2004; Layard 2005; Michalos 1997). For example, despite the fact that the wealth of nations is widely considered a strong predictor of well-being, Diener, Diener, and Diener (1995) found that Japanese are considerably less happy than the economic prosperity of Japan would predict. This raises questions about the sense of policies that pursue economic growth if they fail to make people any happier (Frank 1999). Focusing on income and possessions as measures of welfare ignores non-material sources of welfare and may not explain specific poverty-related paradoxes (Graham 2009).

Social indicators are societal measures (such as number of medical doctors per capita) that reflect objective circumstances in a given cultural or geographic setting. Social indicators are based on objective, quantitative statistics rather than on individuals' subjective perceptions and objectivity certainly is a strength of social indicators. These indicators can be easily defined and quantified and enable making comparisons across nations or regions. However, objective indicators do not accurately reflect people's experience of well-being (Andrews and Withey 1976; Campbell, Converse and Rogers 1976). Sense of well-being is an individual experience far more complex than assumed by descriptive social indicators. They may lead to a confusion of the important difference between the physical and psychological aspects of well being and objective factors show low levels of correlation with subjective well-being as reported by individuals (Campbell, Converse and Rogers 1976).

This leads to directly assessing the subjective, experiential elements of well-being, which is the position we adopt in this research.

Research into subjective well-being (SWB) is an area in the social sciences that refers to people's cognitive and affective evaluations of their lives (Diener 1994; Diener and Diener 1995;

Diener, Diener and Diener 1995; Myers and Diener 1995; Veenhoven 1991). SWB is frequently viewed as a higher order construct consisting of correlated components (Andrews and Withey 1976; Lucas, Diener, Grob, Suh and Shao 2000; Stones and Kozma 1985). SWB consists of a cognitive evaluation of life (satisfaction with life in general) and a report of one's emotional experiences (the presence of frequent positive emotional experience and the absence of frequent negative emotional experience). The Life Satisfaction component is described as a long-term trait factor, more enduring than the state factor, or short-term emotional reactions to present circumstances (Diener 2000). Life satisfaction constitutes a person's global evaluation of her/his overall situation (Diener and Diener 1995) and is considered as a relatively stable evaluation (Diener, Oishi, and Lucas 2003).

Given our interest in the stable and enduring aspects of well-being for consumers, we focus on life satisfaction as a measurement of SWB.

6.2 Consumption and SWB

Subjective Well-Being is an important issue from a consumer perspective, as evidenced by an emerging stream of research of well-being in the macromarketing and consumer behavior literatures (Malhotra 2006; Peterson and Ekici 2007; Sirgy and Lee 2006). However, different perspectives regarding the relationship between consumption and well-being offer inconsistent findings. Demand theory proposes that consumers tend to maximize their satisfaction through the exchange and consumption of goods (Suranyi-Unger, 1981).

Along this line, consumption as a mass phenomenon appears necessary for attaining a pleasant life in modern consumer societies (Schor, 1999).

In contrast, behavioral research suggests that consumption may lead to detrimental outcomes. McCraken (1988) refers to the Diderot effect, "a force that encourages the individual to maintain a cultural consistency in his/her complement of consumer goods" (McCracken, 1988, p. 123). Consumption per se may cause consumers to always develop their consumption level, and that consumption may imprison consumers and frustrate their efforts to redefine themselves. This consumption activity may prohibit the attainment of consumer satisfaction and SWB. Also,

the literature on materialism demonstrates that if consumption becomes the central goal in life such that individuals devote all time, effort and money on consumption and acquisition of goods and services, they will suffer negative well-being effects (Burroughs & Rindfleisch, 2002; Richins & Dawson, 1992). Finally, the concept of *hedonic treadmill* (Brickman & Campbell, 1971) indicates that people adapt to their current consumption level and happiness. Therefore higher levels of consumption may make happy in the short term but not in the long term. Markus and Schwartz (2010) suggest that freedom and choice, as understood by well educated affluent Westerners, is not an universal aspiration, but a cultural construction. Greater choice may produce paralyzing uncertainty, depression, and selfishness.

Therefore, too much consumption may also lead to low well-being (Goodwin et al., 2007).

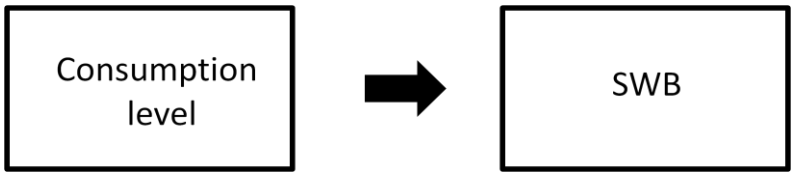
It follows that the impact of consumption on SWB is ambiguous and not fully understood.

6.3 Modeling the Impact of Consumption on SWB

6.3.1 Direct Effects

Just as many studies in economics and social studies have measured a direct impact of income on SWB, early studies of consumption and SWB have directly related both concepts assuming a direct effect of consumption on SWB. Hypotheses are generally that higher consumption leads to higher SWB. These studies in the domain of consumption and SWB focused on specific aspects of consumption such as *conspicuous consumption* (Linsen, Van Kempen and Kraaykamp 2011) or *consumption of leisure activities* (Brajša-Žganec, Merkaš and Šverko 2011). Although they constitute an interesting first step, these studies are somewhat limited in that they do not enable to contrast different types of consumption activities and do not enable understanding the processes through which consumption might affect SWB.

Figure 2: Direct effect of consumption on SWB



6.3.2 The Mediating Effect of Need Fulfillment

The market-centric perspective posits that consumers enhance their well-being by recognizing their own needs and satisfying them by engaging in consumption activities and attaining consumer products (Samli, Sirgy, and Meadow, 1987). Therefore, researchers consider need satisfaction as a determinant of SWB (Ryan and Deci 2000; Ryff and Keyes 1995). It is well known that fulfillment of basic and psychological human needs improve psychological health and well-being (Betz 1984; Costanza et al. 2007; Diener et al. 2010; Milyavskaya and Koestner 2011). For example, individuals experience fulfillment of need for relatedness through intimate and long-term relations with important others (Baumeister and Leary 1995). The need for connectedness is often operationalized with regard to close friends and family, but can also be relatedness between students and teachers or that of individuals with their larger communities (Clark, Frijters, and Shields 2008; Deci and Ryan 2000). These connections are positively impact life satisfaction (Jorgensen, Jamieson, and Martin 2010).

Consider the following study: Across a sample of 123 countries, Tay and Diener (2011) were able to demonstrate that fulfillment of a variety of needs (basic needs for food and shelter, safety, social, respect, mastery, and autonomy needs) are predictors of SWB, and that income (which is traditionally linked to SWB) adds no additional explanatory power to SWB once need fulfillment was taken into account.

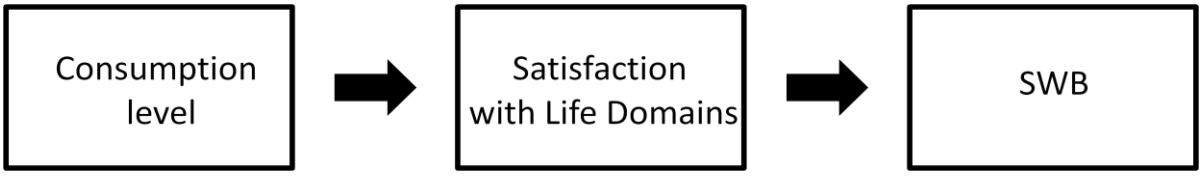
All these findings highlight the importance of the role of need fulfillment in predicting SWB.

Figure 3: Effect of consumption on SWB mediated by needs fulfillment

6.3.3 The Mediating Effect of Satisfaction with Life Domains

SWB is traditionally based on the notion that life satisfaction results in satisfaction of various life domains such as social life, self, family, work, etc. (Alfonso, Allinson, Rader and Gorman 1996; Ruiz Paiva et al. 2009; Sirgy 2002; Sirgy, Lee and Rahtz 2007). This is referred to as the bottom-up spillover theory. Some studies relate consumption to SWB indirectly through the meditational effect of satisfaction with life domains. For example, Zhong and Mitchell (2010) posit the effect of leisure consumption on satisfaction with three life domains (leisure time, social life and health) which in turn influence SWB. These previous studies focus on only one type of consumption to explain variations in SWB.

Figure 4: Effect of consumption on SWB mediated by satisfaction on Life Domains



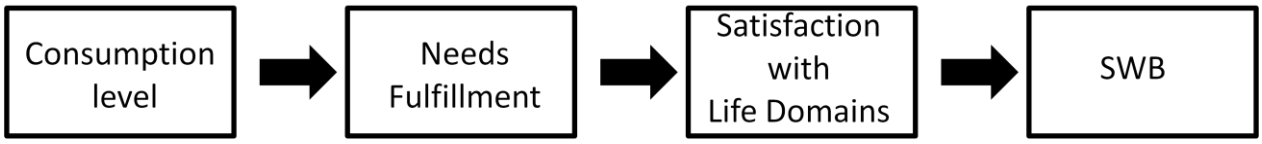
7 The Conceptual Model of the Research

Sirgy, Efraty, Siegel and Lee (2001) propose that need satisfaction contributes to satisfaction in life domains and, in turn, that satisfaction in the major life domains contributes directly to satisfaction with overall life. Biswas-Diener and Diener (2001) also show that satisfaction in specific domains related to basic needs (food and material resources) is a predictor of life satisfaction and Tay and Diener (2011) demonstrate that fulfillment of different needs make separable contribution to SWB. Satisfaction with life domains can therefore be considered as a mediator between need satisfaction and SWB.

Based on this stream of research, we hypothesize that consumption activities contribute indirectly to SWB through the mediating effect of need fulfillment and satisfaction with life domains (Figure 4).

In our preliminary study conducted in France, we explore the relationships between consumption, need fulfillment and satisfaction with life domains to predict subjective well-being (SWB).

Figure 5: Conceptual Framework (Study 1)



Past studies attempted to explain SWB with only one type of consumption as the independent variable (e.g. leisure goods in Zhong and Mitchell, 2010). The present study considers consumption activities more globally and differentiates three types of consumption activities, namely consumption of basic goods and services (utilitarian or functional consumption), consumption of leisure goods and services (hedonic consumption), and consumption of luxury goods and services (conspicuous consumption):

- **Functional goods and services** are essential and useful for most peoples' lives. These include food, water, shelter, kitchenware, detergents, furniture, clothes, medical care, public or private transportation, personal computers, etc.
- **Hedonic goods and services** provide people fun, excitement, sensations, positive emotions or pleasurable experiences. These include restaurants, movies, playing sports and sport equipment, vacations, leisure activities, sport cars, social outings, etc.
- **Status goods and services** involve the consumption of goods linked to self-enhancement such as designer clothes, luxury cars, luxury watches, membership in upscale clubs, upscale homes, expensive jewelry, etc.

We predict that SWB is impacted by the level of consumption on the three types of goods through the process of need fulfillment and satisfaction of related life domains. The conceptual model relates the consumption level of the three types of goods (utilitarian, hedonic and conspicuous) to the fulfillment of needs. Based on Maslow (1954), Deci and Ryan (2000), Ryff and Keyes (1995), and more recently on Sirgy and Wu (2009) and Tay and Diener (2011) we differentiate four types of needs that may potentially be satisfied by the consumption activities considered here. These are:

- **Basic needs** (food, shelter and safety),
- **Social needs** (belongingness, relatedness and social support),
- **Esteem needs** (respect, status and autonomy), and
- **Actualization needs** (self-direction, freedom, mastery).

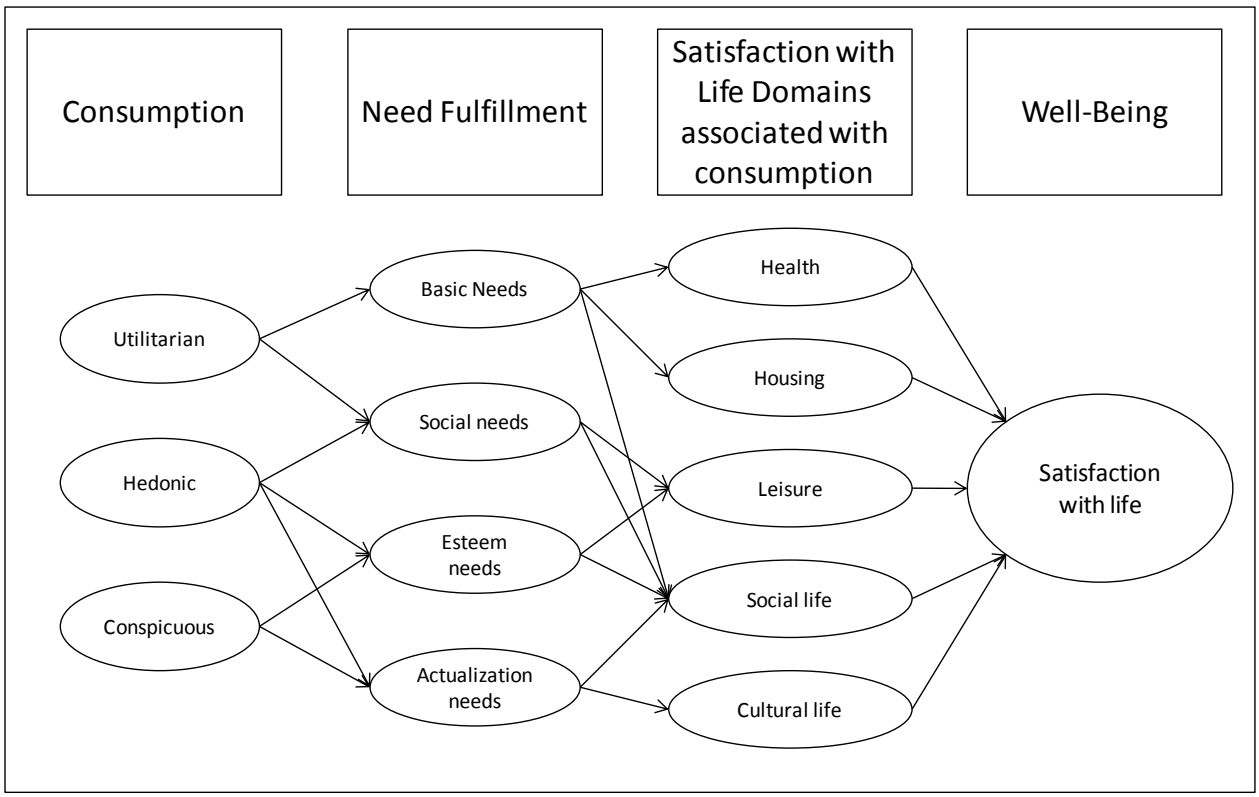
SWB is traditionally based on the notion that life satisfaction results in satisfaction of various life domains such as social life, self, family, work, etc. (e.g., Alfonso, Allinson, Rader and Gorman 1996; Sirgy 2002; Sirgy, Lee and Rahtz 2007). Sirgy, Efraty, Siegel and Lee (2001) proposed that need satisfaction contributes to satisfaction in life domains and, in turn, that satisfaction in the major life domains contributes directly to satisfaction with overall life. Biswas-Diener and Diener (2001) also show that satisfaction in specific domains related to basic needs (food and material resources) is a predictor of life satisfaction. Satisfaction with life domains can therefore be considered as a mediator between need satisfaction and SWB.

Based on Lee et al. (2002), Ruiz Paiva et al. (2009) and Singh and Arora (2010) we differentiate five types of life domains that are potentially affected by the consumption activities considered here:

- Satisfaction with **health**,
- Satisfaction with **housing**,
- Satisfaction with **leisure**,
- Satisfaction with **social life**
- Satisfaction with **cultural life**.

Finally satisfaction levels with the different life domains are related to SWB. The model we propose is shown in figure 5.

Figure 6: Initial Research Model



We also anticipate that the previously described relationships may vary across individuals and particularly across levels of income. We therefore hypothesized that income moderates these relationships such as the consumption of basic goods and services is likely to play a greater role in SWB in low and middle income consumers; conversely, status consumption should play a major role in SWB for high-income consumers. We also believe that hedonic consumption plays a major role among all three income groups.

By exploring these relationships, this research contributes to the literature and to the knowledge on the effects of consumption on SWB in at least three ways:

1. We consider a wide range of consumption activities including utilitarian, hedonic, and conspicuous products.
2. We model the process through which consumption activities impact SWB in including two mediators, need fulfillment and satisfaction in life domains.
3. We seek to differentiate the process through which SWB might be influenced across homogeneous income groups of individuals.

8 Preliminary Study in France

We conducted a first study in France, in 2011, with two main objectives in mind:

1. Develop and refine measures of SWB and antecedent constructs that can be used in the subsequent studies,
2. Explore consumption, need satisfaction and satisfaction with life domains as antecedents of SWB.

To ensure reliability and validity, we conducted a large scale study on a representative sample of French consumers.

8.1 Measurements and Data Collection

All measures (SWB, satisfaction with life domains, need fulfillment) are adapted from the literature (Deci and Ryan 2000; Diener, Emmons, Larsen and Griffin 1985; Johnston and Finney 2010; Leelanuithanit, Day and Walters 1991; Tay and Diener 2011; Zhong and Mitchell 2010) (see all measures in Appendix 1).

Concerning the measurement of consumption activities, we captured basic consumption in terms of an index of availability and affordability of basic goods and services found in the local area (electricity, water/sewage and refuse services, gas/oil services, petrol stations, etc.). Hedonic consumption was measured using an index of availability and affordability of leisure goods and services in the local area (restaurants, theaters and cinemas, recreational and sports facilities, etc.). Similarly, conspicuous consumption was captured through items measuring availability and affordability of luxury goods and services in the local area (e.g., fashionable clothes, high-end automobiles, high-end furniture, and expensive jewelry).

We provide detailed descriptions of the measurements needs fulfillment and life satisfaction together with the measurement evaluations of multi-item measures below.

Data were collected in France using a national panel of French households that is representative of the French population in terms of income, ages and geographic regions (see sample demographics in Appendix 2). The survey was administered online resulting in 800 usable questionnaires.

8.2 Purification of Multi-Item Scales

Reliability analysis and tests of convergent and discriminant validity were conducted to further refine the measures. In survey research, multi-item measures are preferred over single items measures (cf., Churchill 1979).

This is because single items (1) are usually very specific and tend to correlate weakly with the attribute being measured but also with other attributes, (2) tend to categorize people into a relatively small number of groups, thereby reducing discriminatory power of the measurement instrument, and (3) typically have considerable measurement error and produce unreliable responses.

These shortcomings can be diminished when multi-item measures are used. With multi-items (1) the specificity of items can be averaged out when they are combined, (2) by combining items, one can make relatively fine distinctions among people, and (3) the reliability tends to increase and measurement error decreases as the number of items in a combination increases. Therefore, this research employs multi-items scales to measure constructs at the individual level, namely:

- Consumption in the different consumption activities,
- SWB (Satisfaction with Life),
- Need Satisfaction.

8.2.1. Satisfaction with Life Scale

We use Diener's (1985) well established Satisfaction with Life scale (SWLS) to assess subjective well-being. The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with life. Respondents who score high on SWLS tend to love their lives and feel that things are going well for them; on the contrary, respondents with low scores are dissatisfied with their lives, perhaps as a result of recent negative life events. The SWLS counts among the most established individual-based measures for life satisfaction; its validity has been proven by numerous authors in many countries (e.g., Pavot and Diener 2008; Pavot, Diener, Colvin and Sandvik 1991). Diener also offers translations of the SWLS for various languages, which we use in the present study to collect data with French respondents (c.f., http://internal.psychology.illinois.edu/~ediener/SWLS.html).

We run a principle component analysis on the 5 items with PROMAX rotation. The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, with KMO for the scale=0.889, and all KMO values for individual items >0.868, which is well above the acceptable limits. Bartlett's test of Sphericity was highly significant ($p<.001$), indicating that sufficient correlations exist among the variables to proceed the analysis. First, we only retain factors with Eigenvalues greater than 1. This criterion was proposed by Kaiser (1960), and is probably the one most widely used. Accordingly, we retain 1 factor (principal component) in line with previous studies. The scale reliability is high with $\alpha=0.889$; deleting any of the items would not improve α. Hence, our application confirms the SWLS as a reliable one-dimensional measure of life satisfaction.

8.2.2. Need-Satisfaction Scales

Self-determination theory assumes the existence of three basic psychological needs that are innate and universal:

- needs for competence,
- needs for autonomy,
- needs for relatedness.

According to the theory, these needs must be satisfied for people to develop and function in healthy or optimal ways (Deci and Ryan 2000). The postulate of fundamental psychological needs has been proven essential for making meaningful interpretations of a wide range of situations. The Basic Psychological Needs Scale (BPNS) is a family of scales that assess the degree to which people feel satisfaction of the three basic needs. There is a general form, as well as domain specific forms for work and human relationships. BNPS was successfully used by various researchers (e.g. Gagné 2003), and is therefore also applied in this study.

After inverting reverse scored items we run a principle component analysis on the 21 items with PROMAX rotation. KMO for the scale was 0.89, and all KMO values for individual items were >0.83, which is well above the acceptable limits. Bartlett's test of sphericity was highly significant ($p<.001$). First, we only retain factors with Eigenvalues greater than 1. Accordingly, we retain 4 factors (principal components). The pattern matrix is shown in Appendix 3.

Our results show that the three conceptually identified need dimensions do not emerge as clearly as earlier studies suggest. Following the Kaiser criterion, four instead of three factors should be retained. Almost half (i.e., 10 out of 21) items have high cross-loadings (> .4) with more than one dimension; this especially holds true for reverse scored items.

To produce three conceptually identified need dimensions that may be used in subsequent analyses, we retain only three items per dimension with the highest loadings on the intended factor (see Appendix 3, items in bolt). These three items are subjected to another principle component analysis with a forced 3-factor solution. This solution explains 62% of variance and the three subscales show low internal consistency reliability as measured by Cronbach's alpha coefficient: autonomy (3 items, $\alpha=0.49$), relatedness (3 items, $\alpha=0.64$), and competence (3 items, $\alpha=0.75$). Due to these unpromising results we reject the idea of using the three conceptually identified basic psychological need dimensions for further investigations.

We also included 14 items proposed by Johnston and Finney (2010) and Tay and Diener (2011) to measure different types of need satisfaction (see Appendix 1). We merge these items

with the Basic Psychological Needs Scale and perform another principle component analysis on the whole 35 items with PROMAX rotation. KMO for the scale was 0.93, and all KMO values for individual items >0.83; Bartlett's test of Sphericity was highly significant ($p<.001$). We proceed as in the previous analysis and retain factors with eigenvalues greater than 1. The results suggest a six factor solution (see pattern matrix in Appendix 4) that explains 56.4% of the variance. In this analysis (see table 3 below), we find that:

- Factor 2 is composed by a mixture of items from the Basic Psychological Needs Scale that should measure Autonomy, Relatedness and Competence. While this factor could be justified based on empirical grounds, it can hardly be interpreted in terms of content.
- Factor 6 is composed by only one item that measures satisfaction of knowledge needs.

We then engaged in a scale purification procedure in which we systematically excluded items with weak loadings on their principal factor, items with high cross loadings, or items that form a factor empirically but that could not be interpreted with regard to content. After various iterations and re-tests we adopted the 4-factor solution shown in Table 2 below. This solution explains 68.4% of variance; each of the four dimensions is measured by three items. The four dimensions can be interpreted as follows:

- Basic Needs Satisfaction: Housing and living
- Social Needs Satisfaction: Relationships with others
- Esteem Needs Satisfaction: Achievements
- Actualization Needs Satisfaction: Freedom to develop one's own

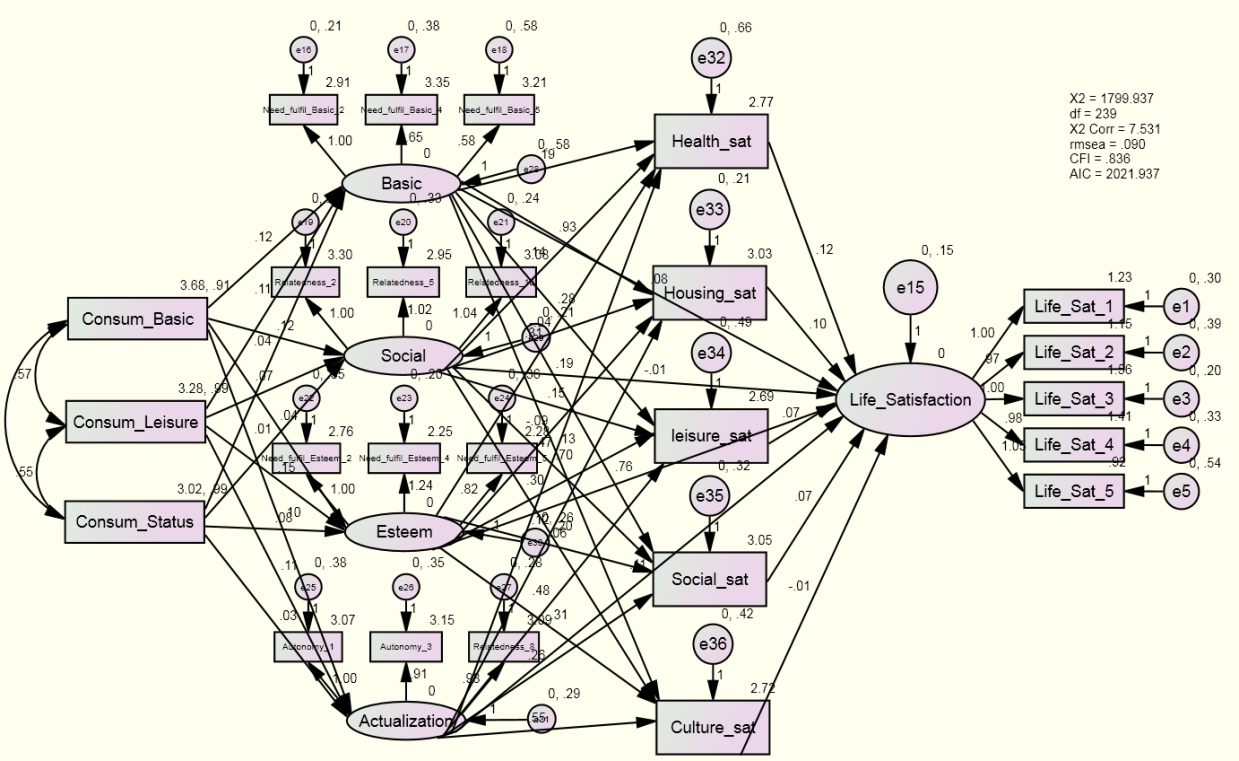
Table 1: Pattern Matrix – Refined Need Satisfaction Scale

	Component			
	Basic Needs	**Social Needs**	**Esteem Needs**	**Actualization Needs**
I feel safe in the house where I live	**.891**	-.037	-.042	.061
I feel safe in the area where I live	**.873**	.061	-.069	-.074
I am satisfied with my housing situation	**.708**	-.002	.114	.003
People in my life care about me	.033	**.901**	.044	-.181
People are generally pretty friendly towards me	.022	**.765**	.053	.044
I get along with people I come into contact with	-.045	**.691**	-.097	.292
I feel I am a successful person	.061	-.058	**.814**	.097
I feel proud about what I achieved in my life	.058	.047	**.638**	.191
I achieved more success than my friends and acquaintances	-.092	.046	**.916**	-.166
I generally feel free to express my ideas and opinions	.026	-.054	-.035	**.839**
I feel like I can pretty much be myself in my daily situations	-.017	.088	-.040	**.791**
I feel like I am free to decide for myself how to live my life	-.025	-.052	.071	**.811**

8.3 Initial Model Testing

We first tested the structural full model (Figure 5) including all possible direct relationships on the total data set. The results are graphically shown in Figure 6. Fit indices suggest poor fit (RMSEA=.1; CFI=.81 and χ^2/df=8.56, df=243). The five dimensions of satisfaction with life domains (health, housing, leisure, social life and cultural domains) show only weak relationships with SWB, and only little variation from one dimension to another. By explaining only 38.5 % of variance of SWB, the relevance of "satisfaction with life domains" in predicting life satisfaction is questionable.

Figure 7: Results of the Initial Structural Model (aggregated sample)



Additional analyses suggested that three of the five satisfaction with life domains (health, housing, leisure) act as partial mediators between need category satisfaction and SWB, while two satisfaction with life domains (social, cultural) don't have significant relationships with SWB to justify their inclusion as predictors of SWB ($p>.05$). Moreover, results from a multi-group model with the three income groups show that only three of the possible 15 relationships between life domain satisfaction and SWB remain statistically significantly different from zero at $p<.05$ when partial mediation (i.e. additional direct effects between need satisfaction and SWB) is assumed.

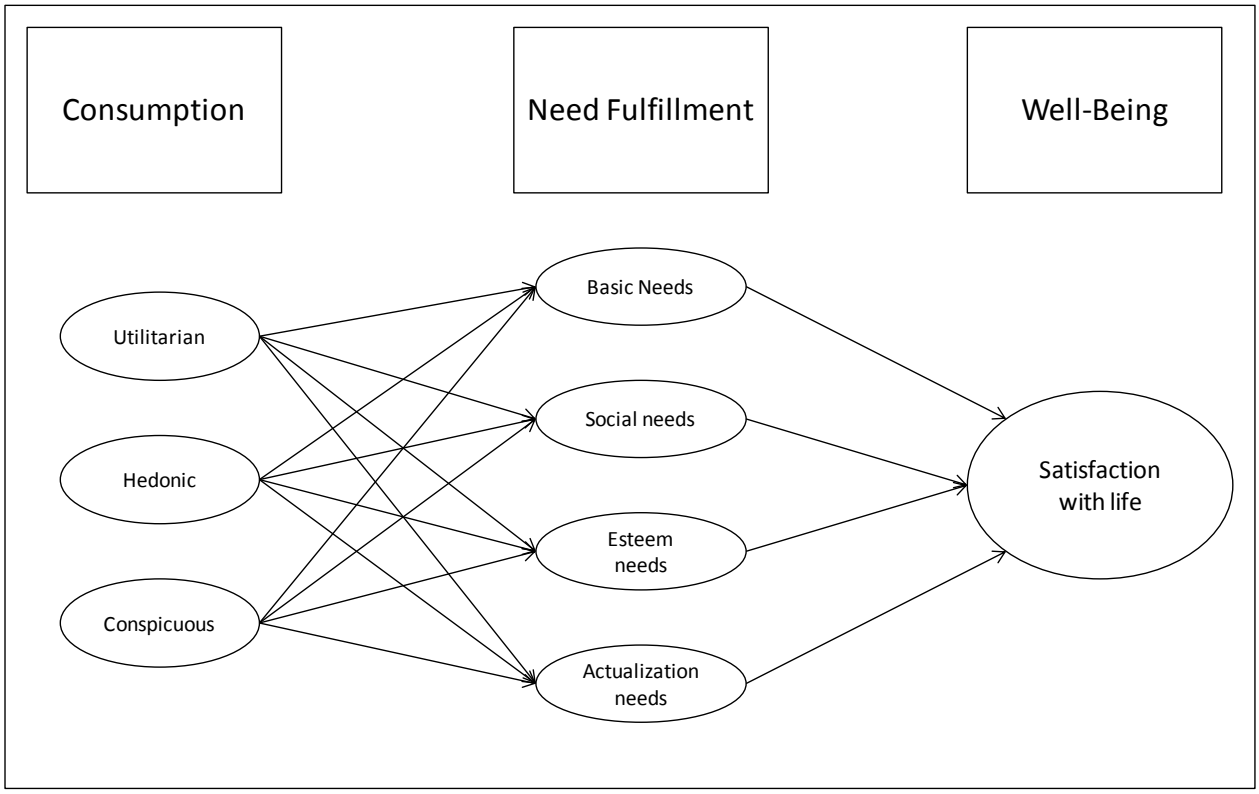
Model results question the relevance of the mediation through Satisfaction with Life Domains. We therefore reject the initial model and propose a simplified model.

8.4 Refined Model Testing

Next, we specified a model in which the five satisfaction with life domains were excluded from the analysis; consequently, the model assumes full mediation of the effects of consumption

on SWB via the four dimensions of need satisfaction (Figure 8). Prior to estimating this model we ran a confirmatory factor analysis to further evaluate the measures employed.

Figure 8: Refined Structural Model



8.4.1. Confirmatory Factor Analysis

We evaluated the measures used in the refined model in regards to their convergent and discriminant validity. We also included the Materialism scales in this analysis because Materialism may potentially act as a moderating variable of the relationships between consumption, need satisfaction and well-being. A confirmatory factor analysis (CFA) of all measured constructs resulted in an excellent model fit with RMSEA=.05, CFI=.93 and χ^2/df=2.99. All indicators load strongly on their respective target factors. However, average variances extracted (AVE) for the three dimensions of Materialism were below the 0.50 threshold

(0.46 for each of the three dimensions). The measures of the Materialism construct require further investigations and refinements and are therefore excluded from further analyses reported here.

Discriminant validity of the remaining measures was first assessed with the variance-extracted test (Fornell and Larcker 1981). Most constructs achieve discriminant validity because their (AVE) was greater than their squared correlation with other constructs, as shown in Appendix 4. With the exception of two pairs of constructs (actualization vs. Esteem needs and esteem needs vs. Life satisfaction), the variance extracted for all constructs was greater than the squared correlation between the constructs, in support of discriminant validity (Appendix 5). We additionally examined discriminant validity for these pairs of constructs by constraining their estimated correlation parameters to 1.0 and performed a χ^2-difference test on the respective rival models (Anderson and Gerbing 1988; Bagozzi and Phillips 1982). The unconstrained models produced a significantly ($p<.001$) lower χ^2 value than the constrained model, which supports discriminant validity also for pairs of constructs in question. Appendix 4 also shows for each construct Jöreskog's rho (ρ) suggesting high internal consistency reliability of all constructs in the model.

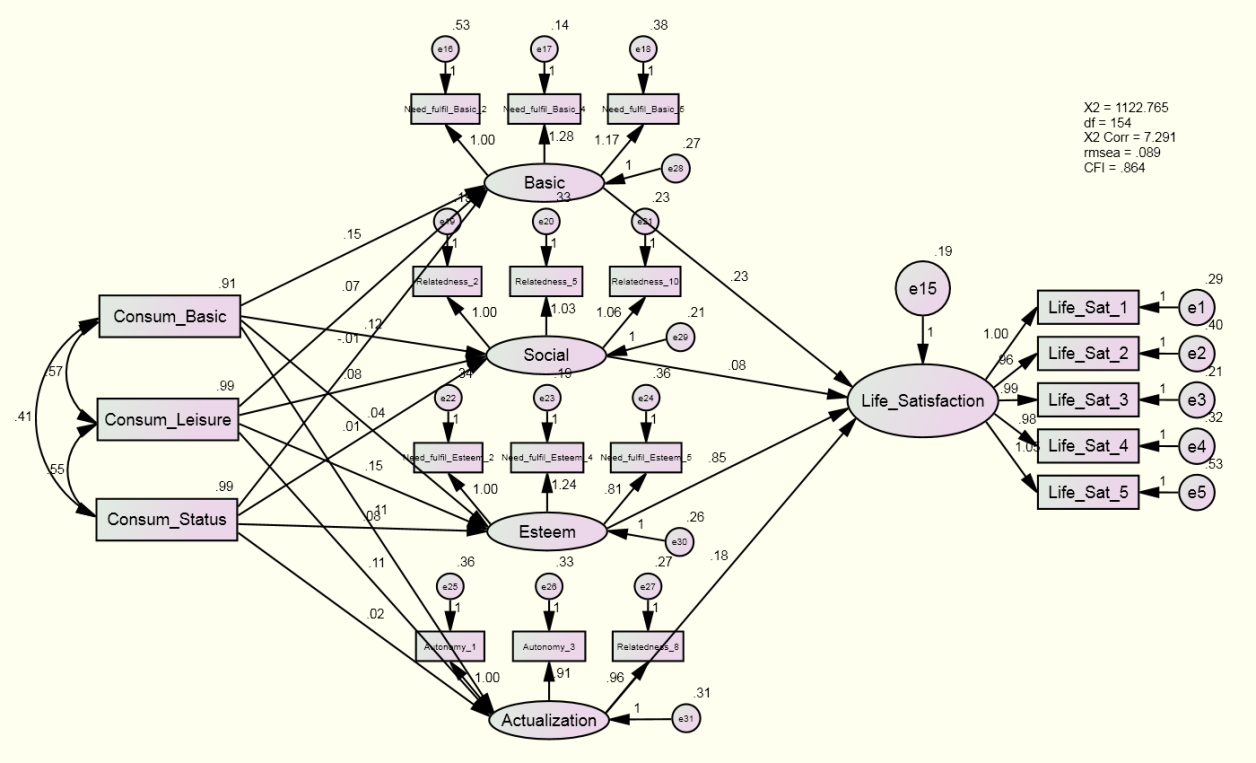
8.4.2. Main Results

As compared to the initial model (Figure 5), the refined model (Figure 8) shows improved fit (RMSEA=.09; CFI=.86 and χ^2/df=7.3, df=154). For model comparison, the information criterion AIC is particularly powerful. Williams and Holahan (1994) found that AIC was the most effective index for distinguishing between correctly and incorrectly specified models. Lower values of AIC indicate better fit but they have no absolute meaning (i.e., they are only useful in comparing rival models). AIC for the proposed refined model was 1234.765 versus 2021.937 for initial (rival) model. Thus, AIC supports the proposed refined model rather than the rival model specifying mediation via life domain satisfaction.

Figure 9 shows the results of the structural model for the aggregated sample. The model shows good fit (RMSEA=.09; CFI=.86 and χ^2/df=7.3, df=154). Satisfaction of the four types of needs explain 61% of the variance in SWB, which is significantly more than in case of the initial

model. Consumption of utilitarian goods/services explain satisfaction of basic needs (path coefficient = .15) and of social needs (.12), consumption of leisure goods/services influence satisfaction of esteem needs (.15) and actualization needs (.11) and consumption of conspicuous goods/services only explain satisfaction of esteem needs (.08) (all coefficients significant at p<.05).

Figure 9: Results of the Refined Structural Model (aggregated sample)



8.4.3. Multi-group Analyses: Moderation through Income

We tested whether the effects uncovered at the aggregate level (the whole population) were stable across income groups, since income is thought as an important influencer of SWB in previous studies. We therefore test a potential moderating effect of income. With respect to the moderation effect of income, we segmented the sample into three groups based on household income levels (lower income, annual income less than 20,000€ per year, n=215, medium income, annual income between 20,000€ and 40,000 €, n=404, and high income higher than 40,000€, n=181). These results are shown in Tables 2 and 3.

Next, we estimated a multi-group model with the three income groups. This assessment improved model fit with RMSEA=.054; CFI=.85 and χ^2/df=3.35, df=462. Noteworthy, we now show that the effects of the three consumption types on SWB are fully mediated by the four categories of need satisfaction. This important model assumption holds because eight out of the nine possible direct relationships between consumption and SWB are found to be zero relations (non-significant at p>.05). Therefore, the effect of consumption on SWB is best explained via need-satisfaction. In this assessment % of variance explained of SWB is as follows: low income 70%; medium income 55% and high income 61%.

The overall pattern shows that income does play a major role in these relationships. Basic consumption seems to play a significant role in SWB for low and middle-income consumers, whereas conspicuous consumption plays a significant role in SWB for high-income consumers. Leisure consumption seems to play a significant role across all income groups.

Table 2: Indirect (Mediated) Relationships (3-Group Model)

	Consumption of Basic Goods ➔ SWB		**Consumption of Leisure Goods ➔ SWB**		**Consumption of Status Goods ➔ SWB**	
	Estimate	p	Estimate	p	Estimate	p
Low income	0.104	0.12	**0.198**	**0.01**	0.027	0.88
Medium income	**0.115**	**0.01**	**0.103**	**0.01**	0.055	0.18
High income	0.037	0.57	**0.227**	**0.02**	**0.101**	**0.04**

Notes: Values are non-standardized regression coefficients

Table 3: Direct Structural Relationships (3-Group Model)

			Low income		Medium income		High income	
Independent Variable		**Dependent Variable**	Estimate		Estimate		Estimate	
Consumption of goods		**Need satisfaction**						
Basic	➔	**Basic Need Satisfaction**	**.19**	**.00**	**.17**	**.00**	**.06**	**.36**
Leisure	➔		.05	.44	.05	.16	**.12**	**.05**
Status	➔		.02	.69	-.02	.43	.00	.98
Basic	➔	Social Need Satisfaction	.19	.00	**.08**	**.02**	.10	.02
Leisure	➔		.06	.37	**.07**	**.05**	**.09**	**.02**
Status	➔		.03	.62	-.01	.83	.01	.73
Basic	➔	Esteem Need Satisfaction	.04	.40	.06	.14	-.01	.88
Leisure	➔		**.17**	**.00**	**.09**	**.03**	**.24**	**.00**
Status	➔		.02	.66	.07	.03	**.13**	**.02**
Basic	➔	Actualization Need Satisfaction	.12	.05	**.11**	**.01**	.09	.17
Leisure	➔		**.14**	**.05**	.07	.09	**.12**	**.05**
Status	➔		.01	.87	.02	.54	.04	.51
		SWB						
Basic Need Satisfaction	➔	Life Satisfaction	**.32**	.00	**.22**	.00	**.24**	.00
Social Need Satisfaction	➔		-.08	.27	**.13**	.05	**.23**	.07
Esteem Need Satisfaction	➔		**1.01**	.00	**.75**	.00	**.72**	.00
Actual. Need Satisfaction	➔		**.14**	.05	**.23**	.00	.06	.47

8.5 Conclusions on the Preliminary Study

In our preliminary study we developed and tested measures of consumption, need satisfaction and life satisfaction using data from a large French consumer sample. Doing so was indicated because no comprehensive and validated set of measure exists that allows us to test the assumed relationships in French language.

We also test a new model of consumption-based antecedents of SWB. The model is tested against competing models with different antecedents. The new model theoretically posits and empirically supports full mediation of the effects of consumption on SWB. Therefore, the authors propose a parsimonious model of SWB that can be used as a diagnostic tool to gain insights into the antecedents of SWB. The subsequent main study attempts to test the refined model in various other Mediterranean countries, drawing on the refined set of measures.

Main relationships uncovered demonstrate that consumption of utilitarian goods/services explain mostly satisfaction of basic needs, consumption of leisure goods/services influence satisfaction of both esteem needs and actualization needs and that consumption of conspicuous goods/services explain satisfaction of esteem needs. These results are not surprising within a French setting and encourage the application of the model in other contexts where the relationships might be different. It will therefore be interesting if the main relationships found in the preliminary study hold in other cultural contexts with different economic conditions.

Results also show that the consumption-based drivers of SWB satisfy needs to very different degrees, depending on the income level. Hence, particularly when in contexts with lower income levels, we expect variations of the relationships shown here.

In sum, the results from this extensive primary study allowed us to refine measures to assess consumption and need satisfaction, and therefore serve as a basis to build upon in the main study. The primary study also suggests that a conceptual model that attempts to explain life satisfaction based on consumption does not require various dimensions of life domain satisfactions as intermediary variables. Hence, the model we propose in the subsequent main study will be more parsimonious and explain the process that relates consumption to life satisfaction based on need satisfaction alone. The detailed model that we propose and test in four countries will be explained in detail in section 11.3.3.

8.6 Future Investigations

As we seek to understand the drivers of SWB across more and less developed countries in the Mediterranean region, there is need for additional research.

First, the generalizability of the consumption- and need-satisfaction scales needs to be tested, and the scales require further refinements.

Another area of improvement is to introduce into the survey other consumption measures that complement availability and affordability which we used here. For example, Diener et al.

(2010) asked respondents whether there were times in the past year when they did not have enough money for food or for shelter. We believe that multiple measurements of consumption activities could improve the reliability and validity of the consumption measures which are the key independent variables. Also, collecting data in multiple countries encourages expanding the measurements of consumption activities since the conditions or accessibility of consumption will vary across countries and levels of economic development.

In summary, the next steps this research seeks to complete are:

- To apply the simplified Consumption / Needs Satisfaction / SWB model (given in Figure 8),
- To refine measurements of several concepts that did not work sufficiently well in the preliminary study (e.g. consumption levels in the different categories),
- To translate the measurement scales in the required languages,
- To collect data in four targeted countries,
- To test for cross-cultural invariance,
- To test the model at different levels (aggregate, country and income levels).

9 Main Study

In the main study, we collected data from four countries:

- France,
- Morocco,
- Tunisia, and
- Benin.

The measurement scales used for the three key constructs (Consumption of the three categories of goods, satisfaction of the 4 categories of needs, and SWB) appear in Appendix 6.

9.1 Data collection

Data were collected in the four target countries using the same questionnaire. The four target countries are:

- **Tunisia and Morocco** as Euro-Mediterranean countries and representing an intermediate state of economic development,
- **France** as a Euro-Mediterranean country representing an advanced stage of economic development,
- **Benin**, a French speaking African country (as Tunisia and Morocco) and representing a developing economy.

This sample of varying economic situations enables to study the stability or variability of the impact of consumption and of different types of consumption on SWB.

The scale items originally in English were translated to French and then back-translated to English to ensure a correct translation. Minor adjustments were conducted by two bilinguals researchers.

The French version of the questionnaire was used in France and in Benin. An Arabic version of the questionnaire was designed for data collection in Tunisia and Morocco. Some local adaptations were made, such as the categories of revenues which were designed considering the local currency and the distribution of revenues in each country.

In all of these countries, data were collected on a representative sample of the population, in terms of gender and revenues. Data were collected in various geographical locations.

Data collection methods vary across countries. An Internet survey was conducted in France given the penetration rate of he Internet within households and face-to-face surveys were conducted in Tunisia, Morocco and Benin. The sizes of the samples are:

- France : n=800
- Tunisia : n=800
- Morocco : n=800
- Benin : n=500

The sample demographics for the four countries are shown in Appendix 7 (7A to 7D).

9.2 Measurement Evaluation

Prior to testing the structural model and conducting comparisons across the four countries we engage in a process of measurement evaluation. This procedure implies a number of steps:

- We first assess the quality of the measures in terms of internal consistency reliability. This is done at the country level to ensure measurement quality in each of the four countries,
- Next, we assess the measures' cross-cultural measurement invariance. Cross-cultural invariance is essential to be able to pool the data and estimate the model at the aggregate level. Also, cross-cultural invariance is necessary to be able to compare results across countries.

- Then, we test the measurement model using Confirmatory Factor Analysis (CFA) first at the aggregate level (all countries pooled) and then at the level of each country. To do so, we conduct a multi-group CFA.

9.2.1 Internal Consistency Reliability

All scales receive in all countries high internal consistency reliability as assessed by Cronbach's alpha.

Table 4: Cronbach's Alpha Scores

Measure	**France**	**Morocco**	**Tunisia**	**Benin**	**Nb. items**
Consumption Deprivation: Basic Goods	.910	.955	.938	.930	3
Consumption Deprivation: Leisure Goods	.937	.970	.953	.958	3
Consumption Deprivation: Status Goods	.949	.970	.970	.965	3
Basic Need Satisfaction	.691	.745	.814	.848	5
Social Need Satisfaction	.687	.714	.629	.649	3
Esteem Need Satisfaction	.733	.780	.810	.865	3
Actualization Need Satisfaction	.752	.885	.765	.861	3
Life Satisfaction	.859	.732	.835	.886	5

The eight factors explain in all four countries more than 70% of the variance (Appendix 8 and 9):

- France: 72%
- Morocco: 75%
- Tunisia: 75%
- Benin: 78%

9.2.2 Cross-cultural Measurement Invariance

Establishing measurement invariance is important in cross-cultural to enable meaningful comparisons of mean scores and structural relations between countries. Measurement invariance refers to "whether or not, under different conditions of observing and studying phenomena, measurement operations yield measures of the same attribute" (Horn and McArdle 1992, p. 117).

A variety of techniques exist to establish measurement invariance (Hui and Triandis 1985). The principle of "simple structure" implies that the items comprising the measurement instrument should show the same configuration of salient and non-salient factor loadings across the different countries under study (here: France, Morocco, Tunisia and Benin). Configural invariance is supported if the specified model fits the data well in all countries, if all salient factor loadings are significantly and substantially different from zero, and the correlations between the factors are inferior below unity (Steenkamp and Baumgartner 1998).

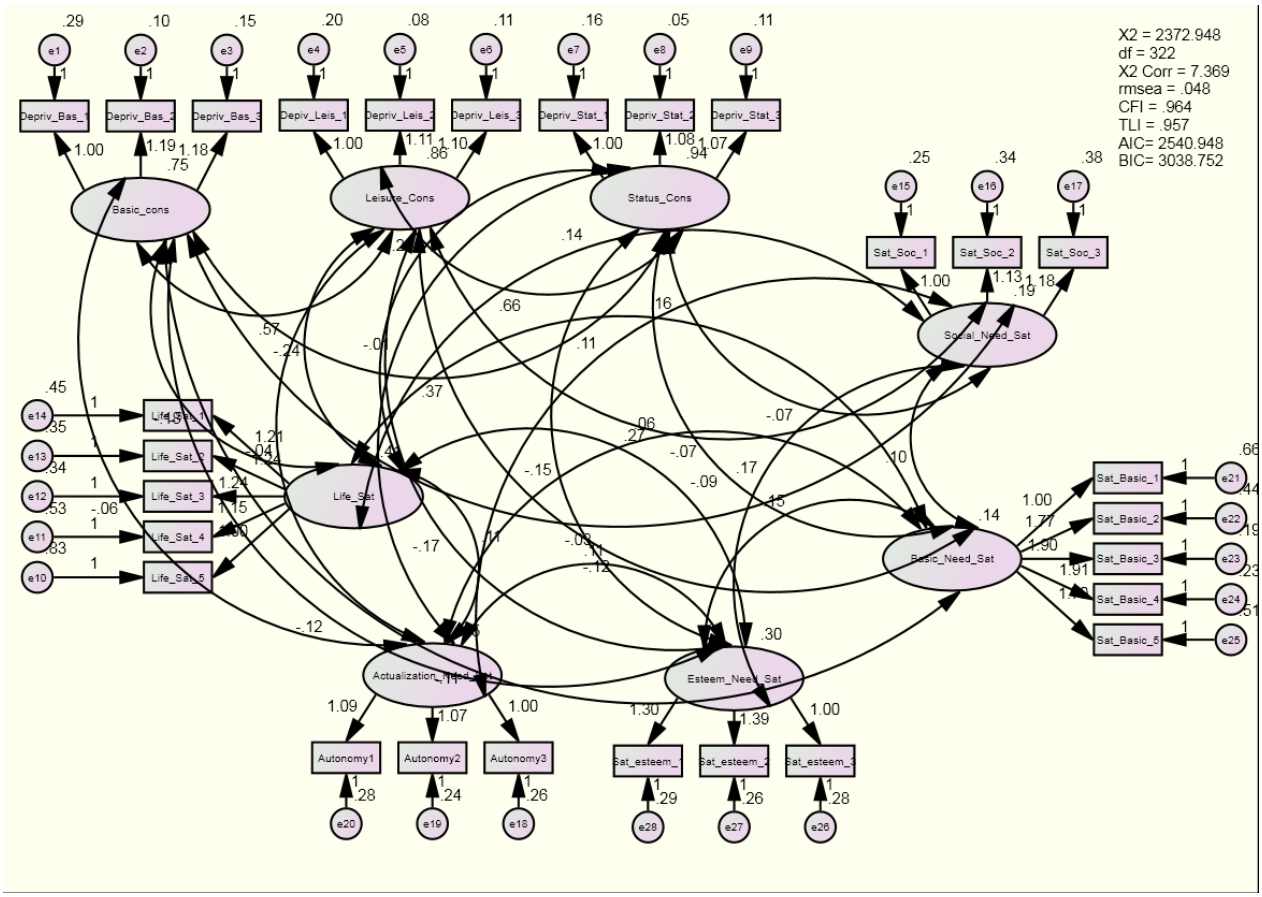
As the previous analyses suggested, the measurement model fits well in all countries. Moreover, all correlations between the factors are far below one. Moreover, our assessment of the standardized factor loadings (see Appendix 10) shows that all items load strongly and significantly on their respective target factor, and what is more, the factor loadings are structurally very similar across the four countries. This assessment of the item-factor loadings provides a reasonable stringent assessment of cross-cultural measurement invariance and lends support to assuming that the measures employed in this study can be used for further comparisons across the four countries.

9.2.3 Confirmatory Factor Analysis

9.2.3.1 CFA (all countries)

The CFA (all countries aggregated) shows good fit of the model to the data (Figure 10). CFI and TLI are above the .95 threshold and the RMSEA is below the .05 threshold for excellent fit.

Figure 10: Results of the CFA (Main study, aggregated sample)

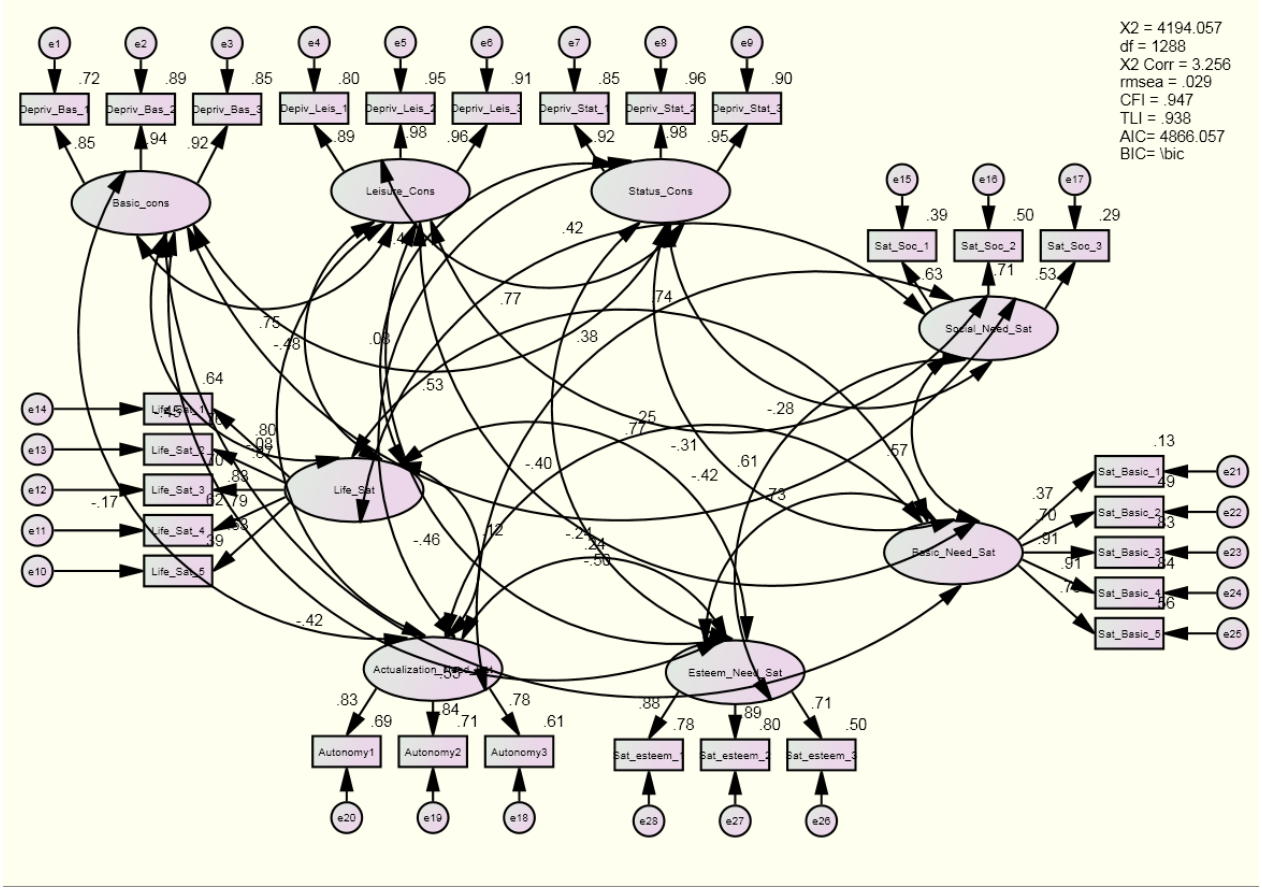


9.2.3.2 Multigroup CFA

The multigroup CFA (4 countries) shows excellent fit of the model to the data (Figure 11).

CFI and TLI are above .94 and the RMSEA is below the .05 threshold for excellent fit.

Figure 11: Results of the Multi-group CFA (main study, four countries)



9.3 Analysis at the Country Level

9.3.1 Descriptive Analysis

The mean scores and SDs of the model variables are shown in the table below and graphically displayed subsequently. Means, SDs and correlations among main constructs are shown in Appendix 11.

Table 5: Mean Scores and Standard Deviation of the Constructs of interest (per country)

		Consumption Deprivation			**Need Satisfaction**				
Country		Basic	Leisure	Status	Basic Needs	Social Needs	Esteem Needs	Actual. Needs	**Life Satisfaction**
France (N=759)	Mean	2.52	3.01	3.29	3.70	3.61	3.47	3.78	3.22
	SDv	0.91	0.96	0.98	0.53	0.55	0.57	0.60	0.72
Morocco (N=788)	Mean	3.19	3.32	3.70	3.81	3.84	3.71	3.70	3.29
	SDv	0.91	0.96	0.94	0.46	0.43	0.56	0.63	0.63
Tunisia (N=780)	Mean	2.85	3.32	3.67	3.59	3.49	3.47	3.69	3.02
	SDv	0.91	0.89	1.00	0.67	0.58	0.73	0.68	0.79
Benin (N=442)	Mean	3.19	3.73	4.15	3.12	3.41	3.03	3.85	2.46
	SDv	1.20	1.23	1.15	0.92	0.73	1.01	0.89	1.00

Scores are compared across countries. We display the scores graphically and conduct post hoc analyses with Scheffe tests to determine between which countries significant analyses exist. The post hoc Scheffe tests are given in Appendix 12.

9.3.1.1 Consumption Deprivation

The measure of consumption is one of deprivation. For example, for basic goods, the measures are:

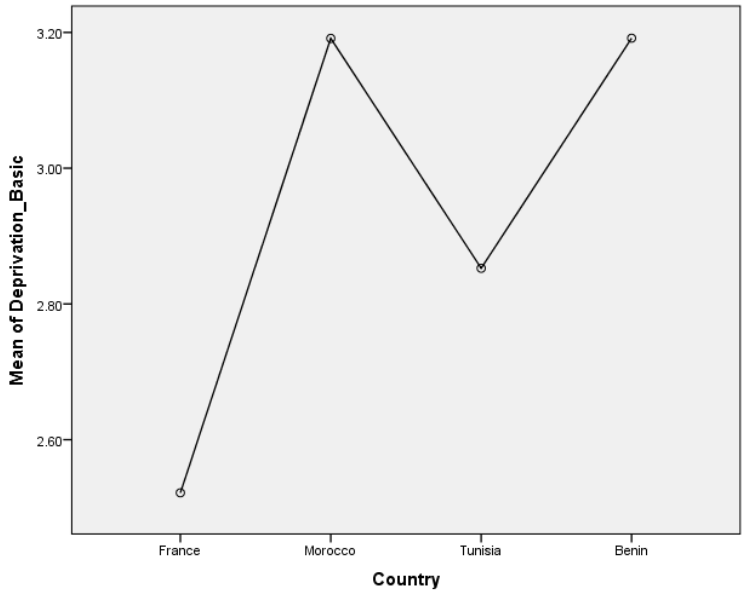
- It is more difficult for me to buy basic goods than for typical families.
- I am frequently concerned about having enough money to buy basic goods.
- I am frequently not able to buy the basic goods I want because I cannot afford them.

Therefore, a higher score indicates that the people are more deprived and in a less desirable situation.

9.3.1.1.1 Deprivation of Basic Goods

We find that France is lower in Deprivation of Basic Goods than Tunisia, which is lower than Morocco and Benin. There is no significant difference between Morocco and Benin. Hence the most deprivation in Basic good consumption exists in Morocco and in Benin.

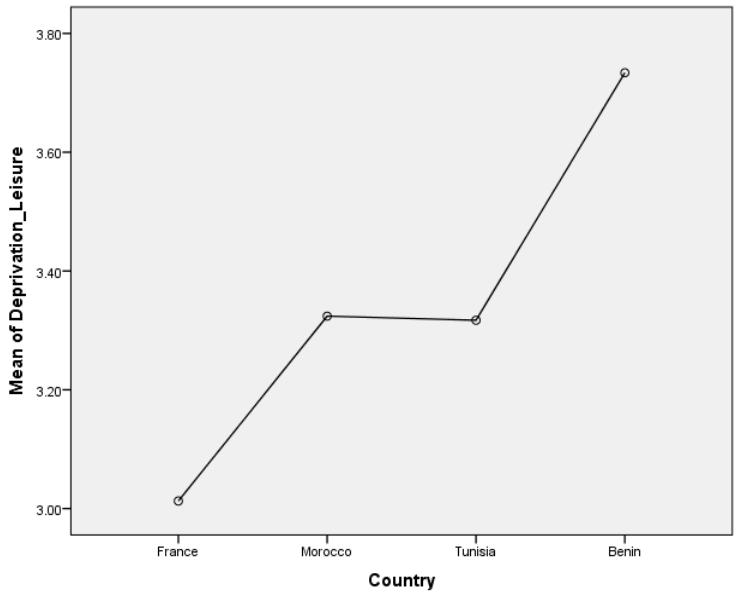
Figure 12: Consumption Deprivation of Basic Goods



9.3.1.1.2 Deprivation of Leisure Goods

The results show that France is lower than Tunisia and Morocco, which are lower than Benin. People in Benin experience the greatest deprivation in Leisure goods, while France experiences the least deprivation.

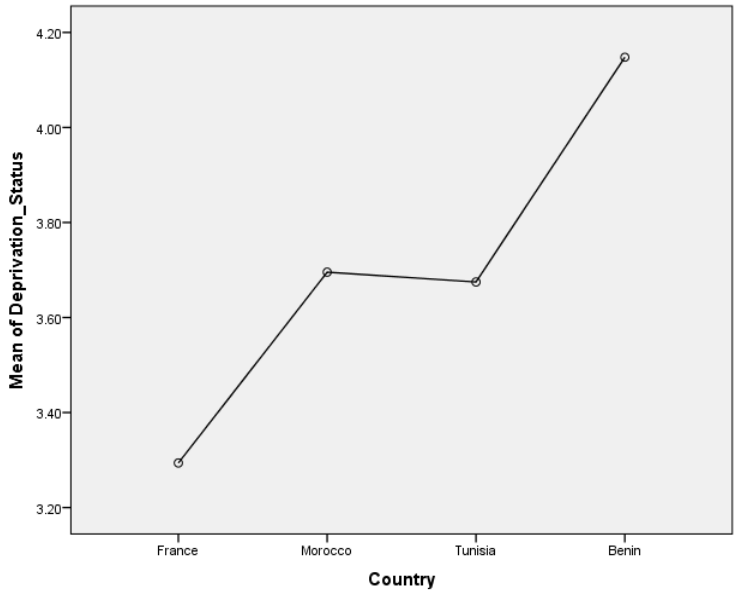
Figure 13: Consumption Deprivation of Leisure Goods



9.3.1.1.3 Deprivation of Status Goods

The results show a similar pattern as for Leisure Goods: France is lower than Tunisia and Morocco, which are lower than Benin.

Figure 14: Consumption Deprivation of Status Goods



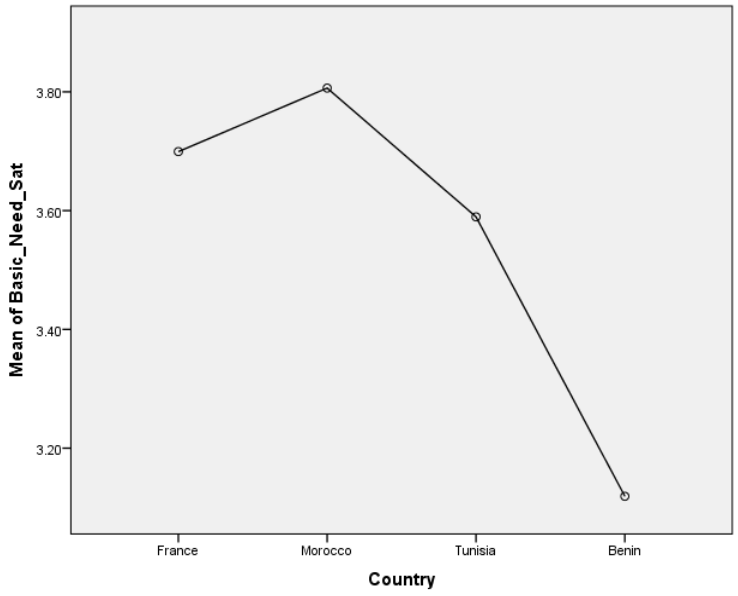
In summary, this part of the analysis shows consumption deprivation scores are as expected. People in France are the less deprived in the three categories of goods, followed by Tunisia and Morocco. Benin is the country which shows the highest deprivation scores across the three goods categories. Across all countries, deprivation is the highest for status goods, then for leisure goods. There is less deprivation for basic goods.

9.3.1.2 Need Satisfaction

9.3.1.2.1 Satisfaction of Basic Needs

France and Morocco are higher than Tunisia which is higher than Benin in satisfaction of Basic Needs.

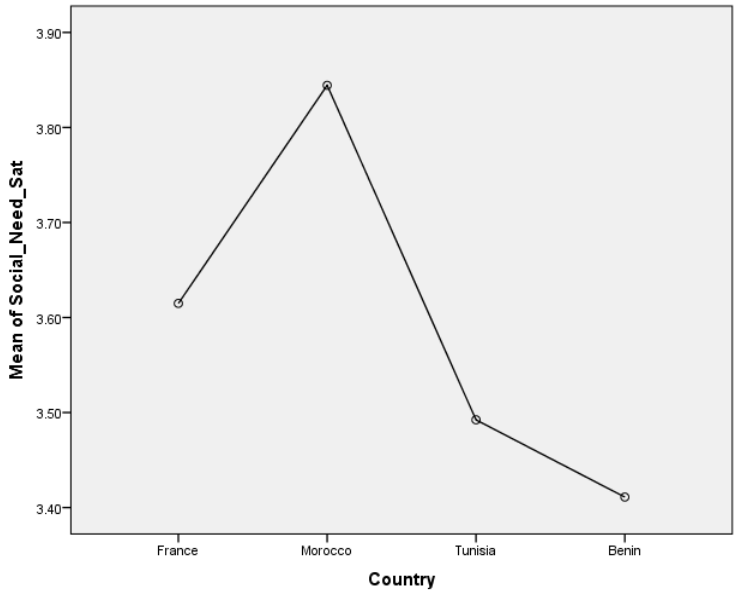
Figure 15: Satisfaction of Basic Needs



9.3.1.2.2 Satisfaction of Social Needs

Morocco is the highest, followed by France. Tunisia and Benin are the lowest on social needs satisfaction.

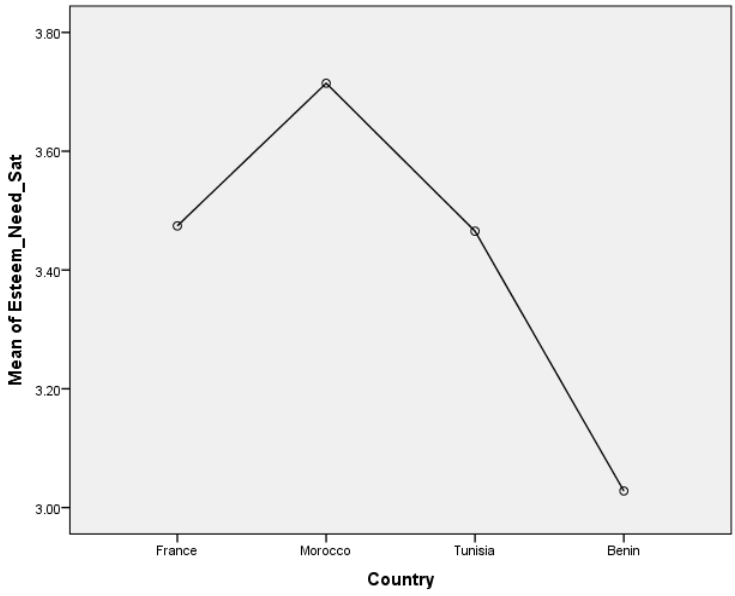
Figure 16: Satisfaction of Social Needs



9.3.1.2.3 Satisfaction of Esteem Needs

Morocco is the highest. Follow France and Tunisia. Benin is the lowest on satisfaction of esteem needs.

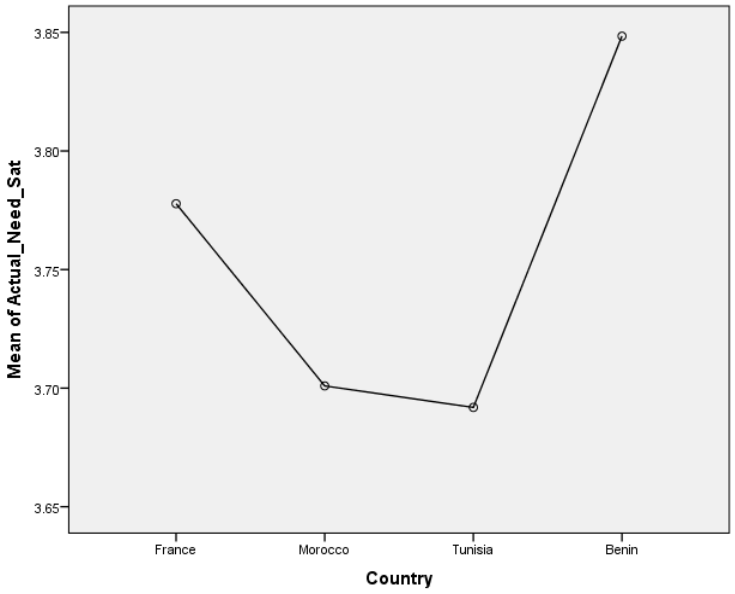
Figure 17: Satisfaction of Esteem Needs



9.3.1.2.4 Satisfaction of Actualization Needs

All countries are similar on satisfaction of actualization needs. There are no significant differences in satisfaction of actualization needs between the four countries considered.

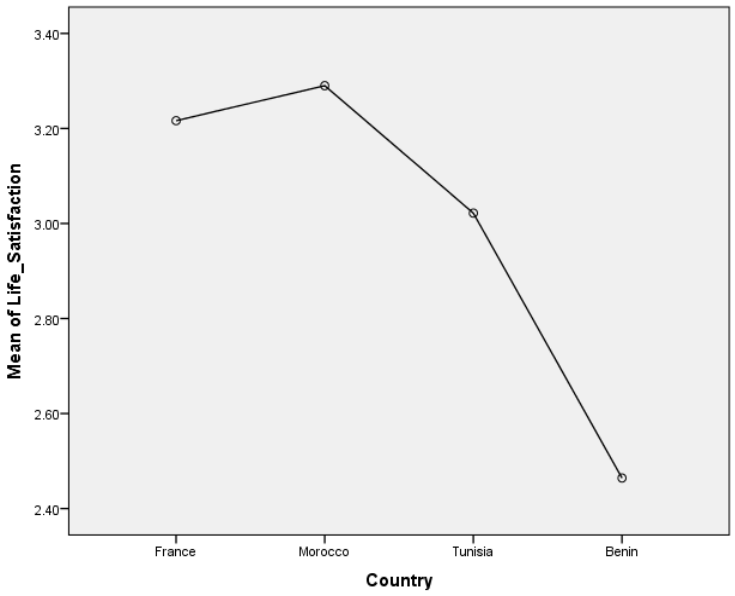
Figure 18: Satisfaction of Actualization Needs



9.3.1.3 SWB (Life Satisfaction)

France and Morocco are the highest on Life Satisfaction followed by Tunisia. Benin is the lowest on SWB.

Figure 17: SWB (Life satisfaction)

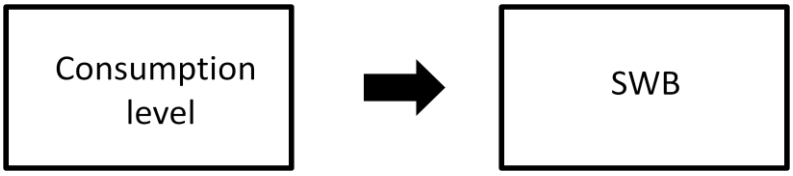


The overall pattern in terms of needs satisfaction and SWB is that France and Morocco are the two countries where individuals are most satisfied, followed by Tunisia and then by Benin. The four countries show very similar levels in Actualization Need Satisfaction.

9.3.2 Structural Analysis: Direct Relationships

Before testing the full model in which we propose including mediation of needs satisfaction between consumption and SWB, we test the direct relationships between consumption deprivation and SWB. This simple model has been tested many times with only one type of consumption (e.g. status goods) and also with income as an independent variable. For clarity, the model is shown again hereunder:

Figure 19: Direct effect of consumption on SWB



Testing the direct relationship between consumption deprivation and SWB enables to have a first view of the relative importance of the different types of consumption (basic goods, leisure goods, and status goods). The model is tested through SEM modeling first at the aggregate level and then for each country through a multi-group analysis. All models show perfect fit to the data. Results are first shown at the aggregate level (all countries pooled) and then per country.

9.3.2.1 At the aggregate level

Table 6: Direct relationships between consumption and SWB at the aggregate level

Consumption Deprivation			Path coefficient	sig
Basic goods	➔	Life Satisfaction	-0.09	***
Leisure goods	➔		-0.13	***
Status goods	➔		-0.11	***

All consumption types have a direct (negative) impact on SWB at the aggregate level.

As expected, the more people are deprived of any type of consumption activity, the lower is their SWB.

The strength of the relationship is almost the same for all three types of goods (basic, leisure and status). Hence, we cannot say, from this simple model, that one type of consumption deprivation is more or less important predictor of Life Satisfaction than another.

9.3.2.2 At the Country Level

Table 7: Direct relationships between consumption and SWB at the country level

			COUNTRIES							
			France		**Morocco**		**Tunisia**		**Benin**	
Consumption Deprivation			B	*p*	B	*p*	B	*p*	B	*p*
Basic goods	➔		-0.06	0.27	-0.01	0.51	**-0.25**	***	**-0.17**	0
Leisure goods	➔	Life Satisfaction	**-0.15**	0.03	**-0.05**	0.01	-0.08	0.13	-0.06	0.33
Status goods	➔		-0.06	0.2	**-0.03**	0.01	**-0.08**	0.03	**-0.19**	0.01

Notes: B=unstandardized regression coefficient obtained from SEM;

All significant relationships are in bold. These are all with the expected sign such that higher deprivation implies lower SWB. The results show important differences across the countries. The types of consumption having an impact on SWB are:

- **France : Leisure goods** (basic goods and status goods consumption do not impact SWB),
- **Morocco: Leisure goods and Status goods** (basic goods consumption does not impact SWB), and leisure goods consumption has the highest influence on SWB,
- **Tunisia: Basic goods and Status goods** (leisure goods consumption does not impact SWB), and basic goods consumption has the highest influence on SWB,
- **Benin: Basic goods and Status goods** (leisure goods consumption does not impact SWB), and basic goods consumption has the same impact on SWB as status goods.

Appear here two different patterns, with two countries (France and Morocco) where basic goods deprivation does not impact SWB and where the consumption of leisure goods influences SWB. In the two other countries (Tunisia and Benin), basic goods and status goods' consumption deprivation are most influential.

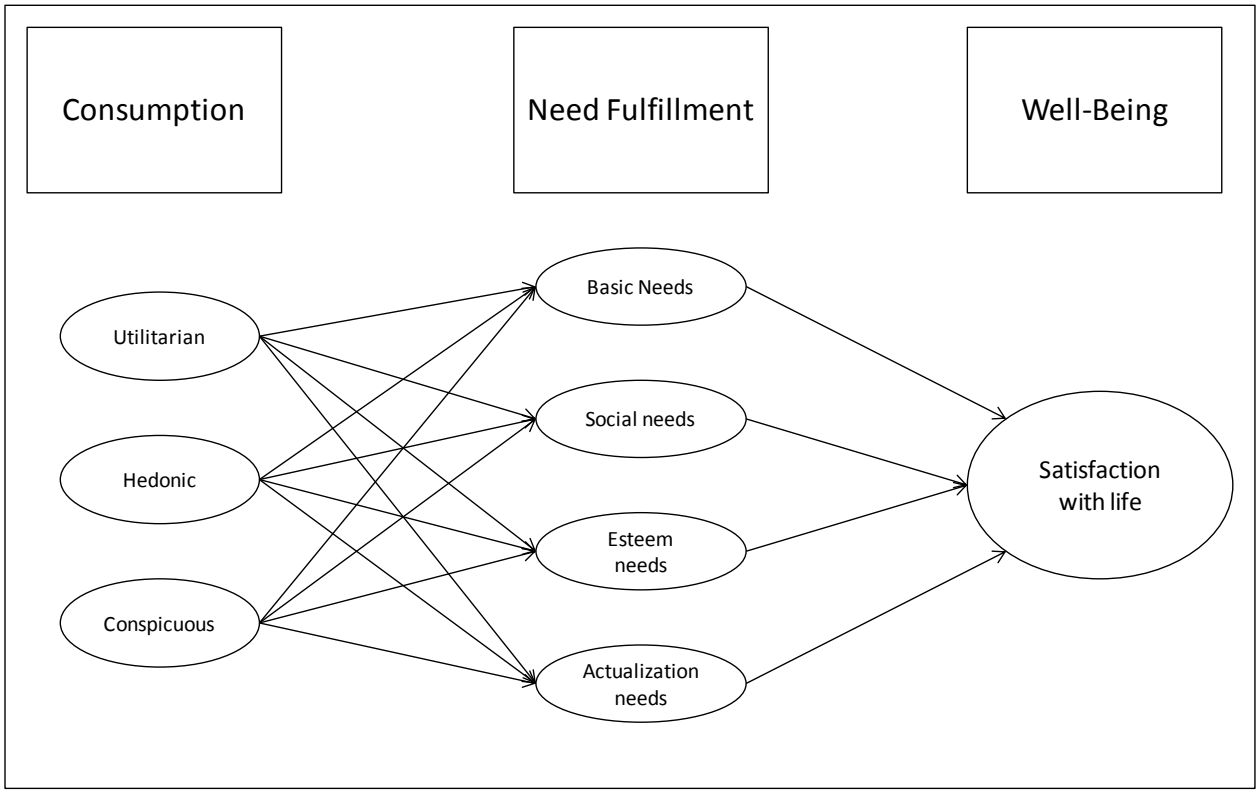
9.3.3 Full Structural Model with the Mediation of Needs Satisfaction

We now estimate the structural model which we display again below for visual clarity. We estimate the structural model in SEM, first for all four countries aggregated and next at the country level through a multi-group (four-country) model.

To test whether the model we propose is indeed a fully mediated model, we add here the direct relationships between consumption and SWB in addition to the relationships through needs satisfaction. This enables to test for the fact that consumption does not have a direct effect on SWB but has an effect on SWB only through the path of needs satisfaction.

Therefore, the model here tested is a full model shown below in Figure 20.

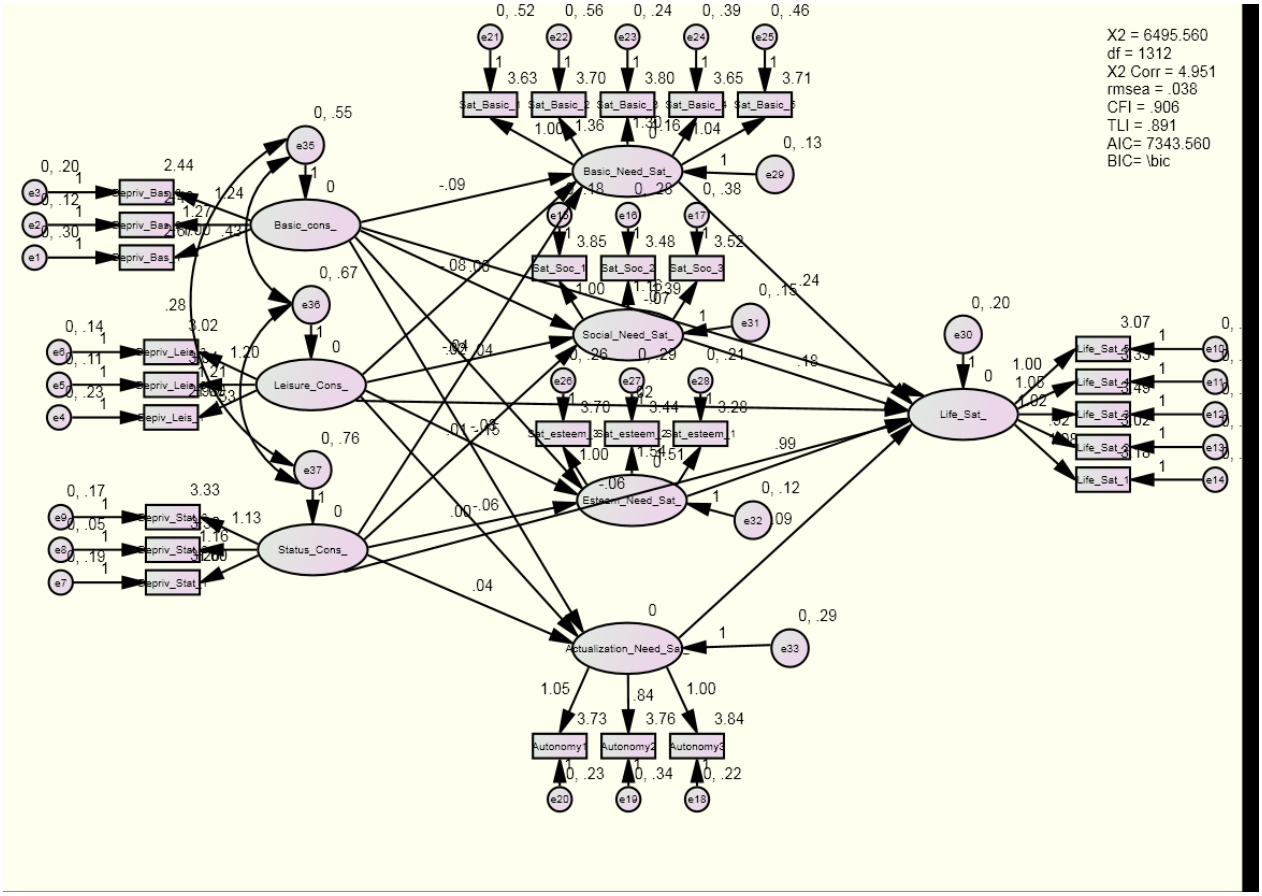
Figure 20: Structural Model with Need-Satisfaction mediation



9.3.3.1 Aggregate level

The aggregate model shows excellent fit to the data with a RMSEA = 0.038.

Figure 21: Estimation of the Full Structural Model



The path coefficients estimated through SEM are shown in Table 8.

Table 8: Full Model – Aggregate level

			Estimates	
Independent variable		**Dependent Variable**	B	p
Consumption deprivation of Basic Goods	➔	Basic Need Satisfaction_	-0,08	***
	➔	Social Need Satisfaction	-0,02	NS
	➔	Esteem Need Satisfaction_	-0,04	0,03
	➔	Actualization Need Satisfaction	-0,07	***
Leisure consumption deprivation	➔	Basic Need Satisfaction_	-0,07	***
	➔	Social Need Satisfaction	-0,07	***
	➔	Esteem Need Satisfaction_	-0,13	***
	➔	Actualization Need Satisfaction	-0,04	NS
Status consumption deprivation	➔	Basic Need Satisfaction_	-0,01	0,2
	➔	Social Need Satisfaction	-0,04	0,02
	➔	Esteem Need Satisfaction_	-0,05	***
	➔	Actualization Need Satisfaction	-0,04	0,03
Basic Need Satisfaction	➔	Life Satisfaction	0,50	***
Social Need Satisfaction	➔		0,01	NS
Esteem Need Satisfaction	➔		0,63	***
Actualization Need Satisf.	➔		0,06	***
Basic consumption deprivation	➔	Life Satisfaction	-0,02	NS
Leisure consumption deprivation	➔		-0,02	NS
Status consumption deprivation	➔		-0,07	***

*Notes: B=unstandardized regression coefficients; *** p<.001*

9.3.3.2 Interpretation of Results

1. Is Needs Satisfaction an Important Mediator between Consumption and SWB?

In accordance with Maslow (1954), Deci and Ryan (2000) and Tay and Diener (2011), we posited that Need Satisfaction mediates the relationship between Consumption Deprivation and SWB. Alternatively, may Consumption Deprivation directly relate to SWB? Stated differently, is it necessary to look into Need Satisfaction to explain the effect of consumption on SWB? When we model a direct effect of Consumption on SWB we find that all consumption activities influence SWB. Is there in reality a direct effect?

Table 9: Extract of the Full model results

			Estimates	
Independent variable		**Dependent Variable**	B	p
Basic consumption deprivation	➔	Life Satisfaction	-0,02	NS
Leisure consumption deprivation	➔		-0,02	NS
Status consumption deprivation	➔		-0,07	***

*Notes: B=unstandardized regression coefficients; *** p<.001*

It appears that when introducing the concept of Needs Satisfaction in the model, the direct effect disappears totally for Consumption of Basic goods and Consumption of Leisure goods.

Therefore, we establish that for two consumption categories out of three, the influence of consumption on SWB is explained solely through Needs satisfaction.

This is an important result. It demonstrates that the influence of consumption on SWB is not a direct one. It is also probably the case for Income which has long been related directly to SWB.

Therefore, if consumption is important for SWB, which we establish below, it only influences SWB through the mediating effect of Needs Satisfaction. Needs satisfaction is

therefore the key in terms of public policy. In this perspective, we may well imagine that other variables than consumption influence satisfaction of needs in different domains.

2. ***Which needs fulfillment determine Life Satisfaction?***

Drawing on the work of Maslow (1954), Deci and Ryan (2000) and Tay and Diener (2011), we identify four types of needs: basic needs, social needs, esteem needs and actualization needs. Our general question is to what extent need fulfillment explains SWB, and how general these associations are across cultures, income levels and levels of development of countries. Below are the results at the aggregate level.

Table 10: Extract of the Full model results

			Estimates	
Independent variable		**Dependent Variable**	B	p
Basic Need Satisfaction	➔	Life Satisfaction	0,50	***
Social Need Satisfaction	➔		0,01	NS
Esteem Need Satisfaction	➔		0,63	***
Actualization Need Satisf.	➔		0,06	***

*Notes: B=unstandardized regression coefficients; *** p<.001*

At the aggregate level (4 countries), Life Satisfaction is essentially determined by the satisfaction of:

- **Basic Needs (food, shelter and safety),**
- **Esteem Needs (respect, status and autonomy).**

Although satisfaction of the other types of needs, i.e. social needs (belongingness. relatedness and social support), and actualization needs (self-direction, freedom. mastery) show similar means and standard deviations than basic and esteem needs, they contribute much less (actualization) or not at all (social) to Life Satisfaction.

Our results firstly confirm the importance of satisfaction of Basic needs. For example, Tay and Diener (2011) demonstrate that satisfaction of basic needs accounts for 63% of the contribution of all needs' satisfaction to life evaluations.

They also confirm the importance of psychological needs satisfaction. However, if Diener, Ng, Harter and Arora (2010) show the importance of psychological needs satisfaction in addition to basic needs (and income) to predict well-being, they use an aggregate measure of psychological needs and cannot distinguish between the different psychological needs.

Our results demonstrate the utmost importance of Esteem needs satisfaction (respect, status and autonomy).

These results are naturally limited to the four countries explored.

3. What Consumption activities influence Need Satisfaction?

We distinguish between 3 types of consumption activities:

- Basic goods (utilitarian or functional consumption),
- Leisure goods (hedonic consumption),
- Status goods (conspicuous consumption).

We use a measure of consumption deprivation which should be negatively associated with needs satisfaction. For parsimony, we show below the influence of consumption deprivation of the two important need factors (basic needs and esteem needs). Other results appear in Table 8.

Table 11: Extract of the Full model results

			Estimates	
Independent variable		**Dependent Variable**	B	p
Consumption deprivation of Basic goods	➔	Basic Need Satisfaction	**-0.08**	***
	➔	Esteem Need Satisfaction	-0.04	*
Consumption deprivation of Leisure goods	➔	Basic Need Satisfaction	**-0.07**	***
	➔	Esteem Need Satisfaction	**-0.13**	***
Consumption deprivation of Status goods	➔	Basic Need Satisfaction	-0.01	*NS*
	➔	Esteem Need Satisfaction	**-0.05**	***

*Notes: B=unstandardized regression coefficients; *p<.05; ** p<.01; *** p<.001;*

All types of consumption play a significant role in needs satisfaction:

- ***Consumption of basic goods determines essentially basic need satisfaction, as expected.***
- ***Consumption of leisure needs influences both basic and esteem needs. Esteem needs are however much more influenced than basic needs.***
- ***Consumption of status goods impact esteem needs satisfaction. The effect is however less important than the effects described above.***

An important consequence of these results is that populations which are deprived of leisure and status goods (essentially Bottom of the Pyramid consumers but also low or medium-low income households) will have difficulties in satisfying esteem needs which are a key to Life Satisfaction.

Deprivation of leisure consumption is also a key to both basic needs and more importantly esteem needs satisfaction and therefore to SWB. From a public policy standpoint, improving leisure consumption is a key lever for SWB. Means to improve leisure consumption go far beyond distribution of income.

9.3.3.3 Country Level SEM Analysis (Multi-group Analysis)

The multi-group model including four countries shows good fit with a RMSEA = .046. Results are shown in Table 12.

Table 12: SEM path coefficients per country

			France		Morocco		Tunisia		Benin	
			B	*p*	B	*p*	B	*p*	B	*p*
Consumption deprivation of Basic goods	➔	Basic Need Sat.	**-0.09**	0.01	0.00	*NS*	**-0.16**	***	**-0.16**	***
	➔	Social Need Sat.	-0.00	*NS*	**-0.07**	0.02	**-0.14**	***	-0.05	*NS*
	➔	Esteem Need Sat.	-0.04	*NS*	**-0.07**	0.03	**-0.26**	***	**-0.17**	***
	➔	Actualization Need Sat.	-0.03	*NS*	-0.07	*NS*	**-0.14**	***	**-0.19**	***
Consumption deprivation of Leisure goods	➔	Basic Need Sat.	-0.08	*NS*	**-0.09**	***	-0.03	*NS*	-0.02	*NS*
	➔	Social Need Sat.	-0.04	*NS*	-0.04	*NS*	-0.06	*NS*	-0.1	*NS*
	➔	Esteem Need Sat.	**-0.15**	***	**-0.10**	***	-0.03	*NS*	**-0.14**	0.05
	➔	Actualization Need Sat.	-0.06	*NS*	**-0.09**	0.03	-0.00	*NS*	-0.1	*NS*
Consumption deprivation of Status goods	➔	Basic Need Sat.	-0.02	*NS*	-0.01	*NS*	0.02	*NS*	**-0.05**	0.05
	➔	Social Need Sat.	-0.01	*NS*	**-0.07**	***	-0.05	*NS*	-0.04	*NS*
	➔	Esteem Need Sat.	-0.00	*NS*	**-0.08**	***	-0.05	*NS*	-0.1	0.05
	➔	Actualization Need Sat.	-0.04	*NS*	-0.01	*NS*	0	*NS*	**-0.23**	***
Basic Need Sat.	➔		**0.24**	***	**0.07**	***	**0.28**	***	**0.84**	***
Social Need Sat.	➔		**0.18**	***	0.04	0.07	0.06	*NS*	0.12	*NS*
Esteem Need Sat.	➔		**0.99**	***	**0.20**	***	**0.64**	***	**0.47**	***
Actual. Need Sat.	➔	Life Satisfaction	0.09	0.05	**0.08**	***	**0.17**	***	0.04	*NS*
Basic Goods Depriv.	➔		-0.07	*NS*	-0.01	*NS*	-0.03	*NS*	-0.02	*NS*
Leisure Goods Depriv.	➔		-0.02	*NS*	-0.03	0.07	-0.07	*NS*	-0.01	*NS*
Status Goods Depriv.	➔		-0.06	*NS*	-0.01	*NS*	**-0.06**	0.05	**-0.1**	0.01

*Notes: B= unstandardized regression coefficient; *** p<.001; NS=non significant; Significant Relationships are highlighted in bold.*

9.3.3.4 Interpretation of Results

1. ***Is Needs Satisfaction a key mediator between Consumption Deprivation and SWB?***

We established at the aggregate level that for two consumption categories out of three (basic goods and leisure goods), the influence of consumption on SWB is explained solely through Needs satisfaction. We wish to confirm these results with the more detailed analysis at the country level.

At the country level, when including needs satisfaction in the model, the direct relationships of basic goods deprivation and of leisure goods deprivation to SWB is non-significant for all of the four countries.

The direct relationship of status goods to SWB is non-significant for two of the four countries.

This confirms that consumption activities do not have a direct impact on SWB and that this impact is fully mediated by Needs satisfaction. Again, this result is important both from a scientific perspective and from a public policy perspective.

2. Which needs fulfillment determine Life Satisfaction?

At the aggregate level, the two main drivers of Life Satisfaction are Basic- and Esteem-Need satisfaction. These general results are confirmed in all 4 countries.

Table 13: Need Satisfaction as Driver of SWB

			France		Morocco		Tunisia		Benin	
Basic Need Satisfaction	➔		**0.3**	***	**0.09**	***	**0.33**	***	**0.88**	***
Social Need Satisfaction	➔	Life Satisfaction	**0.15**	0.02	0.03	*NS*	-0.07	*NS*	0.09	*NS*
Esteem Need Satisfaction	➔		**1.05**	***	**0.25**	***	**0.72**	***	**0.5**	***
Actual. Need Satisfaction	➔		0.08	*NS*	**0.08**	***	**0.17**	***	**0.07**	0.03

Basic- and Actualization-needs significantly impact Life Satisfaction in all four countries (but for France where actualization needs have a non-significant impact on SWB). The path coefficients for these two types of Needs satisfaction are the strongest in all countries.

Social needs satisfaction does not impact SWB in any of the four countries.

Actualization needs satisfaction is not significant in France but is significant in Morocco, Tunisia and Benin. However, the strength of the effect of actualization need satisfaction is relatively weak as compared to the basic- and esteem-need satisfaction. These results are in line

with the result at the aggregate level where actualization needs also impacted significantly SWB, yet at a low level.

Therefore, for all 4 countries, results confirm the utmost importance of basic needs satisfaction and of esteem needs satisfaction for explaining SWB.

The influence of actualization needs satisfaction on SWB is significant in three countries (Morocco, Tunisia and Benin) but to a lesser degree than basic and esteem needs satisfaction.

3. What Consumption activities influence Need Satisfaction?

As at the aggregate level, we first show below, for parsimony (Table 14), the influence of consumption deprivation of the two important need factors (basic needs and esteem needs). Full results appear in Table 12.

Table 14: Consumption Deprivation as Driver of Need Satisfaction

			France		**Morocco**		**Tunisia**		**Benin**	
			B	***p***	**B**	***p***	**B**	***p***	**B**	***p***
Consumption deprivation of Basic Goods	➔	Basic Need Satisfaction	**-0.09**	0.01	0.00	*NS*	**-0.16**	***	**-0.16**	***
	➔	Esteem Need Satisfaction	-0.03	*NS*	**-0.07**	0.03	**-0.26**	***	**-0.16**	***
Consumption deprivation of Leisure Goods	➔	Basic Need Satisfaction	-0.08	*NS*	**-0.09**	***	-0.03	*NS*	-0.02	*NS*
	➔	Esteem Need Satisfaction	**-0.15**	***	**-0.11**	***	-0.02	*NS*	**-0.14**	0.05
Consumption deprivation of Status Goods	➔	Basic Need Satisfaction	-0.02	*NS*	-0.01	*NS*	0.02	*NS*	**-0.05**	0.05
	➔	Esteem Need Satisfaction	-0.01	*NS*	**-0.08**	***	-0.05	*NS*	**-0.1**	0.05

- Basic consumption deprivation influences basic need satisfaction in three countries out of four (France, Tunisia and Benin) and influences esteem need satisfaction in three countries out of four (Morocco, Tunisia and Benin).

- Leisure consumption deprivation influences esteem needs satisfaction in three countries out of four and influences satisfaction of basic needs in one country only (Morocco). This confirms the high importance of leisure consumption for the satisfaction of esteem needs.

- Status consumption deprivation influences satisfaction of esteem needs in two countries (Morocco and Benin) and of basic needs satisfaction in one country (Benin).

The overall pattern observed at the aggregate level is confirmed at the country level.

4. What are the country specificities?

Table 15: SEM path coefficients per country

			France		Morocco		Tunisia		Benin	
			B	*p*	B	*p*	B	*p*	B	*p*
Consumption deprivation of **Basic Goods**	➔	Basic Need Satisfaction	**-0.09**	0.01	0.00	*NS*	**-0.16**	***	**-0.16**	***
		Social Need Satisfaction	-0.01	*NS*	**-0.07**	0.02	**-0.15**	***	-0.05	*NS*
		Esteem Need Satisfaction	-0.03	*NS*	**-0.07**	0.03	**-0.26**	***	**-0.16**	***
		Actualization Need Sat.	-0.04	*NS*	-0.07	*NS*	**-0.14**	***	**-0.19**	***
Consumption deprivation of **Leisure Goods**	➔	Basic Need Satisfaction	-0.08	*NS*	**-0.09**	***	-0.03	*NS*	-0.02	*NS*
		Social Need Satisfaction	-0.03	*NS*	-0.04	*NS*	-0.06	*NS*	-0.1	*NS*
		Esteem Need Satisfaction	**-0.15**	***	**-0.11**	***	-0.02	*NS*	**-0.14**	0.05
		Actualization Need Sat.	-0.05	*NS*	**-0.09**	0.03	-0.01	*NS*	-0.1	*NS*
Consumption deprivation of **Status Goods**	➔	Basic Need Satisfaction	-0.02	*NS*	-0.01	*NS*	0.02	*NS*	**-0.05**	0.05
		Social Need Satisfaction	-0.01	*NS*	**-0.07**	***	-0.04	*NS*	-0.04	*NS*
		Esteem Need Satisfaction	-0.01	*NS*	**-0.08**	***	-0.05	*NS*	**-0.1**	0.05
		Actualization Need Sat.	-0.04	*NS*	-0.01	*NS*	0	*NS*	**-0.23**	***
Basic Need Satisfaction	➔	Life Satisfaction	**0.3**	***	**0.09**	***	**0.33**	***	**0.88**	***
Social Need Satisfaction	➔		**0.15**	0.02	0.03	*NS*	-0.07	*NS*	0.09	*NS*
Esteem Need Satisfaction	➔		**1.05**	***	**0.25**	***	**0.72**	***	**0.5**	***
Actualization Need Sat.	➔		0.08	*NS*	**0.08**	***	**0.17**	***	**0.07**	0.03

- **France**
  - Contrarily to the other countries and the overall pattern, Social needs satisfaction has an impact on Life satisfaction, with a limited magnitude.
  - Leisure consumption deprivation has an impact on esteem needs satisfaction but not on basic needs.

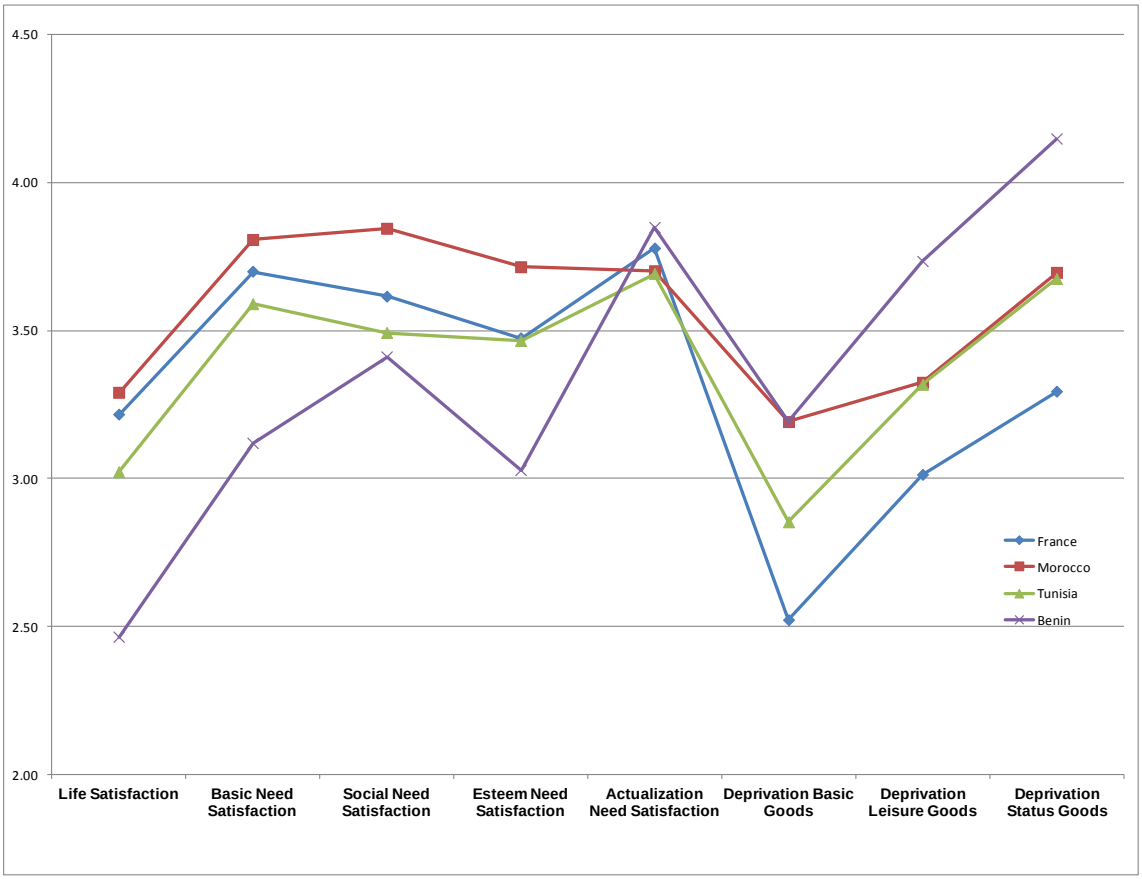
- **Morocco, Tunisia and Benin**

- Basic consumption deprivation has a higher general impact on needs satisfaction than at the aggregate level. It impacts basic needs satisfaction, social needs satisfaction and actualization needs satisfaction in two out of the three countries. It has an impact on esteem needs satisfaction in the three countries.
- The effect of actualization needs satisfaction on Life satisfaction is significant (contrarily to France).

- **Tunisia**
  - Basic consumption deprivation is the important driver of needs satisfaction
  - All other consumption deprivations have no effect of needs satisfaction

- **Benin**
  - Basic consumption deprivation is a very important driver of needs satisfaction
  - Status consumption deprivation has a high impact on actualization needs satisfaction

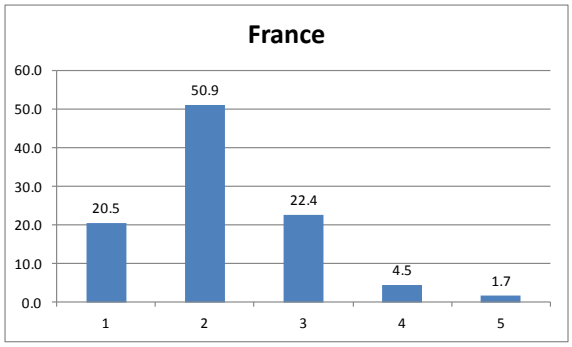
Figure 22: Profile of the four countries on the key constructs



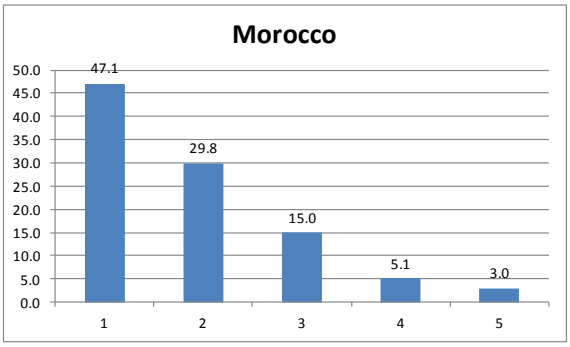
9.4 Analysis at the Income Level

Income has been measured for each study participant in each of the four countries. Five income categories have been defined in each country based on a distribution of incomes at the national level. The distribution of incomes per country in our samples is shown below.

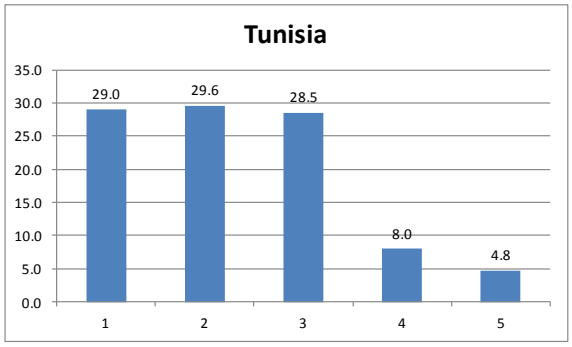
Table 16: Sample income distribution in four countries



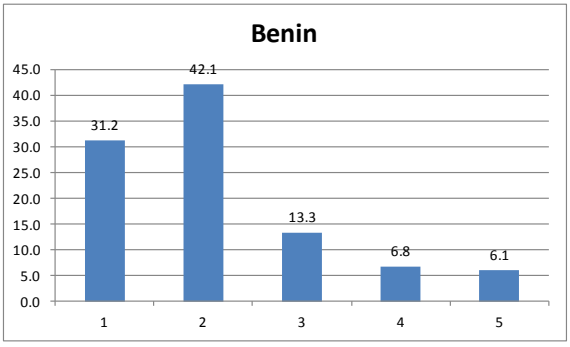
France (Euros p.a.):
1= < 20,000 €
2= 20,000 € – 40,000 €
3= 40,000 € - 60,000 €
4= 60,000 € - 80,000 €
5= > 80,000 €



Morocco (Dirhams p.a.):
1= < 3,000
2= 3,000 – 6,999 D
3= 7,000 – 14,999 D
4= 15,000 – 30,000 D
5= > 30,000 D



Tunisia (Dinars p.a.):
1= < 600 D
2= 600-1,000 D
3= 1,001-1,500 D
4= 1,501 – 2,500 D
5= > 2,500



Benin (Francs CFA p.a.):
1= < 35 000 FCFA
2= 35 000 – 100 000 FCFA
3= 100 000 – 250 000 FCFA
4= 250 000 – 400 000 FCFA
5= > 400 000 FCFA

9.4.1 Descriptive Analysis

Based on the five income categories defined in each country, we distinguish four basic groups:

- *Very Low Income group*: this corresponds to the lowest income category in each country,

- *Low Income group:* corresponds to the second lowest income category in each country,
- *Average/High Income group:* corresponds to the middle income category and to the second highest income category in each country,
- *Very High Income group:* corresponds to the highest income category in each country. These are very high incomes and can be considered to represent the richest fraction of the population (the top 5 percent).

The mean scores and SDs of the model variables are shown in the table below and graphically displayed subsequently. Means, SDs and correlations among main constructs are shown in Appendix 13.

Table 17: Means and SDs of the constructs of interest per income group

		Consumption Deprivation			Need Satisfaction				
Income group		**Basic**	**Leisure**	**Status**	**Basic Needs**	**Social Needs**	**Esteem Needs**	**Actual. Needs**	**Life Satisfaction**
Very low income (N=870)	Mean	3.39	3.76	4.01	3.43	3.56	3.28	3.62	2.83
	SD	0.95	0.96	0.97	0.76	0.61	0.83	0.73	0.85
Low income (N=987)	Mean	2.88	3.30	3.75	3.59	3.61	3.45	3.78	3.02
	SD	0.96	0.96	0.98	0.63	0.58	0.69	0.66	0.77
Average/ High (N=709)	Mean	2.53	2.90	3.28	3.77	3.66	3.67	3.82	3.31
	SD	0.90	0.92	1.00	0.58	0.56	0.63	0.66	0.74
Very High income (N=99)	Mean	2.24	2.43	2.75	4.05	3.84	3.96	3.98	3.66
	SD	0.87	0.00	0.03	0.56	0.53	0.52	0.68	0.69

We display the scores graphically and conduct post hoc analyses with Scheffe tests to determine between which income groups significant differences exist. The ANOVA table is given in Appendix 14 and the post hoc Scheffe tests are given in Appendix 15.

9.4.1.1 Consumption Deprivation

A higher score of consumption deprivation indicates that the people are more deprived and in a less desirable situation. Consumption deprivation is compared across income groups. The general pattern is as expected since deprivation decreases monotonously when income

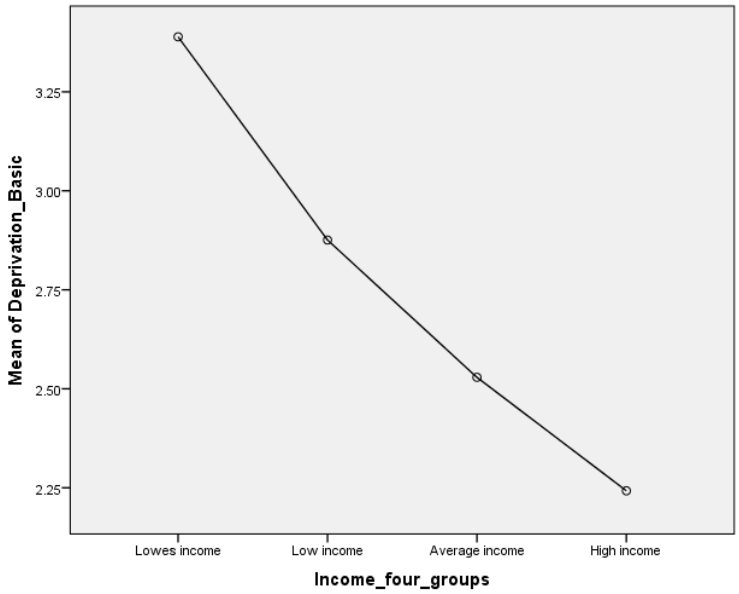
grows. This pattern is observable for the three types of consumption (Basic, Leisure and Status goods).

As indicated in Appendix 15, there are significant differences between all pairs of incomes for the three consumption deprivation scores.

Consumption deprivation is highly linked to income, such that consumption deprivation of basic goods, leisure goods and status goods is higher when income is lower.

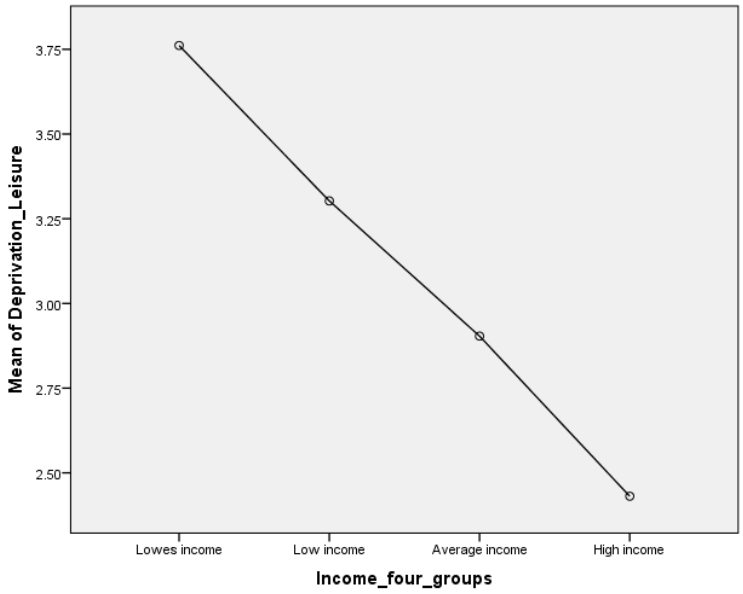
9.4.1.1.1 Consumption deprivation of Basic Goods

Figure 23: Consumption Deprivation of Basic Goods



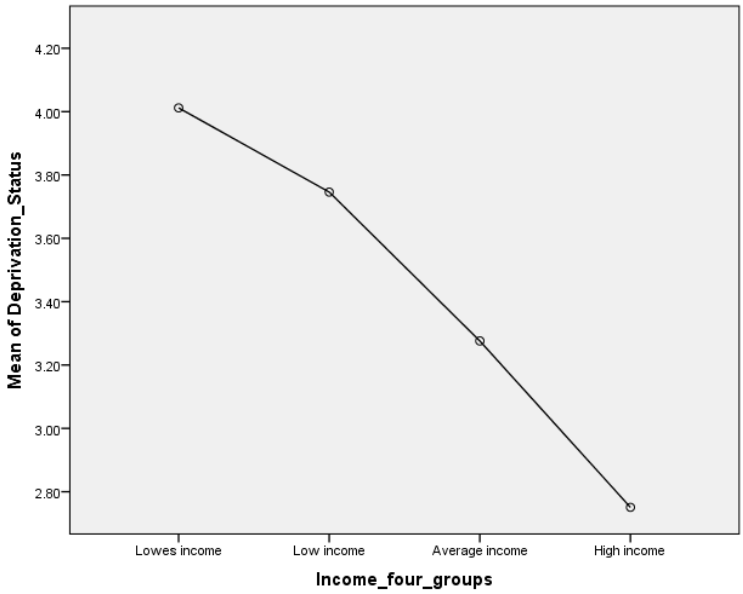
9.4.1.1.2 Deprivation of Leisure Goods

Figure 24: Consumption Deprivation of Leisure Goods



9.4.1.1.3 Deprivation of Status Goods

Figure 25: Consumption Deprivation of Status Goods



9.4.1.2 Need Satisfaction

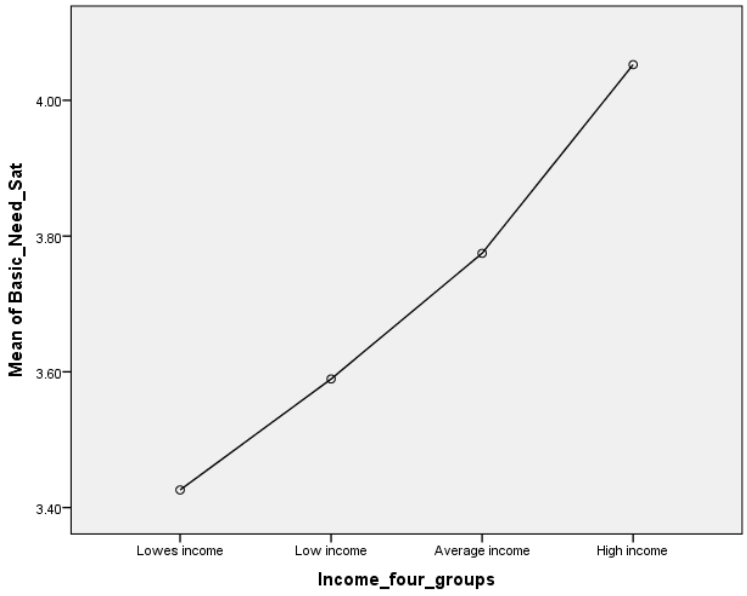
A general pattern in the data is that need satisfaction grows with income for all 4 types of needs satisfaction. Hence, the higher the income, the more the different types of needs are satisfied. There are significant differences between all pairs of income groups for basic and esteem needs. For the other needs, differences between groups vary. Some are significant and others not. This will be commented below the corresponding graphic representations.

For the two types of needs identified previously as having the bigger influence on SWB (Basic needs and Esteem needs), income seems to play an important role.

9.4.1.2.1 Basic Needs

There are significant differences between all pairs of income groups. The higher the income, the higher the satisfaction of basic needs.

Figure 26: Satisfaction of Basic Needs



9.4.1.2.2 Social Needs

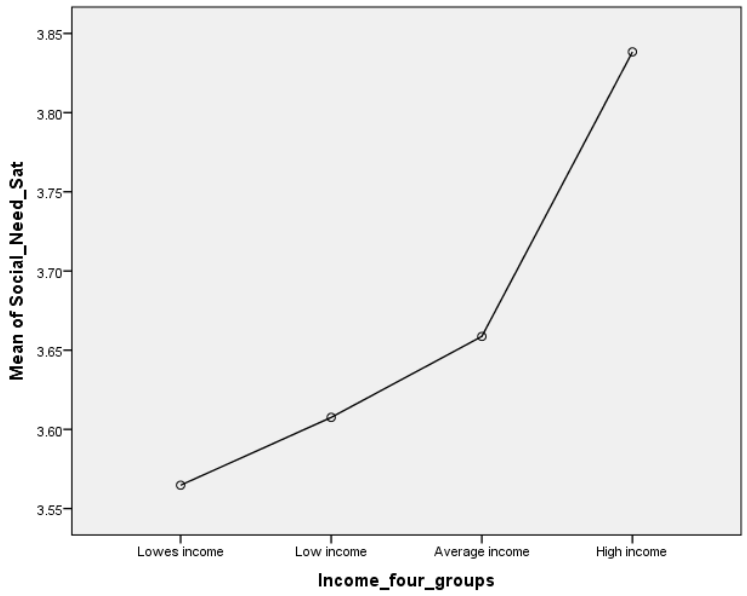
Regarding social need satisfaction we find no significant difference between:

- The very low income group and the low income group,
- The low income group and the average/high income group

All other differences are significant.

The very high income group is significantly different from all other groups on satisfaction of social needs. Social needs are much better satisfied for this group.

Figure 27: Satisfaction of Social Needs

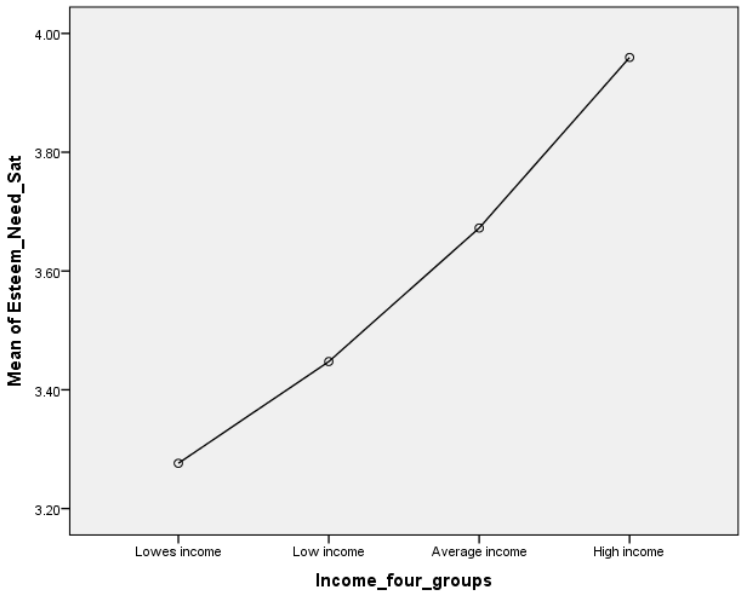


9.4.1.2.3 Esteem Needs

There are significant differences between all pairs of income groups.

The higher the income, the higher the satisfaction of Esteem needs.

Figure 28: Satisfaction of Esteem Needs

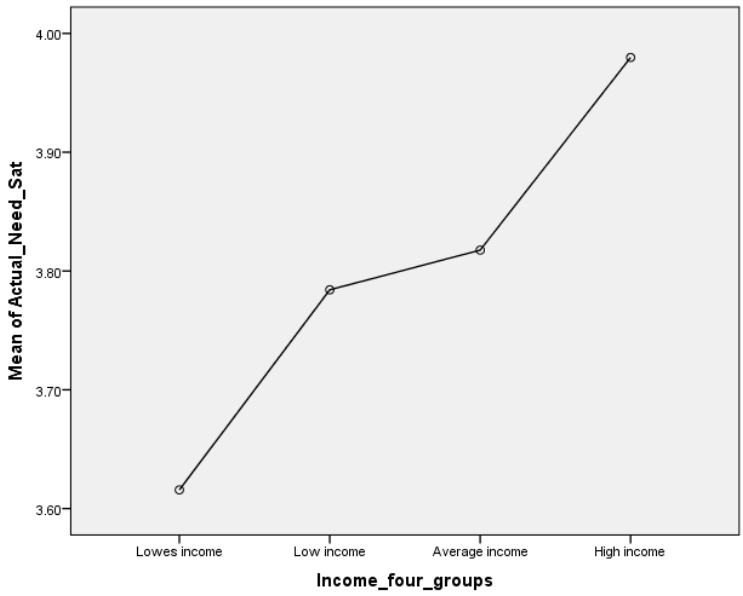


9.4.1.2.4 Actualization Needs

There is a significant difference between the very low income group and all others for satisfaction of actualization needs. There are no significant differences across all other groups (low, average/high and very high income groups).

Income penalizes satisfaction of actualization needs only for the very poor.

Figure 29: Satisfaction of Actualization Needs

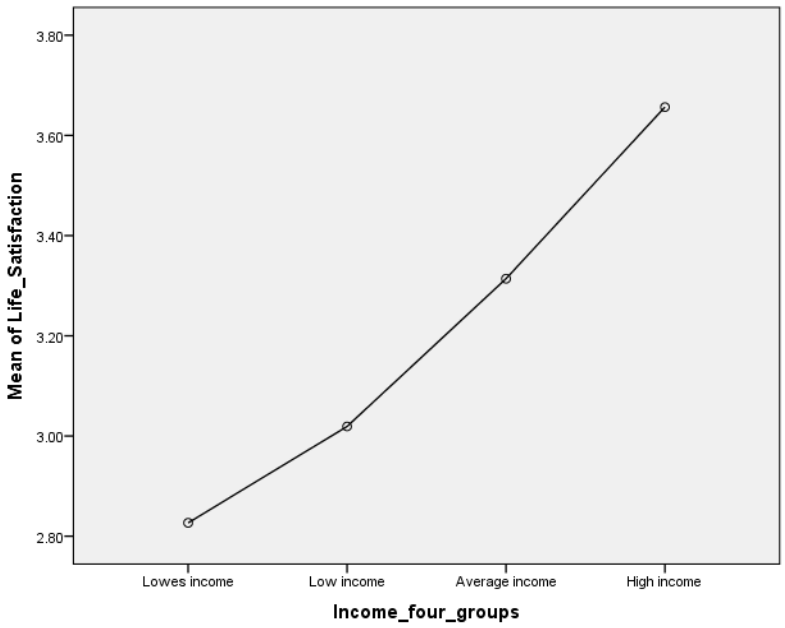


9.4.1.3 SWB (Life Satisfaction)

The data shows significant differences between all pairs of income groups on SWB:

The higher the income, the higher the SWB.

Figure 30: SWB (Life satisfaction)



The descriptive analysis indicates that:

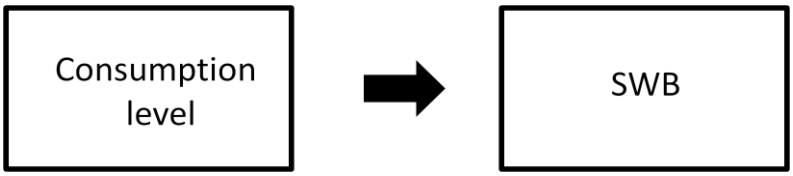
- **Income is related to Consumption deprivation of all three types of consumption,**
- **Income is related to the satisfaction of Basic and Esteem needs,**
- **Income is related to SWB.**

We next test relationships among constructs using Structural Equation Modeling (SEM).

9.4.2 Structural Analysis: Direct Relationships at the Income group level

We first test the direct relationships between consumption deprivation and SWB at the income group level. For clarity, the model is shown again hereunder:

Figure 31: Direct effect of consumption on SWB



Testing the direct relationship between consumption deprivation and SWB enables to have a first view of the relative importance of the different types of consumption (basic goods, leisure goods, and status goods for each income group.

Table 18: Relationships between consumption deprivation and SWB for income groups

			Income Groups							
			Lowest Income		Low Income		Medium/High Income		Very High Income	
			B	*p*	B	*p*	B	*p*	B	*p*
Basic consumption deprivation	➔	Life Satisfaction	-0,02	*NS*	**-0,07**	0,04	**-0,14**	***	-0,07	*NS*
Leisure consumption Deprivation	➔		**-0,23**	***	**-0,2**	***	-0,06	*NS*	-0,02	*NS*
Status consumption Deprivation	➔		-0,06	*NS*	**-0,07**	0,01	**-0,16**	***	**-0,21**	0,08

*Notes: B=unstandardized regression coefficients; *** p<.001; NS=Non Significant*

All significant relationships are in bold. These are all with the expected sign such that higher deprivation implies lower SWB.

There are clear differences across income groups. The types of consumption having an impact on SWB are:

- Basic goods deprivation for Low Income and Medium/High Income groups,

- Leisure goods deprivation for Very Low Income and Low Income groups,
- Status goods deprivation for Low Income, Medium/High Income and Very High Income groups,

Status goods deprivation plays a significant role for the higher income groups and Leisure goods deprivation significantly impacts SWB for the low income groups.

Basic goods deprivation is not significant for the very high income group. The surprising result however is that Basic goods deprivation does not seem to impact SWB for the very low income group.

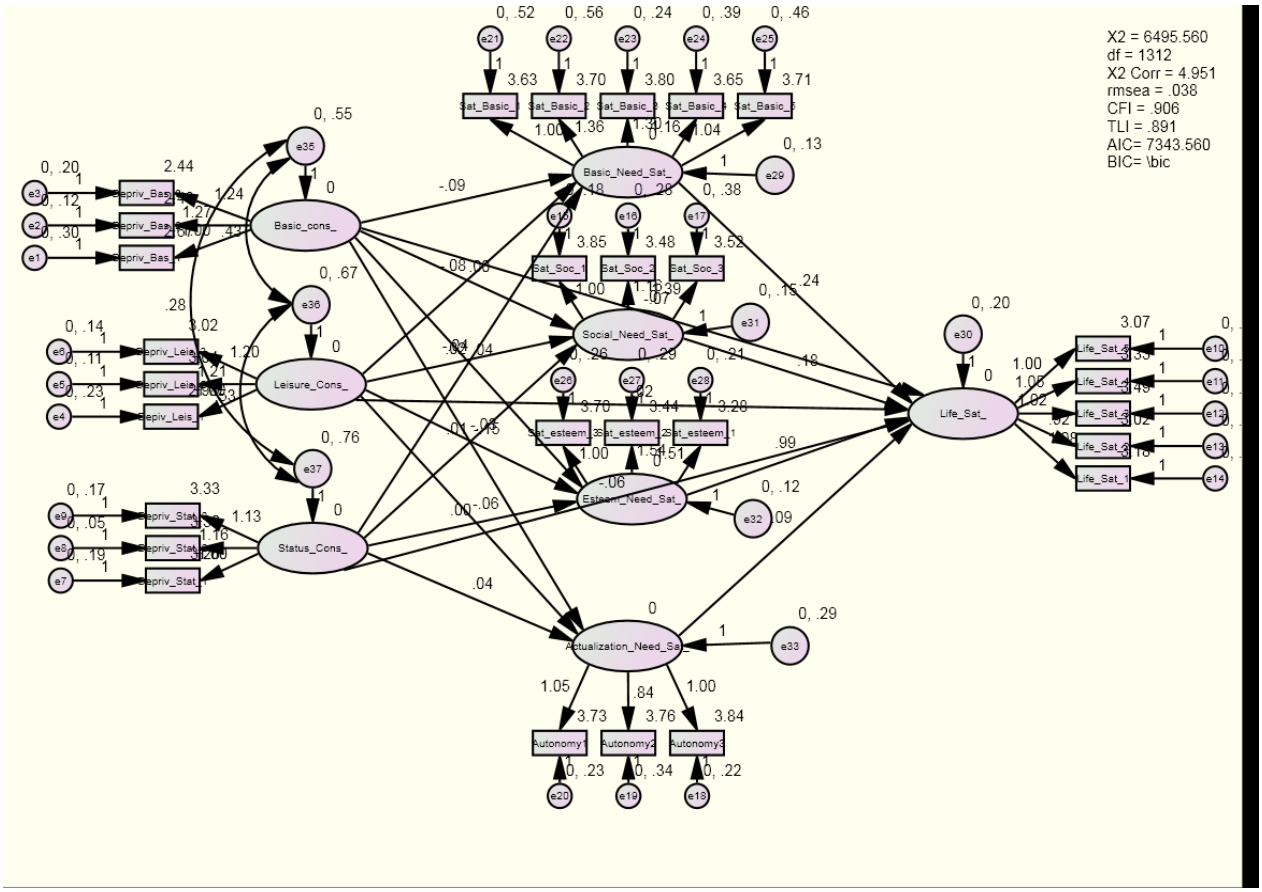
9.4.3 Full Structural Model (Need mediation and Income groups)

We now estimate the structural model in SEM at the income group level through a multi-group (four income groups) model.

To test again whether the model we propose is indeed a fully mediated model, we add here the direct relationships between consumption and SWB in addition to the relationships through needs satisfaction. This enables to re-test for the fact that consumption does not have a direct effect on SWB but has an effect on SWB only through the path of needs satisfaction.

Therefore, the model here tested is a full model shown below in Figure 32. The model shows excellent fit to the data with a RMSEA=.038.

Figure 32: Full Structural Model (Income groups)



The path coefficients estimated through SEM are shown in Table 19.

Table 19: Full Model – Income Group Level - Unstandardized Coefficients

			Income Groups							
			Lowest income		**Low income**		**Average/High income**		**Very High income**	
Basic consumption deprivation	➔	Basic Need Satisfaction	-.03	NS	**-.07**	***	**-.09**	***	0	NS
	➔	Social Need Satisfaction	**-.1**	***	-.02	NS	0	NS	-.02	NS
	➔	Esteem Need Satisfaction	-.03	NS	-.02	NS	**-.1**	.01	-.15	NS
	➔	Actualization Need Sat.	-.02	NS	-.04	NS	-.07	NS	-.34	NS
Leisure consumption deprivation	➔	Basic Need Satisfaction	**-.15**	***	**-.06**	***	-.01	NS	-.16	NS
	➔	Social Need Satisfaction	**-.16**	***	**-.08**	.04	-.01	NS	-.01	NS
	➔	Esteem Need Satisfaction	**-.25**	***	**-.16**	***	-.04	NS	-.09	NS
	➔	Actualization Need Sat.	-.05	NS	-.05	NS	-.03	NS	.19	NS
Status consumption deprivation	➔	Basic Need Satisfaction	.04	NS	-.01	NS	-.03	NS	-.02	NS
	➔	Social Need Satisfaction	-.01	NS	-.03	NS	-.05	NS	-.11	NS
	➔	Esteem Need Satisfaction	-.01	NS	**-.04**	.06	-.06	.07	-.01	NS
	➔	Actualization Need Sat.	**.09**	.04	-.05	NS	-.05	NS	0	NS
Basic Need Satisfaction	➔		**.69**	***	**.47**	***	**.46**	***	-.02	NS
Social Need Satisfaction	➔		.05	NS	.05	NS	.05	NS	.11	NS
Esteem Need Satisfaction	➔		**.58**	***	**.77**	***	**.57**	***	**.9**	***
Actualization Need Sat.	➔		**.1**	***	-.03	NS	**.13**	***	.15	NS
Basic consumption deprivation	➔	Life Satisfaction	-.05	NS	-.05	.07	-.04	NS	-.11	NS
Leisure consumption deprivation	➔		-.03	NS	-.05	NS	-.05	NS	-.06	NS
Status consumption deprivation	➔		**-.08**	.03	-.03	NS	**-.12**	***	**-.22**	.06

*Notes: B=unstandardized regression coefficitent; *** p<.001; NS=non significant; Significant Relationships are highlighted in bold.*

9.4.3.1 Interpretation of Results

1. ***Is Needs Satisfaction confirmed to be a key mediator between Consumption Deprivation and SWB?***

We established at the aggregate level and at the country level that the influence of consumption on SWB is explained through Needs satisfaction. We wish to confirm these results at the income level.

At the income level analysis, when including needs satisfaction in the model, the direct relationships of basic goods deprivation and of leisure goods deprivation to SWB is non-significant for all of the four income groups.

The direct relationships of status goods to SWB are significant for three of the four income groups which indicates that status goods reach beyond need satisfaction which is not very surprising for conspicuous goods. They might not necessarily directly fulfill a need but are important for SWB.

The general pattern confirms that consumption activities have an impact on needs satisfaction which themselves influence SWB. Needs satisfaction is therefore a key to SWB.

2. Which needs fulfillment determine Life Satisfaction?

At the aggregate level, the two main drivers of Life Satisfaction are Basic and Esteem needs satisfaction.

These general results are confirmed in all 4 income groups.

Table 20: Need Satisfaction as driver of SWB in different income groups

			Income Groups							
			Lowest income		**Low income**		**Average/High income**		**Very High income**	
Basic Need Satisfaction	➔	Life Satisfaction	**.69**	***	**.47**	***	**.46**	***	-.02	NS
Social Need Satisfaction	➔		.05	NS	.05	NS	.05	NS	.11	NS
Esteem Need Satisfaction	➔		**.58**	***	**.77**	***	**.57**	***	**.9**	***
Actualization Need Sat.	➔		**.1**	***	-.03	NS	**.13**	***	.15	NS

Basic and Esteem needs significantly impact Life Satisfaction in all three income groups and 4 income groups respectively. Not surprisingly, basic needs satisfaction does not impact SWB only for the very high income group.

Social needs satisfaction does not impact SWB in any of the four income categories.

Actualization needs satisfaction is significant in two categories out of four. However, the path coefficients are very low relative to the two other needs fulfillment. These results are in line with the result at the aggregate level where actualization needs also impact significantly SWB, yet at a low level.

Therefore, for all 4 income groups, results confirm the utmost importance of basic needs satisfaction and of esteem needs satisfaction for explaining SWB.

3. What Consumption activities influence Need Satisfaction?

As at the aggregate level, we show below for parsimony (Table 21), the influence of consumption deprivation of the two important need factors (basic needs and esteem needs). Full results appear in Table 19.

Table 21: Full Model – Income Group Level - Unstandardized Coefficients

			Income Groups							
			Lowest income		**Low income**		**Average/High income**		**Very High income**	
Basic consumption deprivation	➔	Basic Need Satisfaction	-.03	NS	**-.07**	***	**-.09**	***	0	NS
	➔	Esteem Need Satisfaction	-.03	NS	-.02	NS	**-.1**	.01	-.15	NS
Leisure consumption deprivation	➔	Basic Need Satisfaction	**-.15**	***	**-.06**	***	-.01	NS	-.16	NS
	➔	Esteem Need Satisfaction	**-.25**	***	**-.16**	***	-.04	NS	-.09	NS
Status consumption deprivation	➔	Basic Need Satisfaction	.04	NS	-.01	NS	-.03	NS	-.02	NS
	➔	Esteem Need Satisfaction	-.01	NS	**-.04**	.06	**-.06**	.07	-.01	NS

*Notes: B=unstandardized regression coefficitent; *** p<.001; NS=non significant; Significant Relationships are highlighted in bold.*

- Basic consumption deprivation influences basic need satisfaction in two income groups out of four (Low and average/high incomes) and influences satisfaction of esteem needs in one income group only (average/high incomes).

- Leisure consumption deprivation influences esteem needs satisfaction in two income groups out of four and influences satisfaction of basic needs in the same two income groups (Very low and low income groups). This confirms the bigger influence of leisure consumption on satisfaction of esteem needs.

- Status consumption deprivation marginally influences satisfaction of esteem needs in two income groups (low and average/high income groups) and does not influence basic needs satisfaction.

- Basic and leisure consumption have no impact for the very high income group. Turning back to Table 21, we observe that this very high group is not sensitive to needs satisfaction which are probably all fulfilled. Status goods consumption does impact directly their SWB but not through the mediation of needs satisfaction.

Overall, the pattern observed at the aggregate level is confirmed at the income level, except for the very high income group for which needs satisfaction does not seem to be linked to consumption activities.

9.5 Analysis at the Country x Income Level

This chapter breaks the analysis down to income comparisons within the four countries. The next tables show means scores of the constructs of interest for each country and each income group. Post hoc Scheffe tests are given in Appendix 16.

We do not consider here the very high income group, the number of observations per country being too low.

9.5.1 France

Table 22: Means scores (income groups in France)

			Consumption Deprivation			Need Satisfaction				
Country		N	Basic	Leisure	Status	Basic	Social	Esteem	Auto-nomy	Life Satisfaction
France	Lowest income	135	2.95	3.52	3.72	3.51	3.52	3.25	3.73	2.91
	Low income	336	2.52	3.02	3.34	3.71	3.64	3.50	3.81	3.17
	Average/High income	178	2.20	2.63	2.97	3.81	3.68	3.61	3.82	3.51
	Total	**660**	**2.52**	**3.01**	**3.31**	**3.70**	**3.63**	**3.48**	**3.79**	**3.22**

There are significant differences across all income groups for the three consumption type. Consumption deprivation is higher as income decreases.

There are significant differences between income groups for satisfaction of basic needs and satisfaction of esteem needs, satisfaction levels decrease with income. There are no differences concerning satisfaction with social and actualization needs.

There are significant differences across all groups for SWB. The higher the income, the higher the SWB.

9.5.2 Morocco

Table 23: Means scores (income groups in Morocco)

			Consumption Deprivation			Need Satisfaction				
Country		N	Basic	Leisure	Status	Basic	Social	Esteem	Auto-nomy	Life Satisfaction
Morocco	Lowest income	371	3.48	3.70	3.94	3.76	3.81	3.62	3.63	3.19
	Low income	235	3.02	3.11	3.66	3.80	3.83	3.74	3.70	3.26
	Average/High income	158	2.90	2.89	3.29	3.91	3.92	3.86	3.83	3.50
	Total	**788**	**3.19**	**3.32**	**3.70**	**3.81**	**3.84**	**3.71**	**3.70**	**3.29**

Concerning consumption deprivation, the lowest income group is significantly more deprived than the two other groups on the three consumption types. Low income and average/high income groups are not different for basic goods and leisure goods deprivation, but they are for status goods deprivation.

For need satisfaction, the lowest income group is significantly different from the average/high income group.

On SWB, the two low income groups are not different but show both less SWB than the average/high income group.

9.5.3 Tunisia

Table 24: Means scores (income groups in Tunisia)

Country		N	Consumption Deprivation Basic	Leisure	Status	Need Satisfaction Basic	Social	Esteem	Auto-nomy	Life Satisfaction
Tunisia	Lowest income	226	3.39	3.80	4.05	3.30	3.37	3.13	3.51	2.65
	Low income	230	2.81	3.33	3.85	3.59	3.53	3.52	3.74	3.05
	Average/High income	284	2.54	3.03	3.35	3.76	3.53	3.63	3.76	3.20
	Total	777	2.86	3.32	3.68	3.59	3.49	3.46	3.69	3.02

Consumption deprivation is significantly different across the three income groups, but for status goods deprivation which is not different for the two low income groups.

The lowest income group is different from the two other groups on all needs satisfaction and on Life satisfaction. The low income and average/high income groups are not different.

9.5.4 Benin

Table 25: Means scores (income groups in Benin)

Country		N	Consumption Deprivation Basic	Leisure	Status	Need Satisfaction Basic	Social	Esteem	Auto-nomy	Life Satisfaction
Benin	Lowest income	138	3.59	4.10	4.42	2.67	3.29	2.61	3.63	2.06
	Low income	186	3.42	4.02	4.45	3.10	3.36	2.91	3.91	2.40
	Average/High income	89	2.48	3.07	3.63	3.51	3.57	3.58	3.96	2.95
	Total	**440**	**3.19**	**3.74**	**4.16**	**3.12**	**3.41**	**3.03**	**3.85**	**2.47**

The lowest and the low income groups are not different on consumption deprivation for all goods. These two groups are significantly lower than the average/high income group.

The three groups are different on satisfaction of basic needs and satisfaction of esteem and actualization needs.

The three groups are different on SWB, with SWB lower when income is lower.

References

Alfonso. V. C.. D. B. Allinson. D. E. Rader. and B. S. Gorman. 1996. "The Extended Satisfaction with Life Scale: Development and Psychometric Properties." *Social Indicators Research* 38: 275-301.

Anderson. James C.. and David W. Gerbing. 1988. "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach." *Psychological Bulletin* 103 (3): 411-423.

Andrews. F. M.. and S. B. Withey. 1976. *Social Indicators of Well-Being*. New York: Plenum Press.

Bagozzi. R. P.. and L. W. Phillips. 1982. "Representing and Testing Organizational Theories: A Holistic Construal." *Administrative Science Quarterly* 27: 459-489.

Belk. Russell W. 1983. "Worldly Possessions: Issues and Criticisms." In *Advances in Consumer Research*. Eds. R. P. Bagozzi and A. M. Tybout. Ann Arbor: Association for Consumer Research. 514-519.

Belk. Russell W. 1984. "Three Scales to Measure Constructs Related to Materialism: Reliability. Validity. and Relationships to Measures of Happyness." In *Advances in Consumer Research*. Ed. T. C. Kinnear. Provo. UT: Association for Consumer Research. 291-297.

Betz. Ellen L. 1984. "Two Tests of Maslow's Theory of Need Fulfillment." *Journal of Vocational Behavior* 24 (2): 204-220.

Biswas-Diener. Robert. and Ed Diener. 2001. "Making the Best of a Bad Situation: Satisfaction in the Slums of Calcutta." *Social Indicators Research* 55 (3): 329.

Brajša-Žganec. Andreja. Marina Merkaš. and Iva Šverko. 2011. "Quality of Life and Leisure Activities: How Do Leisure Activities Contribute to Subjective Well-Being?" *Social Indicators Research* 102 (1): 81-91.

Campbell. A.. P. E. Converse. and W. L. Rogers. 1976. *The Quality of American Life*. New York: Russell Sage Foundation.

Churchill. Gilbert A. 1979. "A Paradigm for Developing Better Measures of Marketing Constructs." *Journal of Marketing Research* 16 (1): 64-73.

Costanza. Robert. Brendan Fisher. Saleem Alib. Caroline Beer. Lynne Bond. Roelof Boumans. Nicholas L. Danigelis. Jennifer Dickinson. Carolyn Elliott. Joshua Farley. Diane Elliott Gayer. Linda MacDonald Glenn. Thomas Hudspeth. Dennis Mahoney. Laurence McCahill. Barbara McIntosh. Brian Reed. Abu Turab Rizvi. Donna M. Rizzo. Thomas Simpatico. and Robert Snapp. 2007. "Quality of Life: An Approach Integrating Opportunities. Human Needs. and Subjective Well-Being." *Ecological Economics* 61 (2-3): 267-276.

Costanza, R. et al. (2008), "An Integrative Approach to Quality of Life Measurement, Research, and Policy", *SAPIENS*, 1, 1.

Deci. Edward L.. and Richard M. Ryan. 2000. "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior." *Psychological Inquiry* 11 (4): 227.

Diener E. & E. Suh (1999). National differences in subjective wellbeing. In: Well-Being: The Foundations of Hedonic Psychology, edited, edited by: Kahneman, D., Diener, E., and Schwarz, N., Russel Sage Foundation, New York, 593 pp.

Diener. E. 1994. "Assessing Subjective Well-Being: Progress and Opportunities." *Social Indicators Research* 31: 103-157.

Diener. E.. and M. Diener. 1995. "Cross-Cultural Correlates of Life Satisfaction and Self-Esteem." *Journal of Personality and Social Psychology* 68: 653-663.

Diener. E.. M. Diener. and C. Diener. 1995. "Factors Predicting the Subjective Well-Being of Nations." *Journal of Personality and Social Psychology* 69: 851-864.

Diener. E.. R.A. Emmons. R.J. Larsen. and S. Griffin. 1985. "The Satisfaction with Life Scale." *Journal of Personality Assessment* 49 (71-75).

Diener. E.. E. M. Suh. R. E. Lucas. and H. Smith. 1999. "Subjective Well-Being: Three Decades of Progress." *Psychological Bulletin* 125: 276-302.

Diener. E.. D. Wirtz. W. Tov. C. Kim-Prieto. D. W. Choi. S. Oishi. and R. Biswas-Diener. 2010. "New Well-Being Measures: Short Scales to Assess Flourishing and Positive and Negative Feelings." *Social Indicator Research* 97: 143-156.

Diener. Ed. and Martin E.P. Seligman. 2004. "Beyond Money. Toward an Economy of Well-Being." *Psychological Science in the Public Interest* 5 (1): 1-31.

Easterlin R. (2003). "Explaining Happiness", *Proceedings of the National. Academy of Science*, 100 (19), 11 176–11 183.

Fornell. Claes. and David F. Larcker. 1981. "Evaluating Structural Equation Modelswith Unobservable Variables and Measurement Error." *Journal of Marketing Research* 18 (1): 39-50.

Fournier. Susan. and Marsha L. Richins. 1991. "Some Theoretical and Popular Notions Concerning Materialism." *Journal of Social Behavior and Personality* 6: 403-414.

Frank. R. 1999. *Luxury Fever: Money and Happiness in an Era of Excess*. New York: Free Press.

Gagné. M. 2003. "The Role of Autonomy Support and Autonomy Orientation in Prosocial Behavior Engagement." *Motivation and Emotion* 27: 199-223.

Graham. Carol 2009. *Happiness around the World: The Paradox of Happy Peasants and Miserable Millionaires*. New York: Oxford University Press.

Horn. John L. and J Jack McArdle. 1992. "A Practical and Theoretical Guide to Measurement Invariance in Aging Research." *Experimental aging research* 18 (3): 117-144.

Hui. C Harry. and Harry C Triandis. 1985. "Measurement in Cross-Cultural Psychology a Review and Comparison of Strategies." *Journal of Cross-Cultural Psychology* 16 (2): 131-152.

Johnston. Mary M.. and Sara J. Finney. 2010. "Measuring Basic Needs Satisfaction: Evaluating Previous Research and Conducting New Psychometric Evaluations of the Basic Needs Satisfaction in General Scale." *Contemporary Educational Psychology* 35 (4): 280-296.

Kahneman. Daniel. and Alan B. Krueger. 2006. "Developments in the Measurement of Subjective Well-Being." *Journal of Economic Perspectives* 20 (1): 3-24.

Layard. R. 2005. *Happiness: Lessons from a New Science*. London: Penguin.

Lee. Dong-Jin. M. Joseph Sirgy. Val Larsen. and Newell D. Wright. 2002. "Developing a Subjective Measure of Consumer Well-Being." *Journal of Macromarketing* 22 (2): 158-169.

Leelanuithanit. Orose. Ralph Day. and Rockney Walters. 1991. "Investigating the Relationship between Marketing and Overall Satisfaction with Life in a Developing Country." *Journal of Macromarketing* 11 (1): 3-23.

Linsen. Rick. Luk Van Kempen. and Gerbert Kraaykamp. 2011. "Subjective Well-Being in Rural India: The Curse of Conspicuous Consumption." *Social Indicator Research* 101 (1): 57-72.

Lucas. R. E.. E. Diener. A. Grob. E. M. Suh. and L. Shao. 2000. "Cross-Cultural Evidence for the Fundamental Features of Extraversion." *Journal of Social Psychology* 79 (3): 452-468.

Lucas. R. E.. E. Diener. and E. Suh. 1996. "Discriminant Validity of Well-Being Measures." *Journal of Personality and Social Psychology* 71: 616-628.

Malhotra. Naresh K. 2006. "Consumer Well-Being and Quality of Life: An Assessment and Directions for Future Research." *Journal of Macromarketing* 26 (1): 77-80.

Markus. Hazel Rose. and Barry Schwartz. 2010. "Does Choice Mean Freedom and Well-Being?" *Journal of Consumer Research* 37 (August): 344-355.

Maslow. A. H. 1954. *Motivation and Personality*. New York.: Harper and Brothers.

Michalos. A. C. 1997. "Combining Social. Economic and Environmental Indicators to Measure Sustainable Human Well-Being." *Social Indicators Research* 40: 221-258.

Milyavskaya. Marina. and Richard Koestner. 2011. "Psychological Needs. Motivation. and Well-Being: A Test of Self-Determination Theory across Multiple Domains." *Personality and Individual Differences* 50 (3): 387-391.

Myers. D.. and E. Diener. 1995. "Who Is Happy?" *Psychological Science* 6: 10-19.

Parfitt. D. 1984. *Reasons and Persons*. Oxford: Clarendon Press.

Pavot. W.. and E. Diener. 2008. "The Satisfaction with Life Scale and the Emerging Construct of Life Satisfaction." *Journal of Positive Psychology* 3 (137-152).

Pavot. W. G.. E. Diener. C. R. Colvin. and E. Sandvik. 1991. "Further Validation of the Satisfaction with Life Scale: Evidence for the Cross-Method Convergence of Well-Being Measures." *Journal of Personality Assessment* 57: 149-161.

Peterson. Mark. and Ahmet Ekici. 2007. "Consumer Attitude toward Marketing and Subjective Quality of Life in the Context of a Developing Country." *Journal of Macromarketing* 27 (4): 350-359.

Richins. Marsha L.. and Scott Dawson. 1992. "A Consumer Values Orientation for Materialism and Its Measurement: Scale Development and Validation." *Journal of Consumer Research* 19 (3): 303-316.

Ruiz Paiva. Maria Fatima. Felix Neto. Maria Teresa Munoz Sastre. Nadine Laumond-Salvatore. Sheila Riviere. and Etienne Mullet. 2009. "Life Domain Satisfaction: A Portugal–France Comparison." *Social Indicators Research* 94: 173-181.

Ryan. R. M.. and E. L. Deci. 2000. "Self-Determination Theory and the Facilitation of Intrinsic Motivation. Social Development. and Well-Being." *The American Psychologist* 55: 68-78.

Ryff. Carol D.. and Corey Lee M. Keyes. 1995. "The Structure of Psychological Well-Being Revisited." *Journal of Personality and Social Psychology* 69 (4): 719-727.

Singh. Rekha Padmanabhan. and Ashok Pratap Arora. 2010. "Antecedents of Individual Well-Being." *Vision (09722629)* 14 (3): 191-205.

Sirgy. Joseph. M.. and Jiyun Wu. 2009. "The Pleasant Life. the Engaged Life. and the Meaningful Life: What About the Balanced Life?" *Journal of Happiness Studies* 10 (2): 183-196.

Sirgy. M. J. 2002. *The Psychology of Quality of Life*. Dordrecht: Kluwer Academic Publishers.

Sirgy. M. Joseph. Efraty; David. Philip Siegel. and Dong-Jin Lee. 2001. "A New Measure of Quality-of-Work Life (Qwl) Based on Need Satisfaction and Spillover Theories." *Social Indicators Research* 55 (September): 241-302.

Sirgy. M. Joseph. and Dong-Jin Lee. 2006. "Macro Measures of Consumer Well-Being (Cwb): A Critical Analysis and a Research Agenda." *Journal of Macromarketing* 26 (1): 27-44.

Sirgy. M. Joseph. Dong-Jin Lee. and Don Rahtz. 2007. "Research on Consumer Well-Being (Cwb): Overview of the Field and Introduction to the Special Issue." *Journal of Macromarketing* 27 (4): 341-349.

Sirgy M.L. et al. (1995). Developing a life satisfaction measure based on need hierarchy theory. in: New dimensions of marketing and quality of life, edited by: Sirgy, M. J. and Samli, A., Greenwood Press, Westport, CT, 377 pp.

Steenkamp. B. B.. and H. Baumgartner. 1998. "Assessing Measurement Invariance in Cross-National Consumer Research."

Stones. M. J.. and A. Kozma. 1985. "Structural Relationships among Happiness Scales: A Second Order Factorial Study." *Social Indicators Research* 17: 19-28.

Tay. Louis. and Ed Diener. 2011. "Needs and Subjective Well-Being around the World." *Journal of Personality and Social Psychology* 101 (2): 354-365.

Veenhoven. R. 1991. "Is Happiness Relative?" *Social Indicators Research* 24: 1-34.

Williams. L. J.. and J. Holahan. 1994. "Parsimony-Based Fit Indices for Multipleindicatormodels: Do They Work?" *Structural EquationModeling* 1 (2): 161-189.

Zhong. Jing Yang. and Vincent-Wayne Mitchell. 2010. "A Mechanism Model of the Effect of Hedonic Product Consumption on Well-Being." *Journal of Consumer Psychology* 20 (2): 152-162.

APPENDICES PRELIMINARY STUDY

Appendix 1: Scale items Preliminary Study

Scale/ construct/ measurement items	Source/ adapted from
Availability/ Affordability	
We are interested to learn more about the role that goods and services play in the lives of people. To this end we distinguish three broad types of goods or services: 1. **Basic goods and services** are essential for peoples' lives. These include food. water. electricity. shelter. kitchenware. detergents. furniture. clothes. medical care. public or private transportation. personal computers. etc. 2. **Leisure related goods and services** provide people fun. excitement or pleasurable experiences. These include restaurants. cinemas. sports. vacations. fancy food. social outings. etc. 3. **Status goods and services** help people to create a good image of themselves. show prestige. uniqueness or success to others. These include fancy clothes. luxury cars. sophisticated watches. prestigious furniture. expensive jewelry. etc. Please answer the following questions *(7-point agreement scale)*: Overall. in the area where I live … are easily available. • basic goods and services • leisure related goods and services • status goods and services Overall. I can easily afford to spend money on *(7-point agreement scale)*: • basic goods and services that I need • leisure related goods and services • status goods and services	
Availability Specific	**New scales**
Basic goods and services electricity services water/ sewage and refuse services gas/oil services petrol stations internet/ telecommunication services	

food. clothes. furniture. groceries. electronic goods. etc.
public and private transportation (buses. taxis. trains…)
apartments or housing
educational services
medical care

Leisure-related goods and services
restaurants and other eating/drinking establishments
theaters and cinemas
places where residents come together. rest and socialize
leisure. sports. and recreational facilities
fancy food

Status goods and services
clothing that I can wear to show status and be noticed by others
cars or motorbikes that I can drive to show status and be noticed by others
furniture or housing items that I can buy to show status and be noticed by others
watches or jewelry that I can wear to show status and be noticed by others
luxury perfume or cosmetics that I can use to show status and be noticed by others
beauty and massage services for the wealthy

Affordability **New scales**

Basic goods and services
electricity
water/ sewage and refuse services
gas/oil services
gas from petrol stations
internet/ telecommunication services
food. clothes. furniture. groceries. electronic goods. etc.
public and private transportation (buses. taxis. trains…)
housing
educational services
medical care

Leisure-related goods and services
eating out in restaurants or other eating/drinking establishments
visiting theaters and cinemas
participate to social outings
leisure. sports. and recreational facilities
fancy food

Status goods and services
clothing to show status and be noticed by others
cars or motorbikes to show status and be noticed by others

furniture or housing equipment to show status and be noticed by others	
watches or jewelry to show status and be noticed by others	
luxury perfume or cosmetics to show status and be noticed by others	
beauty and massage services for the wealthy	
Need Fulfillment	Tay and Diener (2011) as well as others (see paper by Tay and Diener. 2011); Deci and Ryan (2000); (Ryan and Deci 2000); Johnston and Finney (2010)
Basic needs	
I sometimes cannot afford to buy the food that I want ***(R)***	
I am satisfied with my housing situation	
I am satisfied with the furniture and appliances in my home	
I feel safe in the house where I live	
I feel safe in the area where I live	
Basic Social needs	
I have others I can count on for help when needed	
I have a nice network of friends and acquaintances	
Esteem needs	
Others around me generally treat me with respect	
I feel proud about what I achieved in my life	
I am satisfied with the status I have in the society	
I feel I am a successful person	
I achieved more success than my friends and acquaintances	
Actualization needs	
I learned a lot of interesting things in my life	
I have the freedom to choose what I do with my life	

Basic Need Satisfaction in General	Decy and Ryan (2000)
Autonomy	
I feel like I am free to decide for myself how to live my life.	
I feel pressured in my life *(R)*.	
I generally feel free to express my ideas and opinions.	
In my daily life. I frequently have to do what I am told *(R)*.	
There is not much opportunity for me to decide for myself how to do things in my daily life *(R)*.	
Competence	
Often. I do not feel very competent *(R)*.	
People I know tell me I am good at what I do.	
I have been able to learn interesting new skills recently.	
Most days I feel a sense of accomplishment from what I do.	
In my life I do not get much of a chance to show how capable I am *(R)*.	
I often do not feel very capable *(R)*.	
Relatedness	
I really like the people I interact with.	
I get along with people I come into contact with.	
I pretty much keep to myself and don't have a lot of social contacts *(R)*.	
I consider the people I regularly interact with to be my friends.	
People in my life care about me.	
People I interact with on a daily basis tend to take my feelings into consideration.	
There are not many people that I am close to *(R)*.	
I feel like I can pretty much be myself in my daily situations.	
The people I interact with regularly do not seem to like me much *(R)*.	
People are generally pretty friendly towards me.	
Domain satisfaction	Sirgy et al. (2001)
How satisfied are you with your life as a whole?	
How do you feel about your present job in general?	
How do you feel about your family situation in general?	
How do you feel about your leisure life in general?	
How do you feel about your financial situation in general?	
How do you feel about your health in general?	
How do you feel about your education in general?	
How do you feel about your friends and associates in gene	
How do you feel about your neighborhood in general?	
How do you feel about your community in general?	
How do you feel about your spiritual life in general?	
How do you feel about your environment in general?	
How do you feel about your housing situation in general?	
How do you feel about your cultural life in general?	

How do you feel about your social status in general?	
Satisfaction with Life	Diener et al. (1985)
In most ways my life is close to my ideal.	
The conditions of my life are excellent.	
I am satisfied with life.	
So far I have gotten the important things I want in life.	
If I could live my life over. I would change almost nothing.	

Appendix 2: Sample Demographics (Study 1)

	Frequency	Percent
Gender		
Men	361	45.1
Women	439	54.9
Total	800	100.0
Age group		
Less than 18	3	0.4
18-25	228	28.5
26-34	105	13.1
35-44	118	14.8
45-54	121	15.1
55 – 64	137	17.1
65+	88	11.0
Family Status		
Single	226	28.3
Married	422	52.8
Divorced	36	4.5
Widowed	14	1.8
Other	102	12.8
Codification de la profession du répondant en classes INSEE		
Agriculteurs. exploitants	7	0.9
Artisans. commerçants et chefs d'entreprise	23	2.9
Cadres et professions intellectuelles supérieures	78	9.8
Professions intermediaries	108	13.5
Employés	138	17.3
Ouvriers	106	13.3
Retraités	190	23.8
Autres personnes sans activité professionnelle	150	18.8
Houshold income (p.a.)		
Less than € 20.000	215	26.9
€ 20.000 to € 40.000	404	50.5
€ 40.000 to € 60.000	124	15.5
€ 60.000 to € 80.000	30	3.8
More than € 80.000	27	3.4

Appendix 3: Pattern Matrix -- Basic Psychological Need Scale

	Related-ness	**Auto-nomy**	**Compe-tence**	Un-named
Original subscale: Autonomy				
I feel like I am free to decide for myself how to live my life	.212	**.662**		
I feel pressured in my life *(R)*		**.448**		.426
I generally feel free to express my ideas and opinions		**.599**	.217	
In my daily life. I frequently have to do what I am told *(R)*	-.205	.384		.528
There is not much opportunity for me to decide for myself how to do things in my daily life *(R)*		.263		.547
Original subscale: Competence				
Often. I do not feel very competent	-.210			.697
People I know tell me I am good at what I do	.360		**.448**	
I have been able to learn interesting new skills recently			**.780**	
Most days I feel a sense of accomplishment from what I do			**.725**	
In my life I do not get much of a chance to show how capable I am *(R)*			.250	.732
I often do not feel very capable *(R)*				.644
Original subscale: Relatedness				
I really like the people I interact with	**.798**			
I get along with people I come into contact with	**.708**	.276		
I pretty much keep to myself and don't have a lot of social contacts *(R)*	.228	-.224		.732
I consider the people I regularly interact with to be my friends	**.832**			
People in my life care about me	.662			
People I interact with on a daily basis tend to take my feelings into consideration	.659			
There are not many people that I am close to *(R)*	.269	-.393		.736
I feel like I can pretty much be myself in my daily situations	.351	.576		
The people I interact with regularly do not seem to like me much	.277		-.263	.645
People are generally pretty friendly towards me	.599	.207		

Appendix 4: Pattern Matrix – Need Satisfaction Scale

	Component					
	1	2	3	4	5	6
People I know tell me I am good at what I do	**.515**	.031	.214	-.199	.227	.210
I have a nice network of friends and acquaintances	**.486**	-.063	.163	.228	-.279	.120
I have others I can count on for help when needed	**.588**	.007	-.041	.250	-.086	.102
People in my life care about me.	**.705**	.097	-.066	.037	.100	.074
I get along with people I come into contact with.	**.776**	-.038	-.169	.000	.259	.032
People are generally pretty friendly towards me.	**.674**	-.001	.006	.022	.152	-.008
I really like the people I interact with.	**.847**	.026	-.098	-.035	.062	-.026
People I interact with on a daily basis tend to take my feelings into consideration.	**.783**	.168	.138	-.128	.064	-.120
Others around me generally treat me with respect	**.426**	-.046	.059	.310	.062	.118
I consider the people I regularly interact with to be my friends.	**.892**	.193	.004	-.158	-.110	-.156
I feel pressured in my life.	.061	**.491**	-.079	-.016	-.194	.480
In my daily life. I frequently have to do what I am told.	.111	**.646**	-.025	.112	-.205	.305
The people I interact with regularly do not seem to like me much.	-.257	**.686**	.306	-.042	-.005	.109
In my life I do not get much of a chance to show how capable I am.	.115	**.698**	-.245	.131	.161	.074
There is not much opportunity for me to decide for myself how to do things in my daily life.	.033	**.648**	.178	-.081	-.137	.061
There are not many people that I am close to.	-.256	**.603**	-.044	.116	.519	.043
I sometimes cannot afford to buy the food that I want	-.043	**-.435**	-.020	.036	.067	-.373
I pretty much keep to myself and don't have a lot of social contacts.	-.178	**.653**	-.019	-.004	.396	-.040
I often do not feel very capable.	.184	**.713**	.015	.079	-.022	-.112
Often. I do not feel very competent.	.273	**.737**	-.023	-.050	-.005	-.135
Most days I feel a sense of accomplishment from what I do.	.189	-.021	**.558**	-.173	.142	.141
I achieved more success than my friends and acquaintances	-.054	.251	**.787**	-.092	-.011	.136
I feel proud about what I achieved in my life	.041	-.092	**.650**	.072	.058	.123
I feel I am a successful person	-.059	.025	**.848**	.012	.035	.060
I am satisfied with the status I have in the society	-.053	-.092	**.740**	.125	-.014	-.088
I feel safe in the area where I live	-.058	.033	-.137	**.882**	.004	.148
I feel safe in the house where I live	-.049	.007	-.083	**.887**	.095	.033
I am satisfied with the furniture and appliances in my home	.012	.121	.261	**.558**	.032	-.309
I learned a lot of interesting things in my life	.119	-.184	.205	**.247**	.184	.240
I am satisfied with my housing situation	.089	.071	.165	**.665**	-.038	-.348
I generally feel free to express my ideas and opinions.	.310	-.116	.067	.023	**.536**	.046
I feel like I am free to decide for myself how to live my life.	.279	-.092	.131	.034	**.546**	-.051
I feel like I can pretty much be myself in my daily situations.	.453	-.085	.030	.022	**.457**	-.046
I have been able to learn interesting new skills recently.	.010	-.047	.319	.011	.091	**.624**

Appendix 5: Correlations. AVEs. and Reliabilities of Latent Constructs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	ρ
(1) Consumption: Status	***1.0***								1.0
(2) Consumption: Leisure	.55	***1.0***							1.0
(3) Consumption: Basic	.43	.60	***1.0***						1.0
(4) Actualization Needs	.21	.31	.30	***.50***					.75
(5) Esteem Needs	.31	.38	.29	.61	***.52***				.76
(6) Social Needs	.20	.31	.34	.78	.54	***.51***			.76
(7) Basic Needs	.17	.28	.34	.59	.50	.56	***.55***		.79
(8) Life Satisfaction	.32	.39	.32	.56	.80	.49	.52	***.62***	.89

APPENDICES MAIN STUDY

Appendix 6: Measurement items used in the Main Study

Consumption Deprivation
Basic Goods
It is more difficult for me to buy basic goods than for typical families.
I am frequently concerned about having enough money to buy basic goods.
I am frequently not able to buy the basic goods I want because I cannot afford them.
Leisure Goods
It is more difficult for me to buy leisure goods than for typical families.
I am frequently concerned about having enough money to buy leisure goods.
I am frequently not able to buy the leisure goods I want because I cannot afford them.
Status Goods
It is more difficult for me to buy status goods than for typical families.
I am frequently concerned about having enough money to buy status goods.
I am frequently not able to buy the status goods I want because I cannot afford them.
Need Satisfaction
Basic Needs
I feel safe where I live
I am satisfied with my housing situation
I am satisfied with the food I eat every day
I am satisfied with the clothes I wear
I am satisfied with the medical care I have access to
Social Needs
I get along with people I come into contact with.
People I interact with on a daily basis tend to take my feelings into consideration.
I feel socially well integrated
Esteem Needs
I feel I am a successful person
I am satisfied with the status I have in the society
I feel satisfied with myself much of the time
Actualization Needs
I feel like I am free to decide for myself how to live my life.
I generally feel free to express my ideas and opinions.
I generally decide myself what I should do in my daily life.
Life Satisfaction
In most ways my life is close to my ideal.
The conditions of my life are excellent.
I am satisfied with life.
So far I have gotten the important things I want in life.
If I could live my life over. I would change almost nothing.

Appendix 7: France - Sample characteristics

	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Male	357	47.0	47.0	47.0
Female	402	53.0	53.0	100.0
Total	**759**	**100.0**	**100.0**	
Age				
<18	2	.3	.3	.3
18-25	154	20.3	20.3	20.6
26-34	89	11.7	11.7	32.3
35-44	123	16.2	16.2	48.5
45-55	129	17.0	17.0	65.5
55-64	115	15.2	15.2	80.6
>=65	147	19.4	19.4	100.0
Total	**759**	**100.0**	**100.0**	
Family status				
Single	191	25.2	25.2	25.2
Married	420	55.3	55.3	80.5
Divorced	47	6.2	6.2	86.7
Widowed	19	2.5	2.5	89.2
Other	82	10.8	10.8	100.0
Total	**759**	**100.0**	**100.0**	
Number of Adults in household				
1	153	20.2	20.2	20.2
2	467	61.5	61.5	81.7
3	93	12.3	12.3	93.9
4	40	5.3	5.3	99.2
5	6	.8	.8	100.0
Total	**759**	**100.0**	**100.0**	
Number of kids in household				
0	523	68.9	68.9	68.9
1	115	15.2	15.2	84.1
2	83	10.9	10.9	95.0
3	32	4.2	4.2	99.2
4	4	.5	.5	99.7
5	2	.3	.3	100.0
Total	**759**	**100.0**	**100.0**	

Appendix 8: Morocco – Sample characteristics

	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Male	401	50.9	50.9	50.9
Female	387	49.1	49.1	100.0
Total	**788**	**100.0**	**100.0**	
Age				
18-25	173	22.0	22.0	22.0
26-34	221	28.0	28.0	50.0
35-44	172	21.8	21.8	71.8
45-55	143	18.1	18.1	90.0
55-64	79	10.0	10.0	100.0
Total	**788**	**100.0**	**100.0**	
Family status				
Single	400	50.8	50.8	50.8
Married	360	45.7	45.7	96.4
Divorced	9	1.1	1.1	97.6
Widowed	19	2.4	2.4	100.0
Total	**788**	**100.0**	**100.0**	
Number of Adults in household				
2	20	2.5	2.5	2.5
3	227	28.8	28.8	31.3
4	134	17.0	17.0	48.4
5	169	21.4	21.4	69.8
6	238	30.2	30.2	100.0
Total	**788**	**100.0**	**100.0**	
Number of kids in household				
1	307	39.0	39.0	39.0
2	218	27.7	27.7	66.6
3	172	21.8	21.8	88.5
4	54	6.9	6.9	95.3
5	24	3.0	3.0	98.4
6	13	1.6	1.6	100.0
Total	**788**	**100.0**	**100.0**	

Appendix 9: Tunisia – Sample Characteristics

	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Male	403	51.7	51.7	51.7
Female	377	48.3	48.3	100.0
Total	**780**	**100.0**	**100.0**	
Age				
18-25	172	22.1	22.1	22.1
26-34	178	22.8	22.8	44.9
35-44	156	20.0	20.0	64.9
45-55	118	15.1	15.1	80.0
55-64	136	17.4	17.4	97.4
>=65	20	2.6	2.6	100.0
Total	**780**	**100.0**	**100.0**	
Family status				
Single	367	47.1	47.3	47.3
Married	376	48.2	48.5	95.7
Divorced	14	1.8	1.8	97.6
Widowed	19	2.4	2.4	100.0
Total	**776**	**99.5**	**100.0**	
Number of Adults in household				
2	73	9.4	9.4	9.4
3	297	38.1	38.1	47.4
4	186	23.8	23.8	71.3
5	105	13.5	13.5	84.7
6	119	15.3	15.3	100.0
Total	**780**	**100.0**	**100.0**	
Number of kids in household				
1	448	57.4	57.4	57.4
2	198	25.4	25.4	82.8
3	100	12.8	12.8	95.6
4	26	3.3	3.3	99.0
5	6	.8	.8	99.7
6	2	.3	.3	100.0
Total	**780**	**100.0**	**100.0**	

Appendix 10: Benin – sample characteristics

	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Male	299	67.6	67.6	67.6
Female	143	32.4	32.4	100.0
Total	**442**	**100.0**	**100.0**	
Age				
<18	2	.5	.5	.5
18-25	42	9.5	10.1	10.6
26-34	187	42.3	45.2	55.8
35-44	94	21.3	22.7	78.5
45-55	42	9.5	10.1	88.6
55-64	36	8.1	8.7	97.3
>=65	11	2.5	2.7	100.0
Total	**414**	**93.7**	**100.0**	
Family status				
Single	126	28.5	28.5	28.5
Married	284	64.3	64.3	92.8
Divorced	16	3.6	3.6	96.4
Widowed	13	2.9	2.9	99.3
Other	3	.7	.7	100.0
Total	**442**	**100.0**	**100.0**	
Number of Adults in household				
1	79	17.9	17.9	17.9
2	166	37.6	37.6	55.4
3	72	16.3	16.3	71.7
4	49	11.1	11.1	82.8
5	31	7.0	7.0	89.8
6	16	3.6	3.6	93.4
7	11	2.5	2.5	95.9
8	8	1.8	1.8	97.7
9	4	.9	.9	98.6
10	1	.2	.2	98.9
11	3	.7	.7	99.5
12	1	.2	.2	99.8
22	1	.2	.2	100.0
Total	**442**	**100.0**	**100.0**	

Number of kids in household				
0	114	25.8	25.8	25.8
1	87	19.7	19.7	45.5
2	79	17.9	17.9	63.3
3	82	18.6	18.6	81.9
4	36	8.1	8.1	90.0
5	17	3.8	3.8	93.9
6	14	3.2	3.2	97.1
7	6	1.4	1.4	98.4
8	1	.2	.2	98.6
9	2	.5	.5	99.1
10	2	.5	.5	99.5
12	1	.2	.2	99.8
15	1	.2	.2	100.0
Total	**442**	**100.0**	**100.0**	

Appendix 11: Item Reliabilities (Item-Total Statistics)

Consumption Deprivation: Basic Goods		Cronbach's Alpha if Item Deleted
France	It is more difficult for me to buy basic goods than for typical families.	.918
	I am frequently concerned about having enough money to buy basic goods.	.830
	I am frequently not able to buy the basic goods I want because I cannot afford them.	.855
Morocco	It is more difficult for me to buy basic goods than for typical families.	.970
	I am frequently concerned about having enough money to buy basic goods.	.916
	I am frequently not able to buy the basic goods I want because I cannot afford them.	.916
Tunisia	It is more difficult for me to buy basic goods than for typical families.	.945
	I am frequently concerned about having enough money to buy basic goods.	.871
	I am frequently not able to buy the basic goods I want because I cannot afford them.	.913
Benin	It is more difficult for me to buy basic goods than for typical families.	.928
	I am frequently concerned about having enough money to buy basic goods.	.879
	I am frequently not able to buy the basic goods I want because I cannot afford them.	.885

Consumption Deprivation: Leisure Goods		Cronbach's Alpha if Item Deleted
France	It is more difficult for me to buy leisure goods than for typical families.	.943
	I am frequently concerned about having enough money to buy leisure goods.	.882
	I am frequently not able to buy the leisure goods I want because I cannot afford them.	.894
Morocco	It is more difficult for me to buy leisure goods than for typical families.	.959
	I am frequently concerned about having enough money to buy leisure goods.	.953
	I am frequently not able to buy the leisure goods I want because I cannot afford them.	.954
Tunyisia	It is more difficult for me to buy leisure goods than for typical families.	.961
	I am frequently concerned about having enough money to buy leisure goods.	.901
	I am frequently not able to buy the leisure goods I want because I cannot afford them.	.930
Benin	It is more difficult for me to buy leisure goods than for typical families.	.966
	I am frequently concerned about having enough money to buy leisure goods.	.916
	I am frequently not able to buy the leisure goods I want because I cannot afford them.	.932

Consumption Deprivation: Status Goods		Cronbach's Alpha if Item Deleted
France	It is more difficult for me to buy status goods than for typical families.	.949
	I am frequently concerned about having enough money to buy status goods.	.894
	I am frequently not able to buy the status goods I want because I cannot afford them.	.932
Morocco	It is more difficult for me to buy status goods than for typical families.	.964
	I am frequently concerned about having enough money to buy status goods.	.958
	I am frequently not able to buy the status goods I want because I cannot afford them.	.946
Tunisia	It is more difficult for me to buy status goods than for typical families.	.972
	I am frequently concerned about having enough money to buy status goods.	.940
	I am frequently not able to buy the status goods I want because I cannot afford them.	.956
Benin	It is more difficult for me to buy status goods than for typical families.	.964
	I am frequently concerned about having enough money to buy status goods.	.929
	I am frequently not able to buy the status goods I want because I cannot afford them.	.951

Basic Need Satisfaction		Cronbach's Alpha if Item Deleted
France	I feel safe where I live	.661
	I am satisfied with my housing situation	.637
	I am satisfied with the food I eat every day	.609
	I am satisfied with the clothes I wear	.639
	I am satisfied with the medical care I have access to	.661
Morocco	I feel safe where I live	.728
	I am satisfied with my housing situation	.644
	I am satisfied with the food I eat every day	.685
	I am satisfied with the clothes I wear	.702
	I am satisfied with the medical care I have access to	.744
Tunisia	I feel safe where I live	.847
	I am satisfied with my housing situation	.746
	I am satisfied with the food I eat every day	.747
	I am satisfied with the clothes I wear	.743
	I am satisfied with the medical care I have access to	.793
Benin	I feel safe where I live	.888
	I am satisfied with my housing situation	.816
	I am satisfied with the food I eat every day	.775
	I am satisfied with the clothes I wear	.774
	I am satisfied with the medical care I have access to	.810

Social Need Satisfaction		Cronbach's Alpha if Item Deleted
France	I get along with people I come into contact with.	.590
	People I interact with on a daily basis tend to take my feelings into consideration.	.590
	I feel socially well integrated	.604
Morocco	I get along with people I come into contact with.	.582
	People I interact with on a daily basis tend to take my feelings into consideration.	.742
	I feel socially well integrated	.552
Tunisia	I get along with people I come into contact with.	.454
	People I interact with on a daily basis tend to take my feelings into consideration.	.616
	I feel socially well integrated	.510
Benin	I get along with people I come into contact with.	.480
	People I interact with on a daily basis tend to take my feelings into consideration.	.538
	I feel socially well integrated	.634

Esteem Need Satisfaction		Cronbach's Alpha if Item Deleted
France	I feel I am a successful person	.609
	I am satisfied with the status I have in the society	.614
	I feel satisfied with myself much of the tim	.702
Morocco	I feel I am a successful person	.708
	I am satisfied with the status I have in the society	.688
	I feel satisfied with myself much of the time	.709
Tunisia	I feel I am a successful person	.726
	I am satisfied with the status I have in the society	.718
	I feel satisfied with myself much of the time	.767
Benin	I feel I am a successful person	.770
	I am satisfied with the status I have in the society	.766
	I feel satisfied with myself much of the time	.884

Actualization Need Satisfaction		Cronbach's Alpha if Item Deleted
France	I feel like I am free to decide for myself how to live my life.	.633
	I generally feel free to express my ideas and opinions.	.730
	I generally decide myself what I should do in my daily life	.639
Morocco	I feel like I am free to decide for myself how to live my life.	.849
	I generally feel free to express my ideas and opinions.	.797
	I generally decide myself what I should do in my daily life	.865
Tunisia	I feel like I am free to decide for myself how to live my life.	.711
	I generally feel free to express my ideas and opinions.	.656
	I generally decide myself what I should do in my daily life	.687
Benin	I feel like I am free to decide for myself how to live my life.	.790
	I generally feel free to express my ideas and opinions.	.802
	I generally decide myself what I should do in my daily life	.822

Life Satisfaction		Cronbach's Alpha if Item Deleted
France	In most ways my life is close to my ideal.	.817
	The conditions of my life are excellent.	.845
	I am satisfied with life.	.819
	So far I have gotten the important things I want in life.	.824
	If I could live my life over. I would change almost nothing.	.845
Morocco	In most ways my life is close to my ideal.	.645
	The conditions of my life are excellent.	.640
	I am satisfied with life.	.647
	So far I have gotten the important things I want in life.	.698
	If I could live my life over. I would change almost nothing.	.783
Tunisia	In most ways my life is close to my ideal.	.795
	The conditions of my life are excellent.	.789
	I am satisfied with life.	.801
	So far I have gotten the important things I want in life.	.782
	If I could live my life over. I would change almost nothing.	.841
Benin	In most ways my life is close to my ideal.	.860
	The conditions of my life are excellent.	.845
	I am satisfied with life.	.852
	So far I have gotten the important things I want in life.	.858
	If I could live my life over. I would change almost nothing.	.891

Appendix 12: Total Variance explained by eight factors

Extraction Method: Principal Component Analysis (PROMAX rotation)

Country: France

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.707	27.526	27.526	7.707	27.526	27.526	5.542
2	4.813	17.189	44.715	4.813	17.189	44.715	4.983
3	1.987	7.095	51.810	1.987	7.095	51.810	5.097
4	1.539	5.497	57.308	1.539	5.497	57.308	3.427
5	1.265	4.518	61.826	1.265	4.518	61.826	3.616
6	1.036	3.699	65.525	1.036	3.699	65.525	3.534
7	.909	3.247	68.772	.909	3.247	68.772	4.376
8	.858	3.066	71.838	.858	3.066	**71.838**	3.088

Country: Morocco

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.484	26.727	26.727	7.484	26.727	26.727	5.822
2	4.841	17.288	44.015	4.841	17.288	44.015	4.664
3	2.189	7.817	51.832	2.189	7.817	51.832	4.043
4	1.943	6.940	58.773	1.943	6.940	58.773	3.324
5	1.553	5.547	64.320	1.553	5.547	64.320	4.121
6	1.298	4.634	68.954	1.298	4.634	68.954	4.690
7	.918	3.277	72.231	.918	3.277	72.231	3.417
8	.820	2.929	75.160	.820	2.929	**75.160**	1.611

Country: Tunisia

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.855	31.626	31.626	8.855	31.626	31.626	5.777
2	4.138	14.778	46.404	4.138	14.778	46.404	5.682
3	1.921	6.860	53.264	1.921	6.860	53.264	5.665
4	1.722	6.150	59.414	1.722	6.150	59.414	5.590
5	1.458	5.206	64.620	1.458	5.206	64.620	3.282
6	1.097	3.917	68.537	1.097	3.917	68.537	5.451
7	.889	3.177	71.714	.889	3.177	71.714	3.094
8	.800	2.856	74.570	.800	2.856	**74.570**	3.284

Country: Benin

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[b]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.940	39.073	39.073	10.940	39.073	39.073	7.510
2	3.397	12.131	51.203	3.397	12.131	51.203	7.654
3	2.375	8.480	59.684	2.375	8.480	59.684	6.963
4	1.471	5.252	64.936	1.471	5.252	64.936	6.938
5	1.254	4.479	69.416	1.254	4.479	69.416	2.889
6	.943	3.368	72.784	.943	3.368	72.784	6.935
7	.834	2.978	75.762	.834	2.978	75.762	3.618
8	.752	2.687	78.450	.752	2.687	**78.450**	2.400

Appendix 13: Item-Factor loadings in four countries

Measurement Item	Construct	λ France	λ Morocco	λ Tunisia	λ Benin
It is more difficult for me to buy basic goods than for typical families.	Consumption Deprivation Basic Goods	0.8	0.88	0.86	0.85
I am frequently concerned about having enough money to buy basic goods.		0.94	0.97	0.97	0.94
I am frequently not able to buy the basic goods I want because I cannot afford them.		0.9	0.97	0.92	0.92
It is more difficult for me to buy leisure goods than for typical families.	Consumption Deprivation Leisure Goods	0.86	0.95	0.88	0.89
I am frequently concerned about having enough money to buy leisure goods.		0.95	0.96	0.98	0.98
I am frequently not able to buy the leisure goods I want because I cannot afford them.		0.94	0.96	0.94	0.96
It is more difficult for me to buy status goods than for typical families.	Consumption Deprivation Status Goods	0.89	0.94	0.93	0.92
I am frequently concerned about having enough money to buy status goods.		0.98	0.95	0.99	0.98
I am frequently not able to buy the status goods I want because I cannot afford them.		0.92	0.98	0.96	0.95
I feel safe where I live	Basic Need Satisfaction	0.52	0.49	0.4	0.37
I am satisfied with my housing situation		0.57	0.65	0.78	0.7
I am satisfied with the food I eat every day		0.64	0.83	0.84	0.91
I am satisfied with the clothes I wear		0.59	0.77	0.84	0.91
I am satisfied with the medical care I have access to		0.5	0.5	0.63	0.75
I get along with people I come into contact with.	Social Need Satisfaction	0.69	0.79	0.68	0.63
People I interact with on a daily basis tend to take my feelings into consideration.		0.61	0.54	0.55	0.71
I feel socially well integrated		0.67	0.74	0.6	0.53
I feel I am a successful person	Esteem Need Satisfaction	0.66	0.75	0.73	0.71
I am satisfied with the status I have in the society		0.73	0.73	0.82	0.89
I feel satisfied with myself much of the time		0.69	0.74	0.76	0.88
I feel like I am free to decide for myself how to live my life.	Autonomy Need Satisfaction	0.74	0.81	0.71	0.78
I generally feel free to express my ideas and opinions.		0.65	0.91	0.77	0.84
I generally decide myself what I should do in my daily life.		0.75	0.84	0.69	0.83
In most ways my life is close to my ideal.	Life Satisfaction	0.68	0.21	0.54	0.63
The conditions of my life are excellent.		0.76	0.49	0.77	0.79
I am satisfied with life.		0.8	0.72	0.75	0.83
So far I have gotten the important things I want in life.		0.69	0.81	0.79	0.87
If I could live my life over. I would change almost nothing.		0.79	0.78	0.72	0.8

Appendix 14: Means. SDs and Correlations per country

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
France (N=759)										
(1) Deprivation Basic	2.52	0.91	1							
(2) Deprivation Leisure	3.01	0.96	.685**	1						
(3) Deprivation Status	3.29	0.98	.426**	.722**	1					
(4) Basic Need Satisfaction	3.70	0.53	-.231**	-.226**	-.144**	1				
(5) Social Need Satisfaction	3.61	0.55	-.026	-.032	-.034	.478**	1			
(6) Esteem Need Satisfaction	3.47	0.57	-.124**	-.223**	-.173**	.538**	.555**	1		
(7) Autonomy Need Satisfaction	3.78	0.60	-.058	-.048	-.014	.399**	.444**	.413**	1	
(8) Life Satisfaction	3.22	0.72	-.198**	-.267**	-.232**	.412**	.389**	.577**	.299**	1
Morocco (N=788)										
(1) Deprivation Basic	3.19	0.91	1							
(2) Deprivation Leisure	3.32	0.96	.736**	1						
(3) Deprivation Status	3.70	0.94	.329**	.590**	1					
(4) Basic Need Satisfaction	3.81	0.46	-.177**	-.200**	-.098**	1				
(5) Social Need Satisfaction	3.84	0.43	.044	-.075*	-.167**	.364**	1			
(6) Esteem Need Satisfaction	3.71	0.56	-.077*	-.195**	-.233**	.446**	.557**	1		
(7) Autonomy Need Satisfaction	3.70	0.63	-.014	-.079*	-.078*	.238**	.260**	.335**	1	
(8) Life Satisfaction	3.29	0.63	-.112**	-.187**	-.159**	.374**	.375**	.551**	.342**	1
Tunisia (N=780)										
(1) Deprivation Basic	2.85	0.91	1							
(2) Deprivation Leisure	3.32	0.89	.595**	1						
(3) Deprivation Status	3.67	1.00	.316**	.715**	1					
(4) Basic Need Satisfaction	3.59	0.67	-.387**	-.285**	-.140**	1				
(5) Social Need Satisfaction	3.49	0.58	-.171**	-.124**	-.100**	.469**	1			
(6) Esteem Need Satisfaction	3.47	0.73	-.362**	-.241**	-.168**	.603**	.470**	1		
(7) Autonomy Need Satisfaction	3.69	0.68	-.166**	-.117**	-.065	.355**	.390**	.381**	1	
(8) Life Satisfaction	3.02	0.79	-.359**	-.333**	-.267**	.495**	.314**	.591**	.345**	1
Benin (N=442)										
(1) Deprivation Basic	3.19	1.20	1							
(2) Deprivation Leisure	3.73	1.23	.715**	1						
(3) Deprivation Status	4.15	1.15	.512**	.754**	1					
(4) Basic Need Satisfaction	3.12	0.92	-.487**	-.452**	-.396**	1				
(5) Social Need Satisfaction	3.41	0.73	-.189**	-.264**	-.239**	.456**	1			
(6) Esteem Need Satisfaction	3.03	1.01	-.393**	-.434**	-.379**	.665**	.496**	1		
(7) Autonomy Need Satisfaction	3.85	0.89	-.146**	-.065	.069	.238**	.282**	.223**	1	
(8) Life Satisfaction	2.46	1.00	-.394**	-.451**	-.458**	.667**	.327**	.673**	.095*	1

Appendix 15: Post hoc Scheffe tests – Results per Country

Deprivation Basic

Country	N	Subset for alpha = 0.05		
		1	2	3
France	759	2.5217		
Tunisia	780		2.8526	
Morocco	788			3.1912
Benin	442			3.1916
Sig.		1.000	1.000	1.000

Deprivation in the consumption of Leisure Goods

Country	N	Subset for alpha = 0.05		
		1	2	3
France	759	3.0127		
Tunisia	780		3.3171	
Morocco	788		3.3240	
Benin	442			3.7338
Sig.		1.000	.999	1.000

Deprivation in the consumption of Status Goods

Country	N	Subset for alpha = 0.05		
		1	2	3
France	759	3.2938		
Tunisia	780		3.6748	
Morocco	788		3.6954	
Benin	442			4.1478
Sig.		1.000	.987	1.000

Satisfaction of Basic Needs

Country	N	Subset for alpha = 0.05			
		1	2	3	
Benin	442	3.1190			
Tunisia	780		3.5895		
France	759			3.6993	
Morocco	788			3.8063	
Sig.		1.000	1.000	.055	

Satisfaction of Social Needs

Country	N	Subset for alpha = 0.05		
		1	2	3
Benin	442	3.4110		
Tunisia	780	3.4923		
France	759		3.6148	
Morocco	788			3.8443
Sig.		.077	1.000	1.000

Satisfaction of Esteem Needs

Country	N	Subset for alpha = 0.05		
		1	2	3
Benin	442	3.0279		
Tunisia	780		3.4654	
France	759		3.4743	
Morocco	788			3.7145
Sig.		1.000	.997	1.000

Satisfaction of Actualization Needs

Country	N	Subset for alpha = 0.05	
		1	2
Tunisia	780	3.6919	
Morocco	788	3.7009	
France	759	3.7778	3.7778
Benin	442		3.8484
Sig.		.164	.326

Life Satisfaction

Country	N	Subset for alpha = 0.05		
		1	2	3
Benin	442	2.4643		
Tunisia	780		3.0218	
France	759			3.2163
Morocco	788			3.2901
Sig.		1.000	1.000	.388

Appendix 16: Descriptive Statistics per income group

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lowest income (N=870)										
(1) Deprivation Basic	3.39	0.95	1							
(2) Deprivation Leisure	3.76	0.96	.660**	1						
(3) Deprivation Status	4.01	0.97	.442**	.775**	1					
(4) Basic Need Satisfaction	3.43	0.76	-.232**	-.264**	-.193**	1				
(5) Social Need Satisfaction	3.56	0.61	-.033	-.156**	-.151**	.505**	1			
(6) Esteem Need Satisfaction	3.28	0.83	-.175**	-.271**	-.225**	.683**	.572**	1		
(7) Autonomy Need Satisfaction	3.62	0.73	-.009	.028	.053	.238**	.308**	.263**	1	
(8) Life Satisfaction	2.83	0.85	-.153**	-.272**	-.251**	.633**	.417**	.666**	.221**	1
Low income (N=987)										
(1) Deprivation Basic	2.88	0.96	1							
(2) Deprivation Leisure	3.30	0.96	.652**	1						
(3) Deprivation Status	3.75	0.98	.295**	.587**	1					
(4) Basic Need Satisfaction	3.59	0.63	-.338**	-.333**	-.194**	1				
(5) Social Need Satisfaction	3.61	0.58	-.066*	-.128**	-.119**	.443**	1			
(6) Esteem Need Satisfaction	3.45	0.69	-.184**	-.292**	-.237**	.537**	.513**	1		
(7) Autonomy Need Satisfaction	3.78	0.66	-.066*	-.049	.015	.188**	.286**	.242**	1	
(8) Life Satisfaction	3.02	0.77	-.277**	-.371**	-.294**	.496**	.360**	.616**	.117**	1
Average income (N=709)										
(1) Deprivation Basic	2.53	0.90	1							
(2) Deprivation Leisure	2.90	0.92	.611**	1						
(3) Deprivation Status	3.28	1.00	.303**	.647**	1					
(4) Basic Need Satisfaction	3.77	0.58	-.211**	-.184**	-.138**	1				
(5) Social Need Satisfaction	3.66	0.56	.013	-.043	-.079*	.491**	1			
(6) Esteem Need Satisfaction	3.67	0.63	-.124**	-.092*	-.104**	.540**	.509**	1		
(7) Autonomy Need Satisfaction	3.82	0.66	-.087*	-.051	.014	.322**	.328**	.311**	1	
(8) Life Satisfaction	3.31	0.74	-.165**	-.167**	-.210**	.456**	.366**	.533**	.274**	1
High income (N=99)										
(1) Deprivation Basic	2.24	0.87	1							
(2) Deprivation Leisure	2.43	1.00	.815**	1						
(3) Deprivation Status	2.75	1.03	.600**	.818**	1					
(4) Basic Need Satisfaction	4.05	0.56	-.380**	-.430**	-.356**	1				
(5) Social Need Satisfaction	3.84	0.53	-.157	-.187	-.187	.388**	1			
(6) Esteem Need Satisfaction	3.96	0.52	-.370**	-.366**	-.312**	.593**	.547**	1		
(7) Autonomy Need Satisfaction	3.98	0.68	-.191	-.098	-.057	.248*	.382**	.211*	1	
(8) Life Satisfaction	3.66	0.69	-.290**	-.346**	-.396**	.381**	.335**	.562**	.214*	1

Appendix 17: ANOVA Table - Income groups comparisons

		Sum of Squares	df	Mean Square	F	Sig.
Deprivation_Basic	Between Groups	346.955	3	115.652	131.397	.000
	Within Groups	2342.131	2661	.880		
	Total	2689.086	2664			
Deprivation_Leisure	Between Groups	370.795	3	123.598	136.864	.000
	Within Groups	2403.080	2661	.903		
	Total	2773.874	2664			
Deprivation_Status	Between Groups	301.106	3	100.369	103.687	.000
	Within Groups	2575.849	2661	.968		
	Total	2876.955	2664			
Basic_Need_Sat	Between Groups	68.329	3	22.776	52.492	.000
	Within Groups	1154.613	2661	.434		
	Total	1222.943	2664			
Social_Need_Sat	Between Groups	8.542	3	2.847	8.406	.000
	Within Groups	901.329	2661	.339		
	Total	909.871	2664			
Esteem_Need_Sat	Between Groups	85.910	3	28.637	55.299	.000
	Within Groups	1378.008	2661	.518		
	Total	1463.918	2664			
Actual_Need_Sat	Between Groups	25.252	3	8.417	18.042	.000
	Within Groups	1241.475	2661	.467		
	Total	1266.727	2664			
Life_Satisfaction	Between Groups	129.977	3	43.326	69.640	.000
	Within Groups	1655.498	2661	.622		
	Total	1785.475	2664			

Appendix 18: Post-hoc comparisons across Income groups

		Consumption Deprivation			Need Satisfaction				
		Basic Goods	**Leisure Goods**	**Status Goods**	**Basic Needs**	**Social Needs**	**Esteem Needs**	**Auton. Needs**	**Life Sat.**
		Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean
Lowest income	Low income	.51**	.46**	.27**	-.16**	-.04^{NS}	-.17**	-.17**	-.19**
	Average income	.86**	.86**	.74**	-.35**	-.09*	-.40**	-.20**	-.49**
	High income	1.15**	1.33**	1.26**	-.63**	-.27**	-.68**	-.36**	-.83**
Low income	Lowes income	-.51**	-.46**	-.27**	.16**	.04^{NS}	.17**	.17**	.19**
	Average income	.35**	.40**	.47**	-.19**	-.05^{NS}	-.22**	-.03^{NS}	-.29**
	High income	.63**	.87**	1.00**	-.46**	-.23**	-.51**	-.20^{NS}	-.64**
Average income	Lowes income	-.86**	-.86**	-.74**	.35**	.09*	.40**	.20**	.49**
	Low income	-.35**	-.40**	-.47**	.19**	.05^{NS}	.22**	.03^{NS}	.29**
	High income	.29*	.47**	.53**	-.28**	-.18*	-.29**	-.16^{NS}	-.34**
High income	Lowes income	-1.15**	-1.33**	-1.26**	.63**	.27**	.68**	.36**	.83**
	Low income	-.63**	-.87**	-1.00**	.46**	.23**	.51**	.20^{NS}	.64**
	Average income	-.29*	-.47**	-.53**	.28**	.18*	.29**	.16^{NS}	.34**

Appendix 19: Post-hoc comparisons (Income * Country)

			Consumption Depriv.			Need Satisfaction				Life Satis-
			Basic	Leisure	Status	Basic	Social	Esteem	Autonomy	faction
			Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean	Δ Mean
Country	**A**	**B**	**(A-B)**	**(A-B)**	**(A-B)**	**(A-B)**	**(A-B)**	**(A-B)**	**(A-B)**	**(A-B)**
France	Lowest income	Low income	.43**	.50**	.37**	-.21**	-.12	-.25**	-.08	-.26**
		Av. income	.75**	.89**	.75**	-.30**	-.16	-.36**	-.09	-.60**
		High income	.37	.79	.84*	-.60**	-.18	-.51*	-.09	-.89**
	Low income	Lowest inc.	-.43**	-.50**	-.37**	.21**	.12	.25**	.08	.26**
		Av. income	.32**	.39**	.37**	-.10	-.04	-.12	-.02	-.34**
		High income	-.06	.29	.47	-.40	-.06	-.26	-.01	-.63*
	Average income	Lowest inc.	-.75**	-.89****	-.75**	.30**	.16	.36**	.09	.60**
		Low income	-.32**	-.39**	-.37**	.10	.04	.12	.02	.34**
		High income	-.38	-.10	.09	-.30	-.02	-.14	.00	-.29
	High income	Lowest inc.	-.37	-.79	-.84*	.60**	.18	.51*	.09	.89**
		Low income	.06	-.29	-.47	.40	.06	.26	.01	.63*
		Av. income	.38	.10	-.09	.30	.02	.14	.00	.29
Morocco	Lowest income	Low income	.46**	.58**	.28**	-.05	-.03	-.11	-.07	-.07
		Av. income	.58**	.81**	.65**	-.15*	-.12*	-.23**	-.20*	-.31**
		High income	1.06**	1.20**	1.07**	-.19	-.24	-.36*	-.33	-.60**
	Low income	Lowest inc.	-.46**	-.58**	-.28**	.05	.03*	.11	.07	.07
		Av. income	.12	.23	.37**	-.10	-.09	-.12	-.13	-.24**
		High income	.60	.61*	.78**	-.15	-.21	-.25	-.26	-.54**
	Average income	Lowest inc.	-.58**	-.81**	-.65**	.15*	.12	.23**	.20**	.31**
		Low income	-.12	-.23	-.37**	.10	.09	.12	.13	.24**
		High income	.48	.39	.42	-.04	-.12	-.13	-.13	-.29
	High income	Lowest inc.	-1.06**	-1.20**	-1.07**	.19	.24	.36*	.33	.60**
		Low income	-.60*	-.61*	-.78**	.15	.21	.25	.26	.54**
		Av. income	-.48	-.39	-.42	.04	.12	.13	.13	.29
Tunisia	Lowest income	Low income	.57**	.47**	.20	-.29**	-.17*	-.39**	-.22**	-.41**
		Av. income	.84**	.77**	.71**	-.46**	-.16*	-.51**	-.25**	-.56**
		High income	1.14**	1.33**	1.25**	-.67**	-.36*	-.75**	-.36*	-1.03**
	Low income	Lowest inc.	-.57**	-.47**	-.20	.29**	.17*	.39**	.22*	.41**
		Av. income	.27**	.30**	.50**	-.18*	.01	-.12	-.03	-.15
		High income	.56**	.86**	1.05**	-.39	-.20	-.36*	-.14	-.62**
	Average income	Lowest inc.	-.84**	-.77**	-.71**	.46**	.16*	.51**	.25**	.56**
		Low income	-.27**	-.30**	-.50**	.18*	-.01	.12	.03	.15
		High income	.29	.56**	.55*	-.21	-.20	-.24	-.11	-.47**
	High income	Lowest inc.	-1.14**	-1.33**	-1.25**	.67**	.36*	.75**	.36*	1.03**
		Low income	-.5**6	-.86**	-1.05**	.39*	.20	.36*	.14	.62**
		Av. income	-.29	-.56**	-.55*	.21	.20	.24	.11	.47**
Benin	Lowest income	Low income	.16	.09	-.03	-.44**	-.08	-.30*	-.28*	-.34*
		Av. income	1.11**	1.03**	.78**	-.84**	-.29*	-.97**	-.33	-.89**
		High income	1.65**	1.92**	1.90**	-1.56**	-.58**	-1.52**	-.58*	-1.40**
	Low income	Lowes inc.	-.16	-.09	.03	.44**	.08	.30*	.28	.34*
		Av. income	.95**	.94**	.82**	-.41**	-.21	-.67**	-.04	-.55**
		High income	1.49**	1.83**	1.93**	-1.13**	-.50*	-1.22**	-.30	-1.05**
	Average income	Lowest inc.	-1.11**	-1.03**	-.78**	.84**	.29*	.97**	.33	.89**
		Low income	-.95**	-.94**	-.82**	.41**	.21	.67**	.04	.55**
		High income	.54	.89**	1.11**	-.72**	-.29	-.56	-.25	-.51
	High income	Lowest inc.	-1.65**	-1.92	-1.90**	1.56**	.58**	1.52**	.58*	1.40**
		Low income	-1.49**	-1.83	-1.93**	1.13**	.50*	1.22**	.30	1.05
		Av. income	-.54	-.89	-1.11**	.72**	.29	.56	.25	.51