

**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND SOCIAL
SCIENCES**

**SUBJECTIVE WELL-BEING AND THE DETERMINANTS OF HAPPINESS
IN TURKEY: 2004-2013 PERIOD**

M.A. THESIS

Kâzım Anıl EREN

Department of Economics

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ SOSYAL BİLİMLER ENSTİTÜSÜ

**2004-2013 DÖNEMİNDE TÜRKİYE’DEKİ ÖZNEL İYİ OLUŞ VE
MUTLULUĞUN ETMENLERİ**

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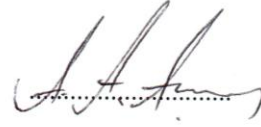
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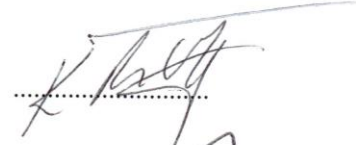
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Kâzım Anıl Eren, a M.A. student of ITU Institute of Social Sciences student ID **412131010**, successfully defended the thesis entitled “**SUBJECTIVE WELL-BEING AND DETERMINANTS OF HAPPINESS IN TURKEY: 2004-2013 PERIOD**”, which he prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

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*For a future,
Not bounded by the greed of economic development
But devoted to happiness of human and its development*

FOREWORD

This thesis is dedicated to a future of which human-kind does not base its judgements on monetary values or the generation of income but the happiness itself. I hope this study will help us to take a step closer for achieving this most benevolent idea.

First of all, I would like to present my gratitude towards my thesis advisor Assoc. Prof. Dr. Ahmet Atıl AŞICI who has been very supportive during my M.A. study. Then, I would like to thank to Prof. Dr. Burç ÜLENGİN, Prof. Dr. Ertuğrul TOKDEMİR, Assoc. Prof. Dr. Devrim DUMLUDAĞ, Prof. Dr. Ruut VEENHOVEN, Mr. Bekir AĞIRDIR, Dr. Özge GÖKDEMİR, Prof. Dr. Ümit ŞENESEN, and Prof. Dr. Yilmaz ESMER for their invaluable comments throughout this study.

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ABBREVIATIONS

AUWBI	: Australian Unity Well-Being Index
BLI	: Better Life Index
ComQoL	: Comprehensive Quality of Life Scale
EVS	: European Values Survey
GDP	: Gross Domestic Product
GNH	: Gross National Happiness
GNP	: Gross National Product
HDI	: Human Development Index
HPI	: Happy Planet Index
IoSf	: Index of Satisfaction from
LSS	: Life Satisfaction Survey
nef	: New Economics Foundation
OECD	: Organisation for Economic Co-Operation and Development
PPP	: Purchasing Power Parity
SPSS 22	: Statistical Package for the Social Sciences 22
SWB	: Subjective Well-Being
SWBI	: Subjective Well-Being Index
TURKSTAT	: Turkish Statistical Institute
UNDP	: United Nations Development Programme
WVS	: World Values Survey

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SUBJECTIVE WELL-BEING AND DETERMINANTS OF HAPPINESS IN TURKEY: 2004-2013 PERIOD

SUMMARY

There are several definitions of economics as a discipline. In brief, the ultimate goal of economics is to increase the well-being of human beings, which involves materialistic as well as non-materialistic aspects of life, such as housing conditions, income, freedom or happiness. Yet, broadly speaking, for mainstream economists this goal can be delegated to economic growth, in other words, to increase per capita income. Actually, economic growth can help to solve many problems regarding to human well-being. It is an observable fact that increasing income may help a society to enjoy higher levels of welfare, live longer by increasing access to medical services or increase human capital. Yet, it is also true that there are “things” that money cannot buy. And these “things” become easily invisible, or unreachable when Gross Domestic Product (GDP) indicator is taken as the main guide for policymaking process. Despite the warning of its creator, Simon Kuznets, which GDP indicator can scarcely inform about the welfare of a nation throughout the years, it became the most important indicator. GDP even is used as a proxy for non-materialistic dimensions of human well-being.

This attitude fuelled the ever-increasing discontent from employment of GDP, because by construction, GDP only measures the level of economic activity; neither the quality nor the purpose of those activities. The rising discontent led scholars to construct several indexes to measure the actual change in people’s well-being in a better way. Some of these indexes employ only objective indicators of life domains such as average years of schooling or air pollution while some others consider well-being as subjective and rely upon the data derived from laboratory or field experiments. Recently, subjective well-being indicators, such as happiness, took attention of many economists and policy-makers. For instance, Kingdom of Bhutan has replaced GDP with Gross National Happiness (GNH) for her policy-making purposes and even some developed countries are at the verge of developing national subjective well-being indexes in order to measure the effectiveness of policies.

The discontent on the insufficiencies of GDP is the point of origin for this study as well and constructing a proper index to measure well-being in Republic of Turkey constitutes one of the main aims of this study. Although there is a growing literature on happiness economics, it has been noticed that none of them searched for a policy indicator, which can track well-being of citizens more properly than GDP can, in Republic of Turkey. Thus, this study aims to fill this gap in the Turkish literature on two fronts. After indicating the insufficiencies of GDP as a measure of well-being, firstly, a better indicator of well-being for Turkish citizens will be proposed. For these purposes, a subjective well-being index is constructed by replicating the approach employed in Bhutan’s Gross National Happiness studies, as much as possible. In

addition to this index, two more indexes are constructed in order to depict different aspects of well-being and to run robustness checks. Second index imitates the methodology of the Australian Unity Well Being Index, here as the third index is the replica of the prior indexes with the exception that the equal weight assumption is replaced with different weights computed by factor analysis. Meanwhile, being happy and being well are considered as different aspects of life, and both notions are addressed within this study. Hence, in the second part of this study the determinants of happiness will be analysed by utilising ordered logit regression. Both analyses employ Turkish Statistical Institute's Life Satisfaction Survey data for 2004-2013 period.

In the prior analysis, construction of alternative indexes characterised different aspects of well-being in Turkey and proved the SWBI to be credible and robust. SWBIs shared high correlations with HDI and modest correlations with GDP per capita but had no correlation with other macroeconomic indicators. Thus, it is concluded that, SWBIs reflect more aspects of life rather than other indicators. Moreover, an interpretation on national and individual indexes led us to conclude that individuals use their informal social networks (i.e. family ties or community (cemaat in Turkish)) as a shelter from the economic and politic fluctuations in the country. On the other hand, the determinants of happiness analysis, once more, proved that it is not the nominal income but the income ranks that effect happiness in Turkey. Moreover, it is also depicted that degree of hope has a positive relationship with happiness and it is the strongest estimator of happiness. It is also shown that the level of education has an indirect effect over happiness via increasing income- despite there were puzzling results in prior researches for Turkey. As a result, conclusions of this thesis is strongly recommended for future policy-making.

2004-2013 DÖNEMİNDE TÜRKİYE’DEKİ ÖZNEL İYİ OLUŞ VE MUTLULUĞUN ETMENLERİ

SUMMARY

İktisat disiplininin çalışma alanı farklı şekillerde tanımlanabilir. Ancak, özetle, iktisat biliminin nihai amacının bireylerin iyi-oluşlarını arttırmak olduğu ifade edilebilir. İyi oluş tanımı, yaşamın maddi yönlerini içerdiği kadar, manevi yönlerini de içermektedir. Bu yönlere örnek olarak yaşanan konutun koşulları, gelir, özgürlük, mutluluk ve yaşanan çevre verilebilir. Ancak, ana akım iktisadın, bu hedefi kabaca ekonomik büyümeye, ya da diğer bir ifadeyle, kişi başına düşen gelirin arttırılmasına indirgediği söylenebilir. Tabii ki, ekonomik büyüme insanın iyi oluşu ile ilgili birçok konudaki sorunların giderilmesinde yardımcı olabilir. Zaten, artan gelirin, insanların daha iyi sağlık hizmetlerine ulaşması veya insanî sermayelerini geliştirmesi gibi konulardaki başarısı; insanlığın iyi oluşuna yaptığı katkıya işaret etmektedir. Ancak paranın satın alamayacağı “şeyler”in bulunduğu da aynı zamanda geçerlidir ve bu “şeyler”, yegâne politika değişkeni olarak Gayri Safi Yurtiçi Hâsıla (GSYH) ölçütü tercih edildiğinde, temsil edilemezler. Yine de GSYH ölçütünü ilk ortaya koyan Simon Kuznets’in, GSYH’nin toplumların iyi-oluşlarını ölçmekte yetersiz olacağı uyarısına rağmen, yıllar içerisinde, GSYH en çok tercih edilen iyi-oluş göstergesi hâline gelmiştir. Hatta GSYH hayatın maddi olmayan yönlerini temsil etmek için bile kullanılmaktadır.

Bu tutum ise, ancak GSYH ölçütünün, yaygın bir şekilde kullanımına karşı olan bilim insanlarının giderek artan hoşnutsuzluğunu körüklemekten başka bir işe yaramadı. Çünkü yapısı gereği, GSYH sadece iktisadi faaliyetlerin toplam seviyesini ölçebilir; ne bu eylemlerin kalitesi, ne de amacı hakkında bilgi verebilir. Bu durum, bilim insanlarını, iyi oluşu daha doğru bir şekilde ölçebilecek gösterge ve indeksler üretme arayışına itmiştir. Bu göstergelerden bir kısmı, ortalama yaşam beklentisi veya hava kirliliği miktarı gibi nesnel ölçütlere dayanırken; diğer bir kısmı deney koşullarında veya anketler aracılığıyla toplanmış öznel verilere dayanmaktadır. Yakın geçmişte, mutluluk seviyesi gibi öznel iyi oluş ölçütleri birçok politika yapıcı ve ekonomistin de dikkatini çekmeyi başarmıştır. Örneğin, Bhutan Krallığı, politika üretirken GSYH yerine öznel değişkenler kullanarak ürettiği Gayri Safi Yurtiçi Mutluluk (GSYM) ölçütünü kullanmaktadır. Hatta günümüzde, kullandıkları politikaların etkinliğini ölçebilmek adına bazı gelişmiş ülkeler de ulusal öznel iyi oluş ölçütleri geliştirdikleri bilinmektedir.

GSYH ölçütünün eksikliklerinden duyulan memnuniyetsizlik bu çalışmanın çıkış noktasını oluşturmaktadır ve Türkiye’deki iyi oluş düzeyini ölçmeye uygun bir indeksin üretilmesiye bu çalışmanın temel amacıdır. Ülkemizde mutluluk iktisadı üzerine gelişmekte olan bir yazın olmasına rağmen, toplumumuzdaki bireylerin iyi-oluş seviyelerini, GSYH ölçütünden daha etkin bir şekilde takip edebilecek bir politika değişkeni üzerine hiçbir çalışma olmaması dikkat çekicidir. Böylece, bu çalışma yazındaki bu eksikliği, iki açıdan kapatmak adına yola çıkmıştır. Bu çalışmanın ilk

hedefi, GSYH ölçütünün eksikliklerini ortaya konulması ve Türkiye Cumhuriyeti vatandaşlarının iyi oluşlarını daha iyi bir şekilde tespit edebilecek bir kıstasın önerilmesidir. Bu amaç doğrultusunda, Bhutan Krallığı'nda yapılmış olan GSYM çalışmalarındaki yaklaşımın, mümkün olan en üst düzeyde, taklit edilmek suretiyle bir öznel iyi-oluş indeksi üretilmiştir. Ek olarak, iyi-oluşun farklı yönlerini göstermek ve üretilen indeksin sağlamlığını ortaya koymak adına iki indeks daha üretilmiştir. Bu indeksler, sırasıyla, Avustralya Unity İyi-Oluş İndeksi'nin (AUWBI) kullandığı yaklaşımı benimsemiş ve faktör analizi tekniğini kendine rehber olarak benimsemiştir. Diğer yandan, bu çalışma boyunca, mutlu olmak ve iyi olmak hayatın iki farklı yönü olarak ele alınmıştır. Bu nedenle, ikinci olarak, sıralı lojistik regresyon analizi kullanılarak, mutluluğun etmenleri araştırılmıştır. İki analizde de, Türkiye İstatistik Kurumu'nun (TÜİK), 2004-2013 yılları için toplamış olduğu, Yaşam Memnuniyeti Anketi'nin (YMA) verileri kullanılmıştır ve bu çalışmada elde edilen sonuçların politika yapımı sırasında kullanılması şiddetle tavsiye edilmektedir. Bahsedilen yöntemlerin nasıl uygulandığı ve sonuçları ilerleyen paragraflarda özetlenmiştir.

Çalışmanın ilk kısmında, öznel iyi oluş ölçütleri hesaplanmıştır. Bu ölçütlerin sonuçlarına göre, ortalamada, Türkiye'deki iyi oluş 2003-2010 yılları arasında- 2008 yılındaki kriz nedeniyle sert bir düşüş yaşamasına rağmen- daha yüksek bir değere ulaşmış fakat 2011-2013 yılları arasında yatay bir seyir izlemiştir. Öte yandan, Türkiye'de kişi başına düşen GSYH, 10000\$ seviyesini ilk olarak 2008 yılında ve finansal kriz atlatıldıktan sonra bir kez daha 2010 yılında geçti. Beklendiği üzere, kişi başı GSYH, 10000\$ seviyesine erişene kadar gelir seviyesindeki artış, daha yüksek iyi-oluş seviyelerine eşlik etmiştir. Ancak, toplumun temel ihtiyaçlarının karşılandığı bu seviyenin üzerindeki kişi başına gelir seviyelerinde; mutluluk veya özgürlük gibi maddi olmayan tutkular; maddi arzuların önüne geçecektir. Ayrıca, kişi başına düşen GSYH miktarı \$10000'ı aştığında iyi oluşu ölçecek daha iyi ölçütlere başvurulması yazında da önerilmektedir. Bu nedenle, politika yapımcıların, GSYH ölçütünün kapsayamadığı bu alanları değerlendirmelerine dâhil etmelerine yarayacak bir göstergeye ihtiyaçları vardır.

Öte yandan, hesaplanan bu ölçütün sağlamlığı ve güvenilirliğini ortaya koymak adına, iki alternatif indeks daha üretilmiştir. Temel alınan indeks (S1), GSYM çalışmasındaki yeterlilik yaklaşımını kullanmış ve analizde kullanılan yaşam alanlarına eşit ağırlıklar atamıştır. Kullanılan eşit ağırlıklar, faktör analizinin sonuçlarıyla (S3) kıyaslanmıştır. Faktör analizinin neticesinde elde edilen ağırlıklar, eşit ağırlıklardan önemli farklılıklar göstermemiştir. Ancak, her ne kadar yıllar içindeki değişimleri benzerlik gösterse de; iki senaryonun sonuçları arasında önemli farklılıklar bulunmaktadır. Farklılıkların temelinde, ağırlık değişimi sonucu belirli göstergelerin endeks üzerindeki etkisinin artmasının olduğu ve eşit ağırlıklar GSMH'de de kullanıldığı için, eşit ağırlıkların tercihi daha uygun görülmüştür. S1'in bir diğer kıyası AUWBI çalışmasında tercih edilen yaklaşım ile yapılmıştır. Bu çalışmada, bireylerin kişisel konuları değerlendirirken pozitif bir sapkıya sahip olduğu, ancak ulusal konularda bu sorunun olmadığı öne sürülmüştür. Böylece, ulusun iyi-oluşuna yönelik göstergeler ile bireyin iyi-oluşuna yönelik göstergeler birbirinden ayrılarak iki değer hesaplanmıştır. Bu çalışmada da benzeri bir yaklaşıma S2'de yer verilmiştir. Ulusal indeksin sonuçları ile bireysel indeksin sonuçları arasında miktar olarak büyük farklar olmasa da; ulusal indeksin seyri daha oynak olmuştur. Bu sonuçlara dayanarak bireylerin, gayri resmî toplumsal bağlarını, (örneğin aile bağları, cemaat, hemşeriler) Türkiye'de yaşanan ekonomik ve siyasi dalgalanmalara karşı sığınacak bir liman olarak kullandığı iddia edilebilir. Dahası, önerilen indekslerin güvenilirlikleri, öznel göstergeler, öznel

indeksler ve makroekonomik göstergeler arasındaki ilgileşimler aracılığıyla kontrol edilmiştir. Önerilen indekslerin, 2004-2013 yılları arasında, İnsani Gelişmişlik İndeksi ve kişi başı GSYH ile anlamlı ve pozitif bir ilişkiye sahip olduğu fakat diğer makroekonomik göstergelerle arasındaki ilişkinin anlamsız olduğu gözlenmiştir.

Özetlemek gerekirse, bu çalışmada, öne sürülen öznel iyi-oluş indeksinin güvenilir ile dayanıklı olduğu ve hayatın GSYH tarafından yadsınan mutluluk, topluluk ilişkileri veya beklentiler gibi yönlerini de içerdiği söylenebilir. Bu savı desteklemek adına 2. Bölümde, daha önceki çalışmalardan birçok dayanak noktası ve kullanılan tekniklerle ilgili uygulamalar sunulmuştur. Sonuçlar ışığında, politika yapıcılarının, insanın iyi oluşu ve insani gelişmişlik konusundaki görüşlerini bu çalışmayla genişletmeleri ve toplum için politika üretirken bu çalışmada ortaya konan fikirlerden yararlanmaları şiddetle tavsiye edilmektedir.

Daha sonra mutluluğun etmenleri, sıralı lojistik regresyon aracılığıyla, araştırılmıştır. Bu analizin yazına yaptığı esas katkı; daha geniş bir zaman aralığının ve gösterge setinin analize dâhil edilmesi olmuştur. Ayrıca, ilk defa ülkemizdeki iller arası mutluluk farkları bu çalışmada araştırılmıştır. Bu analiz neticesinde de, dikkat çekici birçok sonuç elde edilmiştir. Örneğin, eğitim ile mutluluk arasındaki ilişkinin dolaylı bir şekilde, gelir üzerinden gerçekleştiği bulunmuştur. Bu sonuca, eğitim-mutluluk ilişkisinin; gelir değişkeni analize dâhil edilmemişken anlamlı, edilince anlamsız olması neticesinde varılmıştır. Dahası, evli ve çalışan olmanın yanı sıra bu ilişkilerden elde edilen tatminin de mutluluk üzerinde etkili olduğu ortaya konulmuştur. Yani daha mutlu olmak üzerinde; evli olmak kadar mutlu bir evlilik sahibi olmanın da önemi ortaya konmuştur; aynısı çalışma koşulları için de geçerlidir. Öte yandan, Pseudo R^2 ve Akaike Information Criteria değerleri üzerinden yapılan bir değerlendirmede; umut düzeyi değişkeninin, mutluluğu açıklamada en başarılı değişken olduğu ortaya konmuştur. Gelir aralıkları (nesnel) ile elde edilen gelirden tatmin (öznel) değişkenlerinin bir karşılaştırılması sonucu; insanları daha mutlu etmek için gelirlerini arttırmanın gerekli fakat tek başına yetersiz olduğu ortaya konulmuştur. Gelir artışı, bireyi ancak, referans grubuna göre daha iyi bir konuma getirirse; daha mutlu edecektir. İlaveten, mutluluk üzerindeki yıl etkileri havuz veri setlerinde ve şehir etkileri 2013 veri setinde incelenmiştir. Sonuç olarak, geniş bir değişken setiyle kontrol edilmesine karşın; 2008 krizinin ve 2012 ile 2013 yıllarında, giderek artan politik gerilim ve kutuplaşmanın Türkiye’deki insanların mutluluğu üzerinde negatif etkileri olduğu ortaya konmuştur. Diğer yandan, Türkiye’nin şehirleri arasında *ceteris paribus* mutluluk farkları bulunduğu tespit edilmiştir; muhtemelen farklı şehirlerdeki bireyler mutluluğu belirleyen etmenlere de farklı önem dereceleri atamaktadır.

Sıralı lojistik regresyon analizinden elde edilen sonuçlara göre, politika önerileri yapmak mümkündür. Yüksek işsizlik oranları ve düşük işgücüne katılım oranlarının Türkiye’deki işgücü piyasası için çok önemli bir sorun olduğu açıktır. İşyeri memnuniyetinin mutluluk üzerindeki olumlu etkisinden yararlanarak, işgücü arzının arttırılması için, işlerin çekiciliğinin arttırılması ve çalışanların iş yerinde kurduğu ilişkilerin geliştirilmesi için politikalar üretilebilir. Türkiye’deki bir diğer önemli sorun ise gelir eşitsizliğidir ve mutluluk için, referans gruba kıyasla sahip olunan gelirin önemi de bu çalışma içerisinde gösterilmiştir. Böylece, Türkiye’de daha yüksek mutluluk seviyelerinin elde edilmesi adına; ülkemizde gelirin daha eşit dağılımı adına yapılacak iyileştirmeler önem kazanacaktır. Ek olarak umut düzeyinin, gelecekte beklentiler değişkeniyle beraber, mutluluğun en önemli açıklayıcısı olduğu ortaya konulmuştur. Dolayısıyla, bireylerin mutluluk seviyelerini arttırmak adına

özgürlükleri arttıracak, kurumsal yapıyı, adlî sistemi, eşitliği ve politik istikrarı geliştirecek reformların bir an önce yapılması, insanları geleceğe daha umutla bakmaları, dolayısıyla daha mutlu olmaları üzerinde etkili olacaktır. Son olarak, şehirler arasında mutluluğun belirleyicilerinin önem derecesinde farklar olduğu belirtilmiştir. Dolayısıyla, yerel politikalar aracılığıyla daha yüksek mutluluk seviyeleri elde edilebilir, yani, merkezi hükumete yetkilerinin bir kısmını yerel yönetimlere devretmesi önerilmektedir.

Ayrıca, bu çalışmada yapılan yorumların “ortalama” değerler üzerinden olduğu kabul edilmiştir. Bu nedenle, ileride yapılacak çalışmalarda, veriyi cinsiyet, eğitim, gelir grupları, şehir vb. gruplara ayırmak suretiyle incelemeleri önerilmektedir. Kısacası, bu çalışmada ortaya konan sonuçlar, ancak, buzdağının görünen yüzünü resmetmektedir. Diğer yandan, TÜİK’e, anket süresince kullanılan ölçeklerin denekler üzerindeki yansımaları hakkında veri toplaması; kişilik özellikleri hakkında sorular ekleyerek soru setini güncellemesi; kişilik etkilerini ortaya koyabilmek adına kesit veri yerine zaman serisi verisi toplaması ve yanıtlarda daha az sapkı olması adına soruların sıralamasını gözden geçirmesi ve soru setini sadeleştirilmesi önerilmektedir.

1. INTRODUCTION

There are several definitions of economics as a discipline. Mainstream economics define economics as the science of allocating scarce resources to endless human needs (Mankiw, 2009). Heterodox schools of economics thought, though, define economics as the study of how people handle their resources to match their demands and improve their well-beings (Goodwin et. al., 2014). It goes without saying that, in both definitions, the ultimate goal is to increase the well-being of human beings, which involves materialistic as well as non-materialistic aspects of life, such as housing conditions, income, freedom, happiness, living in an ecologically sound environment etc. (Giddens, 2013, p. 305). Yet, broadly speaking, for mainstream economists this goal can be delegated to economic growth, in other words, to increase per capita income (Giddens, 2013, pp. 40,125,128,137). For example, the famous Kuznets Curve Hypothesis conjectures that income distribution first worsens and then starts to improve after a certain level of income per capita (Kuznets, 1955).

The message is clear, economic growth can help to solve many problems regarding to human well-being. It is an observable fact that increasing income may help a society to enjoy higher levels of welfare, live longer by increasing access to medical services or increase human capital. Yet, it is also true that there are “things” that money cannot buy. And these “things” become easily invisible, or unreachable when Gross Domestic Product (GDP) indicator is taken as the main guide for policymaking process. As is known, the task of developing the GDP methodology was commissioned to famous economist Simon Kuznets in 1934 (during the Great Depression) with an aim to provide policymakers an effective indicator to monitor and thereby control overall economic activity. However despite the warning of its creator that GDP indicator can scarcely inform about the welfare of a nation (Kuznets, 1934), throughout the years, it became the most important indicator which is, even, used to proxy non-materialistic dimensions of human well-being.

GDP indicator is incapable of taking into account the productive activities such as housework and volunteered work since it only deals with monetary transactions taken place in formal market system. By construction, GDP only measures the level of economic activity; neither the quality nor the purpose of those activities. And it is this attitude which fuels the ever-increasing discontent from the wide usage of GDP. The rising discontent led scholars to construct several indexes to measure the actual change in people's well-being in a better way. Some of these indexes employ only objective indicators of life domains such as average years of schooling or air pollution while some others consider well-being as subjective and rely upon the data derived from laboratory or field experiments. Recently, subjective well-being indicators, such as happiness, took attention of many economists and policy-makers. For instance, Bhutan has replaced GDP with Gross National Happiness (GNH) for her policy-making purposes (Ura et al., 2012). Additionally, developed countries such as United Kingdom and Australia are at the verge of developing national subjective well-being indexes for measuring the effectiveness of policies (Kahneman and Krueger, 2006).

The discontent on the insufficiencies of GDP is also being shared by the author of this study as well and proposing a subjective well-being index constitutes the primary aim of this project. Although there is a growing literature on happiness economics, it has been noticed that none of them searched for a policy indicator, which can track well-being of citizens more properly than GDP can. Thus, this study aims to fill this gap in the Turkish literature on two fronts. In the first part of the study, a subjective well-being index will be constructed for Turkey. The robustness of this index will be checked with the alternative indexes constructed. As it will further be discussed within the text, happiness is considered as one of the components of subjective well-being under the domain of psychological well-being. Still, subjective well-being and happiness are considered to indicate different aspects of life, thus, analysed separately in this study. The second part of the study concentrates on the determinants of happiness in Turkey. For both analyses, Turkish Statistical Institute's (TURKSTAT) Life Satisfaction Survey (LSS) data for the period of 2004-2013 is employed.

The organization of the study is as follows. First and second part of the study, namely Part 2 and Part 3, will follow the same outline. Firstly, a literature review will be made, then the methodology will be described. Later on, the characteristics and the

descriptive statistics of the data set employed in the analysis will be introduced, and lastly the outcomes of the study will be depicted. Finally, the outcomes of both analyses will be discussed further in Part 4, or namely conclusion.

In Part 2, two subjective well-being indexes, along with the baseline index, will be constructed employing dimensions such as self-reported health, degree of hope or, satisfaction from central governmental services in order to depict the evolution of well-being in Turkey. Baseline subjective well-being index will imitate Bhutan's Gross National Happiness practice as much as possible and will be presented under Scenario 1. Two more scenarios will be constructed in order to perform robustness checks and to provide more perspectives. One of these alternative indexes (Scenario 2) is inspired from the Australian Unity Well-Being Index, which claims that individuals' well-being perceptions may differ across private and social spheres. First two scenarios employ equal weights on domains (i.e. self-reported health, job satisfaction etc.). The strong assumption that all domains contribute equally to the indexes will be relaxed in scenario 3 where factor analysis will be utilised to assign weights.

On the other hand, in Part 3, the determinants of happiness will be queried using ordered logistic regression, which is frequently preferred in happiness economics literature. *Happiness* variable is derived out of the survey question "All things considered, how happy you are with your life?" The analysis will be conducted separately for annual datasets and then for pooled datasets in order to depict possible changes in the relationships between employed variables and happiness. Possible heteroscedasticity issues and multi co-linearity issues will be handled by employing White's heteroscedasticity-consistent standard errors and running correlation analysis among variables, respectively.

Lastly, in Part 4, the results obtained in Part 2 and Part 3 will be summarised and yearly changes in the levels of happiness and subjective well-being will be analysed. Then the possibility of employing subjective well-being indexes and happiness results as a guide to policymaking will be discussed with the inclusion of a preliminary policy proposal set.

This study contributes to the literature on two fronts. The study will include the first subjective well-being indicator¹ ever proposed for Turkey, thus, it will provide more insights about the well-being in Turkey. Secondly, although there are several studies on the determinants of happiness in Turkey, this analysis will broaden our knowledge with the inclusion of several novel explanatory variables to the standard models and by employment of a far greater dataset. Since TURKSTAT published city-level results only recently for the year of 2013, the analysis will be the first one in such detail in Turkish happiness literature.

¹ In this study, *survey questions* constitute *variables (indicators)*, *variables* form *domains (factors)* and *domains* form *indexes*. However, as either some indicators of well-being is comprised of only one variable or indexes can be presented with a single value; sometimes *index* and *indicator* terms are used as synonyms. Further explanation will be presented in Part 2.

2 SUBJECTIVE WELL-BEING IN TURKEY

As stated in Part 1, economists face a challenging task, that is, to determine the level of well-being within a society. Well-being of a nation is subject to comparison to its prior performances and its rival countries in the well-known development race. Hence, many scholars discussed the levels of well-being within nations employing various approaches and come up with various indicators to measure development and well-being. One of the primary indicators, used for this purpose, is designed by Simon Kuznets in order to propose policy suggestions against the longing recession in the U.S.A. economy. Successful results of the implementation of GDP in U.S.A. economy, led many countries to collect GDP data. But, by definition, GDP measures only aggregate output while the broad concepts of development and well-being involve societal, ecological and institutional dimensions which GDP neglects.

The insufficiencies of GDP was clear, thus, many indicators and indexes have been offered and put into test to analyse the level of well-being and development throughout time. Yet, most of these measures are often criticized on the grounds that they are technically complex and multi-dimensional, both of which limits their interpretability among public, and even sometimes among scholars. For better policy suggestions and evaluations of well-being, an index which is decomposable and comprehensive but as striking as GDP was needed by both policy makers and citizens. One of the proposed indexes for this problem was Human Development Index (HDI). HDI commission is led by Mahbub ul Haq and included Nobel laureate Amartya Sen. HDI become popular as it employs common data available for many countries and is easy to interpret (Stanton, 2007).

On the other hand, some other studies concluded that the happiness is the end result of development and diverted this discussion to a different ground. Primarily, with an intriguing study Easterlin (1974) opened the debate on the relationship between happiness and economic development. But subjective well-being studies had to wait for another three decades to arouse interest among economists (Kahneman and

Krueger, 2006). After the popularisation of subjective well-being data among economists; the relationship among subjective well-being indicators (such as happiness) and the socio-demographic indicators (such as employment status, income or age) have been investigated. Nowadays, Kingdom of Bhutan uses Gross National Happiness (GNH) as primary development indicator for policy making instead of GDP (Ura et. al., 2012). Also Kahneman and Krueger (2006) suggests that each country should shift from GDP to GNH because if a country exceed an income threshold- such as \$10,000- generation of extra income will not bring happiness to individuals on average. They also state that countries such as United Kingdom and Australia are at the verge of developing national subjective well-being indexes in order to use for measuring the effectiveness of policies.

In conclusion, usage of GDP alone to measure well-being is risky as it neglects many aspects of life. Thus Chapter 2.1 is dedicated to discuss the insufficiencies of GDP and the alternatives which are proposed to replace or accompany GDP. This chapter is concluded with a comparison of subjective and objective well-being indicators. In the next chapter, methodologies adapted during the construction of three alternative subjective well-being indexes (SWBI) are introduced. In Chapter 2.3, a brief presentation of TURKSTAT data will be made. Then the constitution process of indicators employed in SWBI and the descriptive statistics of these indicators will be presented. Lastly, in Chapter 2.4, the outcomes of SWBI analysis will be presented.

2.1. Why GDP is Insufficient?

In this section, primarily, the insufficiencies of widely used Gross Domestic Product (GDP) will be reviewed. Later on, alternatives proposed to replace or accompany GDP will be briefly discussed. Those indicators are presented in the order from being more objective to less objective. Those indicators are; Human Development Indicator (HDI), Happy Planet Index (HPI) and OECD's Better Life Index (BLI) and Gross National Happiness (GNH). Moreover, a selection of surveys which investigate the levels of happiness or subjective well-being among nations will be presented. Lastly, those indicators and surveys will be compared upon their comprehensiveness of life domains and Republic of Turkey's latest data on these surveys and indicators will be presented.

First study on GDP dates back to Great Depression. As Green (2014) discusses in his speech, Simon Kuznets is the first to measure national income for United States of America which he originally intended the indicator to be used as a tool to get rid of economic depression. GDP aims to measure a country's economic performance using the amount of expenditure or production within a country. GDP is easily interpretable and widely collected by statistical institutes. But, although Kuznets warns about the insufficiencies of GDP, that it is a tool designed to measure only economic transactions, not people's well-being; GDP is employed more widely than its initial intent (Kuznets, 1955).

GDP is a very compact and powerful tool but, many researchers complained that GDP is one sided and disregards various aspects of life. For instance, Martínez-Alier (2012) criticizes GDP for not taking environmental services and unpaid domestic work into account. Moreover, OECD dedicates a part to alternative measures of well-being in their 2006 report on economic policy reforms and comments that GDP is not sufficient in measuring leisure and social environment (2006, p. 137). Additionally, Stiglitz et al. (2009) have published a detailed report about the inadequacies of GDP and claims that the utilisation of GDP as an indicator beyond its initial purpose led world economies to 2008 crisis because GDP lacks the ability to signal the changes in economic conditions correctly. For a detailed list of critiques on GDP, see Goodwin et al. (2008, pp. 132-133). On the contrary, despite their criticism, Alkire (2002) and OECD (2006, p. 16) claims GDP to be convenient and recommends that it should be supported with a more extensive well-being indicator. To conclude, it is inadequate to measure well-being of nations with a one-sided gauge even while a dashboard of an airplane certainly has more indicators (Goodwin et. al., 2008).

2.1.1. Human Development Index (HDI)

HDI was offered to replace GDP as a compact and easily interpretable tool by a commission lead by Mahbub ul Haq (Santana et. al., 2014). First introduction of HDI was made via Human Development Report in 1990 in order to present an alternative approach to development (Stanton, 2007). HDI utilised Sen's capability approach and introduced the "human development" approach. Albeit it could not replace GDP for its most fundamental function –being a basis for policy making– HDI maintained a solid position to remind that the level of output is not the only domain of well-being.

Throughout time HDI got several changes but maintained its brief structure by covering economic, educational and health dimensions as the three pillars of development which are indicated via purchasing power parity, average years of schooling and life expectancy at birth, respectively.

HDI derived its power from using accessible data (even for less developed countries), multi-dimensional structure and the ability to be easily interpreted with a single number like GDP. However, in order to achieve the ultimate goal of simplicity, HDI neglects many aspects of life which reduces HDI's explanatory power of well-being. On the other hand, another unfavourable aspect of HDI may be that it faced continuous changes in a relatively short time. Still, HDI includes two another domains of life that GDP disregards. A comparison of HDI with GDP would make the difference clearer: In 2013, New Zealand ranked 7th in HDI value (with 0,908 HDI score), while Qatar ranked 31st in HDI list (with 0,850 HDI score). But, New Zealand had only \$32.569 GNI per capita while Qatar had \$119.029 GNI per capita in 2011 Purchasing Power Parity \$ values (The World Bank, 2015). This example clearly depicts that, human development does not solely depend on monetary expansion but covers a wider range of life domains.

Lastly, as the consciousness towards many social and political issues emerged; many derivatives of HDI are produced to reflect the progress made on these issues such as Inequality Adjusted HDI, Multidimensional Poverty Index or Gender Inequality Index (United Nations Development Programme, 2015).

2.1.2. Happy Planet Index (HPI)

HPI is calculated for nations using a survey that utilizes 0-10 scale for life satisfaction, United Nations Development Program data for life expectancy values, and World Wildlife Fund data for Ecological Footprint (Şeker, 2009; Gökdemir, 2014; nef, 2015). HPI employs subjective and objective measures in a cohesive way. HPI is also supported by “Beyond GDP” movement within European Commission (2015). On the other hand, the researchers of HPI remind that, HPI focuses on how well a nation is performing but it does not cover areas such as legal rights or freedom (nef).

$$\text{Happy Planet Index} = \frac{\text{Life Satisfaction} * \text{Life Expectancy}}{\text{Ecological Footprint}} \quad (2.1)$$

2.1.3. Better Life Index (BLI)

BLI data is collected by Organisation for Economic Co-operation and Development (OECD) and for its members and some other countries. Better Life Index covers 11 dimensions of life which includes both subjective and objective indicators. For instance, for health domain, both life expectancy and self-reported health are used. Better Life Index is not presented with a single number like previous indexes but lets the user choose his or her own weighting system according to his or her beliefs. Using those weights, BLI ranks the nations by their well-being scores (OECD, 2013). Since Better Life Index covers various aspects of life, a scale conversion is made to compare the performances of different dimensions. For each positive dimension Equation 2.2 is employed, if the indicator is negative (for instance unemployment) then the value calculated is subtracted from 1 (OECD, 2015).

$$\frac{\text{Value to convert} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}} \quad (2.2)$$

2.1.4. Gross National Happiness (GNH)

Gross National Happiness (GNH) is a policy making tool being used in Bhutan instead of Gross Domestic Product after it was proposed by the fourth King of Bhutan. However, the origins of GNH lead back to 1729 legal code- the date when Bhutan unified (Ura et. al., 2012). In 1972, the fourth King of Bhutan declared GNH to be more important than GNP. But, until 21st Century, GNH only used as a concept (Goodwin et. al., 2008). In 2006, a pilot survey is commenced right after the focus group studies and the discussions of scholars. Then, three other surveys were conducted in 2008, 2010 and 2012. Unlike 2008 survey- which is only nationally representative, 2010 and 2012 surveys were also representative at district level. In this study, GNH will be used as a base for constructing the subjective well-being index of Turkey. For further information about GNH refer to Section 2.2.1.

2.1.5. European Values Survey and World Values Survey

European Values Survey (EVS) and World Values Survey (WVS) are nationally representative surveys which are conducted by two separate research groups. Those surveys cover most of their designed geographical research areas by population. Those surveys have been organised in waves, since 1981. Although those studies primarily

investigate the cultural differences of nations and cultural shifts within nations over time; both surveys include a question in regard to happiness. Consequently, EVS and WVS provide ideal data sets to study the differences in happiness cross-national or over time as questionnaires include same questions (translated into the language of the country) and many questions remain intact in the survey throughout the time. Both datasets can be downloaded from their respective web-pages.

2.1.6. World Database of Happiness

World Database of Happiness is managed by Dutch Sociologist Professor Ruut Veenhoven who also had published many studies regarding to happiness. World Database of Happiness is an excellent source for studying happiness across nations. Unlike other reports mentioned, this database does not represent its own survey results, but rather seeks to collect various research results for comparison across nations. Results can be filtered for each nation or narrowed down by subjects within nation such as age, education, etc. Based on the data collected, World Database of Happiness also reports Happy Life Years for nations. Happy Life Years is easy to calculate via multiplying expected life years with happiness data on 0-1 scale (Gökdemir, 2014). World Database of Happiness also offers researchers, a good database on different scales, survey questions, and how to transform those scales into another when needed during a research.

2.1.7. A comparison of subjective and objective indicators

Before making a comparison of various indexes and surveys that are briefly explained during this study, it is important to remind that, happiness is considered to be one of the indicators that constitute the well-being of individuals. Even though the results of happiness surveys are depicted below and happiness questions are directed to be overall assignments; in this study, it is considered that average happiness scores are not sufficient to depict the levels of well-being within a society. That is also because, human beings have great adaptation capabilities and happiness results are independent from economic development in the long run (Easterlin R. , 1974).

Below in Table 2.1, subjective and objective well-being indicators are compared by their comprehensiveness. Moreover, Table 2.2 represents the latest data available belonging to the aforementioned indicators, for Turkey.

Table 2.1 Comparison of Various Indicators.

Indicator	Includes	Excludes
Gross Domestic Product	Output, Income	Any other life domain that has not been recorded with an invoice.
Human Development Index	Output, Education, Health	Other domains of life
Happy Planet Index	Health, Happiness, Ecology	Output, Inequality, Injustice
OECD Better Life Index	Life Satisfaction, Output and 9 other dimensions	-
Happiness Surveys	Happiness	Output, Considers happiness as an overall indicator of life if no other survey questions were directed.
Gross National Happiness	Happiness as combination of 9 domains.	-

Table 2.2 The Results of Turkey on Various Indicators.

Indicator	Year	Unit/Scale	Amount	Rank	Source
Gross Domestic Product	2014	PPP (2011- Constant) \$ /capita	18567	61/184	The World Bank (2015)
Human Development Index	2013	0-1	0,759	69/187	United Nations Development Programme (2015)
Happy Planet Index	2012	Happy Ecologic Years	47,6	44/151	nep (2015)
OECD Better Life Index	2014	0-10	3,27 ²	36/36	OECD (2015)
Happy Life Years	2000-09	Happy Life Years	39,7	65/149	Veenhoven (2015)
World Values Survey	2012	1-4 scale	3,165 ³	27/59	WVS (2015)
European Values Survey	2008	1-4 scale	2,93 ⁴	32/47	EVS (2011)
World Happiness Report	2012-14	0-10	5,332	76/158	Helliwell, Huang and Wang (2015)
Life Satisfaction Survey	2013	0-10	6,38	-	TURKSTAT (2015)

2.2. Construction of Subjective Well-Being Index (SWBI)

In this chapter, the construction process of subjective well-being indexes will be introduced. Firstly scale transformations of the survey questions will be discussed. To build indexes, various scales had to be standardised into one scale, namely 0-1 scale. Secondly, the differences and similarities between three proposed indexes will be discussed briefly and a detailed discussion of their methodological backgrounds will be presented within sections of 2.2. For a detailed comparison, which also depicts the results of study, see Section 2.4.1. Lastly, advantages and disadvantages of constructing more than one index will be discussed.

² All domains are equally weighted.

³ Calculations belong to the author based on WVS data.

⁴ Calculations belong to the author based on EVS data.

Since LSS questionnaires contain different answer scales (i.e. 0-10, 1-5 or Yes/No), the first construction step is to standardise them into 0-1 scale so as to be able to aggregate them into a single index and make the results easily interpretable. For this transformation, 0 represents the worst case and 1 represents the best case for each variable. Survey answers between best and worst possible situations will be transformed in a linear fashion as stated in Veenhoven (1993) and Equation 2.3 will be, mostly, employed during the transformations of various scales into 0-1 scale in this study. In the equation below; X_i symbolizes the original interval value while X_i^T represents transformed value. Also X_{best} covers the value which is best case (1), or most desired situation, while X_{worst} is the opposite (0).

$$X_i^T = \frac{X_i - X_{worst}}{X_{best} - X_{worst}} \quad (2.3)$$

Furthermore, there are disadvantages as well as advantages of using a linear transformation of the scales. Although, linear transformation is easy to understand, interpret and calculate; it is not as sensitive as another transformation would be. Utility derived by individuals from a domain of life needs not to demonstrate a linear path and linear transformation neglects this idea. For instance, individuals who are neither happy nor unhappy from their life (0.50), are not twice as happy as unhappy individuals (0.25) are (DeJonge, Veenhoven, and Arends, 2014). Veenhoven (1993) proposes that one may solve this problem by asking the utility derived, by being happy, directly to the people who were surveyed or by depending on experts' opinions. However, as this study utilizes a secondary dataset from TURKSTAT's LSSs and there is not any study that surveys expert opinions; it was not possible to form better transformations for this study. Further research on this subject is recommended.

Indicators are formed out of chosen survey questions that are related to similar aspects of life. In order to build indicators from many questions; factor analysis is employed. If all questions are grouped in a single factor; questions are equally weighted. But if there were more than one factor in the selected questions; than the weights would be assigned in proportional to factor loadings. For more detailed information on how factor analysis is employed in this study, see Section 2.2.3. Moreover, see Appendix, Note 1 for the chosen survey questions and the indicators (questions have been translated into English from Turkish by the author).

In this study, three alternative Subjective Well-Being Indexes (SWBI) will be constructed, in order to present different perspectives on well-being in Turkey and for robustness checks. Those alternatives will be labelled as scenarios 1, 2 and 3. First scenario picks Bhutan's Gross National Happiness (GNH) as a base and adapts *sufficiency approach*. This will be the baseline index from which most of the conclusion will be drawn. Second scenario is inspired from the approach of Australian Unity Well-Being Index (AUWBI) (Cummins et. al., 2003) and this alternative differentiates individual and national issues, hence, produces two distinct indexes⁵. In scenario 1 and 2, equal weights are preferred as original studies employ equal weights. However, third scenario drops the equal weights setting of the prior scenarios by assigning weights computed by factor analysis. This last step is used to perform a robustness check on equal weights.

Constructing different indexes has its advantages as well as difficulties. One of the major benefits of building three indexes is to have different perspectives on the dataset. This will enhance the analysis of the changes in the subjective well-being of Turkey for the 2004-2013 period. Another one is to avoid possible critics that may claim the indexes were built on arbitrary assumptions. Actually, variables are chosen on a subjective basis (within the limitations of dataset) but, this study benefited from the principals discussed in the GNH and AUWBI research. However, constructing exact replicas of GNH index and AUWBI is not possible due to limitations of variables presented in the secondary data of TURKSTAT and assuming linear utility is an another obstacle.

2.2.1. Gross National Happiness

Bhutan's GNH index is the main reference point for Scenario 1, which is chosen as the baseline index. Although, employment of secondary data limits the imitation of the original index by domains and their respective indicators; variables are grouped in a way much similar to GNH. Also, the *sufficiency approach*⁶ of GNH is adopted. In this section, Bhutan's GNH approach for policy-making will be briefly discussed.

⁵ We would like to thank Bekir Ağırdir, the director of KONDA Surveys and Consulting Ltd. Co., as he suggested us to diversify national and individual indicators.

⁶ Sufficiency approach argues that for a decent life, one must achieve over the designed threshold levels. Sufficiency approach is also adopted in poverty studies.

According to Brooks (2013), Bhutan is the only country to meet Millennium Development Goals in South Asia- while using happiness scores as the measure for policy-making. Bhutan's GNH approach is based on both Buddhist doctrines and the scientific research made on well-being. Thus GNH seeks material and spiritual development in balance, which is constructed on four pillars; sustainable development, cultural values, natural environment and good governance (Rinzin et. al., 2007). Moreover, Bhutan is the first country to replace GDP with a subjective well-being indicator for their policy making purposes (Ura et. al., 2012). In addition to this, unlike Western literature, GNH considers happiness to be multi-dimensional (Ura et. al., 2012, p. 9).

Original GNH index is comprised of three steps: In initial step, focus group studies and a pilot survey are organised to determine significant domains and indicators of life for Bhutanese residents. As a result of those studies, GNH is consisted of nine domains. Those nine domains are further divided into 33 indicators. Within GNH, each domain is considered to be equally important, thus their weights are equal. But for indicators that built up the domains; that's not the case. A list of indicators with their respective weights are reported in Table 2.3.

Table 2.3 Weights of Indicators Employed in Bhutan's GNH. Source: (Ura et. al., 2012).

Domain	Indicators	Weight	Domain	Indicators	Weight
Psychological Well-Being	Life Satisfaction	33%	Time Use	Work	50%
	Positive Emotions	17%		Sleep	50%
	Negative Emotions	17%	Good Governance	Political Participation	40%
	Spirituality	33%		Services	40%
Health	Self-Reported Health	10%		Government Performance	10%
	Healthy Days	30%	Community Vitality	Fundamental Rights	10%
	Disability	30%		Donation (time and money)	30%
	Mental Health	30%		Safety	30%
Education	Literacy	30%		Community Relationship	20%
	Schooling	30%	Ecological Diversity and Resilience	Family	20%
	Knowledge	20%		Wildlife Damage	40%
	Value	20%		Urban Issues	40%
Cultural Diversity and Resilience	Thirteen arts and Crafts	30%		Responsibility Towards Environment	10%
	Cultural Participation	30%	Living Standard	Ecological Issues	10%
	Speak Native Language	20%		Per Capita Income	33%
	Etiquette	20%		Assets	33%
				Housing	33%

Secondly, thresholds were set for each indicator based on basic needs, international or national standards, or normative judgments if any other is not present. Those thresholds are called sufficiency cut-offs (Ura et. al., 2012). In order to fulfil sufficiency in one indicator, one must exceed the cut-off point. For example having an income higher than the poverty level or being healthy. On the other hand, as in poverty measurements, exceeding cut-off line will not make individuals “*happier*”. An individual is counted as *happy* if he or she achieves sufficiency in six out of nine domains, otherwise as *not-yet-happy*. In this study, to achieve sufficiency in a domain, one must perform above 2/3 within 0-1 scale.

Lastly, individual data was aggregated into a decomposable measure which is depicted in Equation 3.2. In this equation, H represents the *headcount* of people *not-yet-happy* and A represents the *average proportion* of domains in which *not-yet-happy* lack sufficiency. Based on the results of GNH surveys, the amount of *not-yet-happy* people and the severity of their lack of *happiness* is estimated. Then, Bhutanese government makes their policies based on the results of GNH and its respective domain scores. But, unlike poverty indicators, individuals will enjoy a higher level of well-being if GNH scores are higher. A country may achieve higher GNH scores either by lowering the amount of people *not-yet-happy* or decreasing the number of domains which individuals are insufficient.

$$GNH = 1 - H * A \quad (2.4)$$

2.2.2. Australian Unity Well-Being Index

Cummins et. al. (2003) argues that well-being should be analysed separately at national and individual level, because people may have biases towards ranking issues which are closer to self (private sphere) rather than distal issues (social sphere). Based on this thought, indicators concerning to national and individual issues are separated during the construction of Australian Unity Well-Being Index (AUWBI). AUWBI studies have been conducted since 2001 and the results of AUWBI are suggested as a complementary indicator for evaluating national performance (Cummins et. al., 2003). 30 surveys have been conducted since the first survey.⁷

⁷ The results are published online, at <http://www.acqol.com.au/> address.

Cummins et al. (2003) also argues that individual well-being can be calculated via Comprehensive Quality of Life Scale (ComQoL). ComQoL identifies seven indicators of well-being and Cummins et. al. (2003) argues that the mean score of these indicators should be equal to the satisfaction expressed by a “life as a whole” question. On the other hand, three indicators of social sphere quality were collected under National Well-Being. Next, the selection of these indicators were tested using confirmatory factor analysis in order to determine if the proposed indexes were consistent. The results were successful. On the other hand, Cummins et al. (2003) argues that the results derived from the national and individual indexes should differ due to positive biases in ranking personal issues. This assumption was also confirmed by the results of the first survey. See Cummins et al. (2003) for further discussion.

In a country like Turkey where economic and political stability is generally weak, it is plausible to think that people tend to create their own informal safety nets to preserve their well-being. If it is the case then their perception of well-being should differ in private sphere than in public sphere. To test this assumption, during the construction of the second scenario, the approach used in AUWBI is adapted. As a result, indicators are diversified into two groups in second scenario; national and individual. Twelve variables are created for this study as described in Section 2.3 and Table 2.5. However, as *Index of Expectations from Next Year* includes questions regarding to both national and individual issues; it is further divided into two. Consequently, out of thirteen variables, seven variables are grouped in individual index while six of them are grouped in national index. The groupings will be depicted in Section 2.4.1.

2.2.3. Factor analysis

Third scenario is designed as a robustness check for the equal weights assumption which is employed in the first two scenarios. There are cultural differences between Turkey, Bhutan and Australia, additionally, datasets employed in those researches differ by questionnaires (subsequently variables). Thus, employment of equal weights may be inappropriate. In this vein, factor analysis is used to assign different weights to domains in Scenario 1 and indicators in Scenario 2, in this study. Outcomes of Scenario 3 will be presented in a convenient way to compare with the outcomes of prior scenarios to depict the effects of scenario settings.

In this study, while implementing factor analysis, the methodology of Hair Jr. et al. (2009) is used. Factor analysis can be used to confirm already defined factors or explore undefined factors among the given variables. But a researcher must be aware that factor analysis may not be successful figuring out the significant factors from a large pool of variables. The convenience of employing factor analysis on a data set can be figured out via the measure of sampling adequacy or Bartlett's test of sphericity, despite latter may have problems with higher samples (Hair Jr. et. al., 2009).

There are two ways to conduct factor analysis; common factor analysis which is more theoretically sound and component analysis which is more preferred in the literature (Hair Jr. et. al., 2009). Based on the technique chosen, factor analysis creates factors among the input variables, using their correlations or co-variances. It assigns each variable a factor loading based on their weight in the created factor. In this study, an exploratory factor analysis will be conducted using component analysis on, statistical package program, SPSS 22.

Furthermore, theoretically factor analysis can create factors equal to input variables minus one, but analysis has to stop producing new factors in a meaningful way. Hair Jr. et. al. (2009) suggests four alternatives on when to stop factor analysis; (1) latent root criterion, (2) a priori criterion, (3) percentage of variation criterion, (4) scree plot criterion. According to first criterion, factor analysis must stop producing new factors when eigenvalue drops below 1, while, second criterion suggests that factor analysis must stop producing new factors when factors reach a predetermined amount. Third criterion suggests factor analysis to stop whenever the desired level of variance is explained by the produced factors- in social sciences, mostly preferred value is 60%. Lastly, fourth criterion suggests that the number of factors must be decided by the shape of scree plot. Scree plot is graphed using eigenvalues of factors and this approach suggests that no newer factors should be produced after scree plot becomes linear. In this study, alternatives (1) and (3) are employed mostly.

On the other hand, factors must be rotated in order to get the most adequate information out of them (Hair Jr. et. al., 2009). There are two possible ways to achieve this; orthogonal rotation or oblique rotation. Orthogonal rotation is widely-used and aims to reduce the number of variables when there is a set of uncorrelated variables in use. Oblique rotation is used when the researchers has the goal to achieve theoretically

significant solution, because in reality, few factors are really uncorrelated. In this study, VARIMAX rotation is preferred which is a variant of orthogonal rotation.

Lastly, after the implementation of factor analysis, the results are used to build domains. In this study, elements of factors will be decided upon the significance of variables (a variable is regarded as insignificant for a factor if a variable's factor loading is below 0.50) and variables' weights will be assigned accordingly to their loadings. As a result an indicator with a higher factor loading will get more weight in this analysis. To determine the weights of indicators or domains, their factor loadings within the factor and the share of variance of the factor they belong are used. As an example, the weight of indicator X which belongs to factor Y within a scenario is as depicted below. For a detailed discussion, see Hair Jr. et al. (2009)

$$\frac{\text{Factor Loading of Variable } X}{\text{Total Factor Loadings in Factor } Y} * \frac{\text{Variance Explained by Factor } Y}{\text{Total Variance Explained by All Factors}} \quad (2.5)$$

2.3. Descriptive Statistics of Variables Employed

In this study, the survey data of the Turkish Statistical Institute's (TURKSTAT) Life Satisfaction Survey (LSS) belonging to the 2004-2013 period is employed. LSS has two sets of questions; the first set contains questions directed to the head of the household as the representative, and the second set of questions are directed to the individuals of household which are above eighteen years old. LSS includes questions in regard to many aspects of life. LSS data has been collected since 2003, but the structure of LSS was subject to two major change, since then. LSS 2003 was more of a pilot study; thus, many questions were excluded in LSS 2004's questionnaire for statistical significance (Turkish Statistical Institute, 2015). Also, many question sets including social pressure or participation to social and political events were added in year 2009. Moreover, since 2013⁸, LSS data have been representative at city-level unlike prior years. In this study, data of LSS 2003 and the variables added after 2009 survey are omitted in order to have a balanced panel of data between 2004 and 2013. See Table 2.4 for the structure of LSSs for 2003-2013 period.

⁸ Data for LSS 2014 were collected but not published during the publication of this study.

Table 2.4 Descriptive Statistics of LSS for 2003-2013 Period.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
N(Household)	2140	2867	2880	2880	2880	2878	3561	3440	3551	4069	103312
N(Individual)	5304	6714	6983	6432	6442	6465	7546	7027	7368	7956	196203
Question Sets	106	58	54	53	53	53	60	60	64	63	70
Questions	301	149	135	142	145	159	271	273	283	269	303

As mentioned before, Turkish SWBI will be constructed by imitating Bhutan's GNH index. In this vein, chosen variables for SWBI analysis are *overall happiness, degree of hope, index of expectations from next year, index of job satisfaction, index of income satisfaction, self-reported health, index of satisfaction from schools, index of satisfaction from central governmental services, index of satisfaction from municipal services, index of satisfaction from medical services, perception of safety index and index of community satisfaction*. Note that, these components will be formed by grouping relevant questions. See Appendix, Note 1 for the respective survey questions and scale transformations of indicators.

Descriptive statistics of variables employed in the construction of SWBIs are given in Table 2.5 and the pairwise correlations of the aforementioned indicators are presented in table 2.6. In table 2.5, values in the parentheses are standard deviations while in table 2.6, a significant relationship at %5 level is depicted with a star.

Table 2.5 Descriptive Statistics of Variables Employed in SWBI Analysis.

Indicators (0-1 Scale)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Overall Happiness	0,634 (0,22)	0,627 (0,22)	0,630 (0,22)	0,639 (0,21)	0,619 (0,22)	0,611 (0,23)	0,644 (0,21)	0,647 (0,21)	0,644 (0,21)	0,638 (0,22)
Degree of Hope	0,578 (0,29)	0,576 (0,29)	0,565 (0,29)	0,598 (0,28)	0,564 (0,29)	0,569 (0,28)	0,619 (0,26)	0,631 (0,26)	0,639 (0,25)	0,635 (0,26)
Index of Expectations from Next Year	0,594 (0,27)	0,567 (0,28)	0,503 (0,29)	0,545 (0,29)	0,395 (0,28)	0,465 (0,26)	0,570 (0,27)	0,576 (0,27)	0,570 (0,27)	0,589 (0,30)
<i>Individual</i>	0,624 (0,28)	0,602 (0,29)	0,569 (0,30)	0,591 (0,29)	0,481 (0,30)	0,520 (0,28)	0,599 (0,28)	0,602 (0,28)	0,600 (0,28)	0,614 (0,30)
<i>National</i>	0,562 (0,34)	0,529 (0,35)	0,423 (0,34)	0,488 (0,35)	0,283 (0,32)	0,382 (0,33)	0,530 (0,36)	0,544 (0,36)	0,529 (0,35)	0,559 (0,39)
Self-Reported Health	0,634 (0,23)	0,634 (0,24)	0,630 (0,24)	0,648 (0,23)	0,641 (0,23)	0,637 (0,24)	0,657 (0,22)	0,656 (0,22)	0,661 (0,21)	0,658 (0,22)
Index of Job Satisfaction	0,496 (0,25)	0,497 (0,25)	0,526 (0,26)	0,536 (0,26)	0,526 (0,26)	0,525 (0,27)	0,575 (0,26)	0,572 (0,25)	0,582 (0,25)	0,666 (0,23)
Index of Income Satisfaction	0,426 (0,20)	0,402 (0,20)	0,412 (0,18)	0,422 (0,18)	0,431 (0,18)	0,382 (0,17)	0,417 (0,17)	0,431 (0,17)	0,439 (0,18)	0,394 (0,18)
Index of Satisfaction from Schools	0,735 (0,23)	0,719 (0,23)	0,745 (0,23)	0,744 (0,24)	0,737 (0,24)	0,763 (0,22)	0,759 (0,24)	0,786 (0,22)	0,803 (0,21)	0,794 (0,23)
Index of Satisfaction from Central Governmental Services	0,576 (0,17)	0,587 (0,17)	0,595 (0,17)	0,634 (0,15)	0,619 (0,16)	0,626 (0,16)	0,649 (0,15)	0,657 (0,15)	0,654 (0,14)	0,659 (0,15)
Index of Satisfaction from Municipal Services	0,674 (0,25)	0,674 (0,24)	0,655 (0,26)	0,701 (0,25)	0,703 (0,26)	0,695 (0,27)	0,708 (0,27)	0,710 (0,26)	0,714 (0,26)	0,563 (0,21)
Index of Satisfaction from Medical Services	0,455 (0,28)	0,530 (0,28)	0,546 (0,28)	0,622 (0,27)	0,620 (0,26)	0,644 (0,27)	0,666 (0,27)	0,668 (0,27)	0,682 (0,26)	0,679 (0,34)
Perception of Safety	0,595 (0,24)	0,579 (0,24)	0,600 (0,24)	0,628 (0,22)	0,628 (0,22)	0,636 (0,22)	0,655 (0,21)	0,662 (0,21)	0,663 (0,20)	0,655 (0,21)
Index of Satisfaction from Community	0,704 (0,13)	0,701 (0,13)	0,704 (0,12)	0,714 (0,12)	0,709 (0,12)	0,706 (0,13)	0,711 (0,12)	0,708 (0,12)	0,707 (0,12)	0,711 (0,12)

Table 2.6 Pairwise Correlations among Variables Employed in SWBI.

	Degree of Hope	Io Expectations from Next Year	Individual	National	Self-Reported Health	Io Job Satisfaction	Io Income Satisfaction	IoSf Schools	IoSf Central Governmental Services	IoSf Municipal Services	IoSf Medical Services	Perception of Safety	IoSf Community
Degree of Hope	1	0.6455*	0.5822	0.6613*	0.9418*	0.8143*	0.2668	0.8334*	0.8229*	0.7097*	0.6748*	0.7867*	0.4737
Io Expectations from Next Year	0.6455*	1	0.9901*	0.9985*	0.4005	0.3421	0.0866	0.3062	0.1481	-0.0019	-0.0630	0.0975	0.0079
Individual	0.5822	0.9901*	1	0.9822*	0.3257	0.2892	0.1223	0.2328	0.0650	-0.1021	-0.1496	0.0104	-0.0086
National	0.6613*	0.9985*	0.9822*	1	0.4217	0.3529	0.0841	0.3195	0.1686	0.0332	-0.0419	0.1181	0.0081
Self-Reported Health	0.9418*	0.4005	0.3257	0.4217	1	0.8078*	0.3080	0.7995*	0.9210*	0.8896*	0.8198*	0.8936*	0.6486*
Io Job Satisfaction	0.8143*	0.3421	0.2892	0.3529	0.8078*	1	-0.0804	0.8204*	0.8208*	0.7469*	0.7422*	0.7677*	0.5454
Io Income Satisfaction	0.2668	0.0866	0.1223	0.0841	0.3080	-0.0804	1	0.1038	0.1083	0.3910	-0.0045	0.1978	0.1785
IoSf ⁹ Schools	0.8334*	0.3062	0.2328	0.3195	0.7995*	0.8204*	0.1038	1	0.8420*	0.6500	0.7704*	0.8768*	0.3429
IoSf Central Governmental Services	0.8229*	0.1481	0.0650	0.1686	0.9210*	0.8208*	0.1083	0.8420*	1	0.8874*	0.9638*	0.9647*	0.6868*
IoSf Municipal Services ¹⁰	0.7097*	-0.0019	-0.1021	0.0332	0.8896*	0.7469*	0.3910	0.6500	0.8874*	1	0.8397*	0.8766*	0.6490
IoSf Medical Services	0.6748*	-0.0630	-0.1496	-0.0419	0.8198*	0.7422*	-0.0045	0.7704*	0.9638*	0.8397*	1	0.9194*	0.6239
Perception of Safety	0.7867*	0.0975	0.0104	0.1181	0.8936*	0.7677*	0.1978	0.8768*	0.9647*	0.8766*	0.9194*	1	0.6289
IoSf Community	0.4737	0.0079	-0.0086	0.0081	0.6486*	0.5454	0.1785	0.3429	0.6868*	0.6490	0.6239	0.6289	1

9 Due to space limitations, “Index of Satisfaction from” is abbreviated as IoSf. Same abbreviation can be noticed throughout the text.

10 In this pairwise correlation table, the observation of IoSf Municipal Services in year 2013 is omitted due to a scale change.

2.4. Subjective Well-Being in Turkey

To the extent of my knowledge, there exists no study that investigates the evolution of the well-being of Turkish people by employing subjective indicators. This study may be called pioneer in this manner. Before introducing the indexes and their respective results, it is important to remind that, these indexes and results are bound with the limitations of the dataset. Thus, it is always possible to find close but different results with an alteration in the chosen indicators or in their respective weights. Yet, two alternative indices will be constructed for robustness check to avoid critics that may claim this study is built on arbitrary principals as much as possible. As mentioned in Section 2.2.3, a comparison of variable sets is essential due to variations in the contents of the surveys because there exists cultural differences among Australia, Bhutan and Turkey (Giddens, 2013, p. 280). This comparison is depicted in Table 2.7.

Table 2.7 Comparison of Various Surveys.

Name of the Survey	Domains
Gross National Happiness (Ura, Alkire, Zangmo, & Wangdi, 2012)	Psychological Well-Being, Health, Education, Culture, Time Use, Good Governance, Community Vitality, Ecological Diversity and Resilience, Living Standards
Most Frequently Used Domains (Cummins R. , 1996)	Material Well-Being, Health, Productivity, Intimacy, Safety, Community, Emotional Well-Being
Australian Unity Well-Being Index (Cummins et. al., 2003)	Standard of Living, Health, Achieve in Life, Personal Relationships, How Safe You Feel, Community Connectedness, Future Security Economic Situation, State of the Environment, Social Conditions
British Household Survey Panel (Van Praag & Ferrer-i-Carbonell, 2008)	Job, Financial, Health, Housing, Leisure (Amount), Leisure (Use), Social-Life, Marriage, General Satisfaction "Life As A Whole"
German Socio-Economic Panel (Van Praag & Ferrer-i-Carbonell, 2008)	Job, Financial, Health, Housing, Leisure, Environment, General Satisfaction
Subjective Well-Being Index	Overall Happiness, Hope and Expectations, Job, Income, Health, Public Services, Safety, Community

2.4.1. Composition of SWBIs

In this section, the differences between three scenarios, and the similarities between constructed indexes and their originals will be discussed. In Table 2.8, the scenario settings are depicted. As can be seen, Scenario 1 (Baseline) assigns equal weights to each domain while Scenario 2 assigns equal weights to each indicator employed in national/individual groupings. Scenario 3 differs from former two by assigning different weights dictated by the results of factor analysis.

Moreover, since each scenario approaches well-being in a unique way, indicators are grouped differently for the settings of each scenario. Note that Bhutan's original GNH involves 9 domains (see Table 2.3) while, in this study, baseline index (Scenario 1) involves only 6 domains. Table 2.9 presents these domains. The Scenario 2 (S2) imitates AUWBI and the original index breaks 10 indicators down to National (3) and Individual (7) groupings. However, in this study available indicators differ from the original, and 6 of the 13 indicators will be allocated to the S2 National and the rest to the S2 Individual groupings. These groupings are presented in Table 2.10 and 2.11, respectively. Scenario 3 (S3) does not differ from previous scenarios on indicator groupings, thus, there is no need for a depiction of groupings. The weights employed in Scenario 3 are depicted in Table 2.12, in contrast to equal weights employed in scenarios 1 and 2.

Table 2.8 Scenario Settings.

	Indicator Construction	Indicator Weights	Grouping Construction	Domain / Indicator Weights
Scenario 1	Factor Analysis		GNH-Like	Equal
Scenario 2			Individual – National	Equal
Scenario 3			Same as first two	Factor Analysis

Table 2.9 Groupings in Scenario 1.

Domains		Indicators Included
Domain 1	Satisfaction from Income and Job	Index of Income Satisfaction, Index of Job Satisfaction
Domain 2	Psychological Well-Being	Overall Happiness, Degree of Hope, Index of Expectations from Next Year
Domain 3	Self-Reported Health	Self-Reported Health
Domain 4	Satisfaction from Government	Index of Satisfaction from Schools, Index of Satisfaction from Central Governmental Services, Index of Satisfaction from Municipal Services, Index of Satisfaction from Medical Services
Domain 5	Satisfaction from Safety	Perception of Safety (Home Alone & Walking Alone at Night at Residual Area)
Domain 6	Satisfaction from Community	Index of Satisfaction from Community (Housing, Neighbours, Neighbourhood, Friends)

Table 2.10 Groupings in AUWBI.

Groupings	Indicators Included
Individual	Standard Of Living, Health, Achieve In Life, Personal Relationships, How Safe You Feel, Community Connectedness, Future Security
National	Economic Situation, State of the Environment, Social Conditions

Table 2.11 Groupings in Scenario 2.

Groupings	Indicators Included
Individual	Index of Income Satisfaction, Index of Job Satisfaction, Overall Happiness, Degree of Hope, Index of Expectations from Next Year (Individual), Index of Satisfaction from Community
National	Index of Satisfaction from Schools, Index of Satisfaction from Central Governmental Services, Index of Satisfaction from Municipal Services, Index of Satisfaction from Medical Services, Perception of Safety, Index of Expectations from Next Year (National)

Table 2.12 Weights Assigned to Domains and Indicators in Scenarios.

Scenario / Domains - Indicators	Weights (%)	
Domains in GNH	S3 GNH	S1 GNH
Satisfaction from Income and Job	17,65	16,67
Psychological Well-Being	16,28	16,67
Self-Reported Health	17,60	16,67
Satisfaction from Government	14,76	16,67
Satisfaction from Safety	17,49	16,67
Satisfaction from Community	16,22	16,67
Indicators of Individual SWBI	S3 Individual	S2 Individual
Index of Income Satisfaction	10,93	14,29
Index of Expectations from Next Year (Individual)	10,59	14,29
Index of Job Satisfaction	9,42	14,29
Degree of Hope	10,37	14,29
Overall Happiness	8,41	14,29
Index of Satisfaction from Community	26,04	14,29
Self-Reported Health	24,24	14,29
Indicators of National SWBI	S3 National	S2 National
Index of Satisfaction from Schools	11,11	16,67
Index of Satisfaction from Central Governmental Services	9,62	16,67
Index of Satisfaction from Medical Services	9,92	16,67
Perception of Safety	11,31	16,67
Index of Satisfaction from Municipal Services	29,50	16,67
Index of Expectations from Next Year (National)	28,54	16,67

2.4.2. Outcomes of SWBIs

Under Scenario 1 (S1), following the guidelines of Bhutan's GNH index, two scores are calculated. First of them is S1 GNH which characterises how close the adult population in Turkey achieving *happiness* and the other one is called S1 Happy which shows the percentage of *happy* individuals. Higher those values are better a country's performance is and, technically, their maximum value could be 100%. Under S2two sub-indexes are computed as mentioned before. S2 Individual involves indicators that are close to individualistic well-being and S2 National involves indicators related to well-being perceived in the national level. S2 Individual and S2 National values are weighted averages of chosen indicators and those are in 0-1 scale. Under Scenario 3 (S3), S3 Happy and S3 GNH are constructed as the exact replica of S1 Happy and S1 GNH with the exception that the former two employed different weights as explained above. This is the case for S3 National and S3 Individual indexes as well. The results

of SWBI analysis are summarised in Table 2.13. Moreover, results are illustrated in Figure 2.1, 2.2 and 2.3.

Table 2.13 Results of SWBI Analysis.

Scenarios (%)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
S1 Happy [Baseline]	31,91	33,23	32,48	41,31	33,65	36,00	45,47	48,25	48,55	48,55
S1 GNH [Baseline]	54,70	55,22	55,00	61,12	56,31	57,92	64,50	66,44	66,76	66,88
S2 National	58,63	59,53	58,23	62,78	58,77	61,84	65,65	66,29	66,36	65,14
S2 Individual	59,38	58,35	58,05	59,72	57,12	56,74	60,44	60,83	61,13	60,99
S3 Happy	21,04	20,65	18,23	24,01	18,04	19,89	27,33	29,85	30,22	30,37
S3 GNH	51,00	50,80	50,03	55,01	50,81	52,19	58,10	59,97	60,29	60,52
S3 National	59,87	59,90	56,76	61,68	55,37	59,59	64,73	65,35	65,14	61,71
S3 Individual	61,67	60,90	60,64	62,25	60,25	59,87	62,81	63,00	63,28	63,21
Average Happiness	63,40	62,74	62,97	63,90	61,90	61,06	64,39	64,71	64,36	63,81

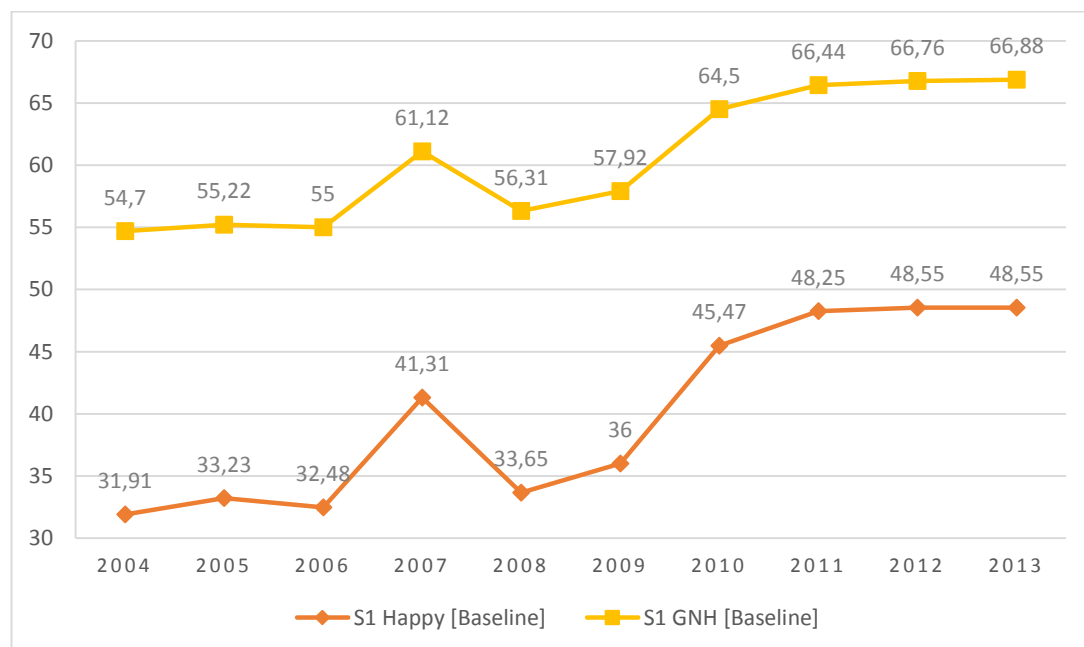


Figure 2.1 S1 Happy and S1 GNH.

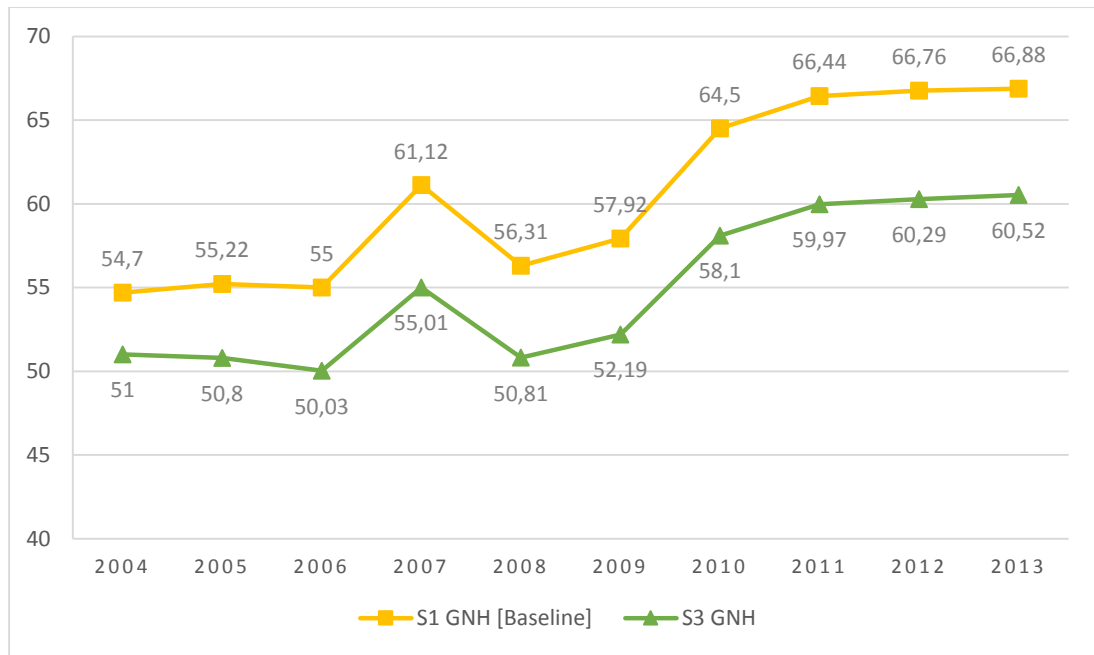


Figure 2.2 A Contrast on Different Weight Settings.

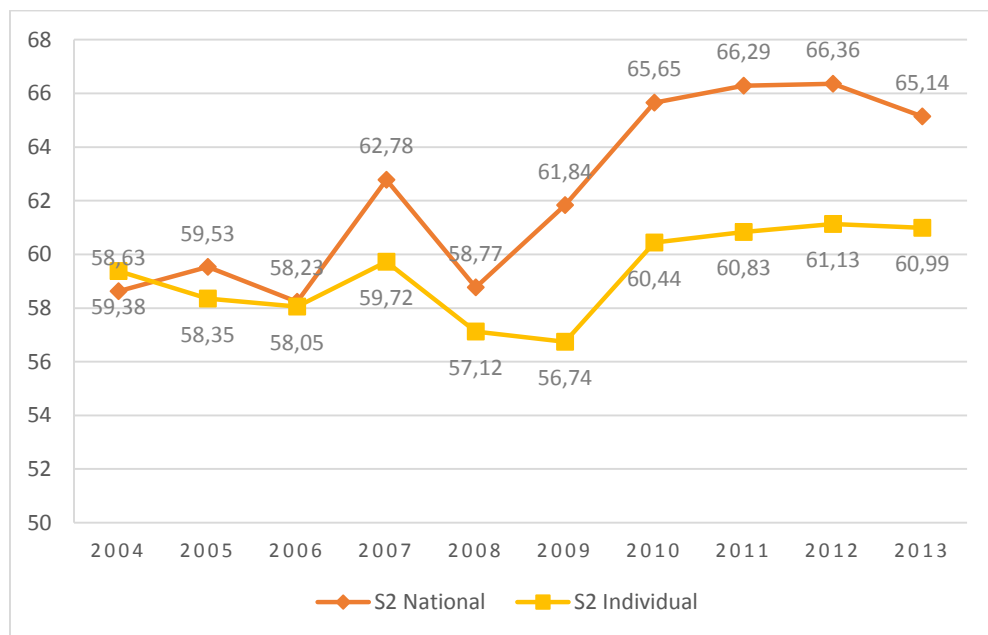


Figure 2.3 Individual and National Well-Beings.

First of all, assignment of weights will be discussed as the results of factor analysis are illustrated in Appendix, Note 2 via using SPSS 22 output files. Primarily, the results of factor analysis indicate that there is only one factor (which suggests to use an equally weighted setting) based on latent root criterion but when percentage of variance criterion (60-percent as it is usual in social sciences) is applied; the results of factor analysis suggested that there are two distinct factors among the domains of S1

while there are three distinct factors among the indicators of S2 Individual and S2 National (Hair Jr. et. al., 2009). To sum, latent root criterion confirmed the usage of equal weights while the results of percentage of variance criterion are utilised for S3.

Based on the results depicted in Table 2.13 and Figure 2.2, it is fair to argue that the change in the weights of indicators or domains did not change the trends in the results but the change is successful to alter the results in the favour of highly weighted indicators. In this study, none of employed indicators are favoured against one another, thus it is concluded that, employment of equal weights are more appropriate.

Secondarily, yearly changes in the SWBI results will be analysed. By this analysis, it is aimed to find out indicators which have the biggest effects on the SWBI of Turkish people. Based on Table 2.16, 2011 appear to be the best performing year for the Turkish economy when macroeconomic indicators are employed while the results of SWBI analysis point out that 2007 and 2010 had the biggest increases in subjective well-being of Turkish citizens. Also, macroeconomic indicators and SWBI data give contradicting results for the worst performing year. The adverse effects of crisis were perceived by SWBI data in 2008 and by macroeconomic indicators in 2009. This phenomenon may be explained via the high variance of expectations from next year index. It may be claimed that individuals in Turkey correctly foresee the potential changes in the private and social sphere one year earlier which and are also reflected in the evolution of the SWBI; and those expectations are fulfilled in the coming year.

This analysis supports the conclusions of Kahneman and Krueger (2006) because the results of subjective well-being indexes were stagnant after 2011 despite changes in economic performance, and not surprisingly, this stagnation of subjective well-being occurs after GDP per capita reaches \$10,000 in Turkey. In addition to this, the correlations among SWBIs and GDP per capita are modest while correlations with HDI are significant and high. In parallel with the literature it is concluded that, generating higher levels of income would enhance well-being up to a point. Thus, well-being should be considered multi-dimensionally.

Another possible source to investigate yearly changes is the indicators employed in the analysis. *Satisfaction from central governmental, medical and municipal services* were steadily increasing during the analysis period, except for *IoSf Municipal Services* in year 2013. Note that, the sharp decrease in *IoSf Municipal Services* was due to a

scale change (replies were converted to itemized rating scale from Yes/No scale, in 2013). For instance, in year 2007, there was a relatively high increase in the mentioned indicators (5.4 points in average) which led to a huge amelioration in the well-beings of individuals. A possible reason for this increase may be that 2007 was the year in which many reforms, especially in medical services, were enacted by the Turkish Government and huge infrastructural investments were finalized by municipal authorities. It would not be exaggerating to claim that those three indicators shouldered the increase in SWBIs during 2004-2013 period. On the other hand, especially in boom and crisis years, the changes in the levels of subjective well-being were reflected on the *expectations from next year*, plausibly due to high volatility of expectations. The importance of *expectations from next year* was mentioned earlier. In addition to this, *degree of hope* shares strong and positive correlations with SWBIs. Expectedly, it may be concluded that if individuals are optimistic towards their future, they will be less mentally stressed, which is reflected as an increase in the well-being levels.

Another comparison on the results could be made upon the divergences and the convergences upon national and individual indexes. There is not much difference between the values of National and Individual SWBI values. Hence, it may be argued that individuals in Turkey do not rate private matters and national issues differently. This result differs from the outcomes of the research made by Cummins et. al. (2003). The similarities in the results of indexes may be due to Turkey being a collectivistic society (Gökdemir, 2011) or rather the fact that individuals do not have the freedom to isolate their private life from national issues, or still being dependent on the economic and political agenda of the country. On the other hand similarity in levels disappear when volatilities are analysed. The standard deviation of S2 National and national expectations are respectively twice of S2 Individual and individual expectations, for the analysis period. Thus, it can be argued that individuals use their informal social networks (i.e. family ties, friends, community (*cemaat in Turkish*), or fellow townsman) as a shelter from the economic and politic fluctuations in the country.

Lastly, an additional analysis is made upon the correlations depicted in Table 2.14 and Table 2.15. First of all, subjective well-being indexes share a strong correlation with HDI but a modest relationship with GDP per Capita. These correlations point out the

multi-dimensionality of the indexes constructed in this study. But SWBIs do not share a significant relationship with any other macroeconomic indicator. One possible reason of this phenomenon may be the relatively low representation of job and income satisfaction in the multi-dimensional structure of subjective well-being indexes. Moreover, in Table 2.15, it is depicted that economic growth positively affects most of the indicators. Also, the results of S1 GNH and S1 Happy share a strong relationship with macroeconomic indicators while, expectedly, national and individual indexes share a high correlation only with the national and individual indicators, respectively. The results of the correlation analysis meet expectations. Correlations of SWBIs with macroeconomic indicators are depicted in Table 2.14 while pairwise correlations among indicators and well-being indexes are illustrated in Table 2.15. Then, yearly changes are displayed in Table 2.16. Meanwhile, Table 2.16 is coloured depending on the magnitude of yearly changes in the levels of indicators and indexes. Higher the increase in the indicator greener is the cell and redder vice versa. Changes around the average will be coloured as white. The results of three scenarios are similar in trends over time and share high correlations.

Finally, after reviewing outcomes of SWBI analysis and many aspects of subjective well-being indicators, it is concluded that SWBI is a robust and credible estimator of well-being in Turkey. In addition to this, as SWBI covers many aspects of life, thus it is strongly recommended to be used as a measure of well-being and for policy-making in Turkey.

Table 2.14 Correlations of SWBIs with Macroeconomic Indicators.

	Yearly Inflation (%)	Unemployment (%)	Real Growth (%)	Misery Index (%)	HDI	GDP per Capita (\$)
S1 Happy	-0.3741	-0.3007	0.0523	-0.3579	0.9696*	0.7821*
S1 GNH	-0.3730	-0.2773	0.0236	-0.3218	0.9796*	0.7978*
S2 National	-0.4754	-0.1264	0.0100	-0.2955	0.9145*	0.7292*
S2 Individual	-0.1834	-0.5649	0.4904	-0.6356	0.8805*	0.4150
S3 Happy	-0.3985	-0.3714	0.2077	-0.4552	0.9209*	0.6311
S3 GNH	-0.3845	-0.3096	0.0883	-0.3631	0.9684*	0.7432*
S3 National	-0.4920	-0.1700	0.2885	-0.4696	0.6948	0.4068
S3 Individual	-0.1834	-0.5288	0.4277	-0.5850	0.9114*	0.4939
Av. Hap.	-0.0399	-0.6281	0.6645*	-0.7735*	0.7958	0.3244

Note: Relationships which are significant at %5 level are marked with a star.

Table 2.15 Pairwise Correlations among Indicators and Well-Being Indexes.

Indicators	Overall Happiness	GDP Per Capita	S1 Happy	S1 GNH	S2 National	S2 Individual	S3 Happy	S3 GNH	S3 National	S3 Individual
Degree of Hope	0.8163*	0.6518*	0.9708*	0.9656*	0.9373*	0.9325*	0.9974*	0.9859*	0.8830*	0.9533*
Io Expectations from Next Year	0.7643*	-0.1354	0.4830	0.4563	0.4773	0.8094*	0.6655*	0.5348	0.7176*	0.7594*
<i>Individual</i>	<i>0.7672*</i>	<i>-0.2011</i>	<i>0.4101</i>	<i>0.3810</i>	<i>0.3885</i>	<i>0.7845*</i>	<i>0.5976</i>	<i>0.4610</i>	<i>0.6433*</i>	<i>0.7276*</i>
<i>National</i>	<i>0.7610*</i>	<i>-0.1137</i>	<i>0.5003</i>	<i>0.4744</i>	<i>0.4980</i>	<i>0.8138*</i>	<i>0.6830*</i>	<i>0.5532</i>	<i>0.7342*</i>	<i>0.7660*</i>
Self-Reported Health	0.6998*	0.8243*	0.9674*	0.9701*	0.9426*	0.8135*	0.9295*	0.9638*	0.8055*	0.8648*
Io Job Satisfaction	0.4972	0.7557*	0.8457*	0.8561*	0.7549*	0.6782*	0.8092*	0.8526*	0.5044	0.7166*
Io Income Satisfaction	0.5526	0.1962	0.1980	0.1936	0.1436	0.4004	0.2255	0.2089	0.2467	0.3974
IoSf Schools	0.4778	0.7027*	0.8682*	0.8821*	0.8413*	0.6524*	0.8322*	0.8782*	0.6581*	0.6825*
IoSf Central Governmental Services	0.4825	0.9241*	0.9318*	0.9412*	0.9187*	0.6015	0.8167*	0.9021*	0.6744*	0.6693*
IoSf Municipal Services*2	0.3541	0.8526*	0.8026*	0.8192*	0.8067*	0.4688	0.7050*	0.7894*	0.6264	0.5551
IoSf Medical Services	0.2749	0.9397*	0.8234*	0.8365*	0.8265*	0.3951	0.6649*	0.7775*	0.5310	0.4727
Perception of Safety	0.4507	0.8847*	0.8874*	0.9049*	0.8877*	0.5696	0.7793*	0.8706*	0.6569*	0.6354*
IoSf Community	0.3868	0.6795*	0.5819	0.5845	0.5296	0.4131	0.4556	0.5378	0.3245	0.4891

Note: Relationships which are significant at %5 level are marked with a star.

Table 2.16 Yearly Changes in Indexes and Indicators.

Subjective Indexes (Changes in 0-100 scale)	2005-2004	2006-2005	2007-2006	2008-2007	2009-2008	2010-2009	2011-2010	2012-2011	2013-2012	Std. Deviation	Total Change
S1 Happy [Baseline]	1,32	-0,75	8,83	-7,66	2,35	9,47	2,78	0,30	0,00	4,84	16,64
S1 GNH [Baseline]	0,52	-0,22	6,12	-4,81	1,61	6,58	1,94	0,32	0,12	3,24	12,18
S2 National	0,90	-1,30	4,55	-4,01	3,07	3,81	0,64	0,07	-1,22	2,59	6,51
S2 Individual	-1,03	-0,30	1,67	-2,60	-0,38	3,70	0,39	0,30	-0,14	1,65	1,61
S3 Happy	-0,39	-2,42	5,78	-5,97	1,85	7,44	2,52	0,37	0,15	3,81	9,33
S3 GNH	-0,20	-0,77	4,98	-4,20	1,38	5,91	1,87	0,32	0,23	2,86	9,52
S3 National	0,03	-3,14	4,92	-6,31	4,22	5,14	0,62	-0,21	-3,43	3,80	1,84
S3 Individual	-0,77	-0,26	1,61	-2,00	-0,38	2,94	0,19	0,28	-0,07	1,33	1,54
Subjective Indicators (Changes in 0-100 scale)	2005-2004	2006-2005	2007-2006	2008-2007	2009-2008	2010-2009	2011-2010	2012-2011	2013-2012	Std. Deviation	Total Change
Average Happiness	-0,66	0,23	0,93	-2,00	-0,84	3,33	0,32	-0,35	-0,55	1,40	0,41
Degree of Hope	-0,21	-1,14	3,39	-3,46	0,55	4,96	1,18	0,78	-0,31	2,31	5,74
Io Expectations of Next Year	-2,67	-6,40	4,13	-14,96	7,00	10,52	0,61	-0,68	1,98	7,10	-0,47
<i>Individual</i>	-2,24	-3,28	2,21	-11,00	3,89	7,90	0,35	-0,28	1,42	4,96	-1,03
<i>National</i>	-3,32	-10,62	6,56	-20,52	9,91	14,83	1,38	-1,52	2,98	10,11	-0,32
Self-Reported Health	0,03	-0,48	1,85	-0,68	-0,42	2,02	-0,17	0,51	-0,27	0,95	2,39
Io Job Satisfaction	0,06	2,93	0,96	-0,96	-0,14	5,09	-0,32	0,98	8,36	2,89	16,96
Io Income Satisfaction	-2,42	1,05	0,97	0,88	-4,89	3,56	1,32	0,79	-4,41	2,71	-3,15
IoSf Schools	-1,65	2,59	-0,08	-0,67	2,59	-0,39	2,71	1,64	-0,87	1,62	5,87
IoSf Central Governmental Services	1,06	0,75	3,91	-1,42	0,70	2,22	0,85	-0,28	0,43	1,41	8,22
IoSf Municipal Services	0,07	-1,98	4,60	0,25	-0,85	1,36	0,19	0,39	-15,08	5,18	-11,05
IoSf Medical Services	7,44	1,63	7,61	-0,24	2,46	2,13	0,21	1,41	-0,24	2,85	22,41
Perception of Safety	-1,57	2,14	2,74	0,08	0,73	1,92	0,70	0,13	-0,81	1,33	6,06
IoSf Community	-0,26	0,26	1,00	-0,54	-0,31	0,52	-0,32	-0,07	0,38	0,47	0,66
Objective Indicators (%)	2005	2006	2007	2008	2009	2010	2011	2012	2013	Std. Deviation	Average
Economic Growth Rate	8,40	6,89	4,67	0,66	-4,83	9,16	8,77	2,13	4,12	4,33	4,44
Level of Misery Index	9,26	11,74	13,27	19,81	24,13	10,54	6,80	15,20	12,41	5,07	13,68

3. DETERMINANTS OF HAPPINESS IN TURKEY

In Part 3, determinants of happiness will be investigated. First, a thorough investigation of the determinants of happiness in the literature will be made. However, the presentation of the results in Turkish literature will be postponed until Chapter 3.4 in order to discuss the similarities and differences with the results found in this study. In section 3.2, ordered logistic regression and how it is employed in this study will be discussed. Next, the descriptive statistics of the variables used in this analysis will be introduced. Lastly, the outcomes of the analysis will be presented and compared with previous findings in the Turkish literature.

3.1. Determinants of Happiness in the Literature

The growing dissatisfaction from GDP per capita as an indicator of well-being pushed scholars to explore better ways to measure well-being. Thus, happiness and subjective well-being studies started to attract attention both from academia and governments for policymaking purposes. Happiness is a relatively new topic in Economics literature, but it is quickly growing (Kahneman and Krueger, 2006).

One of the primary studies in this area is conducted by Easterlin (1974), which gave birth to famous Easterlin Paradox. Easterlin Paradox suggests that increasing income should not necessarily lead to an increase in happiness. Based on this paradox, it is argued that an enhancement in material conditions of individuals could only lead to a temporary increase in their happiness because human beings have a high capacity to adapt the changes in their lives (Veenhoven, 1991; Frey and Stutzer, 2002; Graham, 2005; Kahneman and Krueger, 2006; Van Praag and Ferrer-i-Carbonell, 2008; Giddens, 2013, p.57). Kahneman and Krueger (2006, p. 15) depicts that individuals adapt the changes in their life on the example of marriage. Based on the data taken from German Socioeconomic Panel, although getting married makes German woman happier in their year of marriage, in average, they adapt the changes in their marital status and, hence, they return to their original levels of happiness. The explained

phenomenon is called *hedonic/aspirations treadmill*. Veenhoven (1991, p. 5) also notes that raising material conditions of everyone will not make a society happier as individuals make their comparisons with others. Similarly, Sirgy (1998) indicates that happiness depends on the gap between individuals' current level and his or her desired level. See Figure 3.1 for a depiction of Easterlin Paradox.

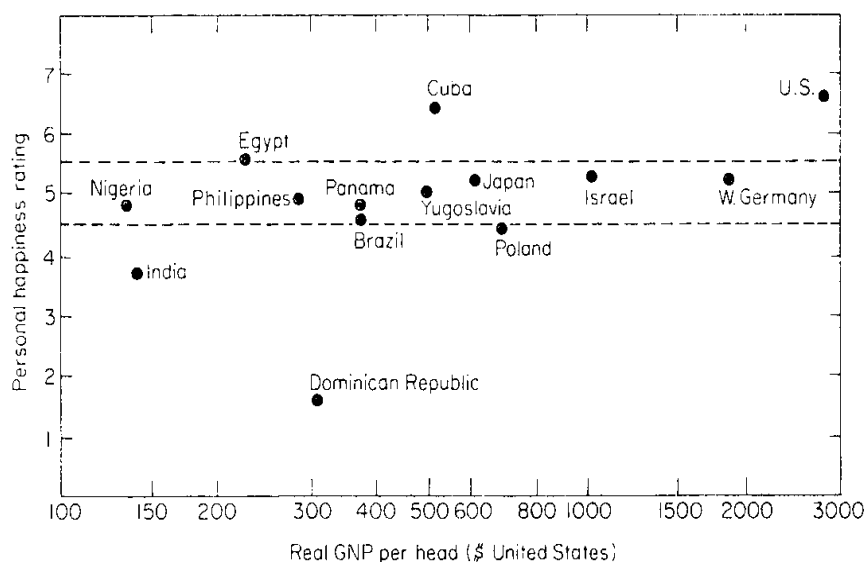


Figure 3.1 Personal Happiness Rating and GNP per Head. Source: Easterlin (1974).

While happiness results are suggested to be good guides for policy making, there is a controversy for the definition of happiness both in and out of the economics literature. See (Veenhoven, 2000) for a review on different definitions of happiness. Veenhoven (1991; 1993) suggests that overall happiness is the level of how an individual perceives his or her own status of life as-a-whole favourably. On the other hand, Frey and Stutzer (2002, pp. 3, 10-11) argues that each individual may define happiness in a various way. In addition to this, Frey and Stutzer defines five factors of happiness as; *personality, socio-demographic, economic, contextual and situational*, and *institutional*. Furthermore, some studies (Veenhoven, 1991) take happiness as a synonym for subjective well-being or life satisfaction while in some studies (OECD, 2013) it is considered as only one of the dimensions of subjective well-being. On the other hand, some studies (Veenhoven, 1993; Frey and Stutzer, 2002) differentiate life satisfaction from happiness. Veenhoven (2000) mentions that well-being is used to indicate the degree of quality-of-life and gauge the level of life-aspects such as housing or employment conditions.

In this part, happiness is isolated from subjective well-being and analysed separately. However, in the first part, happiness was considered to be a dimension of subjective well-being under the domain of psychological well-being. Besides, happiness will be considered as the outcome of extrinsic comparisons (which are comparisons in regard to reference group) and fulfilment of intrinsic expectations (which are needs and desires) of individuals while subjective well-being is considered as a sum of how an individual perceives various aspects of life.

Happiness is measured via survey questions (i.e. TURKSTAT, 2013; World Values Survey, 2012). See Veenhoven (1993) for a list of different survey questions directed and answer scales faced by the participants in happiness and life-satisfaction surveys. OECD (2013) indicates that, a large number of developed countries had started or will start collecting subjective well-being data on the perception that happiness surveys can be used as a guide for effective policy-making. Furthermore, the results of those surveys have been taking attention of researchers as it is claimed that happiness is the catalyst for the economic development for a society (Veenhoven, 1988, pp. 1,3). Republic of Turkey has been collecting happiness data via TURKSTAT's LSS data since 2003, which is employed in this study.

Recent studies focus on socio-demographic determinants such as *age, marital status, gender and level of education*, economic determinants such as *income or employment status* of an individual, and institutional determinants such as *level of freedom and, degree of trust*, while investigating the determinants of happiness. From now on, previous findings in the literature on happiness and its determinants will be investigated. However, the discussion about the findings on the determinants of happiness in the Turkish literature is postponed for Chapter 3.4 as the results of this study will be compared to them.

As mentioned above, the relationship of income and happiness is controversial. Although most of the studies point out a positive relationship between income and happiness at a given time (Easterlin, 2001, p. 4), the general opinion in the literature, for the relationship of income and happiness is that happiness is not directly affected by income but with income rank (Kahneman and Krueger, 2006, p. 6) or relative income in regards to one's aspirations (Easterlin, 1995; 2001; Kahneman and Krueger, 2006; Dumludağ, Gökdemir and Vendrik, 2014). Another study indicates that, within

a society, a higher level of income should lead to a higher level of happiness for individuals; but most probably, raising every individuals' income to a higher level will not make the society happier (Easterlin, 1995). For instance, Easterlin finds out that despite a huge improvement in economic conditions; the average happiness of American (1974) or Japanese (1995) people did not change. Furthermore, Kahneman and Krueger (2006, p. 13) points out that a %250 increase in real income per capita in China, during 1994-2005 period, did not make Chinese happier, moreover, the percentage of unhappy people increased.

On the other hand, cross-country comparisons point out that, on average, countries with a higher GDP are happier than the others. But despite the monotonic relationship between income and happiness among nations hold, when GDP per capita exceeds \$10,000, the marginal effect of GDP on happiness diminishes (Pindyck and Rubenfield, 2013, p. 81). Also, until basic requirements of life are met, happiness level of an individual will raise according to his material possessions, but, after one secures her basic needs, relative income and aspirations will become more important for her (Graham, 2005; Gökdemir, 2011). Another study suggests that, if increasing income would help individuals spare their time towards their liking; then it would help people become happier (OECD, 2013). Thus, time use is also in a key position for determining the relationship of income and happiness.

Employment and inflation are two other policy-related indicators. Nearly all studies find a negative relationship between unemployment and happiness (Clark and Oswald, 1994; Oswald, 1997; Frey and Stutzer, 2000; 2002; Di Tella and MacCulloch, 2006; Gökdemir, 2011). Moreover some of these studies show that, even unemployed people are compensated for their loss of income, they are still unhappier than employed individuals. Frey and Stutzer (2002) finds out that happy people are more successful in both job market and their careers. For the employed, it is found that job satisfaction is a key factor determining the subsequent turnover of workers (Kahneman and Krueger, 2006). On the contrary, Peiro (2007) finds out that unemployment has a negative relationship with life and financial satisfaction while it has no relationship with happiness.

Even, individuals may be unhappy about high unemployment even if themselves are not unemployed; general unemployment may affect individuals badly just like

inflation does. Gökdemir (2011) points out that increasing inflation had happiness diminished during 1975-1991 period in twelve European countries. Frey and Stutzer (2000) claims that a point increase in unemployment must be compensated with a 1.7 percent decrease in inflation. In conclusion, two major macroeconomic indicators, unemployment and inflation, have an adverse relationship with happiness.

Another recent study concludes that well-being loss from losing a job can be compensated via \$60,000 while it takes \$100,000 to compensate divorce (Blanchflower and Oswald, 2004). Many studies point out that married people are, in average, happier than single and divorced individuals (Requena, 1995; Oswald, 1997; Peiro, 2007; Gökdemir, 2011). Erbes and Hedderson (1984) indicates that the causality runs from happiness to marriage- or unhappiness to divorce- not the other way round. Another study concludes that married people has the lowest level of mental distress (Clark and Oswald, 1994). Also, Frey and Stutzer (2002) claims that people who are not married but have a partner are happier than alone individuals. To sum, it is argued that, alone individuals are unhappier than individuals who have a partner in their life.

Furthermore, other socio-demographic variables like sex, education and age are also of interest to happiness studies. Despite there are some contradicting results, the conclusions of previous studies in happiness literature about socio-demographic variables can be summarised as: In average, woman are happier than man; age has a U-shaped relation with happiness while minimum happiness is located around at middle ages; and education bears no significant relationship with happiness (Veenhoven, 1991; Clark and Oswald, 1994; Oswald, 1997; Frey and Stutzer, 2002; Peiro, 2007; Gökdemir, 2011; Cuñado and de Gracia, 2012)

There are, also, other domains of life which affects individuals' happiness such as *health, housing, friendship* and *personal safety*. Health can also be measured subjectively via survey questions. Veenhoven (1991) claims that happier people feel more healthy and even happiness may extend one's life. Moreover Frey and Stutzer (2002) concludes that health is the most important area for individuals in their lives and there's a high correlation between *self-reported health* and happiness. Peiro (2007) also finds that bad health is negatively associated with happiness with a study on 15 nations. On the other hand, Healy (2003) depicts satisfaction from housing is to be one of the key indicators of happiness and has a high, positive correlation with

happiness, especially for elder populations. Another study displays that, in United States of America and Spain, friendship and happiness have a strong and positive relationship (Requena, 1995). Further, Michalos and Zumbo (2000) concludes that happiness have a positive correlation with their satisfaction of personal safety and neighbourhood as there is a negative but modest correlation with being a victim.

In addition to this, culture, religion and the structure of a society in general also have a significant relationship with happiness. Gökdemir (2011) indicates that, although there are no significant differences between nationalities, being a member of an individualistic society have a positive relationship with subjective well-being. Additionally, Sirgy (1998) points out that increasing tendency to materialistic virtues result with a higher desire to consume, and if this desire is not satisfied, than, people tend to become unhappier. On the other hand, Frey and Stutzer (2002) concludes that even though the effect is small, *believing in God* positively affects happiness.

Lastly, but not least, let us focus on the relationship between freedom and happiness of individuals. In a study covering 46 nations, Veenhoven (2000) builds the relationship between happiness and freedom based on individuals', or respectively their nations', capability to give decisions, or maturity. Veenhoven finds out that in poor nations, there's a strong, positive relationship between happiness and economic freedom while there's no significant relationship between happiness and comprehensive freedom¹¹. On the other hand, in rich countries, comprehensive freedom has a significant, positive relationship but economic freedom do not share a significant relationship with happiness. Moreover, Frey and Stutzer (2000) claims that happiness and political stability have a close relationship, and with data on the residents of Switzerland, it is found out that both the development of institutions and the degree of government decentralisation have a positive effect on Swiss people's happiness (Frey and Stutzer, 2002). Graham (2005), also, concludes that both trust and freedoms in one's life has a positive effect on her happiness.

¹¹ Comprehensive freedom is defined as a sum of political, economic and personal freedoms in the mentioned research

3.2. Ordered Logistic Regression

The aim of this analysis is to uncover the determinants of happiness in Turkey for the 2004-2013 period. In this part, same dataset employed in the first part is used. However, due to differences in the methodologies, variables employed in ordered logistic regression are subject to a different transformation. Since the variables derived from LSS are not continuous but in interval scale, dummy variables will be needed in order to perform ordered logit analysis. Thus, every possible answer of selected questions are converted into step-dummies for the analysis. The list of separate variables, and their detailed characteristics are presented in Appendix, Table A.3 and descriptive statistics of the variables employed in the analysis are presented in Table 3.3 and Table 3.4.

Happiness data is derived from survey questions which are not continuous unlike many economic indicators. Thus, It is very common to use ordered logit analysis- or ordered probit analysis- within happiness economics literature due to employment of discrete data (van Praag, Frijters and Ferrer-i-Carbonell, 2003; Graham, 2005; Peiro, 2007). Consequently, ordered logistic regression is preferred in this study also. As the independent variable in the analysis is not continuous, logistic regression analysis does not directly estimate dependent variable but uses a latent variable to estimate independent variables. Dichotomous dependent variable (for instance yes/no questions) is estimated 1 if the estimation of latent variable is above the threshold, otherwise 0. The estimation model can be depicted as Equation 3.1 or Equation 3.2.

$$E (Y_i = 1 | X_i) = P_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 * X)}} \quad (3.1)$$

$$\ln \left(\frac{P_i}{1 - P_i} \right) = \beta_0 + \sum_{i=1}^n \beta_{ij} * X_{ij} \quad (3.2)$$

In these equations, Y_i , P_i and X_{ij} respectively stands for the dependent variable, the probability of Y happening and the independent variables. Logistic regression estimations are calculated via maximum likelihood methodology and the performance of the analysis can be calculated via specially designed Pseudo- R^2 values for logit analysis or Akaike Information Criteria values.

Besides, logistic regression can be operated not only for dichotomous variables but also for multinomial and ordered scales. In this part, the dependent variable, *happiness*, is an ordered variable (ranging from 1 Very Happy to 5 Not Happy at All), thus, ordered logistic regression will be discussed briefly. Like logit analysis, ordered logit analysis also depends on latent variable during estimation. After latent variable is estimated, based on the values of estimates; cut (threshold) values are estimated. But, as there are more than two categories; probabilities will be calculated in contrast to base category and there will be J-1 cut values in which J represent the number of steps in the dependent variable. Equation 3.5 depicts an exemplary equation. In ordered logit analysis, if estimated latent variable is below all thresholds; than (real) dependent variable will be estimated as base category, and, if latent variable is below j^{th} cut value but higher than the $(j-1)^{\text{th}}$ cut value, than (real) dependent variable will be estimated as j^{th} category. In addition to this, Graham (2005) states that within the logit or probit regression; known socio-demographic and economic variables are independent variables, while happiness is the dependent variable, and, unobserved characteristics are stored within error term. See Franses and Paap (2004) or Greene (2008) for further information about ordered logit analysis.

$$\ln \left(\frac{P(Y_i=j | X_i)}{P(Y_i=J | X_i)} \right) = \sum_{i=1}^n \beta_{ij} * X_{ij} \quad (3.5)$$

In this part, in order to determine the best model for each dataset; the following steps are adopted: (1) For each data set, primarily, a separate regression of happiness employing only control variables will be run to test if they are significant. When the significance of these variables are proven beyond doubt, separate regressions of other variables are conducted with control variables. (2) The relationships of each separate variable with happiness will be investigated. Detailed regression results can be found in the Appendix, Note 3. (3) Ordered logit analyses will be conducted employing variable sets (variables possibly indicating same aspects of life) with control variables to avoid possible co-linearity issues. (4) A combined regression will be conducted in order to find out the determinants of happiness. In this last step, all significant variables of the third step will be used although it is known that possible co-linearity issues may arise. To overcome co-linearity issues, correlation tests among variables were conducted and this is displayed in Section 3.3.1. As will be shown later, there are no correlation above 0.80 level, thus, there is no problem to use set variables

together (Gujarati, 2003). Moreover, in order to cope with heteroscedasticity issues, “vce(robust)” option of STATA 12 will be utilised which uses robust standard errors during the analysis. It is worthy to note that, as some of the variables share a modest correlation, their coefficients may be suppressed. Thus, extra attention will be directed towards the analysis of these coefficients. Throughout the analysis, the significance of step-dummies will be determined via z-values while the significance of variables will be concluded via Wald tests¹² if z-values raise any doubt. The results of these steps will be presented in Chapter 3.4.

The results of an alternative approach is presented in Appendix, Table A.2. In this alternative methodology, in each yearly and pooled datasets, all available variables are employed not seeking whether they are practically or statistically significant or not. This secondary analysis is conducted to provide consistency among datasets and it is aimed to increase the comparability of the effects of variables among different datasets. Adoption of second methodology led to slight improvements in Pseudo R² values although these regressions are bound to suffer from multi co-linearity issues.

3.3. Descriptive Statistics

Descriptive statistics of the aforementioned variables will be depicted in this section. Firstly, the trend of happiness over time and its correlations with macroeconomic variables will be depicted. Secondly, the variables and their respective step-dummies will be presented with their percentage frequencies. In this analysis, there are five variable sets in the analysis: Control variables (*sex, age, age-squared, education, marital status * satisfaction from marriage, status of employment * satisfaction from employment*), hope variables (*comparison to 5 years in the past, expectations from 5 years in the future, degree of hope*), income variables (*household income level- income brackets, household income sufficiency, household income satisfaction, subjective welfare*), community variables (*satisfaction from housing, residential area, friends and neighbours*) and safety variables (*perception of safety when home alone, walking alone in the night*). In addition to these sets, there were two more separate variables; *adoption of materialistic virtues* and *self-reported health*.

¹² Wald tests are used to test hypotheses, such as if $b_i = b_j = 0$, in non-linear regressions.

3.3.1. Happiness and its macroeconomic correlations

In this section the pairwise correlation of happiness with macroeconomic indicators are investigated. For this analysis, required data were collected from TURKSTAT (2015) and United Nations Development Programme (UNDP, 2015) database for years 2004-2013. For such a practical and easily interpretable analysis, a larger set of indicators may be reviewed but only inflation, unemployment, real growth, misery index, human development index and GDP per capita are preferred. Misery index is calculated by deducting real growth rates from the sum of unemployment rates and inflation rates. The results of this analysis are depicted in Table 3.2 while descriptive statistics of employed variables are displayed in Table 3.1. Note: In Table 3.2, cells with a star represent a statistically significant relationship at 10% level. A quick review on this data depicts the harsh effects of global financial crisis years (2008-2009) on both misery index and happiness. Moreover, the relationship of average happiness and macroeconomic indicators are stronger than the relationship of percentage of *happy* individuals and macroeconomic indicators; thus it may be recommended as a better policy indicator. Moreover, overall happiness is depicted in Figure 3.2.

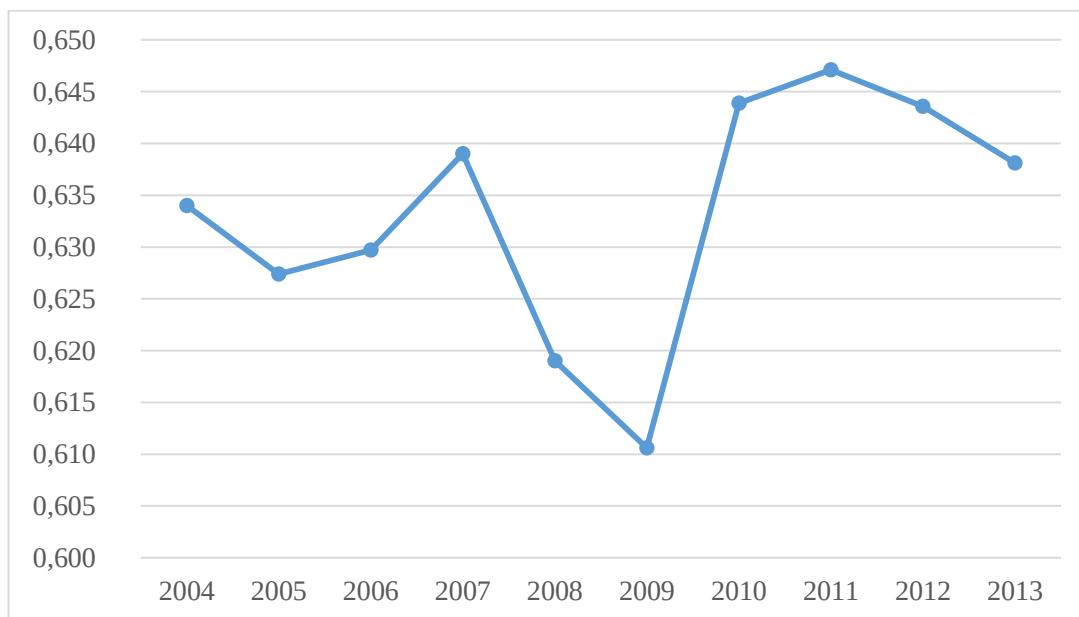


Figure 3.2 Overall Happiness over Years.

Frey and Stutzer (2002, pp. 29, 127, 128) present conflicting results for the relationship of happiness and inflation while the literature is consistent for the negative relationship between happiness and being unemployed (Oswald, 1997; Frey and Stutzer, 2000; 2002; Di Tella and MacCulloch, 2006; Gökdemir, 2011). The conclusion of this study

are in parallel with the literature: Happiness share a negative relationship with unemployment but a non-significant relationship with inflation, for the 2004-2013 period in Turkey. In addition to this; parallel to the Easterlin (1974) Paradox, average happiness do not seem to share a relationship with income per capita while income growth rates has a positive and significant relationship with happiness over time. Also, misery index has an adverse and powerful relationship with happiness. Thus, to policy makers, it is suggested to keep misery index at lower levels as much as possible to keep Turkish citizens happier.

Furthermore, in Table 3.3, the descriptive statistics of the variables employed in ordered logit analysis are portrayed. There are no transformations in this variable set unlike the variables of SWBI. In this table, for each variable, primarily the base step-dummy is presented, then other variables in ascending order. Also, it is important to note that *household income* variable employs income brackets in the survey questionnaires and those brackets change in irregular frequencies. In addition, *marital status * marriage satisfaction* and *level of employment * job satisfaction* variables were constructed in two steps. First, for each variable, population were divided by their status. Then, if an individual is employed or married; those step-dummies were further divided by using their corresponding satisfaction. Although satisfaction from job and satisfaction from marriage variables were designed to be 5-step in the original survey; those steps were reduced into three steps¹³: not satisfied (4-5), neutral (3) and satisfied (1-2).

Lastly, spearman correlations among the variables employed in the ordered logistic regression are displayed in Table 3.4. For this analysis, transformed variables of SWBI analysis were used. Although all relationships are significant; they are below 0.80 level. Thus it is concluded that there will be no co-linearity issues in the forthcoming ordered logistic regression analysis.

¹³ LSS questionnaire, generally, assigns higher values for worse situations.

Table 3.1 Descriptive Statistics of Macroeconomic Indicators.

Year	Average Happiness (0-10)	Percentage of <i>Happy</i> Individuals (%)	Yearly Inflation (%)	Unemployment (%)	Real Growth (%)	Misery Index (%)	HDI	GDP per Capita (\$)
2004	6,34	58,64	8,60	N/A	9,36	N/A	N/A	5775
2005	6,27	57,62	8,18	9,49	8,40	9,26	0,69	7035,8
2006	6,3	57,83	9,60	9,03	6,89	11,74	N/A	7596,9
2007	6,39	60,19	8,76	9,18	4,67	13,27	N/A	9247
2008	6,19	55,75	10,44	10,02	0,66	19,81	0,71	10444,4
2009	6,11	54,29	6,25	13,05	-4,83	24,13	N/A	8560,7
2010	6,44	61,15	8,57	11,13	9,16	10,54	0,74	10002,6
2011	6,47	62,09	6,47	9,10	8,77	6,80	0,75	10427,6
2012	6,44	60,95	8,89	8,43	2,13	15,20	0,76	10459,2
2013	6,38	59,02	7,49	9,04	4,12	12,41	0,76	10821,7
Source	TURKSTAT LSS, author's calculations	TURKSTAT LSS, author's calculations	TURKSTAT	TURKSTAT	TURKSTAT	TURKSTAT, author's calculations.	UNDP	TURKSTAT

Table 3.2 Pairwise Correlation Matrix of Happiness and Macroeconomic Indicators.

Pairwise Correlation Matrix	Average Happiness	Percentage of Happy and Very Happy Individuals
Average Happiness	-	0,991*
Percentage of <i>Happy</i> Individuals	0,991*	-
Yearly Inflation	-0,039	-0,073
Unemployment	-0,624*	-0,579
Real Growth	0,655*	0,649*
Misery Index	-0,764*	-0,766*
HDI	0,802*	0,723
GDP per Capita	0,329	0,330

Table 3.3 Descriptive Statistics of Variables Employed in Ordered Logit Analysis.

Variables (All values in percentage)		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Happiness	Not Happy at All	2,96	3,06	2,43	2,30	2,61	3,29	2,26	1,95	1,85	2,58
	Not Happy	10,29	10,54	9,34	9,10	11,23	11,25	8,77	8,14	8,26	8,31
	Neutral	29,73	29,76	30,44	28,81	30,89	30,14	28,63	28,11	28,87	28,79
	Happy	48,03	47,87	49,02	50,88	46,87	47,27	50,96	53,54	52,87	51,23
	Very Happy	8,98	8,76	8,77	8,91	8,40	8,06	9,38	8,25	8,16	9,09
Sex	Male	45,77	45,95	45,02	44,47	45,21	44,26	43,32	45,05	44,05	42,34
	Female	54,23	54,05	54,98	55,53	54,79	55,74	56,68	54,95	55,95	57,66
Level of Education	No Education	21,73	21,67	21,63	20,66	19,21	19,84	19,07	17,49	17,86	19,89
	Primary Ed.	53,92	54,03	53,89	53,65	53,23	52,88	52,73	53,20	50,04	51,73
	Secondary Ed.	19,42	19,18	20,12	20,18	21,22	20,36	20,99	21,59	22,25	20,57
	Tertiary Ed.	4,93	5,13	4,37	5,51	6,34	6,93	7,22	7,71	9,85	7,81
Marital Status * Satisfaction	Non-Married	24,69	24,72	22,73	23,05	23,98	25,93	24,39	24,69	23,91	23,80
	Married and Not-Satisfied	1,51	1,48	1,21	1,54	1,16	1,47	1,58	1,51	1,66	1,52
	Married and Neutral	3,86	4,83	4,70	4,35	4,56	4,48	4,28	3,79	4,17	3,28
	Married and Satisfied	69,94	68,98	71,36	71,06	70,30	68,12	69,66	70,02	70,26	71,40
Level of Employment * Satisfaction	Out of the labour force	61,14	57,60	58,75	60,29	57,11	53,91	54,87	53,01	53,26	60,34
	Unemployed	5,11	4,44	3,93	4,25	4,56	4,98	5,12	4,03	4,11	6,56
	Employed and Not-Satisfied	6,56	7,78	7,32	5,40	7,27	7,59	6,09	6,22	5,89	3,70
	Employed and Neural	4,83	5,73	5,71	5,18	5,83	6,80	6,19	6,49	6,07	3,21
Materialism	Employed and Satisfied	22,36	24,46	24,28	24,82	25,23	26,72	27,72	30,25	30,67	26,19
	Materialistic	5,90	5,23	4,59	6,12	5,74	5,09	4,38	4,06	4,50	3,94
Comparisons to 5 years before	Same	35,49	31,95	32,79	32,44	30,27	34,00	33,23	34,41	33,94	32,69
	Worse	22,28	23,83	23,83	21,90	27,69	34,87	28,16	24,59	25,96	26,89
	Better	40,65	43,02	42,09	44,63	40,54	28,98	36,40	38,67	38,57	38,36
	Not-Replied	1,58	1,20	1,29	1,03	1,50	2,15	2,21	2,33	1,53	2,06
Expectations from 5 years later	Same	37,37	33,15	34,62	36,50	31,80	35,46	32,25	33,13	34,43	31,53
	Worse	12,29	14,16	16,12	14,42	21,89	22,50	15,87	14,60	15,65	16,79
	Better	38,96	38,51	36,77	37,10	32,84	25,35	34,13	33,74	35,19	32,77
	Not-Replied	11,38	14,18	12,49	11,98	13,47	16,69	17,75	18,53	14,73	18,91
Degree of Hope	Not Hopeful At All	8,34	8,39	7,34	6,85	8,80	7,65	5,00	5,35	4,46	6,07
	Not Hopeful	25,65	25,50	27,69	22,76	26,05	26,38	22,67	20,34	18,95	16,94
	Hopeful	61,17	61,13	59,90	64,64	60,85	61,49	66,05	67,79	70,27	71,33
	Very Hopeful	4,84	4,97	5,07	5,76	4,30	4,48	6,29	6,51	6,31	5,65
Household Income	1	21,46	19,42	19,90	19,75	13,13	25,44	19,11	12,74	21,67	45,88
	2	17,25	26,12	24,07	26,37	25,60	25,48	26,84	26,81	21,46	17,35
	3	16,95	18,70	17,48	16,25	15,47	26,97	29,93	29,78	16,44	15,15
	4	20,67	17,30	22,45	22,77	27,32	15,00	16,14	20,13	16,87	12,58
	5	23,67	18,46	16,11	14,86	18,48	7,10	7,98	10,55	23,57	9,04
Household Income Sufficiency	1	21,83	23,01	17,57	18,47	19,68	17,66	13,26	12,34	11,70	18,68
	2	31,58	31,33	34,81	32,24	32,75	35,44	33,26	33,58	31,54	33,17
	3	35,81	36,03	37,30	38,17	37,65	35,66	39,08	39,75	40,87	35,47
	4	9,32	8,62	8,86	10,14	8,71	9,57	12,57	12,45	14,24	11,09
	5	1,46	1,00	1,46	0,98	1,22	1,67	1,84	1,89	1,65	1,60
Household Income Satisfaction	1	11,81	12,12	10,54	9,36	9,64	9,66	6,40	6,42	6,41	8,00
	2	32,37	31,83	30,18	29,66	31,32	32,03	30,27	29,71	29,45	28,90
	3	25,32	25,33	25,05	24,11	26,54	26,45	25,54	26,40	25,92	19,54
	4	28,52	28,78	32,52	34,54	30,72	29,22	35,43	34,95	36,29	41,53
	5	1,98	1,93	1,71	2,33	1,78	2,64	2,35	2,52	1,94	2,02

Table 3.3 Descriptive statistics of variables employed in ordered logit analysis (continued).

Variables (All values in percentage)		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Subjective Welfare	0	3,76	3,27	1,65	2,36	1,56	5,10	2,82	2,89	2,44	5,64
	1	7,18	6,64	6,65	5,53	5,60	6,20	4,40	3,95	5,20	5,83
	2	9,10	9,82	8,04	7,28	7,66	9,69	8,60	8,32	9,01	10,03
	3	14,45	16,18	12,81	12,95	12,95	16,46	15,67	14,56	14,83	14,71
	4	15,95	17,34	15,17	15,04	14,66	18,59	18,43	17,47	17,89	18,45
	5	24,08	23,49	23,45	25,77	26,39	27,39	29,02	29,89	28,93	27,94
	6	12,24	12,70	15,59	16,44	14,91	8,72	10,47	10,90	11,15	7,93
	7	6,24	5,57	8,38	7,00	7,90	4,81	5,69	7,13	6,17	4,96
	8	3,65	2,81	4,60	4,05	4,67	2,27	2,72	2,96	2,88	2,31
	9	1,64	0,89	1,79	1,68	1,66	0,00	0,70	0,79	0,50	0,88
	10	1,71	1,29	1,87	1,91	2,04	0,77	1,49	1,15	0,99	1,32
Housing Satisfaction	Neutral	11,51	11,24	11,50	10,80	11,66	10,88	9,98	10,19	11,04	7,77
	Not-Satisfied	15,34	15,44	15,27	13,29	13,38	13,58	12,91	12,88	11,99	12,10
	Satisfied	73,15	73,32	73,23	75,91	74,96	75,54	77,12	76,93	76,97	80,13
District Satisfaction	Neutral	7,75	8,61	9,02	7,78	8,32	8,71	8,05	7,94	7,83	6,00
	Not-Satisfied	11,27	10,18	10,42	9,39	9,53	10,42	9,21	9,55	8,18	8,35
	Satisfied	80,98	81,21	80,57	82,83	82,15	80,88	82,74	82,51	83,99	85,65
Satisfaction from Friends Network	Neutral	7,37	6,90	7,74	6,13	7,04	7,38	5,99	6,69	6,90	5,22
	Not-Satisfied	1,67	1,85	1,80	1,83	1,75	2,09	1,79	1,79	2,28	2,51
	Satisfied	90,96	91,25	90,45	92,04	91,21	90,52	92,22	91,52	90,82	92,27
Satisfaction from Neighbours	Neutral	11,25	10,91	10,95	9,76	10,47	11,05	9,81	10,80	11,27	6,86
	Not-Satisfied	5,48	4,97	4,60	3,73	4,53	4,88	4,63	5,58	4,93	4,39
	Satisfied	83,27	84,12	84,45	86,51	85,00	84,07	85,57	83,62	83,80	88,75
Self-Reported Health	1	3,10	3,02	3,39	2,69	2,55	3,15	1,98	2,21	1,94	2,45
	2	15,73	15,65	14,86	14,47	14,12	13,94	12,92	13,21	11,92	13,83
	3	17,35	18,65	18,87	17,82	19,89	18,21	18,36	17,01	18,31	14,13
	4	56,02	54,60	54,40	55,50	54,94	56,11	57,62	59,41	60,34	62,96
	5	7,80	8,08	8,47	9,53	8,49	8,59	9,12	8,17	7,49	6,63
Perception of Safety I	Neutral	15,24	15,71	18,80	14,73	16,18	15,05	12,48	11,20	11,63	10,94
	Not-Safe	13,08	14,32	12,53	9,62	9,33	10,22	8,62	8,50	7,04	7,68
	Safe	71,68	69,97	68,67	75,64	74,49	74,73	78,90	80,31	81,33	81,38
Perception of Safety II	Neutral	17,80	16,61	17,88	17,34	19,64	18,65	16,62	15,54	17,42	13,51
	Not-Safe	34,30	38,44	36,85	32,23	28,75	29,61	25,62	25,49	24,16	23,93
	Safe	47,90	44,95	45,27	50,43	51,60	51,75	57,76	58,97	58,42	62,55

Table 3.4 Spearman Correlations of Set Variables Employed in Ordered Logistic Regression.

VARIABLES	Comparison to 5years before	Expectations from 5years after	Degree of Hope	Income Brackets	Household Income Sufficiency	Household Income Sat	Subjective Welfare	Sat from Housing	Sat from Neighbourhood	Sat from Friends	Sat from Neighbours	Sat from Safety HA	Sat from Safety WA
Comparison to 5years before	1	0.4589*	0.3311*										
Expectations from 5years after	0.4589*	1	0.2648*										
Degree of Hope	0.3311*	0.2648*	1										
Income Brackets				1	0.4350*	0.2800*	0.3467*						
Household Income Sufficiency				0.4350*	1	0.4600*	0.3589*						
Household Income Sat				0.2800*	0.4600*	1	0.3422*						
Subjective Welfare				0.3467*	0.3589*	0.3422*	1						
Sat from Housing								1	0.4497*	0.2139*	0.2287*		
Sat from Neighbourhood								0.4497*	1	0.2874*	0.3723*		
Sat from Friends								0.2139*	0.2874*	1	0.6248*		
Sat from Neighbours								0.2287*	0.3723*	0.6248*	1		
Sat from Safety HA												1	0.5428*
Sat from Safety WA												0.5428*	1

3.4. Determinants of Happiness in Turkey

In this section, the results of ordered logistic regression will be discussed. Ordered logit analysis were conducted to each year's data separately in order to determine possible changes in the determinants of happiness among years and two pooled data sets; 2004-2012 period and 2004-2013 period to visualize the bigger picture clearer. In the first pooled dataset, year 2013's data is omitted due to relatively high number of observations in contrast to previous years which may alter the results in favour of the effects in year 2013- this situation was depicted in Table 2.4. Moreover, results of an alternative ordered logistic regression approach is handed out in Appendix, Table A.3. The regressions were run using, statistical package program, Stata 12 and the methodological steps taken during these analyses were also portrayed in Stata Log-files, which are published online. See Appendix, Note 3 for details.

Despite, there is a large literature of determinants of happiness worldwide; the results of this study will only be compared to previous findings in Turkish literature- although there is only a handful amount of studies conducted in Turkey. Those studies mostly employ either TURKSTAT's LSS data or, European or World Values Surveys' data. Previous studies are summarised in Table 3.5 while Table 3.6 depicts the final regression for each year as mentioned in Section 3.2.

In Table 3.5, (+) represents a positive relationship between happiness and mentioned variable while (-) shows the opposite. Moreover, (U) states a U-shaped relationship with happiness as (ns) states the relationship is insignificant.

Table 3.5 Previous Findings in Turkish Literature.

Author	Data Set	Results
Gitmez and Morçöl (1994)	Own Data	Socio-economic status affects life satisfaction positively.
Selim (2008)	European Values Survey	Age (-), Income (+), Health (+), Unemployment (-), Married (+), Number of Children (-), Education (NS), Men(-)
Akın and Şentürk (2012)	European Quality of Life Survey	Men (+), Married (+), Age (U), Education (-), Health (+)
Atay (2012)	World Values Survey	HDI (+), Index of Economic Freedom(+), Age (-), Woman (+), Married (+), Religious (+), Income(+), Education(+), Living in Urban (+), Unemployment (-)
Selim (2012)	European Values Survey and World Values Survey	Men (-), Married (+), Age (-), Living in Urban (+), Wealth (ns), Unemployment (-), Institutional Trust (ns)
Esmer (2012)	European Values Survey	Marriage (+), Income (+), Political View (ns)
Ekici and Koydemir (2013)	European Values Survey	Trust (+), Satisfaction from Government (+), Men (-), Married (+), Age (-), Religion (ns), Unemployment (+) due to job satisfaction
Dumludağ (2013)	Life in Transition Survey	Age (+), Men (+), Health (+), Education (+), Married (+), Household Consumption (+), Unemployment (-)
Bozkuş et al. (2006)	TURKSTAT LSS 2004	Health (+), Woman (+), Income(+), Married (+), Living in Urban (+), Education (-)
Selim (2008)	TURKSTAT LSS 2004	Investigated the roots of happiness such as marriage or wealth and found out that significant socio-economic indicators change with the root that is important to individual.
Şeker (2009)	TURKSTAT LSS 2003-2007	A descriptive study based on TURKSTAT data.
Babadağ et al. (2009)	TURKSTAT LSS 2003-2007	Degree of Hope (+), Income (+), Married (+)
Bülbül and Giray (2011)	TURKSTAT LSS 2008	Income (+), Married (+), Education (+)
Kangal (2013)	TURKSTAT LSS 2010	Woman (+), Married (+), Education (+)
Caner (2014)	TURKSTAT LSS 2003-2011	Age (U), Male (-), Unemployment (-), Comparison Effects and Expectations
Dumludağ et al. (2015)	TURKSTAT LSS 2011	Income (+), Living in Rural (+), Married (+), Age (U), Education (Non-Linear)

As the basics of the analysis have been introduced, now let's discuss the effects of variables. Atay (2012), Bozkuş et al. (2006), Caner (2014), Ekici and Koydemir (2013), Kangal (2013), and Selim (2008; 2012) argue that female individuals are happier than their male counterparts while Akin and Şentürk (2012), and Dumludağ (2013) argue the contrary. In this study, in average, it is found that woman are happier than man in Turkey during 2004-2013 period.

Atay (2012), Ekici and Koydemir (2013), and Selim (2012) argue that younger are happier while Dumludağ (2013) claims the opposite. On the other hand Akin and Şentürk (2012), Caner (2014) and Dumludağ et al. (2015) argue that there is a U-shaped relationship between happiness and age in Turkey in which middle-ages represent the unhappiest years. Based on the findings of this study, it could be stated that, age had a minimal but significant effect on happiness which is U-shaped. Ages between 45-55 represent the unhappiest period of life for Turkish citizens.

Consistent with our findings, Selim (2008), and Dumludağ et al. (2015) find no significant relationship with happiness and increasing level of education. On the other hand, Akin and Şentürk (2012), and Bozkuş et al. (2006) find a significant adverse relationship between happiness and education while Atay (2012), Dumludağ (2013), Bülbül and Giray (2011), and Kangal (2013) claims the opposite. In this study, education variable had puzzling results about its relationship with happiness: Separately, education variable has a positive and significant relationship with happiness but the inclusion of income variables, into ordered logistic regression, turns education variables insignificant. Even in year 2013, education had a significant and adverse relationship with happiness in combined regression despite it had a positive relationship with happiness in separate regressions. Consequently, in this study, it is concluded that, education may not have a direct effect on happiness but an indirect effect which occurs if increasing level of education leads to a higher income. But further research is needed for the relationship of education, income and happiness in Turkey.

Consistent with our findings, Turkish literature argues that being married positively affects happiness. Moreover, in this study, this relationship is further investigated: satisfaction from marriage variable is also introduced into the regression analysis. As a result, it is depicted that; what makes individuals happy is not the marriage itself but a satisfied marriage. Even a neutral (neither satisfied nor dissatisfied) marriage does

not make individuals happier to non-married (single, divorced and widow) individuals, in average. But, it is still not clear that which affects the other for Turkish data- a happy life or a satisfied marriage. Erbes and Hedderson (1984) claims that causality runs from happiness to marriage as mentioned before, but further research is needed for the causality of this relationship in Turkey. However as TURKSTAT's LSS data is cross-section; further research will be in need of a longitudinal panel survey.

Atay (2012), Dumludağ (2013) and Selim (2008; 2012) argue that being unemployed has an adverse relationship with happiness. These findings are consistent with the happiness literature. But, in a recent study, Ekici and Köydemir (2013) pointed out that the relationship between status of employment and happiness cannot be depicted as above. In the mentioned study it is found that unemployed individuals are happier than the employed. As a result, they introduced satisfaction from the job variable into the regression and found out that; not only having a job but also the quality of that job affects happiness. However, as the number of observations in their dataset is small; they recommend further research on the subject. In this study, further research is conducted with a larger dataset.

In this analysis, base group is consisted of individuals which are out of labour force (oOLF). Being unemployed makes people unhappier than being oOLF while having an occupation would make the individuals happier if and only if they are happy with their job. Even in some years, many individuals who are unemployed are happier than the individuals who do work but unsatisfied from their jobs. Thereby, another possible causality problem arises which seeks further investigation on the subject; does being happy lead to a more satisfied work life or vice versa? Moreover, individuals which are oOLF (%59 of adult population) are happier than unemployed (%6 of adult population) and individuals which are neutral or unsatisfied over their job satisfaction (%25 of employed population). Under these circumstances, it would be wiser for Turkish individuals to seek happiness via income but not being employed such as winning a lottery or getting married to a rich spouse. Thus, it is suggested for the policy-makers to increase the attractiveness of jobs while increasing possible job opportunities, if possible, as it would be hard to encourage Turkish population to work-based on the results. Lastly it is concluded that, in parallel with Ekici and Köydemir (2013), in Turkey, not only being employed affects happiness but also the quality of the job.

First independent variable, besides control variables, introduced into analysis was materialistic virtues. This dummy variable takes value 1 if individuals respond to "what makes you happy most in your life" question as *money* within six possible answers; *power, success, job, health, love and money*. It is explicit from the results that adopting materialistic virtues in life leads to unhappiness of individuals. The results are in parallel to Sirgy (1998). It is also worthy to note that over 2004-2013 period only %4.2 of survey respondents chose the answer of money to this certain question.

Next, hope variables set were employed in ordered logistic regression step by step. *Expectations from future* were significant in separate regressions but mostly insignificant in combined regressions probably due to inclusion of *degree of hope* which may had co-linearity with the expectation variable, thus, suppressed the effects of expectations variable in many cases. *Comparison to past* had a significant and positive effect on happiness throughout the analysis, except year 2006's dataset. Degree of hope variable had a significant and positive relationship with happiness for the analysis period. Furthermore, due to low Akaike Information Criterion values and high Pseudo-R² values in separate regressions, in contrast to other variables; it is concluded that *degree of hope* to be the strongest estimator of happiness. In addition to these results, see Dumludağ et al. (2013) and Caner (2014) for a detailed review on income comparison effects in Turkey.

Following set of variables is income. Atay (2012), Babadağ et. al. (2006), Bozkuş et al. (2006), Bülbül and Giray (2011), Esmer (2012), Dumludağ et. al. (2015), and Selim (2008) found a positive relationship between happiness and income. Moreover, Selim (2012) indicates that there is no significant relationship between happiness and wealth while Dumludağ (2013) concludes that there is a positive relationship among household consumption and happiness. In this study, *household income level (income brackets)*, *household income sufficiency*, *household income satisfaction* and *subjective welfare* variables are employed. Separately all of them have a powerful and positive relationship with happiness in which *household income satisfaction* to be the strongest estimator among income variables based on Pseudo-R² values of separate regressions. When income variable set is employed altogether in the ordered logistic regression, *household income level* fails to be significant in each case while in some cases *subjective wealth* variable gives non-significant or non-monotonic results and

household income sufficiency fails to prove significance in year 2004. As, only objective variable employed in the analyses is insignificant while subjective variables are significant; it is concluded that to increase an individual's happiness, increasing his or her income is the necessary condition while increasing his or her income in regard to his or her needs and reference group is the sufficient condition for Turkey during 2004-2013 period.

Another set of variables used in the regression is community. Cummins (1996) conclude that the community which surrounds us is essential for happiness. In Turkish literature, only Ekici and Koydemir (2013) queried the relationship among happiness and community using trust variable which is found to have a positive effect on happiness. In this study, satisfaction from *housing, neighbourhood, friends* and *neighbours* variables are used. All of them have a positive and significant relationship with happiness in separate regressions. But apart from *satisfaction from housing*, community variables mostly fail to perform significant relationships with happiness in combined regressions of yearly datasets which plausibly happens due to co-linearity. The prominence of *satisfaction of housing* variable out of community variables is attributed to the shelter image of housing in the minds of citizens in Turkey. Yet this phenomenon is not observed in the analysis on pooled data. As a result, it is concluded that satisfaction from community has a positive but modest relationship with happiness.

Akın and Şentürk (2012), Bozkuş et. al. (2006), Dumludağ (2013) and Selim (2008) suggests that being healthy and being happy has a powerful and positive relationship yet the direction of the causality between is still debated (Veenhoven, 1988; 1991; Headey and Muffels, 2014). In this study it is, also, concluded that happiness and *self-reported health* share a significant and positive relationship. Yet, further research is suggested for the causality analysis among these aspects of life.

Lastly, safety variables are investigated for a possible link with happiness which is neglected in previous studies in Turkish literature. But in datasets which had low amount of observations; safety variables could not prove themselves to have a significant relationship with happiness in combined regressions. On the other hand, separate regressions of happiness and safety variables pointed out a positive relationship from year to year. As a result, in this study, it is concluded that; happiness and perception of safety have a positive but a very modest relationship.

In dataset of year 2013, with the city-level representation of Turkey, it is possible to use city dummies. Thus the regression of 2013 is run with city dummies (B) and without them (A). For this analysis, base city is chosen as Sinop, which was previously announced as the happiest city by TURKSTAT (2014). The inclusion of city dummies neither altered the significance of variables nor increased the explanatory power of the regression much but mostly the coefficients of city dummies were significant. Therefore, it is concluded that the road to happiness, or simultaneously problems faced, do not differ across cities, yet, priorities of variables may change. See Appendix, Note 3 for the details of city effects.

In addition to this, in pooled datasets, it was possible to analyse changes over time in the happiness of Turkey while controlling for many variables such as income, unemployment or degree of hope which are regularly fluctuating. For this analysis, year 2004 is employed as the base year. Only 2008 and 2013 had a significant difference at %1 level while 2012 was only significant at %5 and %10 levels, respectively at 2004-2012 and 2004-2013 datasets. It is apparent that the adverse effects of the economic crisis were reflected on the happiness of Turkish residents in year 2008. Also there were many unfortunate events such as Reyhanlı bombing or belligerent debates, in 2013. Thus, it is concluded that these unfortunate events were the cause of a significant decrease in happiness. Additionally, it may be concluded that Gezi Protests- which took place in Taksim, Istanbul first and then spread across Turkey- were the results of this downfall in happiness. For year 2012, it is possible that the uneasiness of 2013 protests had its roots but this interpretation needs further research. Moreover, a recent news bulletin of TURKSTAT concludes that the level of happiness and degree of hope further decreased in 2014 (TURKSTAT, 2015). See Appendix, Note 3 for the details of year effects.

In Table 3.6, the results of ordered logistic regression are presented. In Table 3.6, significance levels are displayed via using stars, 3 stars represent a significant relationship at 0.01 level while 2 and 1 stars respectively represent a significant relationship at 0.05 and 0.10 levels. Moreover, if a variable is significant while the step-dummy is not, the coefficient is displayed without stars. But if the variable is found to be insignificant; it is omitted in the final regression thus this situation is depicted with NS in the respective cell. Respect to Appendix Table A.2 and Note 1 for the introduction of variables and their respective step-dummies.

Table 3.6 Combined Ordered Logistic Regression Results.

Variables	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Materialistic	-0,529***	-0,351***	-0,446***	-0,446***	-0,332***	-0,591***	-0,552***	-0,446***	NS	-0,518***	-0,500***	-0,419***	-0,491***
Comparison to 5years before-Worse	-0,196***	-0,238***	NS	-0,195**	-0,207***	-0,188***	-0,150**	-0,150**	-0,187***	-0,207***	-0,192***	-0,169***	-0,198***
Comparison to 5years before-Better	0,073	0,07	NS	0,086	0,232***	0,107*	0,191***	0,120*	0,123**	0,101***	0,106***	0,085***	0,097***
Expectations of 5years after -Worse	-0,188**	NS	NS	-0,192**	NS	NS	NS	-0,171**	NS	-0,086***	-0,073***	-0,096***	-0,091***
Expectations of 5years after -Better	0,167***	NS	NS	0,082	NS	NS	NS	0,124*	NS	0,062***	0,052***	0,079***	0,066***
Degree of Hope -2	0,466***	0,466***	0,392***	0,466***	0,534***	0,519***	0,774***	0,887***	0,560***	0,536***	0,532***	0,531***	0,542***
Degree of Hope -3	1,006***	1,143***	1,011***	1,122***	1,150***	1,318***	1,560***	1,644***	1,351***	1,263***	1,255***	1,194***	1,252***
Degree of Hope -4	1,976***	2,090***	1,884***	2,152***	1,872***	2,436***	2,567***	2,347***	2,226***	2,293***	2,288***	2,098***	2,256***
Household Income Sufficiency -2	NS	0,044	0,126	0,13	0,227***	0,167**	0,111	0,279***	0,169*	0,075***	0,094***	0,145***	0,090***
Household Income Sufficiency -3	NS	0,117	0,227***	0,230***	0,298***	0,330***	0,209**	0,341***	0,253***	0,137***	0,156***	0,240***	0,160***
Household Income Sufficiency -4	NS	0,323***	0,463***	0,494***	0,646***	0,291***	0,442***	0,709***	0,384***	0,370***	0,375***	0,449***	0,387***
Household Income Sufficiency -5	NS	0,634**	0,718***	0,331	0,621**	0,312	0,718***	0,818***	0,765***	0,529***	0,524***	0,573***	0,536***
Household Income Sat. -2	0,218**	0,421***	0,199**	0,266**	0,393***	0,305***	0,183	0,297**	0,269**	0,226***	0,236***	0,286***	0,241***
Household Income Sat. -3	0,533***	0,765***	0,573***	0,553***	0,621***	0,534***	0,526***	0,667***	0,589***	0,502***	0,502***	0,582***	0,525***
Household Income Sat. -4	0,762***	1,039***	0,731***	0,861***	1,000***	0,794***	0,690***	0,834***	0,885***	0,797***	0,798***	0,819***	0,803***
Household Income Sat. -5	1,123***	2,129***	1,863***	1,572***	2,021***	1,838***	1,539***	1,894***	1,846***	1,793***	1,767***	1,726***	1,784***
Subjective Welfare -1	0,123	-0,048	0,008	0,427*	NS	0,141	-0,021	-0,141	0,333*	0,148***	0,154***	0,08	0,127***
Subjective Welfare -2	0,430**	0,053	0,428	0,511**	NS	0,086	0,381**	0,045	0,274	0,285***	0,307***	0,260***	0,274***
Subjective Welfare -3	0,525***	0,057	0,323	0,558***	NS	0,273**	0,382**	-0,009	0,311*	0,305***	0,339***	0,279***	0,293***
Subjective Welfare -4	0,509***	0,178	0,705***	0,674***	NS	0,363***	0,491***	0,019	0,558***	0,350***	0,392***	0,403***	0,357***
Subjective Welfare -5	0,647***	0,244*	0,597**	0,802***	NS	0,395***	0,553***	0,048	0,633***	0,345***	0,407***	0,458***	0,364***
Subjective Welfare -6	0,807***	0,342**	0,761***	0,794***	NS	0,508***	0,566***	0,085	0,744***	0,492***	0,539***	0,529***	0,496***
Subjective Welfare -7	0,942***	0,356**	1,051***	0,964***	NS	0,692***	0,860***	-0,005	0,672***	0,615***	0,674***	0,631***	0,612***
Subjective Welfare -8	0,984***	0,361*	1,060***	0,995***	NS	0,685***	1,024***	0,498**	0,910***	0,737***	0,807***	0,744***	0,728***
Subjective Welfare -9	1,372***	0,792**	1,341***	1,073***	NS	(omitted)	1,119***	0,349	1,632***	0,963***	1,019***	0,952***	0,948***
Subjective Welfare -10	1,312***	0,906***	1,211***	1,252***	NS	0,637*	1,569***	0,852**	1,323***	0,925***	1,006***	1,030***	0,940***

Table 3.6 Combined Ordered Logistic Regression Results (continued).

Variables	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Sat from Housing - Not Satisfied	-0,320***	-0,194**	-0,328***	-0,218**	-0,227**	-0,258***	-0,106	-0,069	-0,311***	-0,112***	-0,108***	-0,218***	-0,143***
Sat from Housing - Satisfied	0,338***	0,255***	0,218***	0,243***	0,184**	0,301***	0,302***	0,415***	0,162**	0,256***	0,257***	0,240***	0,250***
Sat from Neighbourhood - Not Satisfied	NS	NS	NS	NS	NS	-0,154	NS	NS	NS	-0,120***	-0,107***	-0,098**	-0,112***
Sat from Neighbourhood - Satisfied	NS	NS	NS	NS	NS	0,092	NS	NS	NS	0,011	0,029	0,009	0,011
Sat from Friends - Not Satisfied	NS	-0,535**	-0,669***	NS	NS	-0,274	-0,121	-0,166	0,063	-0,188***	-0,172***	-0,234***	-0,200***
Sat from Friends - Satisfied	NS	0,252***	0,176*	NS	NS	0,234***	0,247**	0,367***	0,579***	0,270***	0,282***	0,243***	0,267***
Sat from Neighbours - Not Satisfied	NS	NS	NS	NS	-0,052	NS	-0,101	NS	NS	-0,085***	-0,081**	-0,056	-0,077***
Sat from Neighbours - Satisfied	NS	NS	NS	NS	0,293***	NS	0,168*	NS	NS	0,085***	0,083***	0,088***	0,085***
Self-Reported Health -2	0,493***	0,704***	1,176***	0,717***	1,140***	0,703***	0,541**	0,609***	0,307	0,541***	0,544***	0,705***	0,583***
Self-Reported Health -3	0,732***	0,806***	1,212***	0,817***	1,327***	0,986***	0,681***	0,851***	0,616***	0,736***	0,746***	0,896***	0,776***
Self-Reported Health -4	1,141***	1,320***	1,591***	1,312***	1,766***	1,327***	1,068***	1,312***	1,056***	1,153***	1,157***	1,312***	1,194***
Self-Reported Health -5	1,681***	1,925***	2,419***	1,888***	2,453***	2,002***	1,881***	2,151***	1,681***	1,952***	1,967***	1,995***	1,956***
Sat from Safety HA - Not Satisfied	NS	NS	NS	NS	-0,051	NS	NS	-0,046	NS	0,047**	0,044*	0,01	0,034*
Sat from Safety HA - Satisfied	NS	NS	NS	NS	0,268***	NS	NS	0,225***	NS	0,238***	0,242***	0,178***	0,223***
Sat from Safety WA - Not Satisfied	NS	NS	NS	NS	NS	NS	NS	NS	NS	0,068***	0,070***	NS	0,058***
Sat from Safety WA - Satisfied	NS	NS	NS	NS	NS	NS	NS	NS	NS	0,097***	0,097***	NS	0,071***
Age	-0,062***	-0,055***	-0,062***	-0,071***	-0,057***	-0,060***	-0,069***	-0,068***	-0,053***	-0,065***	-0,065***	-0,062***	-0,064***
Age-Squared	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***
Sex	0,461***	0,316***	0,317***	0,277***	0,463***	0,385***		0,361***	0,266***	0,300***	0,310***	0,350***	0,308***
Married & Not-Satisfied	-1,019***	-0,687***	-1,272***	-1,281***	-1,039***	-0,926***	-1,397***	-1,174***	-1,039***	-0,920***	-0,918***	-1,074***	-0,954***
Married & Neutral	0,071	-0,269**	0,045	-0,023	-0,273**	-0,153	-0,114	-0,207*	-0,068	-0,181***	-0,191***	-0,095**	-0,160***
Married & Satisfied	0,979***	0,853***	0,892***	0,885***	0,909***	0,888***	1,023***	0,957***	0,902***	0,785***	0,784***	0,919***	0,816***
Unemployed	-0,358***	-0,919***	-0,587***	-0,535***	-0,448***	-0,495***	-0,317**	-0,521***	-0,567***	-0,347***	-0,350***	-0,510***	-0,374***
Employed & Not-Satisfied	-0,176	-0,531***	-0,374***	-0,389***	-0,460***	-0,386***	-0,654***	-0,433***	-0,407***	-0,460***	-0,455***	-0,401***	-0,442***
Employed & Neutral	-0,152	-0,316***	-0,16	-0,066	0,018	-0,218**	-0,313***	-0,244**	-0,255***	-0,218***	-0,207***	-0,172***	-0,204***
Employed & Satisfied	0,201***	0,063	0,061	0,021	0,158**	0,167***	-0,101*	-0,047	-0,102*	-0,039***	-0,024*	0,054**	-0,017

Table 3.6 Combined Ordered Logistic Regression Results (continued).

Variables \ Years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Unemployed	-0,364***	-0,926***	-0,577***	-0,532***	-0,431***	-0,483***	-0,197	-0,521***	-0,577***	-0,347***	-0,350***	-0,509***	-0,374***
Employed & Not-Satisfied	-0,183	-0,532***	-0,353***	-0,356***	-0,420***	-0,381***	-0,511***	-0,427***	-0,413***	-0,460***	-0,455***	-0,402***	-0,442***
Employed & Neutral	-0,15	-0,310***	-0,154	-0,066	0,03	-0,202**	-0,178*	-0,244**	-0,265***	-0,218***	-0,207***	-0,172***	-0,204***
Employed & Satisfied	0,164**	0,052	0,057	0,045	0,165**	0,186***	0,036	-0,048	-0,107*	-0,039***	-0,024*	0,055**	-0,017
Primary Education	-0,041	0,180***	0,002	-0,074	-0,006	-0,013	0,011	0,061	-0,063	-0,117***	-0,098***	0,003	-0,090***
Secondary Education	-0,082	0,274***	-0,027	-0,158	0,007	-0,115	-0,089	-0,063	-0,094	-0,156***	-0,127***	-0,041	-0,132***
Tertiary Education	0,006	0,242*	0,074	-0,278**	0,056	-0,146	0,066	0,09	-0,004	-0,143***	-0,120***	0,011	-0,114***
City Dummies	-	-	-	-	-	-	-	-	-	NO	YES	-	-
Year Dummies	-	-	-	-	-	-	-	-	-	-	-	YES	YES
cut1	-1,016***	-1,283***	-1,465***	-2,067***	-0,887**	-1,170***	-1,474***	-1,416***	-1,395***	-1,452***	-1,081***	-1,346***	-1,484***
cut2	0,935***	0,669**	0,545	0,029	1,267***	0,879***	0,617	0,755**	0,739**	0,375***	0,753***	0,698***	0,394***
cut3	3,040***	2,793***	2,763***	2,228***	3,408***	3,001***	2,870***	3,093***	3,052***	2,542***	2,934***	2,879***	2,562***
cut4	6,230***	6,074***	6,039***	5,610***	6,613***	6,322***	6,277***	6,743***	6,577***	5,859***	6,266***	6,229***	5,885***
N	6714	6983	6432	6442	6465	7546	7027	7368	7956	196203	196203	62933	259136
Pseudo R2 (%)	14.18	15.71	14.76	15.64	14.94	16.56	16.68	17.62	15.59	14.29	14.59	15.67	14.58

4. CONCLUSION

As the thesis title suggests, this study serves two purposes. After pointing out the insufficiencies of GDP as a measure of well-being, in the first part of the study, a novel subjective well-being index for Turkey is constructed by employing the TURKSTAT's LSSs for the 2004-2013 period. The baseline index imitated the Bhutan's GNH methodology, as much as possible. For robustness checks and to shed more light on the different aspects of well-being, two more indexes are computed. These indexes, employ the methodology of Australian Unity Well-Being Index and factor analysis, respectively. Meanwhile, being happy and being well are considered as two different aspects of life, thus, the second part of the study isolate happiness (a component of well-being) and aims to determine its determinants by employing ordered logistic regression.

Kahneman and Krueger (2006) argues that beyond \$10000 income per capita, changes in GDP poorly reflect the changes in well-being thus a better proxy should be used. In the first part of this study it is depicted that, in average, well-being in Turkey increased during 2003-2010 period, with the exception of a drastic fall due to financial crisis in 2008, and was stagnant for the 2011-2013 period. Also, note that, GDP per capita exceeded \$10000 level in Turkey, first in 2008, then in 2010 once more after the financial crisis. Expectedly, the increase in GDP per capita up to \$10000 per capita level led to higher levels of well-being. However, above this level as basic requirements of a society are met, it can be argued that non-materialistic aspirations-like happiness, freedom or justice- will surpass materialistic aspirations. Thus, a policy maker should take into consideration non-materialistic aspects of life also which GDP does not and cannot include.

In order to prove robustness and credibility of the computed index, two more alternatives are constructed for comparison. Baseline index (S1) employed the sufficiency approach of Bhutan's GNH index with equal weights. Equal weights

assumption was tested under Scenario 3 (S3) which employed different weights dictated by the factor analysis results. Weights generated by the results of factor analysis did not differ much from the equal weights. Although, the results of S3 differed much from S1 but the trends were the same, thus, employment of equal weights were preferred. Another comparison of S1 has been made with the approach of Cummins et. al. (2003). This approach (S2) argues that individuals may have a positive bias in evaluating personal well-being rather than national well-being. Under S2, individual and national well-beings have been calculated via two separate indexes, which yielded fruitful results. There is not much difference between the values of national and individual well-beings unlike it is argued in Cummins et. al. (2003) but national index is more volatile than individual index. Thus, it can be argued that individuals use their informal social networks (i.e. family ties, friends, community (*cemaat* in Turkish), or fellow townsman) as a shelter from the low economic and politic stability in the country. In addition to this, the credibility of the proposed indexes have also been checked via correlations among subjective variables, subjective indexes and macroeconomic indicators. It is shown that, constructed indexes share a powerful, positive relationship with HDI, a modest and positive relationship with GDP per capita but a non-significant relationship with other macroeconomic indicators, for 2004 – 2013 period.

To summarise, the main message of this paper is that the GDP indicator is incapable of tracing the evolution of the perceived well-being of people and hence, should be replaced by a multi-dimensional indicator. This study proposed such an index for the first time in Turkey and, it is argued that, proposed Subjective Well-Being Index (SWBI) is credible, robust, and covers many domains of life that GDP neglects- such as health, happiness or satisfaction from community. This index can help policymakers to think more widely on the questions of well-being of people and how to increase it. Therefore, to policy makers, it is strongly recommended to enlarge their visions on well-being of individuals and human development while constructing policies for the masses by scrutinizing the presented outcomes.

On the other hand, the determinants of happiness is analysed separately by employing ordered logistic regression. Main contribution of this analysis to the literature is the utilisation of a larger variable set which includes city-dummies and a wider time range.

This analysis also yielded striking results, such as the indirect effect of increasing education levels over income on happiness. It is found that education positively and significantly contributes to happiness, yet it became insignificant when income variables are added to the model. It is found that not only being married or being employed affects happiness but also the quality of marriage and the quality of the occupation, with the employment of cross-variables. On the other hand, based on the Pseudo-R² and Akaike Information Criteria values, degree of hope is identified as the strongest estimator of happiness. An analysis over income brackets and income satisfaction variables points out that, relative (in regards to needs and reference group) increase in income contributes more to happiness than a nominal increase in income. Other findings are in parallel with the previous literature. In addition to these, year effects are examined within pooled datasets and city effects are investigated within 2013 dataset. It is found that, despite controlling with a large variable set, adverse effects of 2008 crisis and rising political tension (over life styles, foreign policy to mention a few) in Turkey which reached its climax in late 2012 and 2013 were reflected upon the happiness of Turkish people in a negative way. On the other hand, it is shown that the determinants of happiness do not diverge much across Turkish cities but probably their importance rank differs.

Based on the facts derived from the ordered logistic regression, many suggestions can be made to policy makers. First of all, high unemployment rates (%11,4) and low participation rates (%50) are major problems in the Turkish labour market (TURKSTAT, 2015). Results indicate that not only providing jobs but also improving the quality of jobs and the work-life relations matter when considering happiness. Another common problem for Turkey is income inequality. TURKSTAT (2014) computed Gini coefficient as 0.4 for 2013. It is shown that income ranks hold an important position for the happiness of individuals in Turkey, thus, with an amelioration in the distribution of income, higher levels of happiness may be reached. In addition to this, *degree of hope* is depicted as the strongest estimator of happiness along with *expectations from future*. Thus, in order to have happier individuals; reforms that will enhance freedoms, institutional organisation, judicial quality, equality and political stability, are eminent. Lastly, it is shown that there are differences in how chosen variables affect happiness across cities, city-level analysis

reveal that there are non-negligible differences across cities which require tailor-made policies. Therefore, one can conclude that delegating more power to local governments may increase the effectiveness of policies and services given.

Moreover, it is also acknowledged that the outcomes of this study are derived from “in average” values. Thus, for further research, it is recommended to segregate data into smaller pieces by sex, education, income brackets, cities etc. for more effective results and policy suggestions. The results depicted in this study are just the tip of the iceberg about the happiness in Turkey. While working with the data and reviewing the literature I also come up with some recommendations which can help TURKSTAT to sharpen her surveys. These recommendations can be listed as follows: To gather data about the reflections of scales employed in LSS questionnaire, on people’s minds for better comparisons of happiness, to enhance their question set with questions regarding to personality traits, to simplify and reorganise their survey structure for less bias in the responses, and to collect data as time-series rather than cross-section in order to reveal personality effects on happiness.

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APPENDIX

[NOTE 1] Variables employed during the construction of SWBIs and the analyses of the determinants of happiness are created from the questions within the LSS questionnaire. Link1 includes an English translation of these questions picked and 2013 survey questionnaire in Turkish. Link1 also include scale transformations of variables used in the construction of SWBIs.

[NOTE 2] The results of factor analysis are published online using SPSS 22 output files. Link2 displays the results of first factor analysis (which creates indicators out of survey questions) and the second factor analysis (which assigns weights to indicators or domains). The methodology employed in these files were explained in section 3.

[NOTE 3] Each step during the analysis of determinants of happiness for yearly and pooled datasets are, also, published online via using Stata 12 Log-files in Link3. Each year uses the same methodology explained in section 3. The details of the analysis were explained by comments during the analysis. For the abbreviations and step dummies employed in the analyses, see Appendix Table A.2.

[NOTE 4] If the reader is unable to open SPSS 22 output files or STATA 12 log files, or has further questions upon the methodology employed during the study, or cannot access the provided links; please, communicate the author. Author may provide a file format that the reader can open, make further explanations of methodology or refresh links, upon request. The author's e-mail address is erenk@itu.edu.tr.

Table A.1 List of Links.

Link No	Link
1	http://bit.ly/1dBozhQ
2	http://bit.ly/1GM2uXw
3	http://bit.ly/1Q7QuE1

Table A.2 List of Indicators, Their Respective Scales and Abbreviations.

Set	Indicator	Scale
Control Variables	Sex (being female)	Male (base) - Female
	Age	18+
	Age-squared	324+
	No Schooling (base)	Dummy
	Primary Education	Dummy
	Secondary Education	Dummy
	Tertiary Education	Dummy
	Non-Married (base)	Dummy
	Not-satisfied marriage	Dummy
	Neutral marriage	Dummy
	Satisfied marriage	Dummy
	Out-of-labour force (base)	Dummy
	Unemployed	Dummy
	Not-satisfied employee	Dummy
	Neutral employee	Dummy
	Satisfied employee	Dummy
Separate	Materialistic aspirations	No (base), Yes
Hope Variables	Expectations from 5 years in the future	Worse, Same(base), Better
	Comparison to 5 years in the past	Worse, Same(base), Better
	Degree of hope	Very Hopeful (4) Hopeful(3), Hopeless (2), Very Hopeless(1, base)
Income Variables	Household income level	Income Brackets (1-5 scale, 5 better)
	Household income sufficiency	Itemized Rating Scale 1-5 (5 better)
	Household income satisfaction	Itemized Rating Scale 1-5 (5 better)
	Subjective welfare	11 Step Cantril Ladder
Community Variables	Satisfaction from housing	Satisfied, Neutral (Base), Not-Satisfied
	Satisfaction from residential area	Satisfied, Neutral (Base), Not-Satisfied
	Satisfaction from friends	Satisfied, Neutral (Base), Not-Satisfied
	Satisfaction from neighbours	Satisfied, Neutral (Base), Not-Satisfied
Separate	Self-Reported Health	Itemized Rating Scale 1-5 (5 better)
Safety Variables	Perception of safety when home alone	Satisfied, Neutral (Base), Not-Satisfied
	Perception of safety when walking alone in night	Satisfied, Neutral (Base), Not-Satisfied

Table A.3 Combined Ordered Logistic Regression Results with Exactly Same Variables.

Indicators \ Years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Materialistic	-0,484***	-0,324***	-0,446***	-0,458***	-0,323***	-0,598***	-0,533***	-0,439***	-0,127	-0,518***	-0,500***	-0,418***	-0,491***
Comparison to 5years before-Worse	-0,181**	-0,272***	-0,189**	-0,168**	-0,127*	-0,190***	-0,081	-0,145**	-0,141**	-0,207***	-0,192***	-0,169***	-0,198***
Comparison to 5years before-Better	0,061	0,05	-0,062	0,082	0,186***	0,051	0,178***	0,120*	0,109*	0,101***	0,106***	0,084***	0,097***
Expectations of 5years after -Worse	-0,190**	0,045	-0,099	-0,180**	-0,150*	0,031	-0,155**	-0,163**	-0,102	-0,086***	-0,073***	-0,095***	-0,091***
Expectations of 5years after -Better	0,168***	0,035	0,087	0,11	0,052	0,134**	0,037	0,134**	0,033	0,062***	0,052***	0,081***	0,066***
Degree of Hope -2	0,437***	0,458***	0,362***	0,451***	0,487***	0,507***	0,777***	0,884***	0,519***	0,536***	0,532***	0,532***	0,542***
Degree of Hope -3	0,964***	1,106***	0,935***	1,080***	1,051***	1,285***	1,541***	1,640***	1,273***	1,263***	1,255***	1,195***	1,252***
Degree of Hope -4	1,939***	2,043***	1,799***	2,092***	1,744***	2,392***	2,557***	2,347***	2,144***	2,293***	2,288***	2,100***	2,256***
Household Income Sufficiency -2	0,077	0,034	0,112	0,148*	0,209***	0,168**	0,096	0,282***	0,156*	0,075***	0,094***	0,146***	0,090***
Household Income Sufficiency -3	0,245***	0,1	0,210**	0,271***	0,249***	0,344***	0,190**	0,352***	0,252***	0,137***	0,156***	0,243***	0,160***
Household Income Sufficiency -4	0,476***	0,295***	0,450***	0,547***	0,571***	0,312***	0,427***	0,723***	0,368***	0,370***	0,375***	0,451***	0,387***
Household Income Sufficiency -5	0,262	0,621**	0,708***	0,401	0,530**	0,339	0,673***	0,822***	0,770***	0,529***	0,524***	0,574***	0,536***
Household Income Sat. -2	0,178*	0,388***	0,198**	0,272**	0,382***	0,318***	0,179	0,300**	0,279**	0,226***	0,236***	0,287***	0,241***
Household Income Sat. -3	0,443***	0,747***	0,562***	0,537***	0,584***	0,545***	0,513***	0,668***	0,597***	0,502***	0,502***	0,584***	0,525***
Household Income Sat. -4	0,624***	1,000***	0,702***	0,846***	0,955***	0,804***	0,680***	0,837***	0,883***	0,797***	0,798***	0,821***	0,803***
Household Income Sat. -5	0,972***	2,095***	1,819***	1,565***	1,957***	1,842***	1,536***	1,895***	1,878***	1,793***	1,767***	1,729***	1,784***
Subjective Welfare -1	0,108	-0,047	0,023	0,428*	-0,116	0,145	-0,027	-0,144	0,329*	0,148***	0,154***	0,079	0,127***
Subjective Welfare -2	0,436**	0,048	0,416	0,488**	0,094	0,086	0,380**	0,05	0,285	0,285***	0,307***	0,260***	0,274***
Subjective Welfare -3	0,497***	0,051	0,306	0,577***	0,05	0,284**	0,367**	0,004	0,311*	0,305***	0,339***	0,279***	0,293***
Subjective Welfare -4	0,462***	0,159	0,669**	0,677***	0,158	0,383***	0,482***	0,031	0,567***	0,350***	0,392***	0,404***	0,357***
Subjective Welfare -5	0,607***	0,217	0,568**	0,810***	0,252	0,410***	0,529***	0,058	0,630***	0,345***	0,407***	0,459***	0,364***
Subjective Welfare -6	0,750***	0,301*	0,721***	0,828***	0,232	0,538***	0,550***	0,097	0,735***	0,492***	0,539***	0,532***	0,496***
Subjective Welfare -7	0,857***	0,304*	0,999***	0,994***	0,3	0,732***	0,828***	0,018	0,669***	0,615***	0,674***	0,635***	0,612***
Subjective Welfare -8	0,912***	0,324	1,025***	1,037***	0,373	0,694***	0,977***	0,524**	0,889***	0,737***	0,807***	0,748***	0,728***
Subjective Welfare -9	1,271***	0,768**	1,295***	1,087***	0,45	(omitted)	1,071***	0,361	1,582***	0,963***	1,019***	0,954***	0,948***
Subjective Welfare -10	1,253***	0,869***	1,165***	1,267***	0,389	0,621*	1,544***	0,855**	1,344***	0,925***	1,006***	1,031***	0,940***

Table A.3 Combined Ordered Logistic Regression Results with Exactly Same Variables (continued).

Indicators \ Years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Sat from Housing - Not Satisfied	-0,319***	-0,178*	-0,324***	-0,126	-0,185*	-0,256***	-0,145	-0,032	-0,299***	-0,112***	-0,108***	-0,218***	-0,143***
Sat from Housing - Satisfied	0,233***	0,208***	0,182**	0,262***	0,190**	0,295***	0,285***	0,401***	0,149*	0,256***	0,257***	0,240***	0,250***
Sat from Neighbourhood - Not Satisfied	0,144	-0,161	-0,065	-0,331**	-0,19	-0,131	0,131	-0,216*	-0,11	-0,120***	-0,107***	-0,101**	-0,112***
Sat from Neighbourhood - Satisfied	0,218**	0,036	0,095	-0,089	-0,084	0,051	0,026	-0,031	-0,106	0,011	0,029	0,01	0,011
Sat from Friends - Not Satisfied	0,221	-0,519**	-0,713***	-0,710***	-0,025	-0,248	-0,139	-0,127	0,14	-0,188***	-0,172***	-0,234***	-0,200***
Sat from Friends - Satisfied	0,471***	0,190*	0,117	0,029	0,104	0,182*	0,238**	0,295***	0,520***	0,270***	0,282***	0,244***	0,267***
Sat from Neighbours - Not Satisfied	-0,02	0,062	0,212	-0,227	-0,044	-0,131	-0,125	0,016	-0,117	-0,085***	-0,081**	-0,054	-0,077***
Sat from Neighbours - Satisfied	0,131	0,07	0,069	-0,182*	0,267***	0,088	0,151*	0,13	0,106	0,085***	0,083***	0,087***	0,085***
Self-Reported Health -2	0,487***	0,707***	1,181***	0,685***	1,105***	0,704***	0,533**	0,605***	0,289	0,541***	0,544***	0,705***	0,583***
Self-Reported Health -3	0,740***	0,807***	1,217***	0,800***	1,291***	0,996***	0,686***	0,848***	0,620***	0,736***	0,746***	0,897***	0,776***
Self-Reported Health -4	1,126***	1,297***	1,585***	1,288***	1,724***	1,331***	1,093***	1,304***	1,048***	1,153***	1,157***	1,313***	1,194***
Self-Reported Health -5	1,663***	1,893***	2,404***	1,868***	2,407***	2,006***	1,917***	2,138***	1,669***	1,952***	1,967***	1,997***	1,956***
Sat from Safety HA - Not Satisfied	-0,023	0,185**	-0,035	0,017	-0,035	-0,124	0,036	-0,081	0,075	0,047**	0,044*	-0,004	0,034*
Sat from Safety HA - Satisfied	0,142*	0,330***	0,125*	0,155**	0,246***	0,013	0,150*	0,210***	0,343***	0,238***	0,242***	0,185***	0,223***
Sat from Safety WA - Not Satisfied	0,095	-0,1	-0,028	0,066	0,017	0,116	-0,062	0,122	0,061	0,068***	0,070***	0,032	0,058***
Sat from Safety WA - Satisfied	0,029	-0,065	-0,136*	0,028	0,027	0,113*	-0,05	0,065	-0,048	0,097***	0,097***	-0,002	0,071***
Age	-0,065***	-0,058***	-0,061***	-0,072***	-0,057***	-0,061***	-0,072***	-0,071***	-0,053***	-0,065***	-0,065***	-0,062***	-0,064***
Age-Squared	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,001***	0,000***	0,001***	0,001***	0,001***	0,001***
Sex	0,447***	0,382***	0,306***	0,269***	0,459***	0,382***	0,268***	0,348***	0,250***	0,300***	0,310***	0,341***	0,308***
Married & Not-Satisfied	-0,991***	-0,621***	-1,337***	-1,279***	-1,002***	-0,931***	-1,416***	-1,173***	-1,030***	-0,920***	-0,918***	-1,077***	-0,954***
Married & Neutral	0,122	-0,230**	0,05	-0,029	-0,255**	-0,155	-0,122	-0,216*	-0,069	-0,181***	-0,191***	-0,099***	-0,160***
Married & Satisfied	0,970***	0,874***	0,887***	0,861***	0,916***	0,876***	1,052***	0,945***	0,895***	0,785***	0,784***	0,913***	0,816***

Table A.3 Combined Ordered Logistic Regression Results with Exactly Same Variables (continued).

Indicators \ Years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013/A	2013/B	2004-12	2004-13
Unemployed	-0,364***	-0,926***	-0,577***	-0,532***	-0,431***	-0,483***	-0,197	-0,521***	-0,577***	-0,347***	-0,350***	-0,509***	-0,374***
Employed & Not-Satisfied	-0,183	-0,532***	-0,353***	-0,356***	-0,420***	-0,381***	-0,511***	-0,427***	-0,413***	-0,460***	-0,455***	-0,402***	-0,442***
Employed & Neutral	-0,15	-0,310***	-0,154	-0,066	0,03	-0,202**	-0,178*	-0,244**	-0,265***	-0,218***	-0,207***	-0,172***	-0,204***
Employed & Satisfied	0,164**	0,052	0,057	0,045	0,165**	0,186***	0,036	-0,048	-0,107*	-0,039***	-0,024*	0,055**	-0,017
Primary Education	-0,041	0,180***	0,002	-0,074	-0,006	-0,013	0,011	0,061	-0,063	-0,117***	-0,098***	0,003	-0,090***
Secondary Education	-0,082	0,274***	-0,027	-0,158	0,007	-0,115	-0,089	-0,063	-0,094	-0,156***	-0,127***	-0,041	-0,132***
Tertiary Education	0,006	0,242*	0,074	-0,278**	0,056	-0,146	0,066	0,09	-0,004	-0,143***	-0,120***	0,011	-0,114***
City Dummies	-	-	-	-	-	-	-	-	-	NO	YES	-	-
Year Dummies	-	-	-	-	-	-	-	-	-	-	-	YES	YES
cut1	-1,016***	-1,283***	-1,465***	-2,067***	-0,887**	-1,170***	-1,474***	-1,416***	-1,395***	-1,452***	-1,081***	-1,346***	-1,484***
cut2	0,935***	0,669**	0,545	0,029	1,267***	0,879***	0,617	0,755**	0,739**	0,375***	0,753***	0,698***	0,394***
cut3	3,040***	2,793***	2,763***	2,228***	3,408***	3,001***	2,870***	3,093***	3,052***	2,542***	2,934***	2,879***	2,562***
cut4	6,230***	6,074***	6,039***	5,610***	6,613***	6,322***	6,277***	6,743***	6,577***	5,859***	6,266***	6,229***	5,885***
N	6714	6983	6432	6442	6465	7546	7027	7368	7956	196203	196203	62933	259136
Pseudo R2 (%)	14.65	15.96	14.95	15.92	15.13	16.66	16.89	17.71	15.79	14.29	14.59	15.68	14.58

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