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Measuring Risk Attitude in Travel Insurance: A Case Study

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Table of Contents

Introduction

To get insured or not to get insured? And if yes, which kind of policy to purchase? Full or partial coverage? This is a dilemma faced everyday by thousands of travelers around the world.

Travel insurance represents a branch of the broad field of insurance. Generally, it provides coverage for what medical expenses, luggage and trip cancellation are concerned. Medical care is probably the most important issue to pay attention, as often travelers do not have coverage for these costs and they can reveal to be very expensive, especially considering overseas travels.

This case study examines four different kind of policies provided by an UK-based insurance company for European citizens. It has been made up a fictitious case, based on real data, in which an individual takes a trip to Marrakech for the summer season 2016.

In order to introduce risk attitude of people in the model, a survey has been submitted to a sample of 100 individuals. Among the four options provided by the insurance company, it has been found the ones which maximizes the decision maker's expected monetary value and expected utility value.

The results obtained confirm the convenience of purchasing travel insurance, but they also suggest to pay attention to the different kind of policies which are offered by the insurers. Even considering risk aversion, the results do not show considerable differences from the risk neutral case.

The first part of this research gives an overlook on travel insurance's field. Starting from data about the diffusion of travel insurance, to what travel insurance represents, to end with a description of the main channels of sale. Interestingly, the second chapter provides a deeper analysis on the Internet and the e-commerce role in travel industry. Online purchasing has increased a lot in recent years; it can represent a cheaper and faster way to organize a trip. According with these trends, the reader can verify the potential for future developments in travel insurance sales. Disintermediation phenomenon and the role of e-commerce inside companies are also discussed in this chapter.

The second part of the paper is about the analysis and results of the case study. The third chapter explains the methodology and the collection of data to create the model and how risk attitude has been introduced in the analysis. The last chapter, the forth, consists of an explanation and discussion of the results.

A critique of the model used in this research has been provided at the end of the chapter with some suggestions to improve the efficacy of risk analysis.

1. TRAVEL INSURANCE

The travel and tourism industry is one of the world's largest industries with a global economic contribution of almost seven trillion US dollars in 2013 (Statista, *Statistic and facts on the global tourism industry*)[1].

We know from the history that there have always been individuals who travelled around the world. Christopher Columbus, Marco Polo, Ibn Battuta, just to cite some of the big known travelers from the past. Sant'Agostino himself said: "World is a book. Those who do not travel read only a page".

However, with the breakdown of the barriers between nations, the flow of goods, capitals and people has increased widely. Globalization process has helped the rise in travelling around the globe with the development of proper transportation systems and infrastructure. At the same time, the need for coverage against financial risks' exposure is raising among travelers. Especially for what health care is concerned, overseas misadventures can end with the necessity for expensive medical treatments and many other issues such as lack of expertise or the need for medical evacuation which is very costly.

[1] http://www.statista.com/topics/962/global-tourism/

1.1 Some data

Recent data reveal that travel sales totaled $1.3 trillion in 2014 and they are expected to rise 6% in 2015 with a subsequent intensification in the competition (HOFFMAN C., OFFUTT B., 2015, p. 1). AAA/IHS[2] Year-End travel forecast, predicts 11.8% above the 2001-2014 average, with 100.5 million travelers, just among US residents, expected to take to the roads, skies, rails and water.

In spite of the latest crisis, people continue to travel for many different reasons, ranging from education to work or simply for holidays. In each case, individuals are exposed to some risks, especially considering overseas or long travels. In addition, recent episodes of terrorism, as it happened in Paris on Friday 13th November[3], and the diffusion of new viral infections such as Ebola and H1N1, have increased the worries of people, as reported in a study done by Europ Assistance[4] (2015).

The research reveals that this summer the percentage of Europeans that will go on holiday is increasing slightly, especially for what concerns Spanish (+18 points), Italian (+8 points) and Belgian (+10 points) people. A good forecast, taking into consideration that these are among the countries which were hitting the most from the crisis

[2] https://newsroom.aaa.com/wp-content/uploads/2015/12/2015-Year-End-Holiday-Report-Final.pdf
[3] http://www.nbcnews.com/storyline/paris-terror-attacks
[4] "Barometro Ipsos / Europ Assistance, *Intenzioni e preoccupazioni degli europei per le vacanze estive* – Sinstesi Ipsos per il gruppo Europ Assistance. Giugno 2015". Europe Assistance is an international group situated in 33 countries, founded in 1963 in Paris, with share capital fully held by Generali Group. (http://group.europ-assistance.com/en/history).

in the last years. Europ Assistance's (2015) study has been done considering a survey on European citizens from 18 years old and up. It reveals that Europeans who go on holiday are more and more worried about wealth risks, terrorism and loss of luggage. But the paradox is that the actual coverage rate remains more or less stable in time. In fact, data show that the 64% of Europeans would concern about the possibility of losing their belongings, but only 52% apply for insurance coverage. The same applies for the risk of natural disasters, 42% versus 25%; and particularly for the risk of attacks, which this year scares more, by +5 points at 51%. Nevertheless without generating an increase in the rate of coverage which remains limited to 13% of Europeans. Thus, even if EU countries recognize the importance of having travel insurance while abroad, the practice of buying these kind of policies is still weak among travelers.

1.2 Travel insurance

On the US Department of State's website[5] it is possible to take vision of the list of recognized insurance companies providers for overseas coverage. It is also specified that, travel insurance,

> (…) typically covers such things as the cost of your lost baggage and cancelled flights, but it may or may not cover costs of medical attention you might need while abroad. Travel medical insurance covers the cost of various level overseas medical

[5] http://travel.state.gov/content/passports/en/go/health/insurance-providers.html

treatment and then medical evacuation services provides air ambulance, medical evacuation or medical escort service coverage for overseas travelers.

There exist a lot of different plans in travel insurance which are offered by insurers. Top Ten Reviews[6] platform ranks the best travel insurance plans providing trip cancellation protection, emergency medical assistance and luggage protection. At the first place, there is CSA Travel Protection, followed by Travel Safe at the second place, USI Affinity as third, and then Seven Corners, Allianz Global Assistance, MH Ross, Insureand Go, Travel Insured International, Travelex and finally AIG Travel Guard. However, these plans provide insurance exclusively for North American citizens.

Among European travel insurances, through an online search[7] diverse brands with good limit of liability are suggested. In fact, sometimes low prices in insurance means also lower coverage cap. Among them, it is worth to cite some names like Cover for you, Virgin money (medical: unlimited), Just travel cover, Discount Insurance, Saga, Staysure, Aviva, Sainsbury's Bank, American Express, Flexicover, Spectrum, Alpha, Columbus, and etc.

[6] http://travel-insurance-review.toptenreviews.com/ Top Ten Reviews is a platform managed by Purch, which helps consumers and buyers around the globe in making their choices monitoring a multitude of marketplaces.

[7] http://www.money.co.uk/travel-insurance/european-travel-insurance.htm

As observed, travel insurance generally covers "cancellations, medical expenses, evacuations, loss or delays and 24/7 assistance"[8].

Though travel insurance represents a small section in the wide field of insurance, it is a broad term. It can be largely categorized into two classes. The first one is called "trip insurance". It is usually provided for short-duration trips up to 30 days, which protects client from financial losses due to unexpected trip related issues. It includes for instance trip cancellation, trip interruption, trip delay, missed flight connection, checked baggage loss, baggage delay, etc. While the second category, "travel medical insurance", ensures protection for health related issues such as sickness, injuries and accidents. It covers medical evacuation, accidental death repatriation, medical treatments, etc. while travelling. It can also include visitor insurance, visitor medical insurance, travel health insurance or overseas travel insurance.

Depending on the scope and the activities the traveler is going to undertake during his/her trip, there exist policies covering life risks for accidental death or dismemberment[9], hazardous sports (extending the medical coverage to cover activities like SCUBA), rental car collision and identity theft[10].

[8] http://www.travelinsurancereview.net/beginners-guide/coverage/

[9] Dismemberment consists in *the action of cutting, tearing, pulling, wrenching or otherwise removing the limbs of a living thing*s, for instance it can occur as a result of a traumatic accident or in connection with murder (http://www.oxforddictionaries.com/definition/english/dismemberment)

[10] http://www.travelinsurancereview.net/beginners-guide/coverage

Subjectively, a client can opt for financial coverage even against the risk that the travel supplier (tour operator, cruise, airline) goes out of business or bankrupt, or the possibility that a terrorist incident would happen in the city the traveler is going to visit.

Usually, trip cancellation is effective at 12.01 am, the day after travel insurance is purchased, while all other coverage become effective once the individual departs. However, it is suggested to buy travel insurance within 7/21 days before of the initial trip depart[11].

In case of frequent travelers, they should opt for an annual coverage as it would be cheaper than buying a travel insurance for each single trip.

1.2.1 Travel medical insurance and its importance

According to Steffen et al. (1987), it is estimated that between 30-50% of travelers become ill or injured whilst traveling. "*No one should travel uninsured*" suggested Leggat et al. in a study developed in 1999. Travelers, in fact, are not usually covered abroad by their health insurance, workers' compensation and third party and other personal liability policies. Few countries provide reciprocal medical and dental arrangements or free health care to travelers. Again, fewer countries provide a full range of readily accessible health care services, including aero-medical evacuation. As a consequence,

[11] http://www.travelexinsurance.com/travel-insurance/plans/flight-accident-insurance

international journeys should require travel insurance. Buying coverage, financial security is provided against what can be very costly claims for medical and related travel expenses in the event of misadventure. Especially for the need of aero-medical evacuation, occasionally requiring such things as specialized aircraft, modifications to aircraft, medical and nursing escorts, and assistance with legal, customs and immigration procedures. But most importantly, the travel insurer can assist in organizing, coordinating and, in some cases, financially guaranteeing a traveler's medical care and keeping relatives informed.

The cost of a travel insurance premium is factored against the levels of coverage and duration of time overseas, with the levels of coverage becoming more strongly linked to destination. Discounted travel insurance policies will generally have exclusions or limitations. Ideally, Leggat et al. (1999) suggest that "travel insurance needs to be taken out at the top level available". Top level travel insurance policies should cover as far as possible all medical, dental, and surgical costs; personal liability, costs of aero-medical evacuation; costs of additional expenses associated with medical treatment, including loss of income, travel rearrangements, transport of relatives, and daily allowance; plus usual travel insurance items, such as loss of baggage; and carriage of body or ashes after death.

But, while coverage options included in a policy depend on the packages and the type of insurer, there are things which are not covered as reported by Leggat et al. (1999). Things such as travel to war zones, self-inflicted injuries,

unlawful acts, certain infection diseases such as Acquired Immune Deficiency Syndrome (AIDS) and sexually transmitted infections, pregnancy, and participation in professional sports are generally not covered. As outlined before, those who are expecting to undertake any kind of hazardous pursuit should expect to pay a surcharge on their travel insurance premium, which may be assessed on a case by case basis by travel insurance companies. Moreover, it is important for travelers, especially elderly travelers, to be made aware that travel insurance normally does not cover any known preexisting medical or dental problems. In these cases, travelers should complete further documentation of these conditions and, in some cases, be clinically assessed by a doctor or insurance medical representative. It is important, as suggested in this paper, to discuss the "worst case scenario" risk and the cost if it occurred (LEGGAT P. A., et al., 1999).

1.3 Main channels of sale

Travel insurance can be obtained through travel agents, airlines, private health insurers, doctor's offices, hostels, and other travel and tourism representatives (LEGGAT P. A. et al, 1999a).

The survey done by Europ Assistance (2015) reveals that European people prefer still to buy their coverage against risks at the usual insurance company, while it is increasing slightly the percentage of Europeans who

ensure through specialized website. Precisely, 11% of European citizens, +3 points compared to 2014 which purchase their insurance policies online.

The policy can be stipulated asking directly to an insurance company or through intermediaries such as travel agents or tour operators. Additionally, travelers are allowed to purchase their policy even through airline companies.

Although airlines usually offer coverage for what concerns the flight, from the departure to the arrive at destination (trip insurance), nowadays, there is the chance to buy policies that covers all the trip, including medical assistance (travel medical insurance). The traveler can purchase it directly when buying the flight ticket. There is in fact a kind of agreement with the insurance company which offers to the customer the most suitable choice based on his/her requirements.

For example, looking at the Easy Jet website[12], there are three different options of coverage offered in collaboration with Allianz. Depending on the individuals' needs there are options offering coverage against medical expenses, loss of luggage, cancellation, flight delay and Civil Responsibility. Brussels Airlines[13] offers the possibility to buy travel insurance through its agreement with Europ Assistance. Different packages are designed

[12] https://travelinsurance.easyjet.com/it/?utm_source=easyJet&utm_medium=Homepage&utm_campaign=NAV_bar_Manage_Bookings

[13] https://www.brusselsairlines.com/en-be/practical-information/travel-info/my-ticket/travel-insurance/default.aspx

for Brussels Airlines customers, they include travel insurance, luggage and cancellation. In the Cooperation between Brussels Airlines and Europ Assistance (Belgium) S. A.[14] all the details are specified, starting from the amount covered, to the duration of the coverage and the kind of risks which are covered. For instance, the duration of the coverage concerning luggage option[15] is provided for a maximum of 120 continuous days abroad. While cancellation contract[16] is valid till the moment of the return.

However, an article[17] published by The Guardian review, advices travelers never buy from a travel agent, tour operator and airline company because *it will cost more*. The article warns people to pay also attention about "the excess". The excess is intended as the amount the policyholder has to pay towards any claim. For instance, if there is a claim of € 500 and the excess is € 100, the insurer pays out € 400. If the excess is high, the policy will be cheaper, but may not be worth having it.

1.3.1 The increasing role of Internet

Each individual today uses the Internet at home and even outside through mobile devices; as a consequence, an increasing number of people book their flights online to save time and money. This happens taking advantage of

[14] http://web.brusselsairlines.com/europassistance/travel_en.pdf
[15] http://web.brusselsairlines.com/europassistance/luggage_en.pdf
[16] http://web.brusselsairlines.com/europassistance/cancellation_en.pdf
[17] http://www.theguardian.com/money/2012/apr/06/travel-insurance-cover-10-tips-deals

the existence of different platforms where it becomes possible to compare the prices and airline companies' offers. Data reveal that, on average, travelers saved $ 167, or the 25% on domestic tickets, by booking online just in 2005. "The Internet's ability to sort and compare large volumes of data *commoditized* the online flights market" (MAMAGHANI F., December 2009). The increasing practice of bookings online, combined with the advantage of adding insurance directly from the website, represents an incentive to purchase travel insurance policies trough airlines.

A travel insurance provider can be consulted online and an insurance quote can be obtained immediately only by filling the data in the form through an automatic calculation on the website. In this way, as consumers, we benefit of the advantageous possibility to make comparisons and choose the best options available. On the other hand, this should mean transparency and more competition between the firms involved. But at the same time, Julie Remmington, a consultant of ACE Travel Insurance, points out that there are obstacles to transparency in networks that include assistance and insurance companies. She says the relationships within the supply chain are complex (ITIC GLOBAL 2014). Mary-Jo McDonald, an industry consultant, discovered through a survey of the industry that:

(...) 75% of respondents said they were aware of assistance companies or agents who were not open with their on-charging of network costs. Of those, 70% said they had proof of practices

such as rebating, double invoicing, or collusion with the provider (ITIC GLOBAL 2014a).

For what internet use is concerned, many sites and apps provide information and feedback for different destinations. Useful tools are platforms such as Netglobers, TripAdvisor and Moneysupermarket which provides comparisons for travel insurance and other purchasing options. Moreover, with the Smartphone's diffusion, mobile applications appeared on the scene. For instance, apps such as Dos & Don't, useful to learn about other cultures, and Trip organizer, another app for organizing trips abroad providing a lot of travel information.

According to Euromonitor International[18] (2014), Expedia was the top online travel agency globally with gross bookings for $39.4 billion in 2013, followed by Priceline at $39.2 billion in the same year. Chinese and Indian players such as Ctrip and MakeMyTrip are also growing rapidly, they also started to target consumers in advanced economies such as the HotelTravel brand launched by MakeMyTrip.

In this constantly changing environment, a new generation of companies coming from the mobile and peer-to-peer sectors and from emerging economies may become the future giants of the travel industry (Euromonitor International, 2014).

The emergence of technology-fueled travel e-commerce can be traced back to the 1995/96 time window when

[18] http://www.marketwired.com/press-release/global-online-travel-and-tourism-sales-to-reach-us830-billion-in-2017-1885494.htm

Preview, Travelocity and Expedia first appeared. Nowadays, someone speaks about saturation. "The future of the sector is both exciting and terrifying" reports Timothy O'Neil-Dunne basing his statement on data provided by eMarketer. Looking at those data, digital travel sales (defined as unmanaged business travel and leisure) based on forecasts from 2012 to 2017 reveal a decrease in the percentage of growth for each country. However, India, Italy and Spain are three countries expected to show a major growth in comparison with the rest of the world. For what digital travel sales share are concerned, Mexico, India and Spain are at the top of the list (eMarketer, 2014)[19]. As a consequence, these nations could represent a good opportunity in terms of travel insurance sales.

The next chapter will examine more in depth the role of the e-commerce and new technologies applied to the travel insurance field.

[19] http://www.tnooz.com/article/travel-ecommerce-saturation-point/ Tnooz is a global provider of news, analysis, commentary, education, data and business services to the travel, tourism and hospitality industry. It is the leading voice to the industry for all areas related to travel technology. Launched in September 2009.

2. E-COMMERCE IN TRAVEL INDUSTRY

Unfortunately, the existent literature in travel insurance is still lacking a deep analysis on the role of the new technologies, such as the e-commerce, in selling policies online. Due to this fact, the subsequent chapter reports a general view on the role played by the Internet in sales, especially for what travel and tourism is concerned. As a consequence, the reader can develop a prospect in the evolution and tendencies of the travel sector, and then, an idea of the potential for the growth of the travel insurance trade.

2.1 An overview on the e-commerce diffusion

Since 1995, electronic commerce has experienced a growth rate of well over 100% a year, even though at some point the rate slowed and began to grow at about 25% a year (LAUDON K. C., TRAVER C. G., 2011, p. 8). As Business Insider UK reveals, the trends estimated for the year 2015 show $100 billion in online sales in the fourth quarter of the year, a 16% increase over the same period of the previous year (SMITH. C., 2014) [20]. This path is also

[20] http://uk.businessinsider.com/the-biggest-trends-in-e-commerce-2014-10?r=US&IR=T

much higher than that of the overall retail sales, estimated by the National Retail Federation to be only a 4,1% growth in the last two months of 2015.

Buying over the internet (e-commerce or e-shopping) has become very popular in the EU, with 61% of internet users in 2013 using it to buy or order goods or services for private purposes, an increase of eleven percentage points compared with 2008. As shown by Eurostat[21], the share of e-shoppers among internet users varied considerably between Member States. E-shopping trends reveal that six in ten internet users shopped online between 2008 and 2013. The highest proportions were registered in the United Kingdom (85%), Denmark (81%) and Germany (80%); the lowest in Romania (15%), Bulgaria (22%), Estonia (28%) and Italy (32%). The fastest growth between 2008 and 2013, by twenty percentage points or more, was recorded in Belgium, Lithuania, Croatia, Slovakia and Malta (Eurostat, *Internet use statistics*)[22].

[21] http://ec.europa.eu/eurostat/statistics-explained/index.php/Internet_use_statistics_-_individuals
[22] *Ibidem*.

Internet users who bought or ordered goods or services for private use over the internet in the past 12 months, 2008 and 2013

(% of internet users)

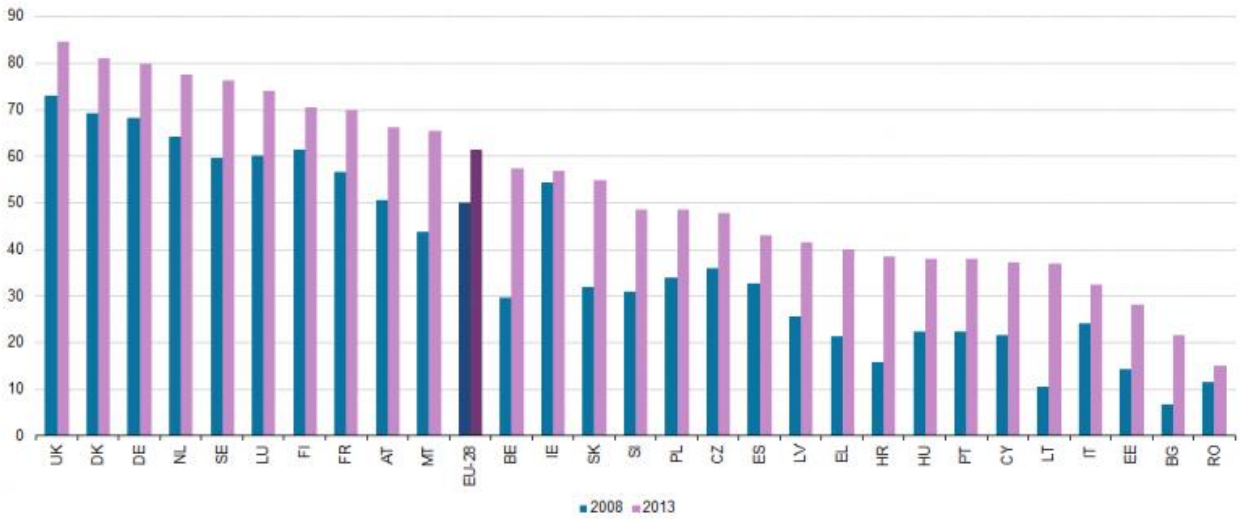


Fig. 2.1
Source: Istat Statistics Explained
http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Internet_users_who_bought_or_ordered_goods_or_services_for_private_use_over_the_internet_in_the_past_12_months,_2008_and_2013_(%25_of_internet_users)4.png

Globally today, China is the leader country on e-commerce spending in the world. According to Remarkety research[23], about $562.66 billion in sales are projected for 2015 (KEITH M., 2015). Obviously, factors such as its big population influence these numbers. Data show that the average internet user is 25 years old, that more than 70% of customers will make purchases on a Smartphone and that shopping is the fastest growing online activity in

[23] http://www.remarkety.com/global-ecommerce-sales-trends-and-statistics-2015

China. As we can observe in table 2.1, purchases are estimated to be for 33% through tools such as tablet or Smartphone and the rest 67% of pc spending. In most of the countries purchases are done principally by pc use.

At the second position there are the US with $349.06 billion in projected e-commerce sales and where there are 191.1 million online buyers. The study reveals also that 98.9 million Americans have purchased at least once on a mobile device. Over half (57.4%) of the US public shops online.

UK ranks third among the list with $93.89 billion in projected online sales for 2015. Online sales in UK already make up 13% of the total economy and they are booming now.

At the fourth place we find Japan, with a total projected online sales of $79.33 billion for this year. In Germany ($74.46 billion) 85% of the population are internet users with half of the online market dominated by Amazon and Otto, a Dutch e-shop that owns a lot of companies.

Then we find France ($42.62 billion), South Korea ($36.76 billion), Canada ($28.77 billion), Russia ($20.30 billion), and finally at the tenth position we find Brazil ($18.80 billion).

It is worth to note that Asian countries are the most oriented towards Smartphone purchases, in fact Japan

and South Korea represent about 50% online spending through the use of Smartphone (KEITH M., 2015a)[24].

Top ten e-commerce markets

Country	e-commerce spending (billion $)	dispositive use		
		Tablet spending %	Smartphone spending %	PC spending %
China	562.66	33	33	67
USA	349.06	13	15	72
UK	93.89	12.1	16.5	71.4
Japan	79.33	6	46	48
Germany	74.46	11.5	16.2	72.3
France	42.62	8.1	11.1	80.8
South Korea	36.76	1	50	49
Canada	28.77	7.5	8.7	83.8
Russia	20.30	12	8	80
Brazil	18.80	4	8	88

Tab. 2.1

Source: Global ecommerce sales, trends and statistics 2015, Remarkety http://www.remarkety.com/global-ecommerce-sales-trends-and-statistics-2015

According to eMarketer (2014), in fact, "e-commerce eclipses $ 1.3 trillion, led by China and US". The research predicts that China's growth over the next five years will widen the gap with the US while exceeding $ 1 trillion in retail e-commerce sales by 2018, accounting for more than 40% of the total worldwide (eMarketer, 2014)[25].

Additionally, as reported by eMarketer (2014), mobile commerce represents one of the major driver of e-commerce nowadays, especially for people who book

[24] http://www.remarkety.com/global-ecommerce-sales-trends-and-statistics-2015
[25] http://www.emarketer.com/Article/Retail-Sales-Worldwide-Will-Top-22-Trillion-This-Year/1011765

their holidays online. Mobile commerce is defined as "the use of wireless digital devices to enable transactions on the Web" (LAUDON K. C., TRAVER C. G., 2011, p. 19). The other driver, suggested in that research, is the fulfillment and exchange options. (WURMSER Y., 2015*)*[26]. There will be a detailed discussion about future trends toward the end of this chapter.

2.1.1 E-commerce in travel industry

Eurostat reveals that three quarter of Europeans used the internet in 2013 and most internet users search for information and news, consult wikis, participate in social networks and buy products online *(*Eurostat, *Internet use statistics*)[27]. Moreover, Mamaghani (2009) reports that 95% of web users have searched the internet to gather travel related information and 93% visited destination websites. Almost three-fourths of online travel buyers used search engines prior to making their purchases (MAMAGHANI F., 2009).

More industries will be transformed by e-commerce, especially travel reservations, music and entertainment, news, software, education and finance (LAUDON K. C., TRAVER C. G., 2011a). The major impact that information technology has played on the travel industry is the development of the direct reservation systems, such as

[26] http://www.emarketer.com/Webinar/Online-Holiday-Shopping-Forecast-Trends-2015/4000118
[27] http://ec.europa.eu/eurostat/statistics-explained/index.php/Internet_use_statistics_-_individuals

the American SABRE[28] system, and the development of online sales channels via the internet (MAMAGHANI F., 2009a).

Forrester Research done in 2007 just revealed a prediction of spending $86 billion on airline tickets, lodging, cars, intercity rail, cruises and packages by nearly 40 million US households. Travel was the top category in terms of spending for all products purchased online, and it was growing (MAMAGHANI F., 2009b). In 2013 North America was the leading country in terms of online travel sales and Europe was the second world region with 34% of penetration. However, Asia Pacific is the largest for total travel sales of $691 billion even if it ranks third for what concerns online sales.

Air transport leads online travel sales accounting for $360 billion in 2013 (46% of total air travel sales) followed by travel accommodation that amounted to $164 billion (Euromonitor International, 2014).

[28] The SABRE system was developed by American Airlines in conjunction with IBM. Launched in the early 1960's it was the first computerized airline reservation system. Others airline companies rushed to develop their own reservation systems: United Airline created the Apollo system, TWA developed programmable Airline Reservation System (PARS) and Delta developed DATAS (MAMAGHANI F., December 2009).

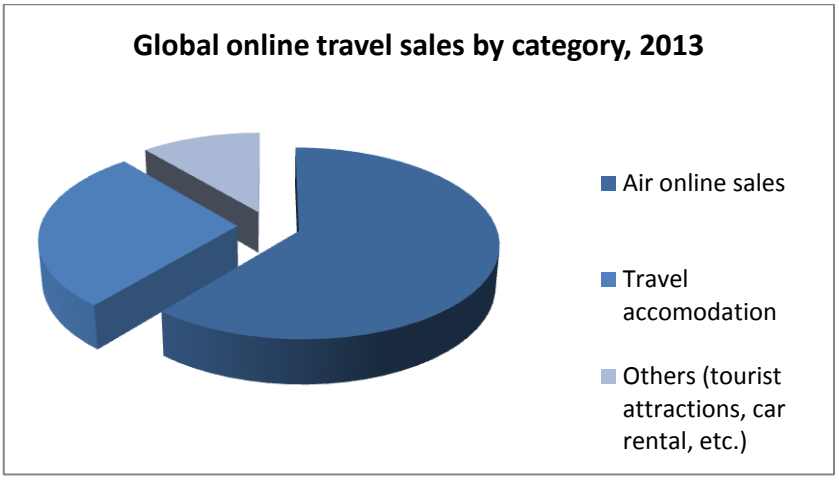


Fig. 2.1.1
Source: Euromonitor International
http://www.etoa.org/docs/default-source/presentations/2014-the-new-online-travel-consumer.pdf?sfvrsn=4

Today, travel and tourism industry represents an important share of e-commerce sales (ISAAC H., VOLLE P., 2014). This new way of doing business is changing the way companies trade and how consumers perceive products and services.

2.2 E-commerce and its role inside the companies

2.2.1 E-commerce definition and business relations

Clarifying the meaning of the word e-commerce, the definition as reported in the dictionary is of "commercial transactions conducted electronically on the Internet" (Oxford Dictionaries)[29]. It is also called electronic commerce. Laudon and Traver give a more formal

[29] http://www.oxforddictionaries.com/definition/english/e-commerce

definition: *"digitally enabled commercial transactions between and among organizations and individuals"* (LAUDON K. C., TRAVER C. G., 2011, p. 10). In this statement, *digitally enabled* means all the transactions made through digital technology, that occur over the Internet and the Web[30]. *Commercial transactions* involve the exchange of value and as the authors underlie, without an exchange of value, such as money, no commerce occurs.

Starting from this definition, there are different types of market participants, *organizations and individuals,* which are involved in commercial transactions. For this reason, there exist different forms of business relationships:

- B2C or Business to Consumer. It is the type of electronic commerce that has experienced the most important growth from the Internet age (ISAAC H., VOLLE P., 2014, p.22). An example of B2C electronic trading is electronic shops, such as eDVDShop. Any web shop consists of a storefront, where online customers have access to find information they need, and a back-front, where the access is reserved only at the shop administrator for managing processes and collecting data (MEIER A., STORMER H., 2009, p. 4).
- B2B or Business to Business. It is older than the B2C's type of relation (ISAAC H., VOLLE P., 2014, p.24) . For

[30] As the book points out, the Internet and the Web are not the same thing even if the terms are used interchangeably. The Internet represents a worldwide network of computer networks, while the World Wide Web is one of the Internet's most popular services that provides access to over 8 billion Web pages (LAUDON K. C., TRAVER C. G., 2011).

instance a supplier relationship between companies represents a B2B case.

- C2C or Consumer to Consumer. Websites such as eBay is an example of C2C relation where there is a business relationship between individuals.
- A2C or Administration to Citizen
- A2B or Administration to Business
- A2A or Administration to Administration

Where the term Administration refers to government and non-governmental organizations, such as nonprofit organizations (MEIER A., STORMER H., 2009, p. 2).

E-commerce makes possible to extend the marketplace beyond traditional boundaries, shopping can take place anywhere reducing transaction costs and enhancing customer convenience. In addition to the global reaching, it dictates universal standards and it reduces information asymmetry: information becomes plentiful, cheap and accurate. Price transparency is enhanced and time is saved. Electronic commerce increases also customization and personalization as firms can target their marketing messages to specific individuals by adjusting the message to the individual's characteristics and change the delivered product or service based on a user's preferences (LAUDON K. C., TRAVER C. G., 2011, p 16). Through e-commerce and new technologies for information capture and analysis, firms can track what customers prefer and need based on purchase history, online habits, click history and other information. In fact,

"combining e-commerce with customer intelligence makes online marketing practical" (DEREK M., 2010).

2.2.2 Disintermediation phenomenon

Among the electronic marketplace we can observe intermediation and disintermediation phenomena occurring at the same time.

Intermediaries and "infomediaries", such as specialized companies, take over a certain domain of the value-creating chain. Thanks to this form of integration, vertical or horizontal, they enable companies to focus on core competencies; so specialization while reducing costs (MEIER A., STORMER H., 2009, p. 22). Together with this phenomenon, the intermediary function of the middleman is threatened.

In the past, workers with average skills, doing an average job, could earn an average lifestyle. But, today, average is officially over [...] everyone needs to find their extra (FRIEDMAN T. L., 2012).

Business Insider[31] review also confirm that with the growth of the digital sector, jobs that rely on older technologies will become obsolete (MARTIN E., 2014). Forbes[32] said:

Internet travel sites have essentially erased the need for travel agents, an occupation which declined by 14% and 12,500 jobs

[31] http://www.businessinsider.com/jobs-that-are-quickly-disappearing-2014-7?IR=T
[32] http://www.forbes.com/sites/jennagoudreau/2011/06/22/disappearing-middle-class-jobs/

in the last five years for which data is available (GOUDREAU G., 2011).

Since consumers had opportunities to find lower-priced travel online, many of them use web surfing on these sites for additional travel needs such as car rental, hotel and airline tickets as a one stop shopping. "*Information technology effectively had cut out the proverbial middleman"*(MAMAGHANI F., 2009c). However, in contrast with these remarks, Entrepreneur review illustrates an article which declares that "*businesses don't have the time or luxury to do those things*" (GLUSAC E., 2015)[33]. This means that companies often rely on travel agents to save *time* and to take advantage of their knowledge. Moreover, Topaz International, a corporate travel auditor, conducted a study based on bookings made via corporate travel programs, which could be replicated on public Internet sites. The result has been that only 6% of itineraries could be booked online cheaper than with a travel agent (GLUSAC E., 2015a). Tim Hentschel, CEO of Lexyl travel technologies situated in West Palm Beach, states: "once your travel budget gets above $100,000 per year, it's time to look at what you can do with a *travel partner*".

While there are businessmen declaring travel agents can get special placement on a plane or get better deals, disintermediation would create benefits for companies as by avoiding middlemen margin gains can be realized.

[33] http://www.entrepreneur.com/article/250100

Finally, with disintermediation phenomenon, direct contact with customers allows the exploitation of all the advantages provided by eCustomer Relationship Management. For instance better communication, qualified customer feedbacks and mass customization (MEIER A., STORMER H., 2009, p. 23).

2.2.3 Digital value chain

Mentioning eCRM, it is worth to cite the composition of the digital value chain. Firstly, as the term *digital* suggests, it is about electronic products and services which are sold online. All the activities in the value chain are influenced, starting from what it could be called electronic procurement, to eMarketing, eContracting, eDistribution, ePayment and eCustomer Relationship Management (MEIER A., STORMER H., 2009, p. 15). Enterprises who adopt electronic commerce have to deal with some issues concerning the shifting in the activities of the value chain. For instance, the problems related to e-payment and the underlying law or the development of new marketing tools to study the web users' market.

a) E-payment and related issues

For what electronic payments and digital signature are concerned, it becomes clear how new standards are created across nations. In fact, in order for electronic commerce to flourish in a global environment a suitable legal framework is necessary. The existing one does not

satisfactorily meet the needs of an online community. Therefore, as the Professor of Law, John Angel declares, the European Commission is dealing with different open issues: supervision of certification-service providers, security certification, interoperability of certificates, business requirements, etc. (ANGEL J., 1999)[34].

E-signature[35] in Europe is governed by the Directive 1999/93/EC[36] published on 19th January 2000, but the law is still fragmented. Article 2 of the Electronic Signature Directive and Regulation 2 of the Electronic Signatures Regulations 2002 define an electronic signature as:

data in electronic form that are attached to, or logically associated with, other electronic data and that serve as a method of authentication. An electronic signature can be created by any means and so is wider in meaning than a number of other terms e.g. digital signature.

The legality of electronic contracts and other documents are not always clear. Part of this issue is the recognition of the electronic signatures, to provide secure

[34] https://www2.warwick.ac.uk/fac/soc/law/elj/jilt/1999_2/angel/

[35] Electronic signature is the electronic equivalent of a written signature. Esignature can comes in many forms, including: typewritten, scanned, an electronic representation of characters, a digital representation of characteristics (for example fingerprint, retina), a signature created by cryptographic means. To equate Electronic signature to hand-written signature, Article 5.1(a) of the Directive 1999/93/EC requires Member States to ensure that an Advanced Electronic Signature, which is based upon a qualified certificate and is created by a secure-signature-creation-device (defined by the Directive as *a configured hardware or software used to implement signature creation data*), satisfies the legal requirements of a signature in relation to data in electronic form in the same manner as a handwritten signature. Article 5.1(b) requires Member States to ensure that these signatures are admissible in legal proceedings (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/356786/bis-14-1072-electronic-signatures-guide.pdf)

[36] Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures, *Official Journal L 013, 19/01/2000 P. 0012 – 0020* (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999L0093:EN:HTML)

communications, and the need to have properly established certification authorities. As reported in the ECB Conference on E-payments in Europe[37], the use of the open network has allowed more convenient financial services but has also made the nature of risks more complex. Risks such as unauthorized access, illegal acquisition of PINs, theft of data, etc. are threatening online transactions. Then, there is an increasing demand for security services, especially by banking customers. Recent developments have been reached by the Commission: the Actions on the European Digital Agenda represent the concrete proof.

The seven pillars of the Europe 2020 strategy[38] are:

- the creation of a digital single market
- interoperability and standards
- trust and security
- fast and ultra-fast Internet access
- research and innovation
- enhancing digital literacy, skills and inclusion
- ICT-enabled benefits for EU society.

The digital single market strategy (or DSM)[39] adopted on the 6 May 2015 includes sixteen initiatives to be delivered by the end of the 2016. It is based on three pillars: Access, Environment, Economy and society. For instance, Action

[37] ECB Conference on E-payments in Europe, 19 November 2002, Frankfurt (https://www.ecb.europa.eu/pub/conferences/shared/pdf/epayments-masi.pdf)
[38] https://ec.europa.eu/digital-agenda/en/our-goals/pillar-i-digital-single-market
[39] https://ec.europa.eu/digital-agenda/en/digital-single-market

7[40] aims at ensuring the completion of the Single Euro Payment Area (SEPA) and Action 11[41] sets out new VAT rules for e-invoicing. On 13 July 2010 the Council adopted Directive 2010/45/EU[42] (amending Directive 2006/112/EC) which sets out new VAT rules for e-invoicing and removes the obstacles to the uptake of e-invoicing by creating equal treatment between paper and e-invoices, while also ensuring that no additional requirements are imposed on paper invoices. (On 16 April 2014 the European Parliament and the Council reached the agreement on the Directive on e-invoicing in public procurement).

Nowadays, security and privacy are becoming fundamental issues to deal with.

b) E-marketing and e-segmentation

Electronic marketing usually classifies online consumers on the basis of their access to the Web. Internet users have the control of their medium as they decide where they want to navigate, what they want to do and which links they want to click. Internet allows for back and forth of information and people are spending more time on their computer. Therefore, it is absolutely fundamental

[40] http://ec.europa.eu/digital-agenda/content/action-7-fix-date-migration-single-european-payment-einvoicing
[41] http://ec.europa.eu/digital-agenda/en/content/action-11-member-states-transpose-vat-directive
[42] Council Directive 2010/45/EU of 13 July 2010 amending Directive 2006/112/EC on the common system of value added tax as regards the rules on invoicing, *Official Journal of the European Union L 189/1, 22/7/2010* (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:189:0001:0008:EN:PDF)

for companies to create and maintain a useful and attractive website (DEREK M., 2010a).

In marketing, segmentation can be done considering different characteristics such as demographics or lifestyle, for example. In this case it is based on consumers' behavior. Five customer groups are specified by Meier and Stormer (2009):

- the online surfer, who goes through websites searching for information with just a few knowledge and experience,
- the online consumer, more expert than the first
- the online prosumer
- the online buyer
- the online key customer who makes repeated purchases with frequency and regularity.

By categorizing consumers into groups it becomes possible to carry out a differentiated market treatment constantly adapting (MEIER A., STORMER H., 2009, p. 73-77).

Behavioral segmentation on the basis of knowledge and frequency by which users navigate on the Net can be done also in a deeper way. The development of "usability analysis framework"[43] which utilizes the segmentation of user web interactions based on the periods of activity and

[43] A general definition of usability is given by the International Standards Organization's ISO9241 standard, which states that *"Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use"*. It is the level of usability of a website that determines if a user stays or abandons it for another competing one. It is therefore crucial to understand the importance of usability on the web, and consequently the need for its evaluation. There are two types of tools that can perform automated usability evaluation: those that try to predict the usage of websites; and those that make use of conformance to standards (http://www.hindawi.com/journals/ahci/2014/479286/).

inactivity has been developed for this purpose (PSAILA G., WAGNER R., 2007, p. 35-44).

The explication of the above mentioned characteristics of e-commerce allows the reader to understand some of the challenges for the companies involved in dealing with electronic business. All the activities included in the value-chain undergo a transformation.

2.2.4 E-commerce, SMEs and insurance: a brief overview

Since 1994 millions of companies have stepped into the digital world and started conducting business online. The trend is that without having a web presence and adopting e-commerce, it would be difficult to survive. However, many challenges are faced by small medium enterprises due to the lack of expertise, knowledge, resources and many other reasons, so the e-adoption of SMEs still lags behind (PSAILA G., WAGNER R., 2007, p. 68).

For instance, Italy is known to be an example of an economy composed principally by small medium enterprises and family businesses. According with the charts and indicators illustrated by the European Commission[44], the integration of the digital technology by businesses is the dimension where Italy performs second best of all DESI 2015 dimensions. With a score of 0.29 (substantially up from 0.21 last year), Italy ranks 20th among EU countries. Italy's enterprises are making

[44] https://ec.europa.eu/digital-agenda/en/scoreboard/italy#4-integration-of-digital-technology

progress in adopting eBusiness solutions but need to better exploit the possibilities offered by eCommerce. Only 5.1% of SMEs is selling online, the worse percentage in the EU28. According with DESI 2015[45], Denmark, Sweden, The Netherlands and Finland are the highest performing countries being the world leaders in digital. While, Romania and Bulgaria are the slow performing countries.

However, it is important to point out that SMEs play a fundamental role in insurance market inside transition countries, like Serbia, for example. According with Lecic et al. (2014) less developed countries show a low level of awareness of the insurance necessity, consequently insurance is regarded as an item of expenditure not required by customers. Lecic Cvetkovic et al. (2014) define small medium enterprises like "*the backbone of the development of countries in transition* contributing to an increase in GDP, exports, market economy and its competitiveness". The study reveals, in Serbia, these organizations constitute 99,8% of the total non-financial enterprise sector. A great market opportunity lies in cooperation establishment between SMEs and insurance companies. As SMEs are primarily engaged in service activities, they can represent an effective insurance distribution channel. Factors like SMEs' degree of independence, flexibility and the ability to mediate between customers and insurance companies could benefit insurance market reducing distribution costs and creating marketing value (LECIC et al., 2014a). Thus,

[45] https://ec.europa.eu/digital-agenda/en/desi

various SMEs, such as travel agencies, can be effective intermediaries in the insurance market due to their role as advisors, educators, insurance distributers, cost-reduction contributors, builders of long-term relationships and help creator of marketing value of insurance premiums. Recent innovations through travel agencies constitute services such as damage compensation in the event of theft or loss of baggage, legal and translation services, assistance in the event of theft or loss of travel documents. These innovations provide travelers additional protection and make travel agencies more responsible business partners (LECIC et al., 2014b). Although services' customization requires a deep analysis of customers' needs, SMEs have the advantage to be closer to the customer.

2.3 Future trends and opportunities

2.3.1 E-commerce

The forecasts for e-commerce are positive and specifically related to the increase in the use of Internet for shopping online through different tools such as Smartphone, the growth of the so-called mobile commerce. Mobile devices range from portable computers like notebooks, to cell phones or personal digital assistances (PDAs). Customization and personalization acquire a major importance. At the same time with the phenomenon of

disintermediation some jobs are disappearing. New challenges are there for companies: starting from the digitalization of the value chain, the increase in market dynamics, the globalization of the markets, the growing complexity of products and services, the expansion of the qualification structure in jobs to the change of values and lifestyle in the society and the development and progress in ITC (MEIER A., STORMER H., 2009, p. 165-196).

2.3.2 Travel and tourism industry

The global online travel market is far from mature, continuing its steady growth in all travel categories and in all regions, driven by emerging markets but also by healthy performances recorded in the advanced economies. Although, North America was the leading region for online travel sales in 2013, and Euromonitor predicts "global online travel and tourism sales to reach in US $830 billion in 2017" (Euromonitor International, 2014a)[46], the region will record the lowest growth over the next five years, albeit at a still healthy 7% average annual rate. By 2017, Western Europe is forecasted to reach North America at the top of the ranking and Asia Pacific is expected to be the fastest growing region over the next five years in terms of online travel sales. Online travel sales which are set to double from $78 billion in 2012 to $155 billion in 2017 in the region (Euromonitor International, 2014b).

[46] http://www.marketwired.com/press-release/global-online-travel-and-tourism-sales-to-reach-us830-billion-in-2017-1885494.htm

Customization enhancement suggests that the trend is toward "a market of one", customer service so personalized that each customer feels like the company's most important client. This is a new direction especially for travel companies. For airlines and OTAs (Online Travel Agents), according to a study conducted by Russel and Norvig, personalized marketing can improve conversion rates by 10/20%, increase revenue by more than 5% per week and bring in 3 to 7 times more revenue per visit from repeat visitors (HOFFMAN C., OFFUTT B., 2015, p. 5).

2.3.3 Social media and CEM

People buy online and also search for information about products and services becoming themselves as informers: online communities, blogs and social networks give opinions and feedbacks, rate, advertise. Emarketer suggests companies to focus on social commerce. Social media like Facebook, MySpace, Twitter, Instagram, Pinterest, even if they don't generate an high percentage of online sales, they are gaining in relevance (WURMSER Y., 2015a). They could represent other forms of online marketing. Trip Advisor is an example of sharing comments and opinions on travels, reviews, comparing prices and booking online.

Consumers can learn of new products, share experiences, get excited about news or vent about negative experiences. This could be an advantage or a

disadvantage to any company (DEREK M., 2012b). In fact, 79% of consumers said they would be less likely to buy airline tickets online a second time from a company with which they had a poor experience and 54% said that the experience would adversely affect their future offline relationship with that company (MAMAGHANI F., December 2009d)

The reality that travelers are constantly connected to multiple devices means businesses need CEM (Customer Experience Management) at every touch point. Analysis of social network postings, comment cards and email queries are all examples of post CEM tools, also called VOC (Voice Of the Customer) programs. They concern social media monitoring, call center improvements and intelligent agents (HOFFMAN C., OFFUTT B., 2015, p. 2-4).

2.3.4 The role of emerging economies

Mamaghani (2009) revealed that in 2009 international and domestic travel was booming in emerging countries, such as China and India. With the entrance of many developing countries into the WTO they expanded their international travel policy. Under the previous system some individuals never had the right to fly in their life. E-commerce is also on the rise in emerging economies. Many consumers in these countries do not have a personal computer, connecting them to the world through mobile and handheld portals which are more convenient for them. This is a big opportunity for travel business

(MAMAGHANI F., 2009e). Google revealed that consumers' use of multiple screen can be sequential or simultaneous. Sequential generally starting from Smartphone for then moving to PC, tablet or TV. Then companies need to build flexible technological architecture to reach consumers on all screens (Euromonitor International, 2014c)

2.3.5 The future

Leading companies in travel industry such as Expedia, are looking for opportunities Artificial Intelligence, and cognitive computing can offer (HOFFMAN C., OFFUTT B., 2015, p. 7)[47]. Owyang (2013) states participation in the *collaborative economy* is fundamental. Collaborative consumption is driven by the convergence of societal, economic and technological factors. Social networks, mobile devices and platforms, and payment systems (ex. PayPal) are what constitute "the *collaborative economy* era" (OWYANG J., 2013).

[47] Artificial Intelligence (AI) is a machine's ability to imitate intelligent human behavior and functions, such as visual perception, speech recognition and language translation. The machine must be able to communicate with, respond to, and learn from an interrogator, as well as develop reasoned replies, all in natural language (HOFFMAN C., OFFUTT B., 2015).
Cognitive computing is the simulation of human thought processes in a computerized model (http://whatis.techtarget.com/definition/cognitive-computing).Cognitive computing systems, as IBM says, are trained using artificial intelligence (AI) and machine learning algorithms to sense, predict, infer and, in some ways, think (http://www.research.ibm.com/cognitive-computing/#fbid=INOmVe55OdD).Cognitive computing has numerous applications in travel. Personal trip management applications for travelers, such as Amadeus's Personal Disruption Companion, enable airlines to learn a traveler's preferences and automate itinerary changes accordingly. WayBlazer, launched in 2014, is a trip-planning system powered by the cognitive computing platform of IBM's Watson (HOFFMAN C., OFFUTT B., 2015).

3. TO GET INSURED OR NOT GET INSURED?

This case study represents an attempt to solve the dilemma faced by an individual who has to decide whether to stipulate or not a travel insurance for his journey and, if yes, which kind of policy to purchase. The decision to analyze more in depth this issue is related to the fact that, even if people recognize the importance of being insured while abroad, many times they do not buy it (see Barometro IPSOS/Europ Assistance, 2015).

Diverse options of coverage will be analyzed based on different scenarios and alternatives. Factors such as the destination and the duration of the staying will influence the decision making process because of the different level of risks which are involved.

Introducing risk attitude, through the utility theory approach (see Appendix B), it will be possible to consider individual's behavior, which is the main factor in influencing people decisions. The results will be in accordance with the prospect theory (KAHNEMAN D., TVERSKY A., 1979).

Hereafter, a comparison can be made between the results obtained and finally an analysis and critique of the model.

Moreover, as suggested by a famous anthropologist named Hostfede, risk attitude of people is interrelated

with culture, as a consequence different groups of people represent different attitudes towards the "unknown" future (HOSTFEDE G., 2002).

3.1 Methodology

3.1.1 Collection of data

Firstly, to obtain an online quotation by an insurer, in addition to age and preexisting medical conditions of the traveler, it is necessary to provide the total cost of the trip. In order to have a reliable estimation of such a value, a detailed research has been conducted online.

Secondly, for what the different risks are concerned, the probability of realization of each scenario has been obtained through the collection and analysis of detailed information. Due to the fact that it is very difficult to find directly in detail these data, each probability has been supposed in a rational way according to the related information and statistics collected.

In the next paragraph, the number 3.2, the reader will find an exhaustive explanation about the collection of all these data.

3.1.2 Payoffs table and decisional tree, risk neutral case

After determining the probabilities of each scenario and the diverse costs the traveler could afford in each situation, a table with all the payoffs has been built (see Appendix C).

Through the construction of a decisional tree in excel, the optimal decision related to the case has been found out. It has been run a backward analysis with the calculation of the expected monetary values for each branch of the tree. At the end, the "rational" choice related to this case has been found applying the rule for which the best possible outcome is represented by the higher expected monetary value. After considering the risk neutral case and its optimal solution[48], the risk attitude has been introduced, hence connecting the values suggested by the expected monetary values which, by assumption, do not consider risk.

Payoffs table, risk neutral case

[48] See Annexes, the decisional tree and the payoffs table for the risk neutral case.

	TRIP CANCELLATION 0,135	DEPARTURE 0,865													
		DEATH IN FLIGHT 0,00375	FLIGHT DELAY 0,2531				ARRIVE AT DESTINATION 0,74315								
			BAGGAGE 0,0253				BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
				delayed 0,85	lost 0,15	no issues 0,9747	delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES option 1	-€179,30	€14.091,70	-€179,30	-€179,30	-€179,30	-€73,30	-€179,30	-€179,30	-€73,70	-€215,70	-€179,30	-€73,70	-€73,70
option 2	-€164,65	€14.106,35	-€258,65	-€1.178,65	-€58,65	-€258,65	-€1.178,65	-€58,65	-€200,65	-€308,65	-€58,65	-€58,65
option 3	-€1.320,97	€14.099,03	-€171,97	-€171,97	-€65,97	-€171,97	-€171,97	-€65,97	-€207,97	-€171,97	-€65,97	-€65,97
option 4	-€1.306,31	€14.113,69	-€251,31	-€1.171,31	-€51,31	-€251,31	-€1.171,31	-€51,31	-€193,31	-€301,31	-€51,31	-€51,31
NO INSURANCE	-€1.255,00	€0,00	-€200,00	-€1.120,00	€0,00	-€200,00	-€1.120,00	-€100,00	-€9.752,00	-€250,00	-€4.988,00	€0,00

Fig. 3.1.2

3.1.3 Survey

People has been interviewed through a survey[49] made up of five questions realized in such a way to provide answers which are related to their willingness to take risk. The survey represents an hypothetical situation where the individual is participating in a risky lottery. He has to choose between different options, each time with a different probability to win the lottery. The choice is based on how much is required from the player to leave the game, or more specifically, which is the sure amount that would convince the participant to abandon the risky lottery. All the possible amounts used in the survey reflect those values, or payoffs, which have been previously collected in a table[50].

Questions submitted in this survey are inspired by a famous Italian TV program also known as "Il gioco dei Pacchi".

To deal with the implications of the introduction of the individual's level of risk aversion on the decision making process, the expected utility theory[51] has been applied. The probabilities considered correspond to the number of boxes from which the player has to choose if he/she wants to participate to the risky game. Specifically: ¼ , ⅓ , ½ , ⅔ and ¾ . Usually, questions are submitted in the opposite way in order to receive answers (probabilities) which can be considered to obtain the utility function. Starting from these five points it has been possible to build approximately the sample's utility function.

[49] See Appendix A with the reported five questions of the survey and the following processing of data.
[50] See Annexes, payoffs table (Fig. 3.1.2).
[51] See the Appendix B for a deeper understanding of the Expected Utility Theory.

3.1.4 Processing of data: from the survey to the decisional tree, considering risk attitude

Answers of the survey have been recorded in an excel datasheet. Data have been collected and grouped into different categories depending on the variable taken into consideration. Averages of the responses have been computed and the utility function has been drawn. In this way, it has been possible to recover all the values needed to complete the decisional tree.

Payoffs values have been replaced by utilities values and the same is true for the construction of the tree diagram. Applying the value 1 at the maximum payoff and the value 0 at the minimum, and adding the five points identified through the survey, it has been possible to identify approximately the other values, or utilities.

Utilities table considering risk attitude

	TRIP CANCELLATION 0,135	DEPARTURE 0,865											
		DEATH IN FLIGH 0,00375	FLIGHT DELAY 0,2531			ARRIVE AT DESTINATION 0,74315							
			BAGGAGE 0,0253			BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
				delayed 0,85	lost 0,15		delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES option 1	0,52532	0,99000	0,52532	0,52532	0,52532	0,52890	0,52532	0,52532	0,52880	0,51539	0,52532	0,52880	0,52880
option 2	0,52550	0,99800	0,51530	0,50005	0,50005	0,52950	0,51530	0,50005	0,52950	0,51800	0,51500	0,52950	0,52950
option 3	0,48000	0,99600	0,52542	0,52542	0,52542	0,52940	0,52542	0,52542	0,52940	0,51600	0,52542	0,52940	0,52940
option 4	0,49000	1,00000	0,51532	0,50006	0,50006	0,52990	0,51532	0,50006	0,52990	0,52470	0,51520	0,52990	0,52990
NO INSURANCE	0,50000	0,53000	0,51850	0,50010	0,50010	0,53000	0,51850	0,50010	0,52700	0,00000	0,51533	0,25000	0,53000

Fig. 3.1.4

Curves have been estimated considering different variables. Starting from all the sample, after dividing by age, sex and finally by nationality (see Annexes).

3.2 Data collection

3.2.1 Sample of the survey

This research will be based on a sample of 100 individuals. For simplification it is supposed a typical traveller going on holiday for a period of 20 days. As most of people have their holidays in the summer season, it has been considered the period from the 8th to the 28th of August for the summer 2016. The person considered is healthy, she does not suffer from antecedent diseases, she has an age that ranges from 18 to 49 years old[52].

The survey is made among Italian and Belgian population[53]. Answers have been collected during the period ranging from the 3rd of December, 2015 to the 18th of January, 2016.

3.2.2 Destination Marrakech

Trip Advisor website[54] ranks the 25 top destinations in the world 2015. The first three positions are represented by Marrakech, Morocco, at the top of the list, followed by Siem Reap, Cambodia, and Istanbul, Turkey. As showed on tripadvisor.com, these places represent "this year's

[52] Age limits are fixed for simplification. Concerning all travel insurance policies, an increase in age beyond 50 or 60 years old, depending on the insurance company, it means the premium paid would be higher.
[53] The author of this research is Italian and currently living in Bruxelles.
[54] http://www.tripadvisor.com/TravelersChoice-Destinations

travellers' choice award-winning destinations, based on millions of reviews by travellers"[55].

As this study is considering a typical vacation, it has been chosen Marrakech as the destination of the journey. This trip, in fact, does not involve a large expenditure when departing from Europe. Morocco is a country that does not require particular vaccinations and is classified as a low risk country[56], so the exposure to health risks is not so high. This point is fundamental for our considerations about medical insurance. Being in holiday in a place where health risk is higher than other countries means this factor can influences people's decision of being insured.

Moreover there are no visa requirements for EU citizens if the staying is no longer than 3 months[57].

a) Medical care[58]

For what concerns the most common diseases travellers experienced in Morocco, there are Hepatitis A, contracted through contaminated food or water and Typhoid. Both of them can be avoided choosing for vaccines before to depart. A lower risk diseases include Hepatitis B and Rabies contracted through some animals. It is

[55] http://www.tripadvisor.com/TravelersChoice-Destinations
[56] http://www.netglobers.it/africa/marocco-presentazione.html
[57] http://www.ambasciatamarocco.it/marocco-informazioni-pratiche/
[58] https://www.osac.gov/pages/ContentReportDetails.aspx?cid=15123, http://wwwnc.cdc.gov/travel/destinations/traveler/none/morocco, http://www.huffingtonpost.com/halle-eavelyn/what-you-need-to-know-bef_b_4740418.html, http://www.tripadvisor.co.uk/Travel-g293734-s206/Marrakech:Morocco:Health.And.Safety.html

recommended to take some precautions like eat and drink safely, prevent bug bites, stay safe outdoors, keep away from animals, reduce exposure to germs, avoid sharing body fluids, know how to get medical care while travelling, select safe transportation and maintain personal security. The presence of dangerous animals such as snakes and scorpions could represents a threat. It is recommended to be aware that there is a risk in purchasing food from local street vendors[59].

Other factors that could influence the health's traveller are the dangerousness about the activities the adventurer plans to do and the willingness of the same person to take all the necessary precautions.

This study considers an ordinary adult who goes for a leisure trip. For instance, it can be also a summer school vacation for a language's student, someone who does not plan to take dangerous activities during her stay.

b) Terrorism risk

In recent years, Morocco has been the scene of several serious terrorist attacks. In may 2003 over 40 dead were counted in an attack in Casablanca. Suicide bombings happened in Casablanca and Meknes in 2007. On the 28th of April 2011, a bomb in a tourist cafe in the famous Jamaa El Efna in Marrakech has killed 12 people, mostly

[59] http://www.travel-exploration.com/page.cfm/Health

foreign tourists. The website[60] of the federal government of Belgium gives advice to all Europeans to consider the risk of violence against Western visitors. Terrorist risk is essentially due to attacks by isolated individuals. Vigilance is recommended. Kidnapping and hostage-taking, as recently recognized in Mali and Mauritania, are less likely in Morocco.

Recent episodes of terrorism are increasing people's alert. Journals are publishing articles[61] related to the consequences of the Russian plane crush over Egypt's Sinai, happened on the 31st of October 2015 killing 224 people, and Paris attacks happened on the 13th of November 2015 killing 129 people.

3.2.3 Online booking

Total cost of the vacation is estimated to be about € 1,255.

a) Flight

On the 15th of October 2015, it has been made an online search for booking in advance a return flight to Marrakech. The trip starts on the 8th of August and ends

[60] http://diplomatie.belgium.be/fr/Services/voyager_a_letranger/conseils_par_destination/afrique/maroc/ra_marokko.jsp

[61] http://www.theguardian.com/world/2015/nov/17/egypt-plane-crash-bomb-jet-russia-security-service, http://www.forbes.com/sites/richardminiter/2015/11/14/8-after-shocks-of-the-paris-attacks/, http://edition.cnn.com/specials/paris-terror-attacks, http://www.bbc.com/news/world-europe-34840943

on the 28th for the summer 2016, for a total staying of 20 days.

It has been made a comparison between diverse online platforms with different prices from different airline companies. The selection of the data used in this survey is based on an average of the best offers that have been found.

Through Expedia[62] and eDreams[63] websites it has been taken an average of the cheapest prices offered from different airlines and considering different locations of departure. As the survey will be conducted among Italian and Belgian inhabitants, it has been calculated the average cost of the flight considering the cheapest flights from different airports located in Italy and Belgium, to Marrakech.

Average quote return flight to Marrakech

DEPARTURE	ARRIVE	€	AIRLINE
Bologna	Marrakech, Menara	250,31	Iberia
Venezia	Marrakech, Menara	348,15	Iberia
Roma	Marrakech, Menara	267,02	Ryanair
Milano	Marrakech, Menara	332,13	Iberia
Bergamo	Marrakech, Menara	271,45	Ryanair
Torino	Marrakech, Menara	412,68	Iberia
Bruxelles	Marrakech, Menara	282,23	Vueling Airlines
	Marrakech, Menara	292,83	Iberia
	Marrakech, Menara	301,98	Iberia
		306,53	

Tab. 3.2.3a
Sources: http://www.edreams.it/, https://www.expedia.it/, https://www.ryanair.com/, http://www.iberia.com/, http://www.vueling.com/it

[62] https://www.expedia.it/
[63] http://www.edreams.it/

Average return flight cost to Manara Airport, Marrakech, from the 8th to the 28th of August 2016, with checked luggage of about 20 kg included, is estimated to be around € 306.53[64].

Following the episode of Paris attacks, it has been made a new search to see if changes in the fight's cost have occurred.

Four days after terrorism attack, on the 17th of November 2015, it has been found a significant decrease in the prices of flights from Europe to Marrakech. The difference is about € 50 less.

Changes in flight's price after recent terrorism episode

DEPARTURE	ARRIVE	EURO	AIRLINE
Bruxelles	Menara, Marrakech	219,04	Iberia, Ryanair
Venezia	Menara, Marrakech	273,36	TAP Portugal, Iberia
Roma	Menara, Marrakech	267,05	Ryanair
Milano	Menara, Marrakech	220,89	Ryanair, Iberia
Torino	Menara, Marrakech	290,03	Vueling, Iberia
		254,07	

Tab. 3.2.3aa
Source: http://www.edreams.it/#/home/

b) Accommodation

It has been chosen an average standard accommodation (3 stars) at the cheapest price. Through lastminute.com[65],

[64] See table on Annexes.
[65] http://www.lastminute.com/hotels/marrakech.html

the sample will spend 20 days on a Bed and Breakfast, Riad Sidi Mimoune, situated a few minutes from the city centre. The expense is € 847.47 for the room (standard room includes two people) plus € 100.91 city tax. In total an amount of € 948.38 for a 20 days sojourn.

A new research, done on the 17th of November, shows a decrease in prices for the same accommodation. Through lastminute.com the expense is € 840 (city tax excluded), with breakfast included this time. Booking directly on the B&B website[66] the expense is € 720 (plus *la Taxe de Promotion Touristique + la taxe communale environs 2.5 EUROS par personne et par nuitée*)[67]. The difference in prices is considerable, though it requires a deeper research from the customer.

However, prices are constantly subjected to changes that cannot be taken into consideration in this study.

3.2.4 Travel insurance

Policy insurance is affected by different characteristics, some of them can be controlled and others are exogenous factors.

- Age
- Travel destination
- How often the passenger travels
- The length of the trip

[66] https://www.secure-hotel-booking.com/riad-sidi-mimoune/2V8F/fr/summary?sid=b2615172-4b0c-4167-846f-643ee5a050ad
[67] http://www.riadsidimimoune.com/tarifs/rd3/1689.html

- Health (pre-existing medical conditions)
- The extend of passenger's cover
- The amount covered
- Individual excess level (the level of risk the passenger is willing to take)

Age and health conditions are among the characteristics that cannot be controlled.

As suggested in the first chapter, an important issue when opting for travel insurance as well as for any policy insurance, concerns insurance liability limits. They correspond to the maximum amount which the insurance company agrees to pay. Often, advantageous insurance premiums do not cover up to a certain amount, that at the end could reveal it to be very low. It is also necessary to consider the excess, or the amount the policyholder has to pay towards any claim.

Bearing in mind those issues, as much as possible, it has been selected one of the main UK's travel insurance provider, Worldwideinsure[68]. Through the website different quotes has been provided. The choice is motivated by the fact that this company provides insurance for UK, European and International residents. Another reason is that the website provides online different quotations based on different requirements. The chance to customize the policy gives to this research the possibility to consider different options from the same company. As observable in the following table 3.2.3, four options have been provided depending on the coverage

[68] https://www.worldwideinsure.com/

purchased: as coverage is reduced, the cost of the policy decreases. Option number one offers full coverage, it basically includes medical care, baggage, personal money and cancellation.

Worldwideinsure quotations
(where "removed" represents extra which are not covered by the policy)

Options	€	Removed
Option 1	73.30	/
Option 2	58.64	Baggage + personal money
Option 3	65.97	Cancellation
Option 4	51.31	Baggage + personal money + Cancellation

Tab. 3.2.4
Source: https://www.worldwideinsure.com/

3.2.5 Assessment of values

In order to analyze the different scenarios' effect, an estimation of the values of luggage and medical care has been done.

a) Baggage

According to the Montreal Convention 1999[69], airlines are legally liable for lost and damaged airline luggage while in their care. Their liability is also limited to a certain amount[70]. Airlines base their liability on the depreciation value of the bag and its content, not the replacement

[69] https://www.iata.org/policy/Documents/MC99_en.pdf IATA, Montreal Convention 1999, Essential Documents on International Air Carrier Liability.
[70] http://www.bforbag.com/luggage-insurance.html

value. Therefore, there can be a big difference between those two. Furthermore, airlines are not liable for many high-value items when checked-in, e.g. cash, electronics, jewellery, artwork, fragile items, valuable papers, etc. Passengers should keep valuable and fragile items in their hand luggage[71].

Europe.eu website[72] informs passengers that if the registered luggage is lost, damaged or delayed, they may be entitled to compensation from the airline, up to about € 1,220.

A package plan will protect bags and personal items from the time the traveller leaves home until she returns. Bags could be stolen or destroyed on the return flight as well. With a package plan, even the items the visitor bought while on her trip are protected up to the limits of the policy[73]. For considerations about the convenience of a policy with baggage coverage, it is appropriate to estimate the value of the checked luggage itself.

Important to take into consideration is also that once arrived at destination, in case of lost baggage, the visitor will spend more for compensating the items that are missing.

In this survey it is considered a leisure trip of 20 days. For this reason, in the calculation of the policy insurance for what concerns the passenger's baggage, it is estimated a hand luggage as well as a checked baggage. A research

[71] http://www.bforbag.com/damaged-airline-luggage.html
[72] http://europa.eu/youreurope/citizens/travel/passenger-rights/air/index_en.htm
[73] http://www.travelinsurancereview.net/coverages/baggage/

done by NEA and financed by EASA (European Aviation Safety Agency) among main European airports, estimates for the summer season a mean mass of checked luggage of 16.7 kg with no significant differences between the checked baggage mass of male and female passengers. An online platform[74] shows the results of a research based on a survey of 25 major airlines. The most common combined luggage dimensions allowed for check-in luggage is 62 inches or 158 cm. To remain consistent with real typical passengers' choices, it has been decided to consider a checked baggage's maximum weight around 20 kg, depending on the Airlines company options.

For future considerations, the value of the checked luggage has been estimated to be around € 1,120[75].

b) Medical care

Frequent travellers[76] online suggest public hospitals in Morocco provide poor quality medical treatments, then private clinics are safer but obviously more expensive. However, it depends from the gravity of the injuries. For instance, Clinique Internationale Marrakech[77] is a private hospital, situated not far from the airport, that provides good medical care. The hospital has several agreements with different insurance companies such as the French

[74] http://www.bforbag.com/luggage-size.html
[75] https://www.yahoo.com/travel/how-much-is-your-luggage-worth-94820057627.html where the value given was about $ 1500 (€ 1322). See some considerations in the Appendix.
[76] http://www.tripadvisor.co.uk/ShowTopic-g293734-i9196-k1443472-Hospital_s_in_Marrakech-Marrakech_Marrakech_Tensift_El_Haouz_Region.html, http://www.roughguides.com/destinations/africa/morocco/travel-essentials/
[77] http://www.clinique-internationale-marrakech.com/

AXA, CMIM, Atlanta, Safa, Zurich, etc. A good researcher could avoid medical insurance by informing herself through websites to prevent issues during her travel. In any case it is difficult to find information about the cost of the treatments in case of emergency.

A research done by AXA reports that a traveller who breaks a bone could face bills of around £7,000 (€9,752) in Morocco, £15,000 (€20,895) in Singapore and £25,000 (€34,825) in the US. Obviously costs will increase considerably if repatriations are required or if extra seats for leg-room are required as a result of the injury. An interesting phrase of David Vincent, head of travel at AXA says:

People generally associate risk with countries that have a reputation for crime, violence or lack a "health and safety" culture. However, these figures show a hidden danger faced by British travellers, who can incur huge bills following minor mishaps if they're not properly protected. Bear in mind that these costs are for relatively common misfortunes, and that more serious incidents can lead to eye-wateringly high sums.

An online article[78] shows the ranking about world's most expensive medical care league. Morocco is at the 18th position with an average cost of procedure of about £3,578 (€4,983). This estimated cost takes into consideration the most common health claims abroad such as ear infection, gastroenteritis and broken bone following a slip or fall.

[78] http://www.thisismoney.co.uk/money/holidays/article-2417632/Worlds-expensive-medical-care-Breaking-bone-US-cost-years-wages.html

A traveller's website[79] reports the experience of illness of an American tourist and her family. Prices reported are around US$ 10-15 for a medical visit, a few dollars for medication and more than US$ 500 for an operation (appendix operation in her case). They were not covered by a medical insurance policy.

In average, situation in which a traveller experiences non-severe diseases could imply an expense of about € 100.

3.2.6 Probabilities and scenarios

a) Losing luggage

In 2006, airlines of the Association of European Airlines (AEA) reported that they had mishandled 15.7 bags for every thousand passengers they had carried. That works out at over 5.6 million mishandled bags. The AEA says that 85% of mishandled bags are returned to their passengers within 48 hours.

Mishandled baggage falls into broadly four categories:

- delayed (put on a later flight)
- damaged
- items missing from the baggage
- lost or missing in its entirety.

As said before, the Montreal Convention sets out airlines' liability for passengers and their baggage. The good thing about the Convention is that it claims that an airline must

[79] http://marocmama.com/handling-medical-emergencies-and-healthcare-in-morocco/

accept liability for passengers' baggage. The bad thing about it is that it limits an airline's liability to around £800 (depending on exchange rates) per passenger. But what about the money travelers have to spend whilst they wait for the airline to acknowledge that a suitcase is lost (the Montreal Convention states it should be considered to be lost after twenty-one days).

According to the SITA website, 61% of instances of mishandled baggage are for connecting passengers. There are understandable reasons why bags might be more likely to get mislaid on connecting flights. Each bag is handled more often. Many large hub airports are congested, with huge numbers of bags being transferred from flight to flight, often from one airline to another.

Ryanair claims on its website to have less than one baggage complaint per thousand passengers. We do not know whether Ryanair's reports are compiled on the same basis as the AEA reports. In June 2000 the European Commission gave a commitment to undertake tables on a number of airlines performance indicators but too few airlines were prepared to provide data on a voluntary basis.

Data available have been found in AEA consumer report 2006. For this research, the probability to lose the checked luggage has been estimated to be 1.57% according to the number of missing bags per passengers reported by all AEA airlines. It has been reported also Iberia airline's estimations, as it is one of the company

which provides flights from Europe to Marrakech, to see the difference with the general case is minimal.

Missing Bags

CARRIER	N° of passengers enplaned	N° of bags per 1000 passengers	
Iberia	33,667,918	15.5	
All AEA Airlines	357,898,184	15.7	1,57%

Tab. 3.2.6a
Source: Association of European Airlines (AEA) consumer report 2006 (http://www.onebag.com/popups/aucbaggage.pdf)

b) Death in flight

In 2010, EUROMONITOR's Report[80] shows that 15,000 incidents[81] were registered on 12 million flight hours in EUROCONTROL airspace. The research claims that about 30,000 incidents remain unreported. Some states such as Bulgaria, Croatia, Luxemburg, Malta, Monaco, Slovenia, Turkey and Ukraine did not report safety incidents. Data recorded can be translated into approximately 0.125% of probability of an incident's occurrence in a flight hour. Flights from North Italy to Marrakech take about three hours in total[82]. For this reason, the probability of a plane crush for this study has been assessed to 0.375%.

[80] PRC analysis based on SRC Annual Report 2010 (https://www.eurocontrol.int/sites/default/files/publication/files/prc-performance-review-report-2010.pdf)

[81] Incidents intended as "*an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation*" (ICAO Annex 13). Two categories are included on these data: Cat. A*: "A serious incident: AIRPROX - Risk Of Collision: The risk classification of an aircraft proximity in which serious risk of collision has existed"*, and Cat. B, "*A major incident. AIRPROX - Safety Not Assured: The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised"*(ICAO Doc. 4444*)*. (https://www.eurocontrol.int/sites/default/files/publication/files/prc-performance-review-report-2010.pdf)

[82] http://www.viaggi24.ilsole24ore.com/Destinazioni/Africa/Marocco/?refresh_ce=1

According to the Montreal Convention, the Agreement on Rules of International Carriage by Air, in the unlikely event that a plane precipitates killing its passengers, the airline is obliged, regardless of responsibility, to proceed with a compensation of $ 170,000 (approximately 126,000 Euros) per victim.

For simplification, this survey considers 0,375% as the probability to die while in flight. For example, the fear of a non-fatal accident could provoke an heart attack.

c) Personal accidents

Statistical data from Transport Minister[83] declare 4,162 dead in 2008 from road accidents in Morocco. Counting 2,437,813 vehicles, in 2008, 64,715 accidents have been recorded. This means 2.65% of probability to get involved in an accident while on the roads. The research reports a tendency to increase in the number of accidents. If this trend would continue in the future, the report's estimates for 2020 predict incredibly about 2,131,483 accidents. Causes for those number of accidents are attributed firstly to road infrastructure and secondly to errors in the conduct or condition of the vehicle (EL GAMEH M. et al., 2014).

d) Thefts and crimes

83 http://www.researchgate.net/publication/270285975_Quantitative_Analysis_and_Study_on_the_Evolution_of_Road_Safety_in_Morocco

Numbeo website[84] reports that crime index is estimated to be 46.95 in Morocco. Crime index is at 63.08 in Casablanca currently. This index is constructed on a scale from 0 to 100.

UNODC[85] counts 78,397 thefts on the 31th December 2009 in Morocco. Rate per 100,000 population was 247.82 (about 0.3%). However, it is reasonable to think the probability to be involved in such a crime should be higher in areas where there is an high concentrations of people and tourists. Especially pickpockets and bag snatchers as reported by the OSAC Bureau of Diplomatic Security[86]. Marrakech with its busy market represents a potential higher risk than UNODC data reports.

Barcelona, for instance, is classified by tourist's guides[87] as the most popular city for pickpockets in Europe. The reporter Bob Arno[88] also claims police recorded 600 pickpockets per day in 2009, but he considers this number amounts to about 6000 attempts per day actually. Arno says usually just 10% of these crimes are reported. It should be included, in fact, non-reported crimes and attempts of thefts. In London, the Wall Street Journal[89] reports that thefts from people jumped 20% between

[84] http://www.numbeo.com/crime/region_rankings.jsp?title=2015-mid&region=002
[85] United Nations Office on Drugs and Crime https://www.quandl.com/data/UNODC/THEFT_MAR-Theft-Morocco
[86] https://www.osac.gov/pages/ContentReportDetails.aspx?cid=15123
[87] http://thesavvybackpacker.com/pickpockets-europe/ , http://bobarno.com/thiefhunters/barcelona-pickpocket-problem/, http://www.clevertravelcompanion.com/blogs/news/8681561-some-pickpocketing-stats-and-facts
[88] http://bobarno.com/thiefhunters/barcelona-pickpocket-problem/
[89] http://www.wsj.com/articles/SB10000872396390444032404578006342891345784

2010 and 2012. Dailymail.co.uk[90] in an article of 2013 talks about "invasion pickpockets" in Paris. Irish Examiner[91] states each day an estimated 400,000 pickpockets occur around the world.

Considering UNODC data above discussed and reasoning through Bob Arno's assumptions, thefts' rate per 100,000 population should be 2,478.2. This means around 2.5% of probability to be robbed in Morocco. Trying to avoid overgeneralizations, this probability will be fixed at 2.88%[92] including the fact that Marrakech is a major city and local markets full of tourists are usually the preferred destinations for robberies.

e) Getting sick

Traveler's diarrhea typically affects 40-60% of people from industrialized nations who visit developing countries. Destinations classified as high-risk include countries of Latin America, Africa, the Middle-East and Asia[93]. In this region it is also called "Morocco belly" and common causes involve hot summers, dehydration and street food. According to a study, in general terms 20-

[90] http://www.dailymail.co.uk/news/article-2367612/Invasion-pickpockets-Disturbing-pictures-Eastern-European-gangs-brazenly-targeting-victims-broad-daylight-Paris-streets

[91] http://www.irishexaminer.com/lifestyle/features/how-to-send-the-pickpockets-packing-233422.html

[92] The calculation of this probability is based on data reported by UNODC. Casablanca, the only city which data are available, shows an higher crime index in comparison to the country as a whole (+16.13 points concerning the crime index cited in the text). It has been considered this difference as a probability to add to the 2,478.2 thefts estimated. The calculus done here consists in adding the 16.13% of 2,478.2 (399.7) to the 2,478.2 estimated thefts. The result is 2,877.93 per 100,000 populations that is about 2.88% in probability.

[93] http://www.nytimes.com/health/guides/specialtopic/travelers-guide-to-avoiding-infectious-diseases/traveler's-diarrhea.html

50% of travelers will experience traveler's diarrhea (SIMONIS H. J., WONG C. S., 2001).

A recent BBC article[94] shows data on people getting ill during their vacation. Over 3% of people suffered from "leisure sickness"[95]. In America, 1% of adults experienced "cabin fever", picking up a virus during the flight.

In this study, according to data found, it has been settled approximately a 20% probability of getting sick. Serious injuries or illnesses will constitute the 6% of cases. This assumption is based on an estimate of 30% of cases in which a disease or an injury could be severe[96].

f) Trip cancellation

Estimation of the probability to delete a trip has a large subjective component. An article published by the New York Times[97] shows how 19% of workers have cancelled a vacation for work reasons at least once (BEKLIN L., 2007). Bad weather and hurricane are other causes for a trip cancellation. Others involve travelling with a sick relative at home, being sick or travelling to places that have civil unrest or terrorist attacks, as it happened recently. In travel insurance, cancellation policy usually includes interruption coverage. Poor data are available on

[94] http://www.bbc.com/future/story/20150216-the-truth-about-holiday-illnesses

[95] As exposed in the article, "leisure sickness" is caused by the transition from work to holiday. It is due to stress and extra-hard work, usually experienced from people before to go on holiday. This causes a weak immune system and an higher exposure to infections. A call for assistance can be needed, if the traveler has an insurance policy.

[96] All these probabilities are the result of a subjective estimation related to the data found. For this reason, they could not reflect reality. Probabilities considered are just settled for the purpose of this research.

[97] http://www.nytimes.com/2007/11/15/fashion/15Work.html?_r=0

the Internet. An academic research[98], based on cancellation rate forecasting, reports data collected from a major hotel chain in UK (MORALES D. R., WANG J., 2009). The database of bookings constitutes nearly 240,000 entries made between 2004 and 2006. Around 20% of them have been cancelled. Time is represented to be an important variable in influencing the cancellations' trend. At a 3 days prior to the time of service, when the number of ongoing-bookings reaches 80% of total show-ups, about 11% of them are cancelled. But when bookings are made at 10 days prior to the time of services and they reach 40% of the total show-ups, cancellations percentage rises at about 16%. The study shows that the rate of cancellation is even higher in airlines stating that cancellations rates of 30% are not uncommon today.

Considered an individual who is booking a vacation ten months in advance and for period of 20 days, this study will set the probability of a trip cancellation at the average value of 13.5%. The vacation is assumed to be almost certain and the accommodation will not be replaced for a better one, then 20% seems too high considering these assumptions.

98 http://eureka.sbs.ox.ac.uk/422/1/2010_WP_Forecasting_Cancellation_Rates_for_Services_Booking_Revenue_Management_Using_Data_Mining_(2).pdf

Resume of probabilities and values discussed:

RISKS	PROBABILITIES	Values
Trip cancellation	13,500%	€ 1.255,00
Flight cancellation	1,800%	€ 306,53
Missing baggage*	1,570%	€ 1.120,00
Personal money (pickpockets/thefts)	2,880%	€ 250,00
Get sick*	20,000%	€ 4.983,00
Death in flight (plane crush)	0,375%	Life
Personal accident	2,650%	€ 4.983,00
Flight delay (+15 min)	25,310%	Time

Tab. 3.2.6

*Missing baggage :	1,57%	Probability	Expense
Delayed (48hours)	85%	1,33%	€ 200,00
Lost	15%	0,24%	€ 1.120,00

Tab. 3.2.6.1

Source: AUC (Air Transport Users Council), Mishandled Baggage, Report 2006 http://www.onebag.com/popups/aucbaggage.pdf

Due to the fact that 61% of baggage's issues are experienced by connecting passengers, it has been risen the probability of missing baggage to 2,53% when considering flight delay scenario.

*Get sick	20%	Probability	Expense
Serious illnesses/injuries	30%	6%	€ 9.752,00
Non-severe illnesses/injuries	70%	14%	€ 100,00

Tab. 3.2.6.2

Source: Data settled subjectively for the purpose of the study, considering different sources

Finally, it is important to point out that flight cancellation has not been considered as there is the option to take another flight or being refunded by airlines. Cancellation

in this study involves only the cancellation of the entire trip, hotel staying included.

4. RESULTS AND LIMITATIONS

4.1 Results and discussion

It is worth to remind the different options the decision maker has to deal with. The dilemma involves taking a decision between:

- No travel insurance
- Travel insurance:
    - Option 1: complete coverage (medical care, baggage, personal money and cancellation)
    - Option 2: baggage and personal money excluded
    - Option 3: cancellation excluded
    - Option 4: baggage, personal money and cancellation excluded.

The study identifies the option 2 as the optimal choice of the decision maker. Risk neutral case's table and tree are represented in Annexes. Option 2 is also the best choice in each case and for each category when considering the introduction of risk attitude (see tree diagrams reported in Annexes).

If no coverage is purchased, it has been supposed the traveller incurs in a cost when the luggage is lost or delayed. However, it has been shown in Appendix C that,

according with the Montreal Convention[99], European passengers have rights for claims and refunds. An attempt to include this option has been made. Data analysis in risk neutral case, assuming traveller does not incur in a loss when luggage is lost or delayed, concludes that, even if refund from airlines is considered, option 2 remains the best choice.

Answers collected from the survey reveal that 5 of 100 individuals refused to leave the game for any amount of money offered to them. It is reasonable to consider them as risk seeking and to keep them out from the sample.

Observing the shape of the utility function's curve which considers sample's risk aversion, it has been found congruence with the prospect theory developed by Kahneman and Twersky in 1979.

Utility function of the sample

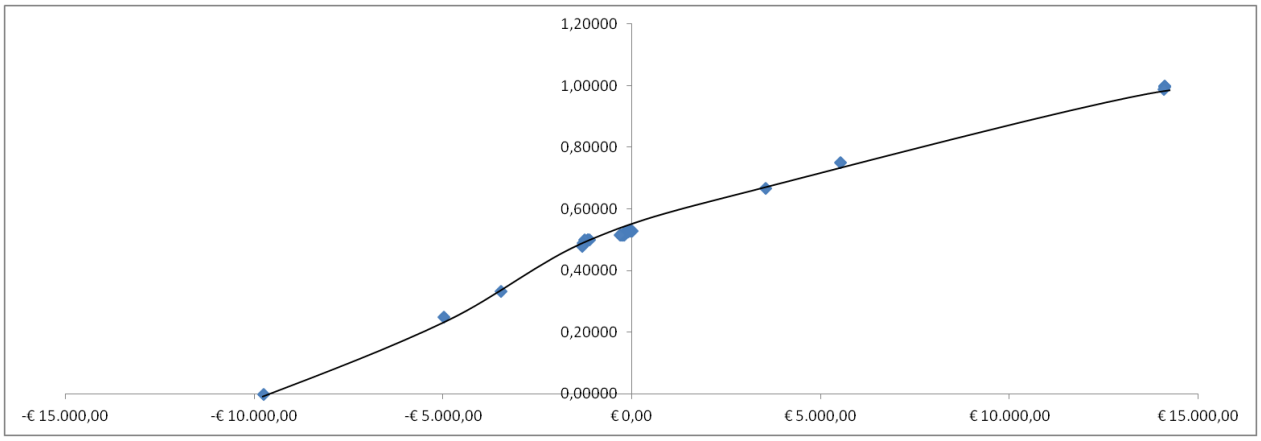


Fig. 4.1a

[99] Art. 22 of the Montreal Convention and Annexes to EC Regulations 2027/1997 and 889/2002.

Prospect theory shows the value function is generally concave for gains and commonly convex for losses, and steeper for losses than for gains (KAHNEMAN D., TVERSKY A., 1979). This last aspect implies relative loss aversion. In other words, losing hurts more than a comparable gain pleases. "Loss aversion is intimately related to research on the phenomenology of happiness" (DEMOTT MC R., 2001).

Prospect theory

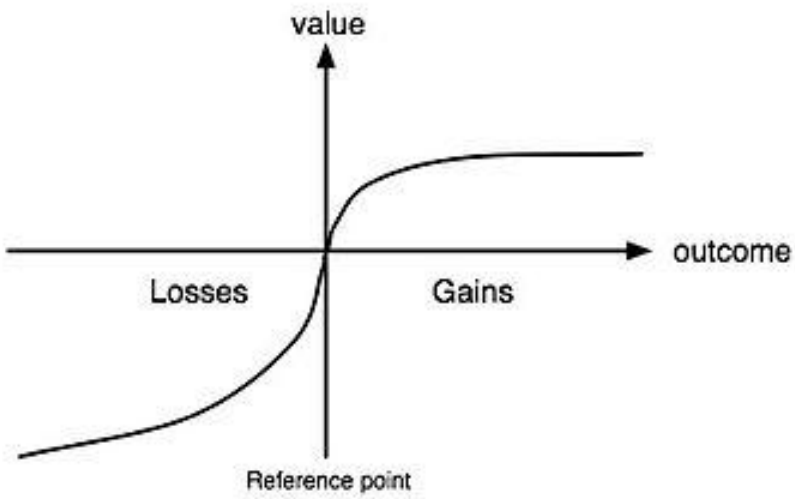


Fig. 4.1b

Source: http://rishidean.com/2009/11/09/prospect-theory-and-product-management/

Similarity between the two curves is clearly observable. In fact, individuals seem to be risk adverse when dealing with gains and risk seeking when dealing with losses. This

statement refuses the classic theories which generalize risky choices claiming the prevalence of risk aversion. In fact, the early theorists of the 18th century proposed that utility is a concave function of money. This idea, as stated by Kahneman and Tversky (1979), has also been retained in modern treatments, like Pratt (1964) and Arrow (1971). Implicitly, concavity of the utility function assumes risk aversion as increments in utility decrease with increasing amounts of money or wealth.

However, the occurrence of risk seeking behaviour in choices between negative prospects was early noted by Markowitz (1952). The same result has been after documented by Fishburn and Kochenberger (n. d.).

Additionally, Kahneman and Tversky (1979) show how the purchase of insurance against losses does not support the notion that the utility function for money is concave everywhere. In fact, they report:

people often prefer insurance programs that offer limited coverage with low or zero deductible over comparable policies that offer higher maximal coverage with higher deductibles – contrary to risk aversion (KAHNEMAN D., TVERSKY A., 1979a).

4.1.1 Age and sex

Considering age as a variable to analyze the sample, similar results have been obtained. The best option remains B and the shape of the utility function reflects the

previous one. This is true for young individuals (18-29 years old) as well as for adults (age 30 years and over). However, the two graphs below represent a slight difference. The utility function of adult people is slightly steeper than the curve of the younger individuals. When it comes to negative values, adults show an higher risk-seeking attitude than young people.

18-29 years old, utility function

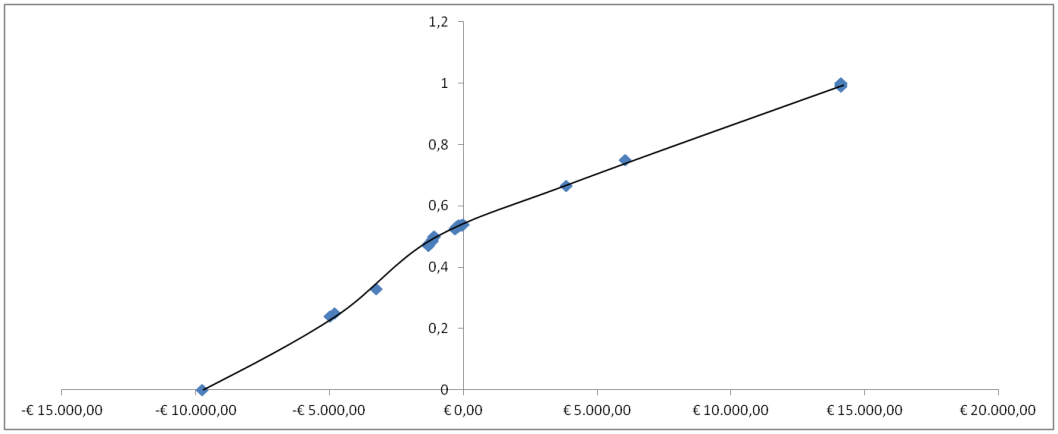


Fig. 4.1.1a

Age 30 and over, utility function

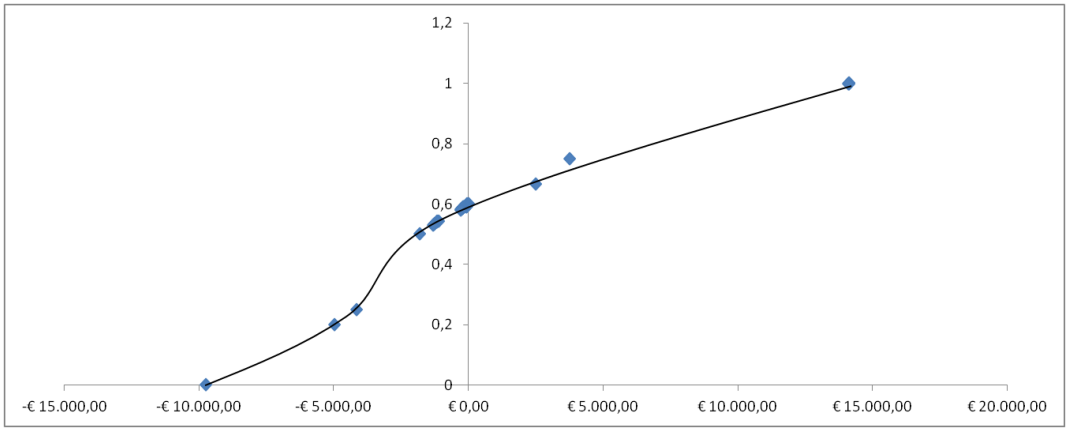


Fig. 4.1.1b

Distinguishing between males and females, no significant distinctions have been found as visible in the graphs below represented, Fig. 4.1.1c and 4.1.1d.

Females, utility function

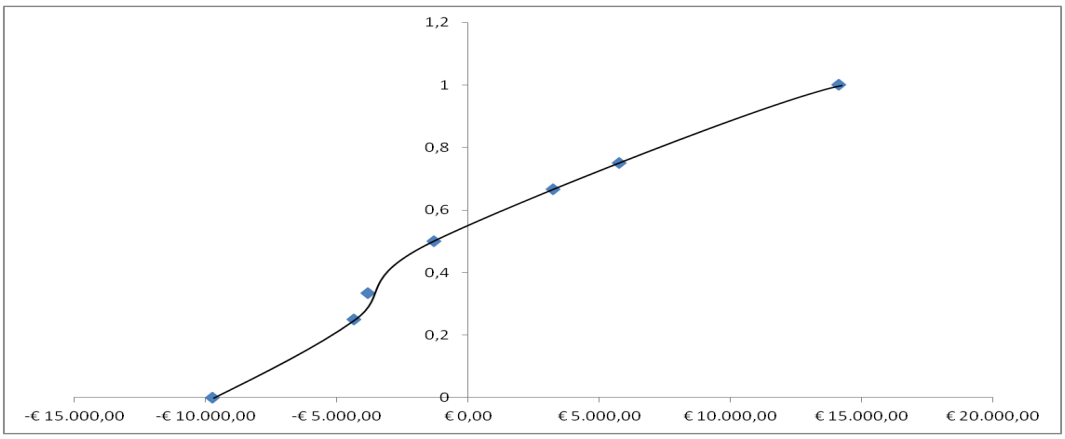


Fig. 4.1.1c

Males, utility function

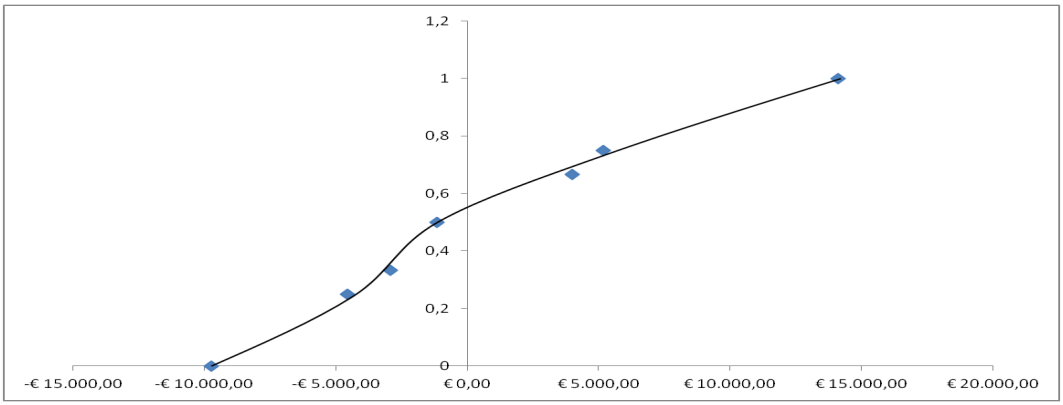


Fig. 4.1.1d

4.1.2 Nationality

When nationality is taken into account in the analysis, an interesting diversity emerges between Italian and Belgian population. It seems Italians to be more risk-neutral than Belgians.

Italians, utility function

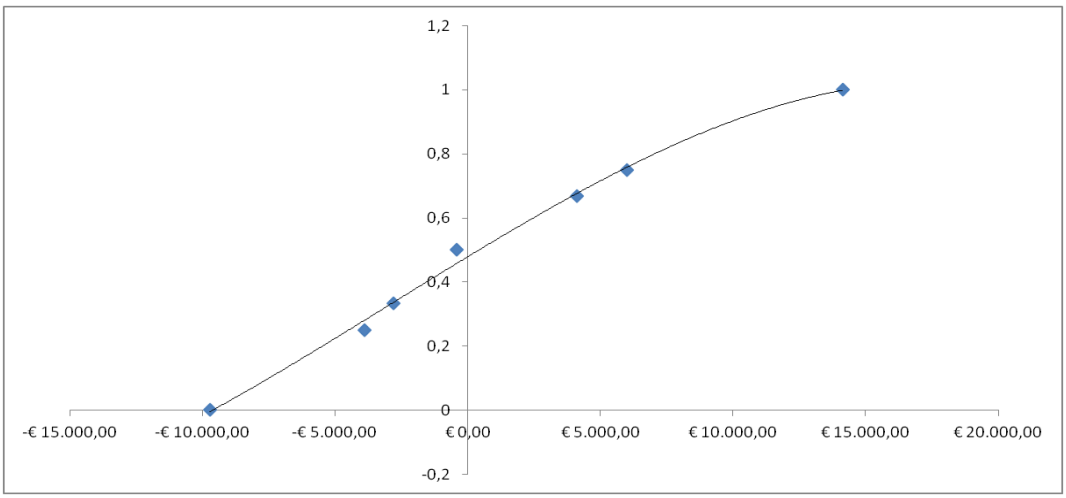


Fig. 4.1.2a

Belgians, utility function

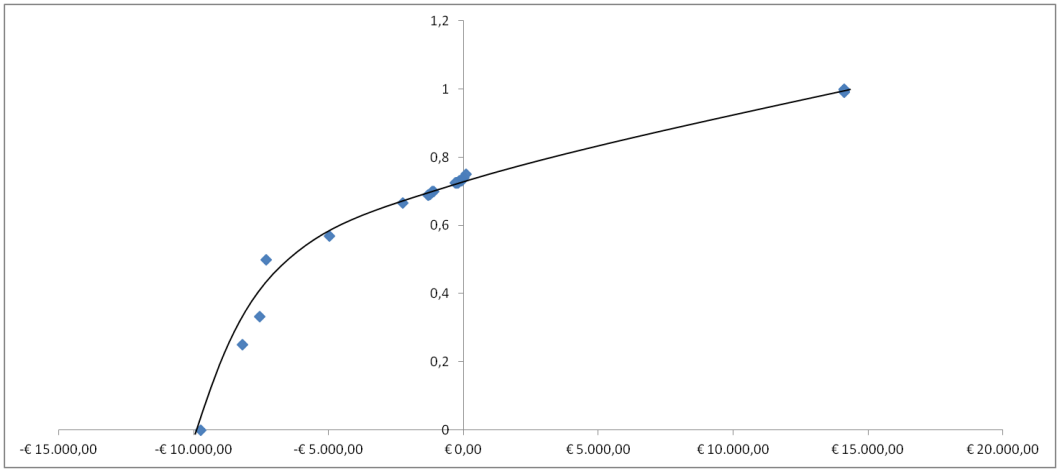


Fig. 4.1.2b

Appendix B explains the distinction between concave, convex and linear utility function. Evidence shows Italian individuals are more risk-neutral than Belgians which can be classified as more risk-averse looking at the shape of the curve. This results are in line with Geert Hostfede findings about Uncertainty Avoidance dimension as described in his famous book *Culture's Consequences* (2002).

The famous anthropologist conducted a research submitting a survey among IBM subsidiaries located in different countries to study culture. He distinguished cultures observing differences among five dimensions for each country. Uncertainty avoidance dimension represents the individual's attitude towards risk or the "unknown" future. In the figure above, Italy and Belgium are classified as countries with an high score of UAI

(Uncertainty Avoidance Index). However, Italy UAI is lower than Belgium UAI.

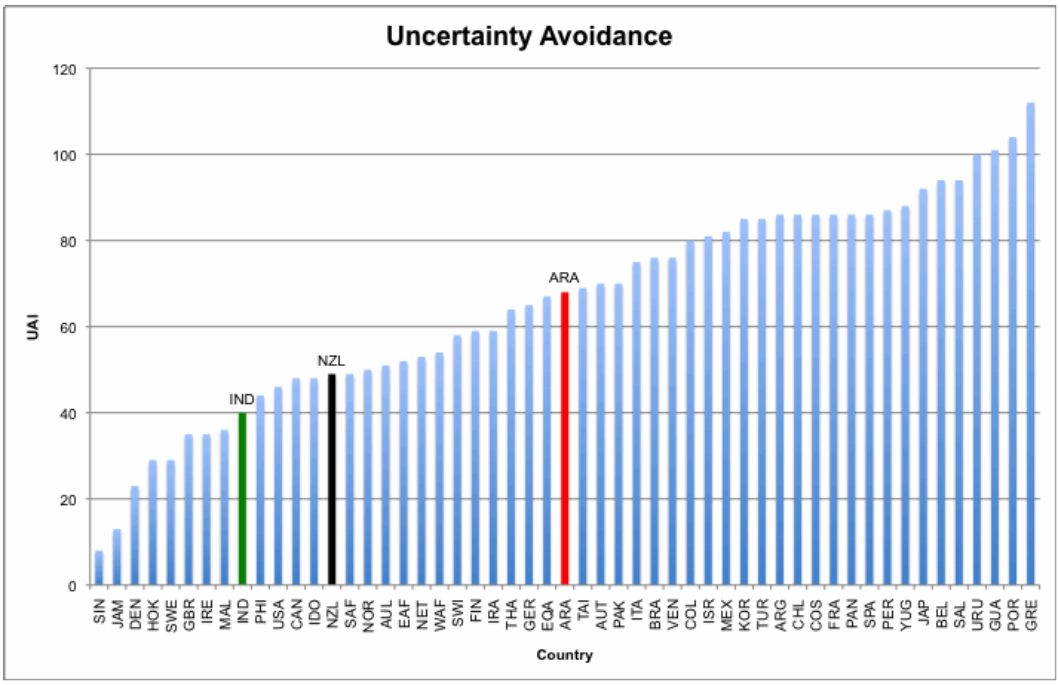


Fig. 4.1.2

Source:
https://globalelearningpractices.wikispaces.com/Hofstede%27s+Index+Comparisons

Even if both the countries seem to be risk averse, Belgium shows more risk-aversion than Italy. Taking into account Hostfede's intercultural studies, evidence showed that countries which have a more risk-prone attitude, resulted also in an higher score for what masculinity and individualism dimensions are concerned. But a deeper analysis of these characteristics would mean collecting more specific data and going beyond the scope of the current research.

Answers collected among Belgians are the result of the survey's submission to random-chosen people. Many of the individuals which are resident in Bruxelles are from different origins. For this reason, it has been made a distinction between Italians, Belgians and even non-Italians. However, this last category does not seem to show significant differences with the previous results obtained.

Non-Italians

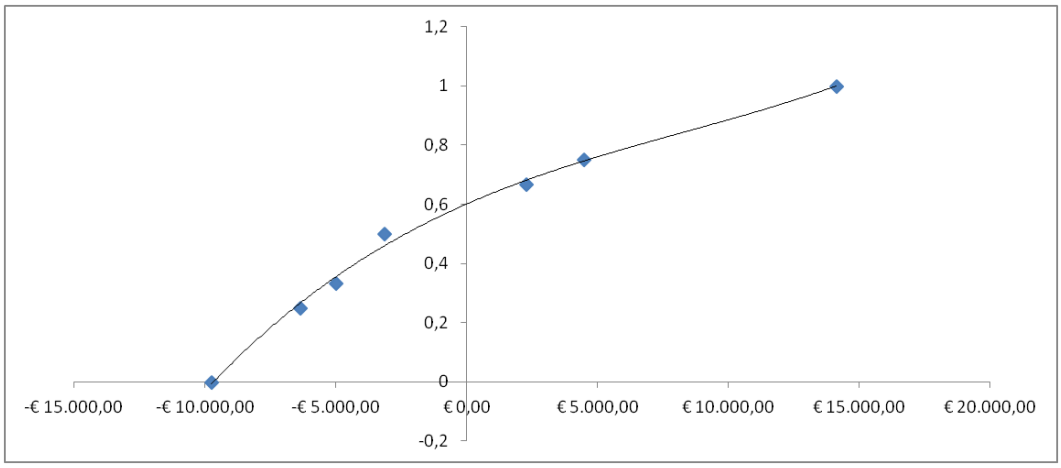


Fig. 4.1.2c

4.2 Sensitivity analysis

Analyzing tree diagrams, the results obtained show that expected monetary value is of course higher for the option 2, but the difference with the expected monetary value of the option 1 is very small. For instance, for what risk neutral case is concerned, expected monetary value

for the option 2 is equal to -42,401 while for the option 1 is -51 (the difference is 8,599). On the other hand, when considering risk attitude, expected utility value for the option 2 is 0,5295 against 0,5292 for the option 1 (the difference is 0,0003). For this reason it has been chosen to conduct a sensitivity analysis to see the robustness of the model concerning the choice between different options.

Through sensitivity analysis it has been found that changing the probability of departure from the current value of 0,865 to 0,99 the best option does not change. Interestingly, when the probability of departure is equal to 1 and the traveller is sure about taking the holiday, the best option becomes the policy number 4 (which only includes medical coverage).

Option 4: the best option when departure is certain

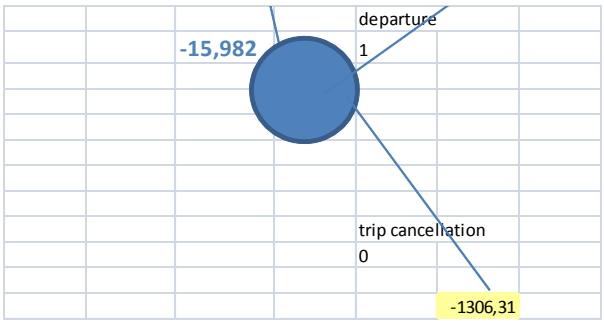


Fig. 4.2.1

Afterwards, goal seeking analysis has been helpful to find the break-even point, or the change in the probability of

departure that is necessary, to be indifferent between the various options.

Results based on each case are summarized in the following tables 4.2.1a and 4.2.1b (see trees in Annexes).

Goal seeking analysis

Probability of departure	Option	EMV
0,865	1	-51
	2	-42,4
	3	-198,54
	4	-190,18
	NO INSURANCE	-649,4
1,49474	1	-42,4
0,98533	3	-42,4
0,97953	4	-42,4
1,73186	NO INSURANCE	-42,4

Tab. 4.2.1a

Goal seeking analysis considering risk attitude

Probability of departure	Option	EUV
0,865	1	0,529212
	2	0,52951
	3	0,523592
	4	0,525302
	NO INSURANCE	0,5
14,9327	1	0,5925
0,98224	3	0,5295
0,96015	4	0,529185
-979,269	NO INSURANCE	0,5295

Tab. 4.2.1b

- *Options 2 - 1*

Break-even point between option 1 and 2 is reached when the probability of departure increases from 0,865 to 1,49474. That means a change of 0,62974 in the probability of departure will lead a rational decision maker to be indifferent between the policies number 1 and 2.

When risk attitude is considered, a change of 14,0677 (from 0,865 to 14,93266) in the probability of departure would be necessary to be indifferent between option 1 and 2.

It seems the model becomes more robust when risk attitude is introduced.

- *Options 2 - 3*

To have indifference between options 2 and 3, a change of 0,12033 (0,98533 – 0,865) is required in the probability of departure. This is true considering expected monetary values.

When risk is included in the analysis, an increase of 0,11724 (0,98224 – 0,865) in the probability of departure makes the decision maker indifferent between options 2 and 3.

- *Options 2 - 4*

As noted at the beginning of this analysis, when departure is almost certain, option 4 becomes the best choice. Here, through goal seeking analysis it has been found the change in probability necessary to be indifferent between policy number 2 and 4 corresponds to 0,1145 (0,97953 - 0,865 = 0,11453).

A change of 0,11453 in the probability of departure will make the decision maker indifferent between options 2 and 4. When risk attitude is introduced, a change of 0,09515 (from 0,865 to 0,96015) is necessary to make the traveller indifferent between policies 2 and 4. This contrasts with the previous findings that considering risk attitude, the model becomes more robust in its predictions.

- *Option 2 – no insurance*

The decision maker will be indifferent between purchasing option 2 or do not buy travel insurance when probability of departure will increase to 1,73186.

When risk is included in the analysis, the change required in the probability of departure becomes really high.

These values suggest that the option of not buying travel insurance is almost never considered in the model as the best option.

Values regarding changes in the probability of departure required to be indifferent between the 4 options are summarized in the following table:

GOAL SEEKING ANALYSIS:	Change in probability of departure to be indifferent between:		
	option 2 -1	**option 2 - 3**	**option 2 - 4**
Risk neutral case	0,62974	0,12033	0,1145
Risk included	14,0677	0,11724	0,09515

Tab. 4.2.2

Evidence suggests that, when risk attitude is taken into account, a big change in the probability of departure is required to make the decision maker indifferent between options 2 and 1. On the other hand, when the model is based on expected monetary values, a small increase in the probability of departure makes the decision maker neutral in preference between policies number 2 and 1. However, for what the other alternatives are concerned (options 3 and 4), the introduction of risk aversion makes the model slightly more sensitive.

To conclude this analysis, the following tables 4.2.3a and 4.2.3b report the rational choices which are related to the variation in the decision maker's probability of departure:

Probability of dep.	Choice
$0 \leq p \leq 0{,}9936$	OPTION 2
$0{,}9937 \leq p \leq 1$	OPTION 4

Tab. 4.2.3a *Expected monetary values – risk neutral*

Probability of dep.	Choice
0 ≤ p ≤ 0,9837	OPTION 2
0,9838 ≤ p ≤ 1	OPTION 4

Tab. 4.2.3b *Expected utilities values – considering risk attitude*

This finding is consistent with reality. Option 2 provides coverage basically for medical care and trip cancellation, while option 4 covers only medical expenses. As the decision maker becomes more sure about departure, the need for insurance in case of cancellation decreases. Moreover, option 4 is less expensive and it is important to remind that flight cancellation and delayed/lost luggage (while flying) are refundable from airlines (even if claims through airline companies require usually more time to refund). Evidence suggests that, considering risk aversion, probability of departure required to prefer the policy number 4 is slightly lower than the risk neutral case (0,9838 against 0,9937). Another time, it makes sense to change option when departure is almost a certain event and risk aversion plays a role in influencing this choice.

4.3 Other considerations

Observing the results obtained in this case study, it becomes interesting to make a comparison with a

research done among Australians on claims made by travellers.

Leggat P. A. and Leggat F. W. (2002) analyzed 855 claims reported during the period 1996 – 1998 to a major Australian travel insurance company. They found medical and dental conditions accounting for 66.6% of claims, with the reminder associated with loss, theft, and damage (33.4%). Moreover, they reported that those who claimed medical treatment, assault and theft, were significantly more likely to have their claims accepted compared to those claiming dental conditions, cancellation, curtailment, loss and damage.

Findings of the current case study reveal option 2 as the preferable choice. This policy provides coverage against medical care and trip cancellation. However, it has been possible to observe that if the decision maker is sure about his/her departure, best choice becomes option number 4, which covers only medical expenses.

These considerations lead us to conclude that all travellers should be advised to take out appropriate travel insurance, especially concerning medical care. It has been estimated, in fact, that "between 30 and 50% of travellers become ill or injured whilst travelling" (STEFFEN R., et al., 1987) and "the risk of severe injury is thought to be greater for people when travelling abroad" (BEWES PC., 1993). Moreover, "medical and dental treatment abroad is generally not free and, depending on the procedures required, can be quite expensive" (LEGGAT P. A., LEGGAT F. W., 2002).

4.4 Limitations of the research

Although estimations of the probabilities and expenses involved in this case study are the most realistic as possible, it is necessary to take into account that these data may not reflect the reality in an objective way. Additionally, the survey has been submitted to a sample of 100 random-chosen individuals. For this reason, there is a generalization, that implies that these people could not represent the risk attitude of an entire category. This result remains an estimation: it is unknown if changing the sample involved in the survey, people's reactions will be equal to the predictions shown in the model. It depends from subjective characteristics which are not controllable.

4.4.1 Expected utility theory's limits

Expected utility theory, or EUT, used in this model, has been long criticized as a *descriptively inadequate theory* (CAMERER C. F., 1995). This because of persistent violations of EUT such as the Allais paradox[100] (ALLAIS M., 1953). Blavatskyy (2007) states:

EUT is part of deterministic theories i.e. they predict that an individual always makes the same decision in identical choice

[100] Violation of the expected utility's independence axiom. For having a complete understanding see Allais M., (1953).

situations (unless he or she is exactly indifferent between lotteries).

The author cites also Camerer's findings (1989) showing that an another factor to consider is the empirical evidence of random variation in individuals' decisions (BLAVATSKYY P. R., 2007). In fact, Camerer (1989) reports that 31.1% of the subjects reverse their preference, when presented with the same choice decision for the second time. Similar results has been confirmed by other researches such as Starmer and Sudgen (1989) , Wu (1994) and Hey and Orme (1994).

Another critique moved to EUT comes from Rabin and Thaler (2001). They argue that expected utility theory is inadequate to explain risk aversion. They opposes the view which "derives risk aversion from expected utility maximization of a concave utility-of-wealth function" (RABIN M., THALER H. T., 2001). They show examples implying that someone who rejects a bet for moderate stakes, when combined with diminishing marginal utility, will turn down also good large-stakes bets. But Watt (2002) disproves this statement. He argues that Rabin and Thaler are implicitly assuming an high degree of risk aversion because they say a moderate-stakes bet will be turned down for "*any level of wealth*". But for a person with a high level of wealth to turn down a bet for moderate stakes that has a positive expected value will require either an unreasonably high level of risk aversion. Otherwise, under standard models of risk aversion, their large-scale bets will not be rejected, and neither will their moderate-scale bets (WATT R., 2002).

4.4.2 Alternatives to EUT

Recent developments suggest new approaches to examine behaviours under risk.

For instance, Seber (2014) proposes a "risk-adjusted probability measure" and a "risk-adjusted returns measure" in place of "utility". These measures have the advantage that non-linearity of utility functions in expected outcome estimations with expected utility, is replaced by the linearity of expected outcome estimations with risk-adjusted probability and returns. The risk adjustments are based on measures which represents individual behaviour towards risk existing in the market (CML of the CAPM)[101]. The model provides equations through which the amount of risk included in the probabilities and returns is determined. This model is useful in the evaluation of risky projects.

Recent works on anxiety theory such as Caplin and Leahy (2001) study, show how anticipatory feelings play a role in the decision makers' choices. It has been developed a model called "psychological expected utility theory" to capture anticipatory emotions. In fact, anxiety is anticipatory and aversive (CAPLIN A., LEAHY J., 2001). Anxiety denotes "apprehension, tension, or uneasiness that steams from the *anticipation of danger"* (Diagnostic and Statistical Manual of Mental Disorders – American

[101] Market already has a determined price for risk represented by the Market Portfolio, according to the Capital Asset Pricing Model (CAPM) on the Capital Market Line. These new measures can be used in financial derivatives pricing.

Psychiatric Association, 1987). The authors try to connect the individual's state of mind to the agent's level of utility and well-being. Time plays a role: "*since here the concerns is anticipation, the timing of physical and psychological lotteries and utility is important*" (CAPLIN A., LEAHY J., 2001a). The utility function in this model contains the variable ϕ to capture psychological attitude towards uncertainty in a "first-period utility" (anticipatory feelings).

The authors underlie the importance of including anxiety as an anticipatory emotion experienced prior to the resolution of uncertainty. Although there can be confusion between the two concepts of anxiety and risk aversion, Caplin and Leahy (2001) specify that:

> risk aversion is a static concept (...) and by ignoring anxiety, conventional measures of risk aversion underestimate the effect of uncertainty on asset prices.

They finally explain how individuals who are anxious may appear more risk averse. They say behaviour is generally consistent with EUT when probability of an event changes from 34 to 35% or from 50 to 51%, but "deviates markedly if the probability changes from 0 to 1%" (CAPLIN A., LEAHY J., 2001b). Introducing anticipatory emotions can help to explain this failure of the expected utility model. According with the previous statement, Loewenstein et al. (1999) claims: "many decisions are sensitive to the *possibility* rather than *probability* of negative outcomes".

To conclude it is worth to cite another findings reported by Caplin and Leahy (2001). They show different experiments where people tend to show an avoidant behaviour because of anxiety. For instance, Cook and Barnes (1964) report a survey where they offered subjects a choice between a large immediate electric shock and a lesser shock that would be delayed by eight seconds. Many subjects chose the larger shock rather than waiting anxiously for the smaller one. Similar result has been obtained by Loewenstein (1987). Breznitz's (1984) study in experimental psychology suggests that once an individual is fully aware of an upcoming threat, the time path of anxiety tends to be U-shaped. An intense fear at the beginning when the individual is first informed of an upcoming threat, after diminishing for a while, and then rising sharply in anticipation of the "impact".

Related to these findings, the two authors talk about "*a general desire to put one's head in the sand*" (CAPLIN A., LEAHY J., 2001c). According with them, Miller (1987) states:

> The evidence indicates that the way in which individuals selectively attend to and process threat-relevant cues in a given situation determines how stressed and anxious they become in that situation.

It is now reasonable to ask ourselves if it could be possible to relate this last statement to the first issue questioned in this thesis. That is, Europ Assistance research which shows Europeans who do not purchase travel insurance relative to some kind of risks, although

their worries, recognizing the importance of having it while abroad. Do these people put their head in the sand?

CONCLUSIONS

Risk attitude introduced in this case study shows a small variation in influencing the decision maker's choice. The results obtained in the risk neutral case through the maximization of the expected monetary values are almost equal to the results obtained using the utility theory's model. Coverage related to medical expenses while abroad appears to be the most important option to include in a policy in the occurrence of each scenario. However, depending on the cost of the vacation and the certainty of departure, an option which includes cancellation coverage can be considered. Nevertheless, it is important to take into account the total cost of the vacation because booking online often requires just a deposit for the accommodation and the payment of the flight ticket. Thus, a policy which covers trip cancellation should be evaluated depending on the expenses which are irrevocable as well as the possibility of unforeseen events' occurrence.

When risk aversion is considered, the similarity of the results with prospect theory's findings, suggests that the decision maker seems to be risk adverse when dealing with gains and risk seeking when dealing with losses. This refuses the classic prevalence of risk aversion. In fact, because Bernoulli's concave utility function assumed that increments in utility decreased with increasing wealth,

the expected utility model implicitly assumed risk aversion (DEMOTT MC. R., 2001). As proved by Tversky and Kahneman (1979):

Although people believe that their decision should not be affected by simply changing the frame of the decision problem, they are manipulated by framing effects nonetheless.

Thus, this means that "domain affects risk propensity" (DEMOTT MC. R., 2001a).

In conclusion, observations lead this study to suggest travelers to keep themselves informed before taking a trip. Nowadays, with the advent of the "information era", the use of Internet and new technologies allow each of us to compare prices, make considerations and thus to evaluate the necessity or not of travel insurance and which kind of policy to purchase. Being informed influences risk aversion and the decision maker's evaluations in a positive way.

As reported by Europ Assistance/Barometro Ipsos research (2015), 60% of Europeans buy medical coverage in travel insurance, of which 11% trough specialized websites (three percentage points more than 2014). Online purchasing is a recent phenomenon and, as observed in the second chapter, the potential of growth is high, especially considering developing countries.

Although recent phenomena such as terroristic attacks have raised the alarm's level, the interview conducted by Europ Assistance suggests there still exists a gap between coverage purchased and worries of people (Europ

Assistance/Barometro Ipsos, 2015). Risks such as losing belongings, natural disasters and terrorism seem to be less considered by travelers. This can be due to the low probability of occurrence of these events and the consequent tendency of people to avoid an higher cost of travel insurance policy.

APPENDIX A:

THE SURVEY

This survey has been built up through Google Drive and translated into Italian and English. The interview has been submitted to a sample of 100 individuals residents in Italy and Belgium. Most of the category of representatives for the young age are students.

Lottery

We suggest you carefully read the following game situations . There are 5 variants of a risky lottery where the player can win a sum of € 100,000 with a given probability. The alternative is not winning anything. You will be asked to decide what is the "certain" amount that you would be willing to accept immediately to leave the risky lottery. Please, pay attention to the number of winning packs in the various game situations.

Required data, but not mandatory: age, sex and marital status.

1- In a show game, there are THREE packs, only ONE of them containing € 100.000 and the other two are empty. For which of the following amounts you would be willing to give up the game?

- You accept € 5.000,00 instead of risking to get no money
- You require at least € 24.000,00
- You give up for € 36.000,00
- You give up for € 40.000,00
- Other - specify

2- In a show game, there are TWO packs, only ONE of them containing € 100.000 while the other one is empty. For which of the following amounts you would be willing to give up the game?

- You accept € 5.000,00 instead of risking to get no money
- You require at least € 24.000,00
- You give up for € 36.000,00
- You give up for € 40.000,00
- Other - specify

3- In a show game, there are FOUR packs, only ONE of them containing € 100.000 while the other one is empty. For which of the following amounts you would be willing to give up the game?

- You accept € 5.000,00 instead of risking to get no money
- You require at least € 24.000,00
- You give up for € 36.000,00
- You give up for € 40.000,00

- Other - specify

4- In a show game, there are THREE packs, TWO of them containing € 100.000 while the other one is empty. For which of the following amounts you would be willing to give up the game?

- You accept to give up for € 24.000,00
- You require at least € 36.000,00
- You give up for € 40.000,00
- You give up for € 60.000,00
- Other - specify

5- In a show game, there are FOUR packs, THREE of them containing € 100.000 while the other one is empty. For which of the following amounts you would be willing to give up the game?

- You accept to give up for € 24.000,00
- You require at least € 36.000,00
- You give up for € 40.000,00
- You give up for € 60.000,00
- Other – specify.

The values of the payoffs have been considered in order to apply the results to the case study. However, for simplification, it has been added an amount of € 10.000,00 to each value. Averages of those values have

been after considered and multiplied by 4 to start from an amount of € 100.000,00. The following tables (Fig. A.1, A.2 and A.3) are representatives of these calculations.

c=€10.000,00

Payoffs	Payoffs+c
€ 14.113,69	€ 24.113,69
€ 14.106,35	€ 24.106,35
€ 14.099,03	€ 24.099,03
€ 14.091,70	€ 24.091,70
€ 0,00	€ 10.000,00
€ 0,00	€ 10.000,00
€ 0,00	€ 10.000,00
-€ 51,31	€ 9.948,69
-€ 51,31	€ 9.948,69
-€ 51,31	€ 9.948,69
-€ 51,31	€ 9.948,69
-€ 58,65	€ 9.941,35
-€ 58,65	€ 9.941,35
-€ 58,65	€ 9.941,35
-€ 58,65	€ 9.941,35
-€ 65,97	€ 9.934,03
-€ 65,97	€ 9.934,03
-€ 65,97	€ 9.934,03
-€ 65,97	€ 9.934,03
-€ 73,30	€ 9.926,70
-€ 73,70	€ 9.926,30
-€ 73,70	€ 9.926,30
-€ 73,70	€ 9.926,30
-€ 100,00	€ 9.900,00
-€ 164,65	€ 9.835,35
-€ 171,97	€ 9.828,03
-€ 171,97	€ 9.828,03
-€ 171,97	€ 9.828,03
-€ 171,97	€ 9.828,03
-€ 171,97	€ 9.828,03
-€ 179,30	€ 9.820,70
-€ 179,30	€ 9.820,70
-€ 179,30	€ 9.820,70
-€ 179,30	€ 9.820,70

-€ 179,30	€ 9.820,70
-€ 179,30	€ 9.820,70
-€ 193,31	€ 9.806,69
-€ 200,00	€ 9.800,00
-€ 200,00	€ 9.800,00
-€ 200,65	€ 9.799,35
-€ 207,97	€ 9.792,03
-€ 215,70	€ 9.784,30
-€ 250,00	€ 9.750,00
-€ 251,31	€ 9.748,69
-€ 251,31	€ 9.748,69
-€ 258,65	€ 9.741,35
-€ 258,65	€ 9.741,35
-€ 301,31	€ 9.698,69
-€ 308,65	€ 9.691,35
-€ 1.120,00	€ 8.880,00
-€ 1.120,00	€ 8.880,00
-€ 1.171,31	€ 8.828,69
-€ 1.171,31	€ 8.828,69
-€ 1.178,65	€ 8.821,35
-€ 1.178,65	€ 8.821,35
-€ 1.255,00	€ 8.745,00
-€ 1.306,31	€ 8.693,69
-€ 1.320,97	€ 8.679,03
-€ 4.983,00	€ 5.017,00
-€ 9.752,00	€ 248,00

Fig. A.1

Average values
€ 24.102,69
€ 10.000,00
€ 9.850,10
€ 8.797,53
€ 5.017,00
€ 248,00

Fig. A.2

Survey		
€ 24.000,00	€ 96.000,00	**€ 100.000,00**
€ 10.000,00	€ 40.000,00	**€ 44.000,00**
€ 9.000,00	€ 36.000,00	**€ 40.000,00**
€ 8.000,00	€ 32.000,00	**€ 36.000,00**
€ 5.000,00	€ 20.000,00	**€ 24.000,00**
€ 250,00	€ 1.000,00	**€ 5.000,00**

Fig. A.3

APPENDIX B:

EXPECTED UTILITY THEORY

The expected utility model, which dates back to Daniel Bernoulli in the 18th century, was formally developed by John von Neumann and Oscar Morgenstern (1944) in their book *Theory of Games and Economic Behavior.*

In economics, utility helps to represent the satisfaction different individuals get from consuming a good or service. The purpose of individuals is in fact to maximize their total utility when making consumption choices, as a result of which their demand for different goods and services is determined. Utility functions are also used in modeling individual behavior under risk, as intended in this case study. For instance, in a lottery, the probability of occurrence and the utility obtained from each outcome in an expected utility setting is used to predict behavior. The von Neumann-Morgenstern (v.N-M) expected utility is a function with expected utility such that, there is a utility assignment to the N outcomes (SEBER A., 2014).

The approach to find a decision maker's utility function is called probability equivalence approach. Considering a lottery, there is a situation in which a person will receive for I = 1,2,3,…,n, a reward r_i with probability p_i. A lottery $(p_1, r_1; p_2, r_2; \ldots; p_n, r_n)$ is often represented by a tree where each branch stands for a possible outcome of the lottery, and the number on each branch represents the

probability that the outcome will occur (WINSTON W. L., 2003). The process used in the research involves firstly the identification of the most favorable and the less favorable outcomes: it has been converted the amounts or payoffs into a scale between 0 and 1. For all the possible payoffs it has been identified u(least favorable outcome) = 0 and u(most favorable outcome) = 1. Changes in the utility reflect changes in the decision maker's preference for a different amount of money. The utility of the reward $u(r_i)$ is the number such as the decision maker is indifferent between two lotteries. The specification of $u(r_i)$ for all the rewards is called the decision maker's utility function.

There are different types of utility functions as the risk attitude of an agent for a given probability is represented with different functional forms of utility. Agents are classified as:

- "Risk-seeking" (or risk-loving), ready to take risk of making a loss if there is a chance of making gains, the u(x) is strictly convex.

  "A function u(x) is said to be strictly convex if for any two points on the curve y=u(x), the line segment joining those two points lies entirely (with the exception of its endpoints) above the curve y=u(x)" (WINSTON W. L., 2003a)
- "Risk-averse" people always choose the safe option to avoid the risk of making a loss, the u(x) is strictly concave.

  "A function u(x) is said to be strictly concave if for any two points on the curve y=u(x), the line segment

joining those two points lies entirely (with the exception of its endpoints) below the curve y=u(x)" (WINSTON W. L., 2003b)

- "Risk-neutral" if and only if u(x) is a linear function.

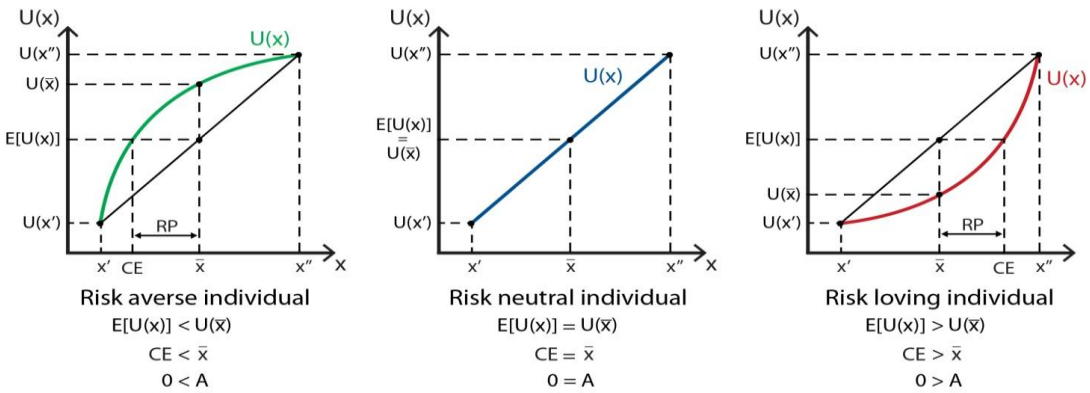


Fig. B.1

Source: http://www.policonomics.com/lp-risk-and-uncertainty2-risk-aversion/

APPENDIX C:

PAYOFFS TABLE

The first step consists in receiving a quote[102] from the UK-based insurer "Worldwide Insure". These are the four options considered in this study:

Worldwideinsure quotations

Options	€	Removed
Option 1	73.30	/
Option 2	58.64	Baggage + personal money
Option 3	65.97	Cancellation
Option 4	51.31	Baggage + personal money + Cancellation

Tab. 3.2.3

Source: https://www.worldwideinsure.com/

In order to build the payoffs table, the calculations consider the expenses, the excesses and the paybacks. Due to the possibility of the occurrence of the different scenarios, the costs and the paybacks depend from the option the traveler chooses to purchase. Moreover, it has been necessary to make the conversion from Pounds to Euros as the company is based in UK.

Firstly, it has been considered the paybacks and the excesses:

[102] See in Annexes the table with the quotation and the four options.

		MAX PAYBACK - Excess							
INSURANCE	COST (€)	LUGGAGE		MEDICAL CARE		ACCIDENT	MONEY	TRIP CANC.	DEATH IN FLIGHT
		delayed	lost	severe	non-severe				
Option 1	73,3	1.000£-75£	1.000£-75£	2.500.000£-100£	300£	10.000£	200£-75£	1.500£-75£	10,000£
Option 2	58,65	0	0	2.500.000£-100£	300£	10.000£	0	1.500£-75£	10,000£
Option 3	65,97	1.000£-75£	1.000£-75£	2.500.000£-100£	300£	10.000£	200£-75£	0	10,000£
Option 4	51,31	0	0	2.500.000£-100£	300£	10.000£	0	0	10,000£
NO INSURANCE	0	Up to € 1.131 Montreat Conv*		0	0	0	0	0	0

*Art. 22 of the Montreal Convention and Annexes to EC Regulations 2027/1997 and 889/2002

Fig. C.1

Secondly, it has been made the conversion, from £ to € (the exchange rate is referred to the 25th of November 2015, when the value was 1 GBP = 1,41630 EUR):

Conversion £ to €		MAX PAYBACK							
INSURANCE	COST (€)	LUGGAGE		MEDICAL CARE		ACCIDENT	MONEY	TRIP CANC.	DEATH IN FLIGHT
		delayed	lost	severe	non-severe				
Option 1	73,3	1416€-106€	1416€-106€	3.540.547€-142€	425 €	14.165 €	283€-106€	2.125€-106€	14.165 €
Option 2	58,65	0	0	3.540.547€-142€	425 €	14.165 €	0	2.125€-106€	14.165 €
Option 3	65,97	1416€-106€	1416€-106€	3.540.547€-142€	425 €	14.165 €	283€-106€	0	14.165 €
Option 4	51,31	0	0	3.540.547€-142€	425 €	14.165 €	0	0	14.165 €
NO INSURANCE	0	Up to € 1.131 Montreat Conv*		0	0	0	0	0	0

Source: http://www.xe.com/it/currencyconverter/ On the 25th of November, 2015, 1 GBP = 1,41630 EUR

Fig. C.2

Thirdly, it has been made an estimation of the paybacks considering the maximum amounts of coverage. It is necessary to underlie that in the case of no insurance purchased, the traveler is covered by the airlines during the trip. According to the Montreal Convention[103] lost or delayed luggage have to be refunded. Usually, the process of claims requires more time through airlines than through insurance companies. For this reason it has been ignored the refund from airline in case of no insurance purchased. Additionally, cancellation would be also refundable:

[103] Art. 22 of the Montreal Convention and Annexes to EC Regulations 2027/1997 and 889/2002.

Financial compensation

If your flight is cancelled or arrives more than 3 hours late on arrival at the final destination

	1500 km or less	1500 - 3500 km	over 3500 km
Within Europe	€ 250	€ 400	
Between EU airport and non-EU airport	€ 250	€ 400	€ 600

Fig. C.3

If the carrier offered you an alternative flight with a similar schedule, the compensation may be reduced by 50%.
With cancelled flights, you won't receive compensation if:
- the cancellation was due to extraordinary circumstances for example due to bad weather, or
- you were informed 2 weeks before the scheduled flight date, or
- you were offered an alternative for the same route with a similar schedule to the original one.

For cancellation due to extraordinary circumstances you may not have the right to compensation, the carrier must still offer you either:
- a ticket refund (in full or just the part you have not used)
- alternative transport to your final destination at the earliest opportunity or
- rebooking at a later date of your choice (subject to seat availability).

Even in extraordinary circumstances, airlines must provide assistance when necessary, while you are waiting for alternative transport.

Source: http://europa.eu/youreurope/citizens/travel/passenger-rights/air/index_en.htm

For simplification, it has been considered only the possible expenses the traveler should afford in case of no insurance.

Payback

		PAYBACK							
INSURANCE	**COST (€)**	**LUGGAGE**		**MEDICAL CARE**		**ACCIDENT**	**MONEY**	**TRIP CANC.**	**DEATH IN FLIGHT**
		delayed	**lost**	**severe**	**non-severe**				
Option 1	**€ 73,30**	€ 94,00	€ 1.014,00	€ 9.610,00	€ 100,00	€ 4.983,00	€ 144,00	€ 1.149,00	€ 14.165,00
Option 2	**€ 58,65**	€ 0,00	€ 0,00	€ 9.610,00	€ 100,00	€ 4.983,00	€ 0,00	€ 1.149,00	€ 14.165,00
Option 3	**€ 65,97**	€ 94,00	€ 1.014,00	€ 9.610,00	€ 100,00	€ 4.983,00	€ 144,00	€ 0,00	€ 14.165,00
Option 4	**€ 51,31**	€ 0,00	€ 0,00	€ 9.610,00	€ 100,00	€ 4.983,00	€ 0,00	€ 0,00	€ 14.165,00
NO INSURANCE	**0**	€ 200,00 ?	€ 1.120,00 ?	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00

?complaints to the Airline companies usually require a large amount of time (refund is available just under presentation of proof of the expense due to the delay in baggage deli

Expense

		EXPENSE							
INSURANCE	**COST (€)**	**LUGGAGE**		**MEDICAL CARE**		**ACCIDENT**	**MONEY**	**TRIP CANC.**	**DEATH IN FLIGHT**
		delayed	**lost**	**severe**	**non-severe**				
Option 1	**€ 73,30**	€ 106,00	€ 106,00	€ 142,00	€ 0,00	€ 0,00	€ 106,00	€ 106,00	€ 0,00
Option 2	**€ 58,65**	€ 200,00	€ 1.120,00	€ 142,00	€ 0,00	€ 0,00	€ 0,00	€ 106,00	€ 0,00
Option 3	**€ 65,97**	€ 106,00	€ 106,00	€ 142,00	€ 0,00	€ 0,00	€ 106,00	€ 1.255,00	€ 0,00
Option 4	**€ 51,31**	€ 200,00	€ 1.120,00	€ 142,00	€ 0,00	€ 0,00	€ 0,00	€ 1.255,00	€ 0,00
NO INSURANCE	**0**	€ 200,00 ?	€ 1.120,00 ?	€ 9.752,00	€ 100,00	€ 4.983,00	€ 250,00	€ 1.255,00	€ 0,00

?complaints to the Airline company require more time than refunds through an insurance company. For this reason it has been just put the value of the loss.

Fig. C.4, C.5

As observable in the table above, values with the question mark represent those expenses the traveler has right to receive refund through claims to airlines.

Finally, the payoffs table has been built ignoring refunds concerning the case in which the traveler will not buy travel coverage. In addition, it has been considered the scenario of loosing luggage with an higher probability when there is a flight delay.

ANNEXES

Chapter 3

Note 64

Flight average quote

Flight from Italy or Belgium to Marrakech Airport, departure on the 8th of August 2016 and return on the 28th of August 2016.

DEPARTURE	Scale	ARRIVE	EURO	AIRLINE	Luggage details
Bologne	1 stop - Madrid	Marrakech, Menara	250,31	Iberia	checked luggage max 23 kg included
Venice	1 stop - Madrid	Marrakech, Menara	348,15	Iberia	checked luggage max 23 kg included
Rome	1 stop - Madrid	Marrakech, Menara	267,02	Ryanair	232,02 flight + 35 euros max 20 kg checked luggage
Milan	1 stop - Madrid	Marrakech, Menara	332,13	Iberia	checked luggage max 23 kg included
Bergamo	non-stop	Marrakech, Menara	271,45	Ryanair	236.45 flight + 35 euros max 20 kg checked luggage
Turin	1 stop Madrid	Marrakech, Menara	412,68	Iberia	checked luggage max 23 kg included
Bruxelles	1 stop - Barcelona	Marrakech, Menara	282,23	Vueling Airlines	checked luggage max 23 kg included
	1 stop Madrid	Marrakech, Menara	292,83	Iberia	checked luggage max 23 kg included
	1 stop - Madrid	Marrakech, Menara	301,98	Iberia	checked luggage max 23 kg included
			306,53		

Sources: http://www.edreams.it/, https://www.expedia.it/, https://www.ryanair.com/, http://www.iberia.com/, http://www.vueling.com/it

Note 75

Estimated value 20 ks baggage, 20 days stay - summer season

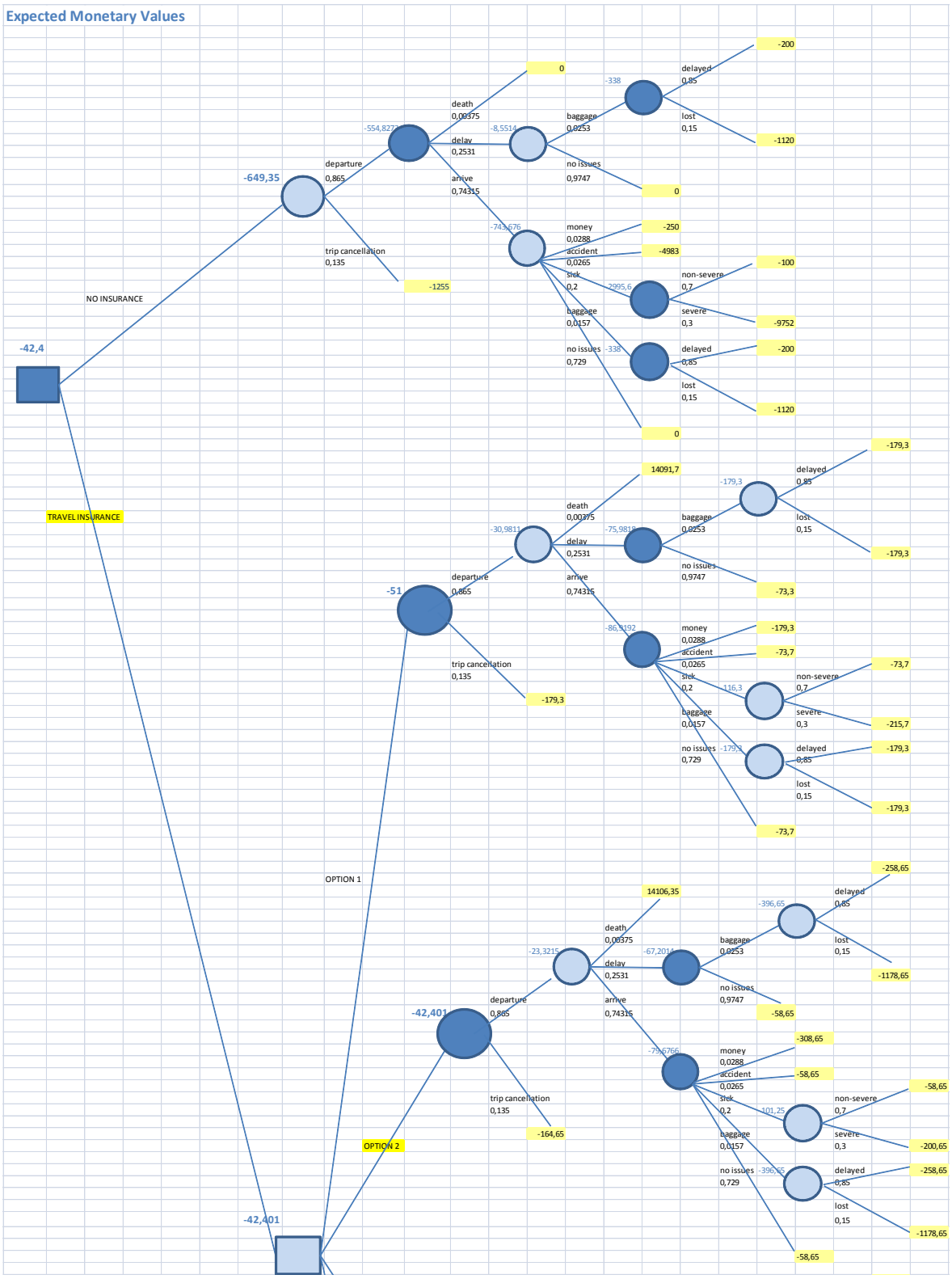
ITEMS	Estimated values €
3 pairs of shoes	250
2 swimswear	50
1 towel	20
2 sweaters	60
8 T-shirts	150
1 jacket	40
4 trousers	180
2 clothes/apparel	120
5 pairs of socks	20
underwear	100
aesthetics/bodycare	100
accessories	30
	1120

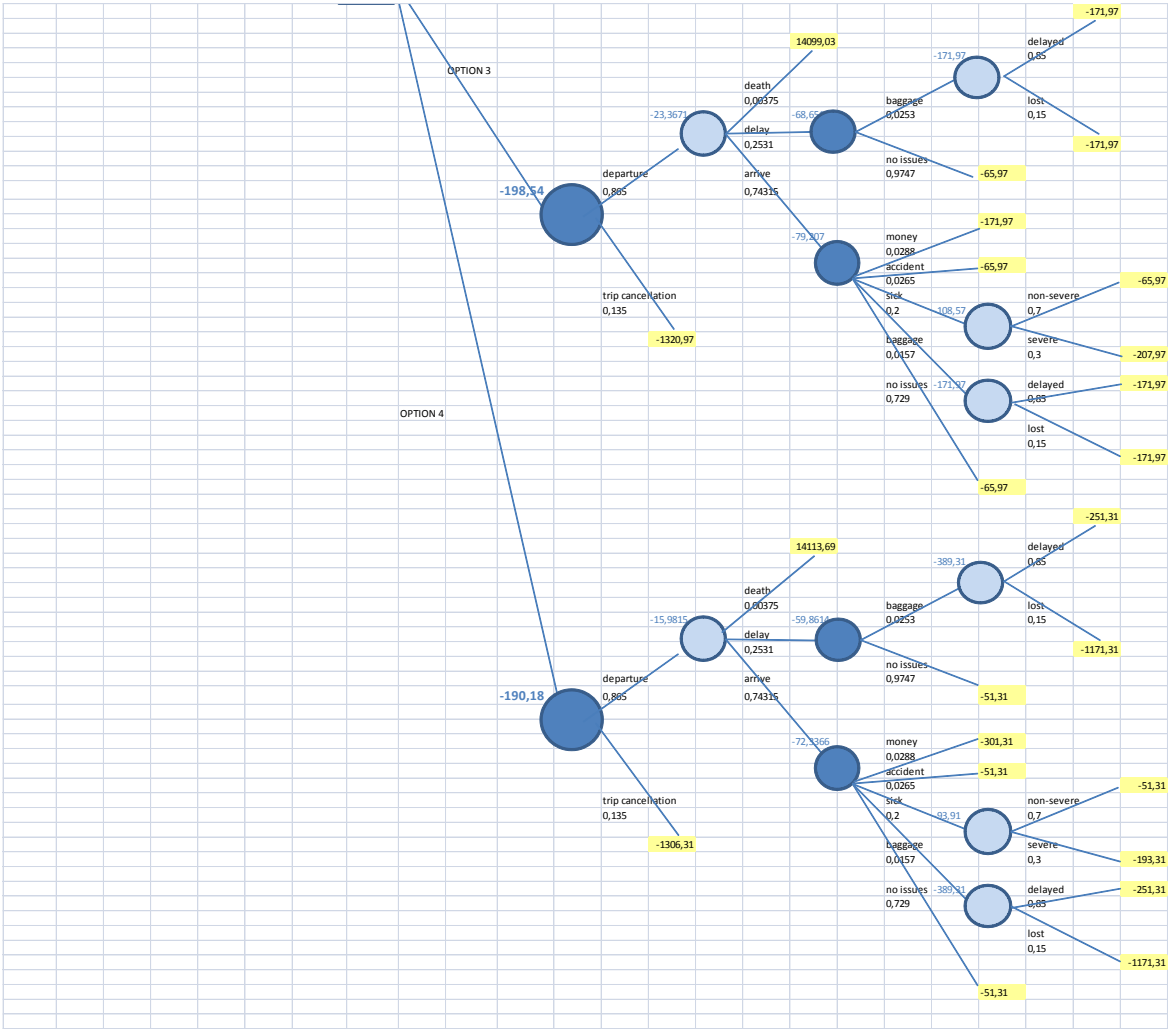
Payoffs table, risk neutral case

	TRIP CANCELLATION 0,135	DEATH IN FLIGHT 0,00375	FLIGHT DELAY 0,2531			DEPARTURE 0,865							
			BAGGAGE 0,0253			BAGGAGE 0,0157		ARRIVE AT DESTINATION 0,74315					
			delayed 0,85	lost 0,15	no issues 0,9747	delayed 0,85	lost 0,15	SICK 0,2 non-severe 0,7	SICK 0,2 severe 0,3	MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
TRAVEL INSURANCE POLICIES option 1	-€179,30	€14.091,70	-€179,30	-€179,30	-€73,30	-€179,30	-€179,30	-€73,70	-€215,70	-€179,30	-€73,70	-€73,70
option 2	-€164,65	€14.106,35	-€258,65	-€1.178,65	-€58,65	-€258,65	-€1.178,65	-€58,65	-€200,65	-€308,65	-€58,65	-€58,65
option 3	-€1.320,97	€14.099,03	-€171,97	-€171,97	-€65,97	-€171,97	-€171,97	-€65,97	-€207,97	-€171,97	-€65,97	-€65,97
option 4	-€1.306,31	€14.113,69	-€251,31	-€1.171,31	-€51,31	-€251,31	-€1.171,31	-€51,31	-€193,31	-€301,31	-€51,31	-€51,31
NO INSURANCE	-€1.255,00	€0,00	-€200,00	-€1.120,00	€0,00	-€200,00	-€1.120,00	-€100,00	-€9.752,00	-€250,00	-€4.983,00	€0,00

(Fig. 3.1.2)

Decisional Tree, risk neutral case

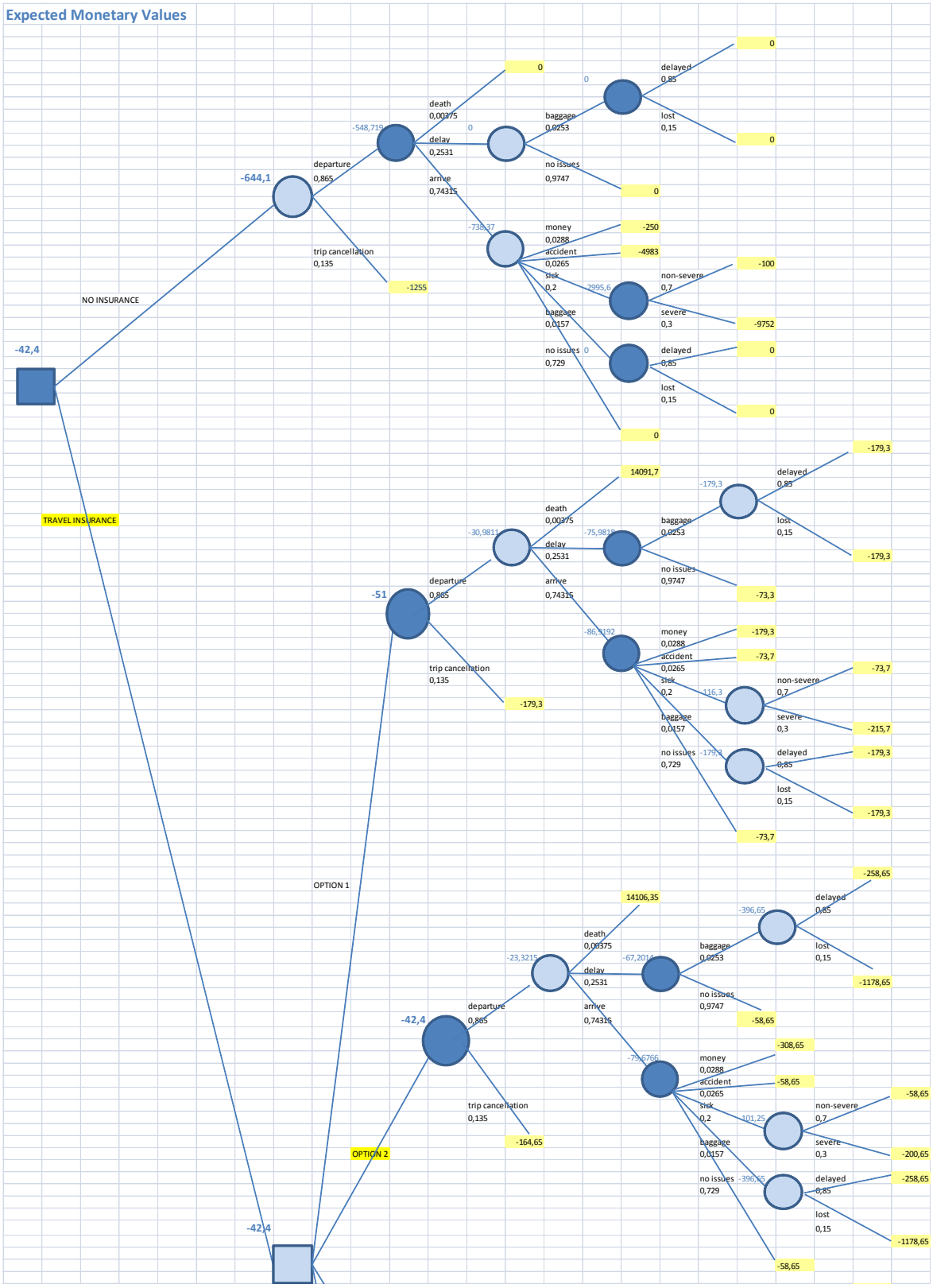


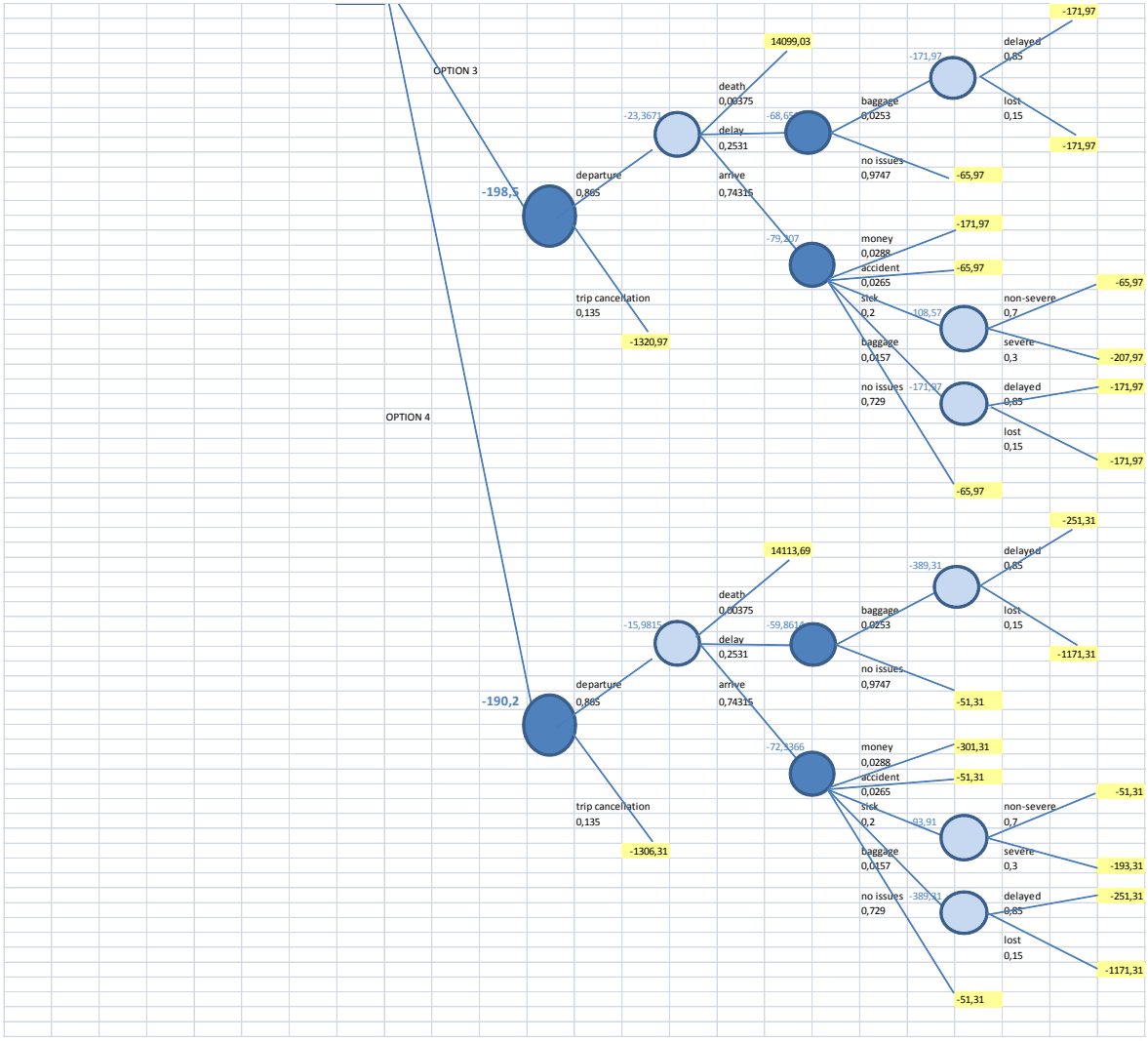

OPTION 3
-198,54
departure
0,865
trip cancellation
0,135
-1320,97
-23,3671
death
0,00375
14099,03
delay
0,2531
-68,65
baggage
0,0253
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
no issues
0,9747
-65,97
arrive
0,74315
-79,307
money
0,0288
-171,97
accident
0,0265
-65,97
sick
0,2
108,57
non-severe
0,7
-65,97
severe
0,3
-207,97
baggage
0,0157
no issues
0,729
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
-65,97
OPTION 4
-190,18
departure
0,865
trip cancellation
0,135
-1306,31
-15,9815
death
0,00375
14113,69
delay
0,2531
-59,8614
baggage
0,0253
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
no issues
0,9747
-51,31
arrive
0,74315
-72,3366
money
0,0288
-301,31
accident
0,0265
-51,31
sick
0,2
93,91
non-severe
0,7
-51,31
severe
0,3
-193,31
baggage
0,0157
no issues
0,729
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
-51,31

Payoffs table, Montreal Convention (refund for luggage in case of no insurance)

	TRIP CANCELLATION 0,135	DEATH IN FLIGHT 0,00375	DEPARTURE 0,865											
			FLIGHT DELAY 0,2531				ARRIVE AT DESTINATION 0,74315							
				BAGGAGE 0,0253			BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
			no issues 0,9747	delayed 0,85	lost 0,15		delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES option 1 option 2 option 3 option 4	-€ 179,30	€ 14.091,70	€ 0,00	-€ 179,30	-€ 179,30	-€ 73,30	-€ 179,30	-€ 179,30	-€ 73,70	-€ 215,70	-€ 179,30	-€ 73,70	-€ 73,70
	-€ 164,65	€ 14.106,35	€ 0,00	-€ 258,65	-€ 1.178,65	-€ 58,65	-€ 258,65	-€ 1.178,65	-€ 58,65	-€ 200,65	-€ 308,65	-€ 58,65	-€ 58,65
	-€ 1.320,97	€ 14.099,03	€ 0,00	-€ 171,97	-€ 171,97	-€ 65,97	-€ 171,97	-€ 171,97	-€ 65,97	-€ 207,97	-€ 171,97	-€ 65,97	-€ 65,97
	-€ 1.306,31	€ 14.113,69	€ 0,00	-€ 251,31	-€ 1.171,31	-€ 51,31	-€ 251,31	-€ 1.171,31	-€ 51,31	-€ 193,31	-€ 301,31	-€ 51,31	-€ 51,31
NO INSURANCE	-€ 1.255,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	€ 0,00	-€ 100,00	-€ 9.752,00	-€ 250,00	-€ 4.983,00	€ 0,00

Decisional Tree, Montreal Convention (refund for luggage in case of no insurance)




OPTION 3
-198,5
departure
0,865
-23,3671
death
0,00375
14099,03
delay
0,2531
-68,62
baggage
0,0253
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
no issues
0,9747
-65,97
arrive
0,74315
-79,207
money
0,0288
-171,97
accident
0,0265
-65,97
sick
0,2
-108,57
non-severe
0,7
-65,97
severe
0,3
-207,97
baggage
0,0157
no issues
0,729
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
-65,97
trip cancellation
0,135
-1320,97
OPTION 4
-190,2
departure
0,865
-15,9815
death
0,00375
14113,69
delay
0,2531
-59,8614
baggage
0,0253
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
no issues
0,9747
-51,31
arrive
0,74315
-72,3366
money
0,0288
-301,31
accident
0,0265
-51,31
sick
0,2
-93,91
non-severe
0,7
-51,31
severe
0,3
-193,31
baggage
0,0157
no issues
0,729
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
-51,31
trip cancellation
0,135
-1306,31

Worldwide quotations

WORLDWIDEINSURE - Quote			
Travel insurance, coverage from the 8th of August to the 28th 2016, destination Marrakech, adult 18 to 49 years old, no pre-existing medical conditions, no extreme sports			
	STANDARD	SUPER	ELITE
Option 1			
TOTAL FOR YOUR PARTY :	**€73.30**	€89.62	€163.06
Breakdown of Premium by age group:			
Adult 18 to 49: 1 adult	€73.30	€89.62	€163.06
Summary of Cover:			
Cancellation & Curtailment	£1,500*	£2,500*	£5000*
Emergency Medical, Repatriation & Associated Expenses	£2,500,000*	£5,000,000*	£10,000,000*
Hospital Inconvenience Benefit (amount per day)	£300 (£10)	£500 (£20)	£1,000 (£50)
Personal Accident	£10,000	£25,000	£50,000
Death in flight	£10,000	£25,000	£100,000
Maximum Payable for death except in flight	£5,000	£5,000	£10,000
Travel Delay	12 hrs	12 hrs	8 hrs
first period/subsequent periods/total	£20/£10/£100	£30/£15/£125	£30/£20/£250
Abandonment (after delay of 24hrs)	£1,500*	£2,500*	£5,000*
Missed Departure	£500	£1,000	£2,000
Baggage	£1,000*	£1,000*	£1,500*
Maximum per item, pair or set	£100	£100	£200
Total limit for all Valuables	£200	£200	£300
Emergency Purchases	£100	£150	£300
Personal Money (Cash Limit)	£500* (£200)	£500* (£200)	£1,000* (£400)
Loss of Passport	£250	£250	£500
Catastrophe Cover		£500*	£1000*
PLUS Travel Disruption		not covered	included
Exended cancellation/curtailment	-	-	£5,000
Extended Travel Delay & Abandonment	-	-	£250 / £5,000
Extended Missed Departure	-	-	£2,000
Extended Accommodation cover	-	-	£5,000
Personal Liability	£2,000,000**	£2,000,000**	£2,000,000**
Legal Expenses	£10,000**	£25,000**	£50,000**
Business Personnel Replacement		£2,500*	£5,000*
Business travel / Working abroad covered	NO	YES	YES
EXCESSES	*£75; **£100	*£75; **£100	*£75; **£100
Option 2			
TOTAL FOR YOUR PARTY :	**€58.64**	€71.70	€130.45
Breakdown of Premium by age group:			
Adult 18 to 49: 1 adult	€58.64	€71.70	€130.45
Summary of Cover:			
Cancellation & Curtailment	£1,500*	£2,500*	£5000*
Emergency Medical, Repatriation & Associated Expenses	£2,500,000*	£5,000,000*	£10,000,000*
Hospital Inconvenience Benefit (amount per day)	£300 (£10)	£500 (£20)	£1,000 (£50)
Personal Accident	£10,000	£25,000	£50,000
Death in flight	£10,000	£25,000	£100,000
Maximum Payable for death except in flight	£5,000	£5,000	£10,000
Travel Delay	12 hrs	12 hrs	8 hrs
first period/subsequent periods/total	£20/£10/£100	£30/£15/£125	£30/£20/£250
Abandonment (after delay of 24hrs)	£1,500*	£2,500*	£5,000*
Missed Departure	£500	£1,000	£2,000
Baggage	Removed	Removed	Removed
Maximum per item, pair or set			
Total limit for all Valuables			
Emergency Purchases			
Personal Money (Cash Limit)	Removed	Removed	Removed
Loss of Passport	£250	£250	£500
Catastrophe Cover		£500*	£1000*
PLUS Travel Disruption		not covered	included
Exended cancellation/curtailment	-	-	£5,000
Extended Travel Delay & Abandonment	-	-	£250 / £5,000
Extended Missed Departure	-	-	£2,000
Extended Accommodation cover	-	-	£5,000
Personal Liability	£2,000,000**	£2,000,000**	£2,000,000**
Legal Expenses	£10,000**	£25,000**	£50,000**
Business Personnel Replacement		£2,500*	£5,000*
Business travel / Working abroad covered	NO	YES	YES
EXCESSES	*£75; **£100	*£75; **£100	*£75; **£100

Option 3			
TOTAL FOR YOUR PARTY :	**€65.97**	€80.66	€146.76
Breakdown of Premium by age group:			
Adult 18 to 49: 1 adult	€65.97	€80.66	€146.76
Summary of Cover:			
Cancellation & Curtailment	Removed	Removed	Removed
Emergency Medical, Repatriation & Associated Expenses	£2,500,000*	£5,000,000*	£10,000,000*
Hospital Inconvenience Benefit (amount per day)	£300 (£10)	£500 (£20)	£1,000 (£50)
Personal Accident	£10,000	£25,000	£50,000
Death in flight	£10,000	£25,000	£100,000
Maximum Payable for death except in flight	£5,000	£5,000	£10,000
Travel Delay	12 hrs	12 hrs	8 hrs
first period/subsequent periods/total	£20/£10/£100	£30/£15/£125	£30/£20/£250
Abandonment (after delay of 24hrs)	£1,500*	£2,500*	£5,000*
Missed Departure	£500	£1,000	£2,000
Baggage	£1,000*	£1,000*	£1,500*
Maximum per item, pair or set	£100	£100	£200
Total limit for all Valuables	£200	£200	£300
Emergency Purchases	£100	£150	£300
Personal Money (Cash Limit)	£500* (£200)	£500* (£200)	£1,000* (£400)
Loss of Passport	£250	£250	£500
Catastrophe Cover		£500*	£1000*
PLUS Travel Disruption		not covered	included
Exended cancellation/curtailment	-	-	£5,000
Extended Travel Delay & Abandonment	-	-	£250 / £5,000
Extended Missed Departure	-	-	£2,000
Extended Accommodation cover	-	-	£5,000
Personal Liability	£2,000,000**	£2,000,000**	£2,000,000**
Legal Expenses	£10,000**	£25,000**	£50,000**
Business Personnel Replacement		£2,500*	£5,000*
Business travel / Working abroad covered	NO	YES	YES
EXCESSES	*£75; **£100	*£75; **£100	*£75; **£100

Option 4			
TOTAL FOR YOUR PARTY :	**€51.31**	€62.74	€114.14
Breakdown of Premium by age group:			
Adult 18 to 49: 1 adult	€51.31	€62.74	€114.14
Summary of Cover:			
Cancellation & Curtailment	Removed	Removed	Removed
Emergency Medical, Repatriation & Associated Expenses	£2,500,000*	£5,000,000*	£10,000,000*
Hospital Inconvenience Benefit (amount per day)	£300 (£10)	£500 (£20)	£1,000 (£50)
Personal Accident	£10,000	£25,000	£50,000
Death in flight	£10,000	£25,000	£100,000
Maximum Payable for death except in flight	£5,000	£5,000	£10,000
Travel Delay	12 hrs	12 hrs	8 hrs
first period/subsequent periods/total	£20/£10/£100	£30/£15/£125	£30/£20/£250
Abandonment (after delay of 24hrs)	£1,500*	£2,500*	£5,000*
Missed Departure	£500	£1,000	£2,000
Baggage	Removed	Removed	Removed
Maximum per item, pair or set			
Total limit for all Valuables			
Emergency Purchases			
Personal Money (Cash Limit)	Removed	Removed	Removed
Loss of Passport	£250	£250	£500
Catastrophe Cover		£500*	£1000*
PLUS Travel Disruption		not covered	included
Exended cancellation/curtailment	-	-	£5,000
Extended Travel Delay & Abandonment	-	-	£250 / £5,000
Extended Missed Departure	-	-	£2,000
Extended Accommodation cover	-	-	£5,000
Personal Liability	£2,000,000**	£2,000,000**	£2,000,000**
Legal Expenses	£10,000**	£25,000**	£50,000**
Business Personnel Replacement		£2,500*	£5,000*
Business travel / Working abroad covered	NO	YES	YES
EXCESSES	*£75; **£100	*£75; **£100	*£75; **£100

Source: https://www.worldwideinsure.com/

Worldwideinsure quotations

Options	€	Removed
Option 1	73.30	/
Option 2	58.64	Baggage + personal money
Option 3	65.97	Cancellation
Option 4	51.31	Baggage + personal money + Cancellation

(Tab 3.2.4)

Source: https://www.worldwideinsure.com/

European citizens rights according with Montreal Convention:

Financial compensation

If your flight is cancelled or arrives more than 3 hours late on arrival at the final destination

	1500 km or less	1500 - 3500 km	over 3500 km
Within Europe	€ 250	€ 400	
Between EU airport and non-EU airport	€ 250	€ 400	€ 600

If the carrier offered you an alternative flight with a similar schedule, the compensation may be reduced by 50%.
With cancelled flights, you won't receive compensation if:
- the cancellation was due to extraordinary circumstances for example due to bad weather, or
- you were informed 2 weeks before the scheduled flight date, or
- you were offered an alternative for the same route with a similar schedule to the original one.

For cancellation due to extraordinary circumstances you may not have the right to compensation, the carrier must still offer you either:
- a ticket refund (in full or just the part you have not used)
- alternative transport to your final destination at the earliest opportunity or
- rebooking at a later date of your choice (subject to seat availability).

Even in extraordinary circumstances, airlines must provide assistance when necessary, while you are waiting for alternative transport.

Source: http://europa.eu/youreurope/citizens/travel/passenger-rights/air/index_en.htm

Collection of survey's answers:

Age	Sex	Marital status	Nationality	Lottery 1 - 1/4	Lottery 2 - 1/3	Lottery 3 - 1/2	Lottery 4 - 2/3	Lottery 5 - 3/4
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	36.000	44.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	5.000	40.000	44.000	100.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	24.000	40.000	60.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	36.000	40.000	60.000	75.000
18 - 29	Maschio	celibe/nubile	Italian	40.000	80.000	90.000	80.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	40.000	44.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	40.000	40.000	40.000	44.000	44.000
18 - 29	Femmina	celibe/nubile	Italian	36.000	24.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	5.000	24.000	24.000	36.000
18 - 29	Male	unmarried	Moroccan	40.000	40.000	40.000	100.000	100.000
18 - 29	Femmina	coniugato/a, separato/a	Italian	24.000	24.000	40.000	44.000	44.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	5.000	36.000	44.000	44.000
30 - 49	Femmina	celibe/nubile	Italian	5.000	5.000	24.000	60.000	60.000
18 - 29	Male	unmarried	Romanian	5.000	5.000	40.000	100.000	100.000
18 - 29	Female	unmarried	Ukrainian	24.000	36.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	40.000	44.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	24.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	50.000	60.000	100.000
30 - 49	Femmina	coniugato/a, separato/a	Italian	€ 50.000	40.000	50.000	60.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	5.000	5.000	24.000	24.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	40.000	50.000	60.000	78.000
18 - 29	Male	unmarried	Moroccan	40.000	40.000	40.000	100.000	100.000
18 - 29	Male	unmarried	Moroccan	36.000	24.000	€ 50.000	60.000	€ 80.000
30 - 49	Femmina	celibe/nubile	Italian	40.000	40.000	40.000	60.000	60.000
30 - 49	Maschio	celibe/nubile	Italian	36.000	36.000	36.000	60.000	60.000
30 - 49	Femmina	coniugato/a, separato/a	Italian	40.000	40.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	40.000	36.000	40.000	60.000	60.000
30 - 49	Femmina	coniugato/a, separato/a	Italian	100.000	100.000	100.000	100.000	100.000
18 - 29	Male	unmarried	Moroccan	5.000	24.000	40.000	44.000	44.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	5.000	5.000	24.000	24.000
18 - 29	Femmina	celibe/nubile	Italian	40.000	40.000	40.000	100.000	100.000
18 - 29	Femmina	coniugato/a, separato/a	Italian	5000	5.000	5.000	24.000	24.000
18 - 29	Maschio	celibe/nubile	Italian	99.000	99.550	99.850	99.980	99.520
18 - 29	Femmina	celibe/nubile	Italian	40.000	40.000	40.000	60.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	40.000	60.000	70.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	36.000	75.000	75.000	80000
30 - 49	Femmina	coniugato/a, separato/a	Italian	100.000	100.000	100.000	100.000	100.000
18 - 29	Female	unmarried	Brasilian	5.000	36.000	40.000	60.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	36.000	36.000	60.000	60.000
30 - 49	Femmina	celibe/nubile	Italian	24.000	24.000	24.000	60.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	5.000	5.000	5.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	36.000	55.000	80.000	85.000
50 in su	Femmina	coniugato/a, separato/a	Italian	5.000	5.000	24.000	36.000	44.000
18 - 29	Female	unmarried	italo lebanese	24.000	36.000	40.000	44.000	60.000
18 - 29	Female	unmarried	italo lebanese	24.000	36.000	40.000	44.000	60.000
18 - 29	Female	unmarried	Albanian	24.000	36.000	40.000	60.000	120.000
18 - 29	Maschio	celibe/nubile	Italian	100.000	100.000	100.000	100.000	100.000
30 - 49	Femmina	celibe/nubile	Italian	24.000	24.000	40.000	60.000	60.000

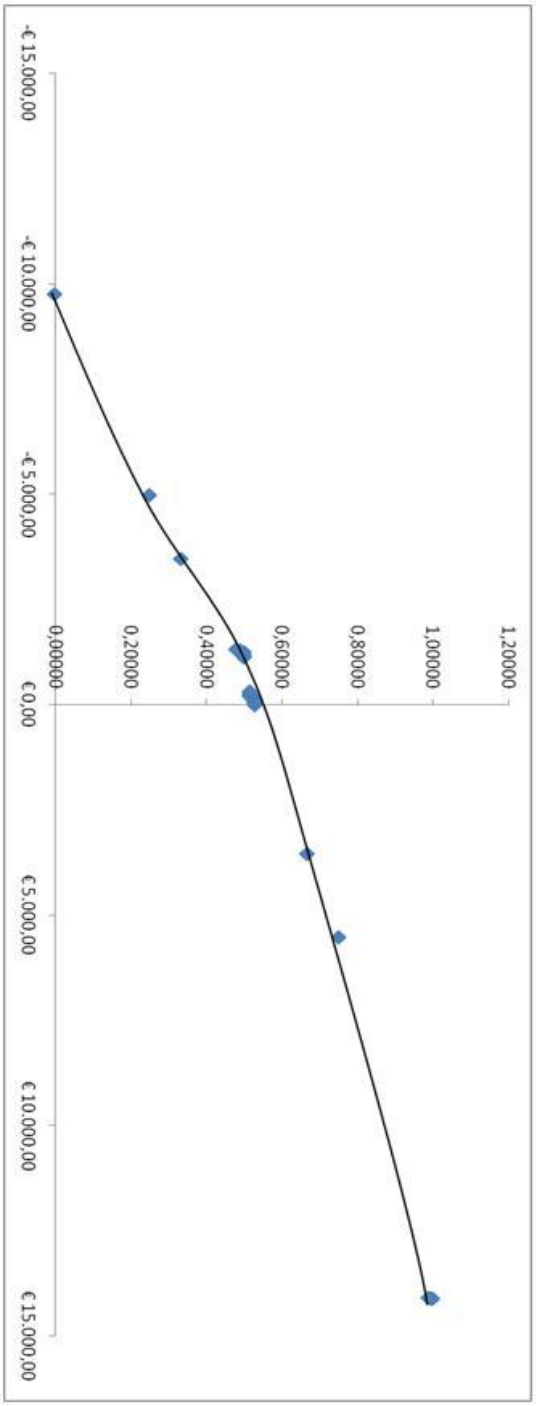
18 - 29	Maschio	celibe/nubile	Italian	24.000	36.000	5.000	60.000	60.000
50 in su	Femmina	coniugato/a, separato/a	Italian	24.000	24.000	24.000	24.000	24.000
30 - 49	Maschio	celibe/nubile	Italian	5.000	5.000	5.000	24.000	24.000
18 - 29	Femmina	celibe/nubile	Italian	100.000	100.000	100.000	100.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	50.000	50.000	80.000	100.000	100.000
30 - 49	Femmina	celibe/nubile	Italian	5.000	5.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	24.000	36.000	44.000	60.000
50 in su	Femmina	coniugato/a, separato/a	Italian	40.000	5.000	40.000	€ 50.000	€ 50.000
18 - 29	Maschio	celibe/nubile	Italian	5.000	36.000	51.000	67.000	95.000
18 - 29	Maschio	celibe/nubile	Italian	36.000	36.000	45.000	70.000	80000
18 - 29	Maschio	celibe/nubile	Italian	36.000	36.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	40.000	40.000	40.000	60.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	24.000	40.000	100.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	24.000	36.000	44.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	24.000	40.000	44.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	5.000	5.000	36.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	24.000	24.000	36.000	44.000	44.000
18 - 29	Maschio	celibe/nubile	Italian	24.000	24.000	24.000	44.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	10.000	24.000	40.000	100.000	100.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	24.000	40.000	60.000	60.000
30 - 49	Femmina	coniugato/a, separato/a	Italian	40.000	40.000	40.000	60.000	80.000
30 - 49	Maschio	coniugato/a, separato/a	Italian	100.000	100.000	100.000	100.000	100.000
18 - 29	Maschio	celibe/nubile	Italian	5.000	24.000	40.000	44.000	60.000
18 - 29	Femmina	celibe/nubile	Italian	40.000	36.000	36.000	60.000	44.000
30 - 49	Maschio	coniugato/a, separato/a	Italian	5.000	5.000	24.000	60.000	60.000
30 - 49	Femmina	coniugato/a, separato/a	Italian	24.000	24.000	24.000	44.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	5.000	24.000	36.000	44.000	44.000
18 - 29	Femmina	celibe/nubile	Italian	40.000	40.000	40.000	60.000	60.000
30 - 49	Maschio	celibe/nubile	Italian	15.000	25.000	36.000	36.000	44.000
18 - 29	Femmina	celibe/nubile	Italian	5.000	24.000	36.000	44.000	60.000
18 - 29	Maschio	celibe/nubile	Italian	5.000	5.000	40.000	60.000	60.000
18 - 29	Female	unmarried	Romanian	5.000	5.000	40.000	60.000	60.000
18 - 29	Female	unmarried	Belgian	5.000	5.000	5.000	24.000	36.000
18 - 29	Female	unmarried	German	5.000	24.000	36.000	60.000	60.000
18 - 29	Male	unmarried	Indian	24.000	36.000	36.000	60.000	40.000
18 - 29	Female	unmarried	Indian	5.000	5.000	24.000	40.000	60.000
18 - 29	Male	unmarried	Indian	24.000	36.000	40.000	60.000	70.000
18 - 29	Male	unmarried	Belgian	24.000	24.000	5.000	24.000	24.000
18 - 29	Male	unmarried	French	40.000	40.000	40.000	60.000	60.000
50 and ove	Female	married/separated	Canadian	100.000	100.000	100.000	100.000	100.000
30 - 49	Male	unmarried	Belgian	12.500	24.000	36.000	36.000	36.000
30 - 49	Male	unmarried	Belgian	5.000	5.000	5.000	24.000	24.000
50 and ove	Male	married/separated	Belgian	5.000	5.000	5.000	24.000	24.000
50 and ove	Female	unmarried	Australian	5.000	5.000	40.000	40.000	60.000
18 - 29	Female	unmarried	Belgian	5.000	5.000	5.000	24.000	60.000
18 - 29	Male	unmarried	Belgian	5.000	5.000	5.000	24.000	24.000
18 - 29	Female	unmarried	Belgian	5.000	5.000	24.000	60.000	100.000
18 - 29	Female	unmarried	Belgian	5.000	5.000	5.000	24.000	24.000
30 - 49	Male	unmarried	Belgian	5.000	24.000	24.000	60.000	60.000
18 - 29	Female	unmarried	Belgian	5.000	5.000	5.000	24.000	36.000
18 - 29	Male	unmarried	Belgian	5.000	5.000	5.000	24.000	36.000

Chapter 4

Utility function of the sample **(Fig. 4.1a)**

1/4	1/3	1/2	2/3	3/4
-4667,11	-3477,5	-1253,03	3531,526	5522,421

Payoffs	Utilities
€ 14.113,69	1,00000
€ 14.106,35	0,99800
€ 14.099,03	0,99600
€ 14.091,70	0,99000
€ 5.522,42	0,75000
€ 3.531,53	0,66667
€ 0,00	0,53000
-€ 51,31	0,52990
-€ 58,65	0,52950
-€ 65,97	0,52940
-€ 73,30	0,52890
-€ 73,70	0,52880
-€ 100,00	0,52700
-€ 164,65	0,52550
-€ 171,97	0,52542
-€ 179,30	0,52532
-€ 193,31	0,52470
-€ 200,00	0,51850
-€ 200,65	0,51800
-€ 207,97	0,51600
-€ 215,70	0,51539
-€ 250,00	0,51533
-€ 251,31	0,51532
-€ 258,65	0,51530
-€ 301,31	0,51520
-€ 308,65	0,51500
-€ 1.120,00	0,50010
-€ 1.171,31	0,50006
-€ 1.178,65	0,50005
-€ 1.255,00	0,50000
-€ 1.306,31	0,49000
-€ 1.320,97	0,48000
-€ 3.477,50	0,33333
-€ 4.983,00	0,25000
-€ 9.752,00	0,00000

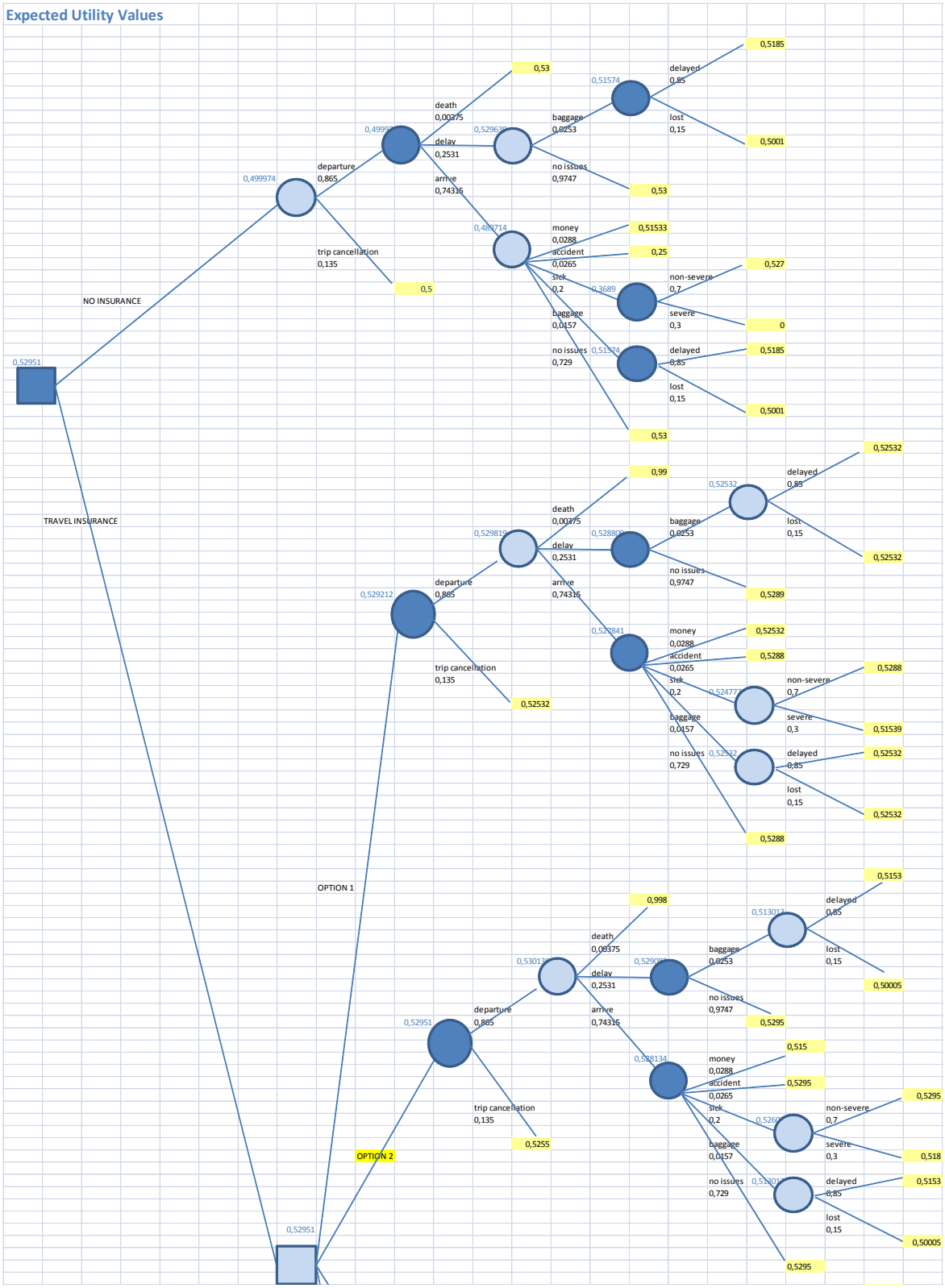


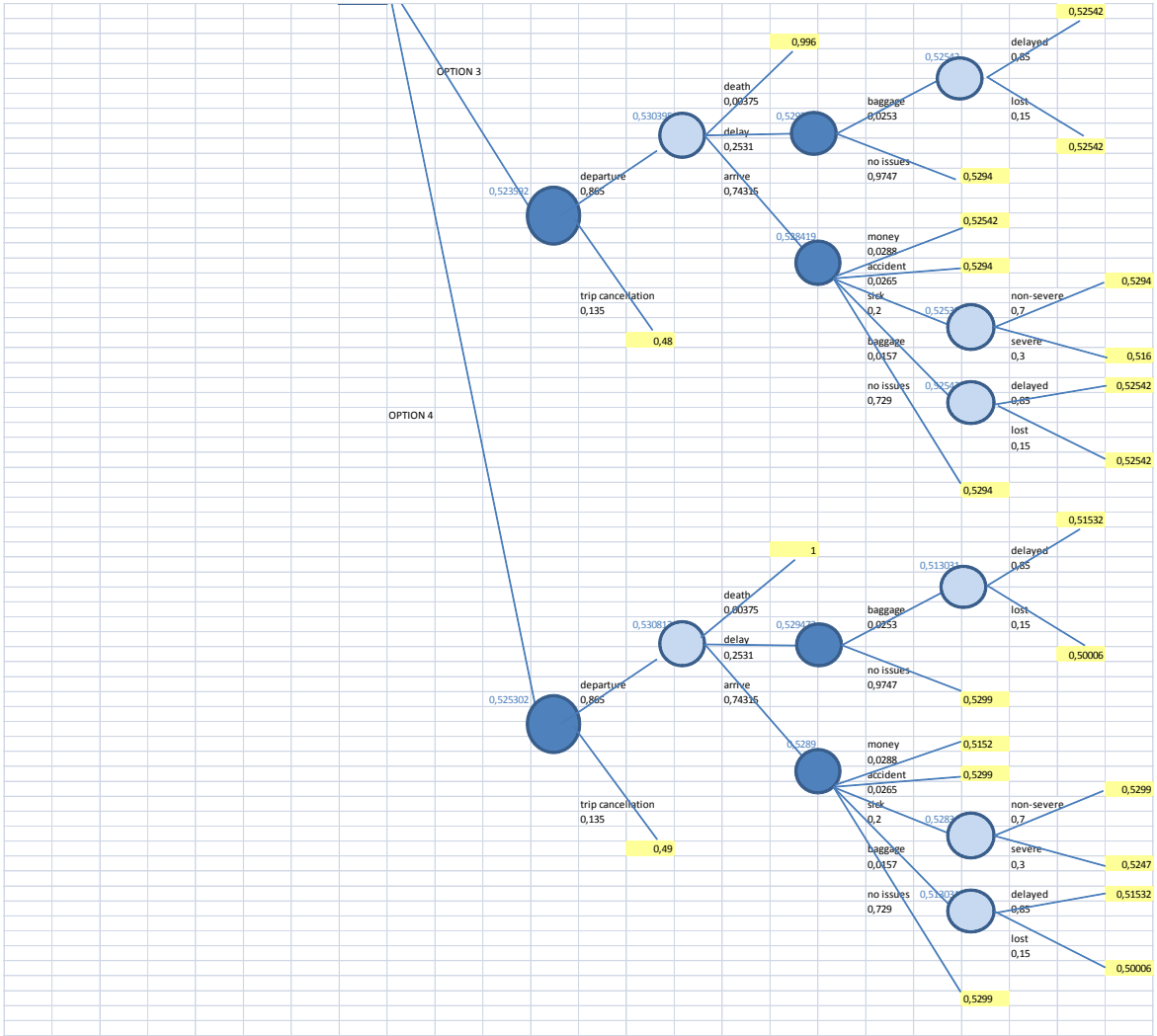
Utilities table, risk attitude

	TRIP CANCELLATION 0,135	DEPARTURE 0,865											
		DEATH IN FLIGH 0,00375	FLIGHT DELAY 0,2531			ARRIVE AT DESTINATION 0,74315							
			BAGGAGE 0,0253			BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
			delayed 0,85	lost 0,15	no issues 0,9747	delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES option 1	0,52532	0,99000	0,52532	0,52532	0,52890	0,52532	0,52532	0,52880	0,51539	0,52532	0,52880	0,52880
option 2	0,52550	0,99800	0,51530	0,50005	0,52950	0,51530	0,50005	0,52950	0,51800	0,51500	0,52950	0,52950
option 3	0,48000	0,99600	0,52542	0,52542	0,52940	0,52542	0,52542	0,52940	0,51600	0,52542	0,52940	0,52940
option 4	0,49000	1,00000	0,51532	0,50006	0,52990	0,51532	0,50006	0,52990	0,52470	0,51520	0,52990	0,52990
NO INSURANCE	0,50000	0,53000	0,51850	0,50010	0,53000	0,51850	0,50010	0,52700	0,00000	0,51533	0,25000	0,53000

(Fig. 3.1.4)

Decisional Tree considering risk attitude

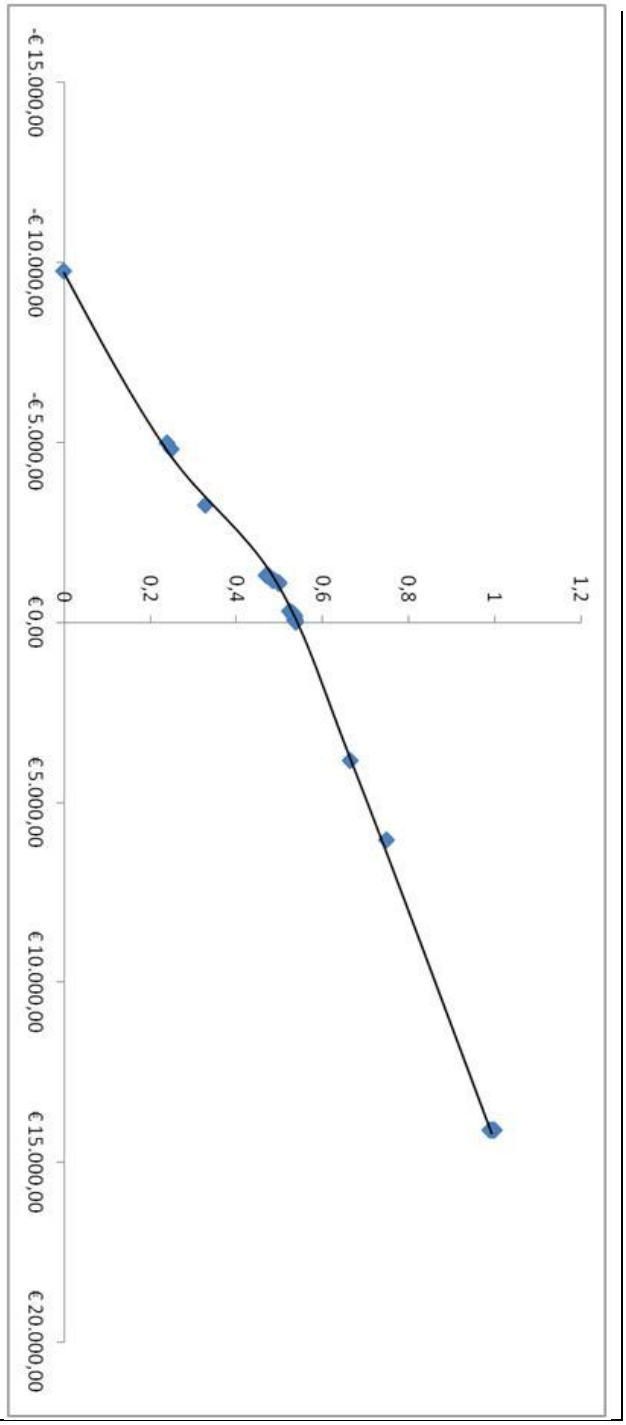



OPTION 3
OPTION 4
0,523592
departure
0,865
trip cancellation
0,135
0,48
0,530399
death
0,00375
delay
0,2531
arrive
0,74316
0,996
baggage
0,0253
no issues
0,9747
0,5294
0,52542
delayed
0,85
lost
0,15
0,52542
0,528419
money
0,0288
accident
0,0265
sick
0,2
baggage
0,0157
no issues
0,729
0,5294
non-severe
0,7
severe
0,3
0,5294
0,516
0,52542
delayed
0,85
lost
0,15
0,52542
0,5294
0,525302
departure
0,865
trip cancellation
0,135
0,49
0,530813
death
0,00375
delay
0,2531
arrive
0,74316
1
baggage
0,0253
no issues
0,9747
0,5299
0,513031
delayed
0,85
lost
0,15
0,51532
0,50006
0,5289
money
0,0288
accident
0,0265
sick
0,2
baggage
0,0157
no issues
0,729
0,5152
0,5299
non-severe
0,7
severe
0,3
0,5299
0,5247
delayed
0,85
lost
0,15
0,51532
0,50006
0,5299

Utility function, age 18 – 29 (**Fig. 4.1.1a**)

1/4	1/3	1/2	2/3	3/4
-4821,91781	-3258,39041	-1086,13014	3849,24658	6056,57534

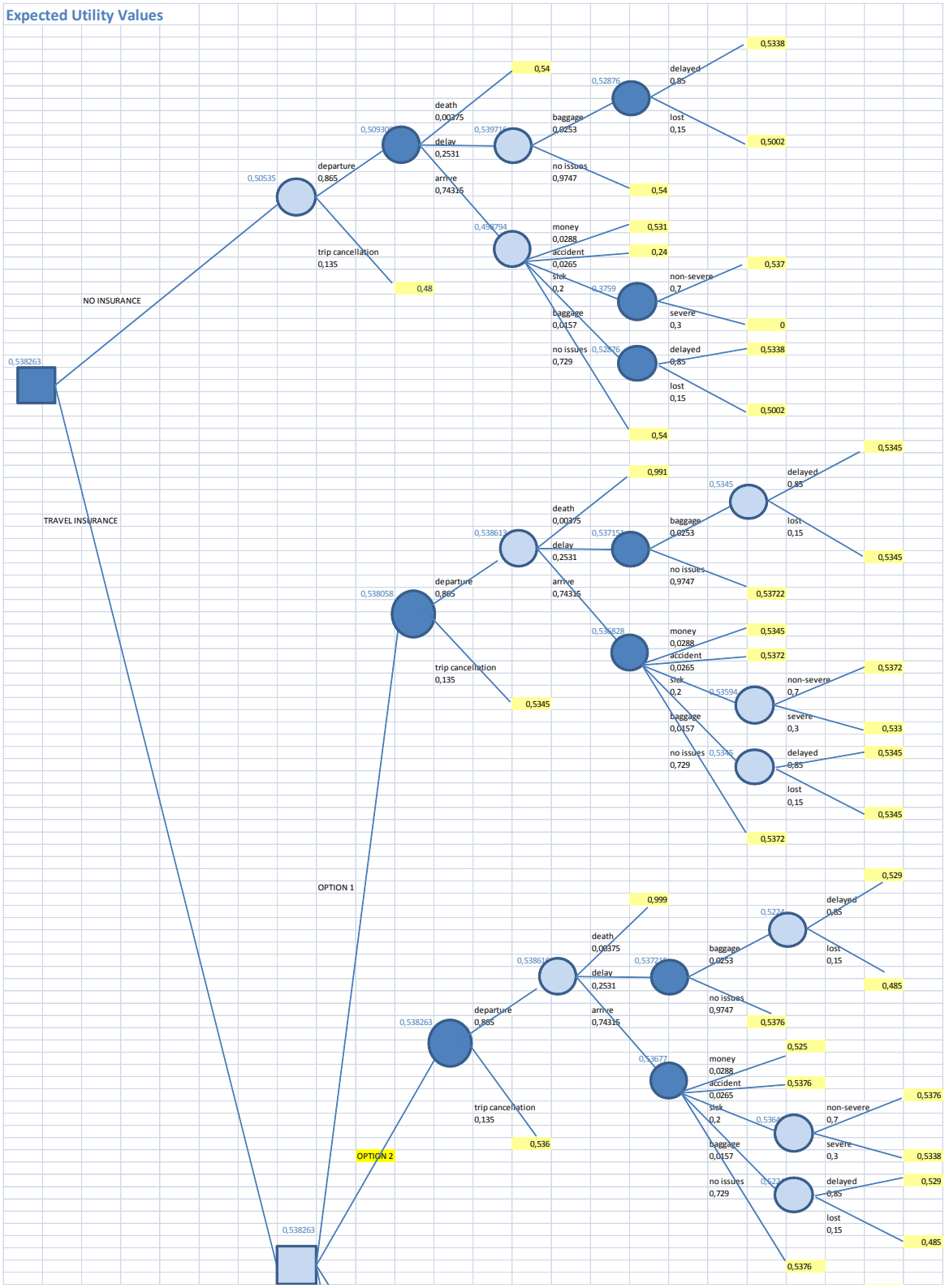
Payoffs	Utilities
€ 14.113,69	1
€ 14.106,35	0,999
€ 14.099,03	0,996
€ 14.091,70	0,991
€ 6.057,00	0,75
€ 3.849,00	0,66667
€ 0,00	0,54
-€ 51,31	0,538
-€ 58,65	0,5376
-€ 65,97	0,53745
-€ 73,30	0,53722
-€ 73,70	0,5372
-€ 100,00	0,537
-€ 164,65	0,536
-€ 171,97	0,535
-€ 179,30	0,5345
-€ 193,31	0,534
-€ 200,00	0,5338
-€ 200,65	0,5338
-€ 207,97	0,5333
-€ 215,70	0,533
-€ 250,00	0,531
-€ 251,31	0,53
-€ 258,65	0,529
-€ 301,31	0,527
-€ 308,65	0,525
-€ 1.120,00	0,5002
-€ 1.086,00	0,5
-€ 1.171,31	0,49
-€ 1.178,65	0,485
-€ 1.255,00	0,48
-€ 1.306,31	0,476
-€ 1.320,97	0,47
-€ 3.258,00	0,33
-€ 4.822,00	0,25
-€ 4.983,00	0,24
-€ 9.752,00	0

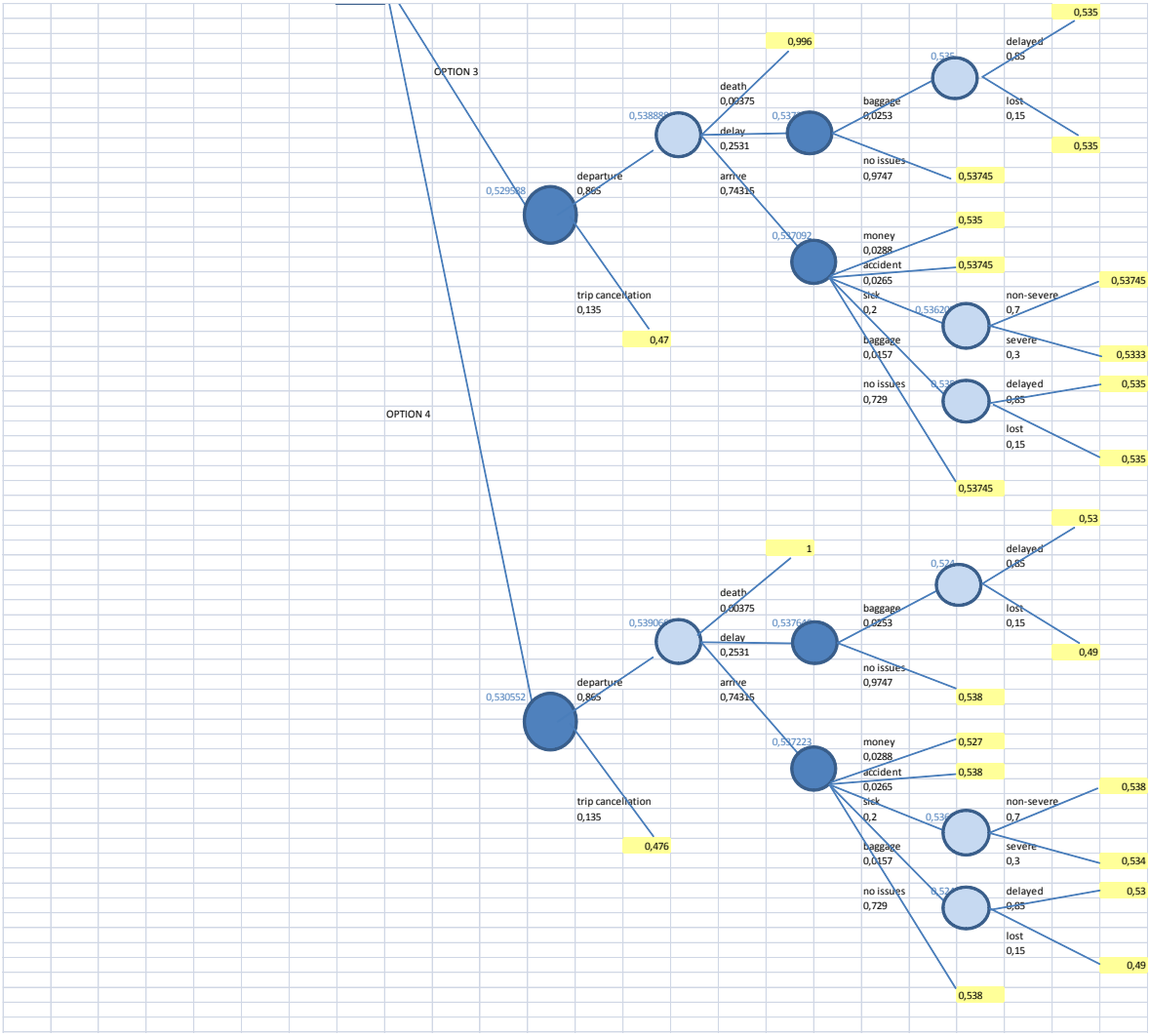


Utilities table, age 18 – 29

		TRIP CANCELLATION 0,135	DEPARTURE 0,865											
			DEATH IN FLIGHT 0,00375	FLIGHT DELAY 0,2531			ARRIVE AT DESTINATION 0,74315							
				BAGGAGE 0,0253		no issues 0,9747	BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
				delayed 0,85	lost 0,15		delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES	option 1	0,53450	0,99100	0,53450	0,53450	0,53722	0,53450	0,53450	0,53720	0,53300	0,53450	0,53720	0,53720
	option 2	0,53600	0,99900	0,52900	0,48500	0,53760	0,52900	0,48500	0,53760	0,53380	0,52500	0,53760	0,53760
	option 3	0,47000	0,99600	0,53500	0,53500	0,53745	0,53500	0,53500	0,53745	0,53330	0,53500	0,53745	0,53745
	option 4	0,47600	1,00000	0,53000	0,49000	0,53800	0,53000	0,49000	0,53800	0,53400	0,52700	0,53800	0,53800
NO INSURANCE		0,48000	0,54000	0,53380	0,50020	0,54000	0,53380	0,50020	0,53700	0,00000	0,53100	0,24000	0,54000

Decisional Tree, age 18 – 29

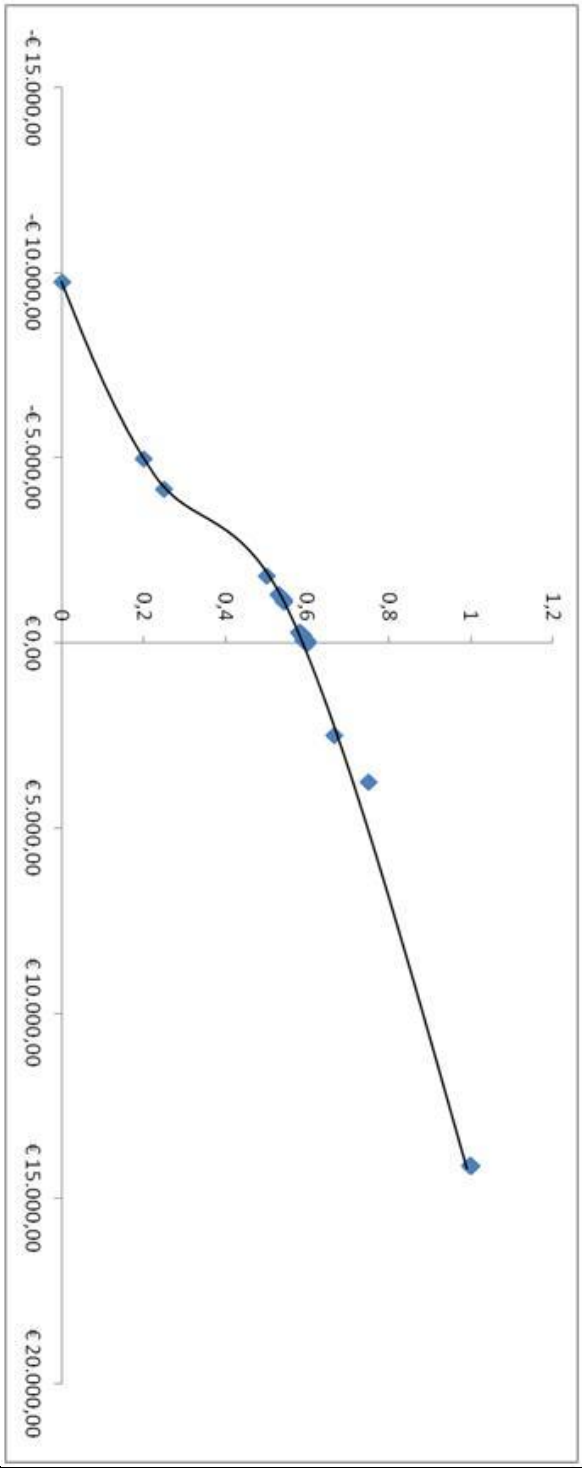



OPTION 3
0,529588
departure
0,865
trip cancellation
0,135
0,47
0,538888
death
0,00375
0,996
delay
0,2531
arrive
0,74316
baggage
0,0253
no issues
0,9747
0,53745
delayed
0,85
lost
0,15
0,535
0,535
0,557092
money
0,0288
accident
0,0265
sick
0,2
0,53745
0,53745
non-severe
0,7
severe
0,3
0,5333
baggage
0,0157
no issues
0,729
0,535
0,535
0,535
0,53745
OPTION 4
0,530552
departure
0,865
trip cancellation
0,135
0,476
0,539068
death
0,00375
1
delay
0,2531
arrive
0,74316
baggage
0,0253
no issues
0,9747
0,538
delayed
0,85
lost
0,15
0,53
0,49
0,557223
money
0,0288
accident
0,0265
sick
0,2
0,527
0,538
0,538
non-severe
0,7
severe
0,3
0,534
baggage
0,0157
no issues
0,729
0,538
delayed
0,85
lost
0,15
0,53
0,49

Utility function, age 30 and over (**Fig. 4.1.1b**)

1/4	1/3	1/2	2/3	3/4
-4153,409091	-4204,54545	-1806,818182	2477,272727	3750

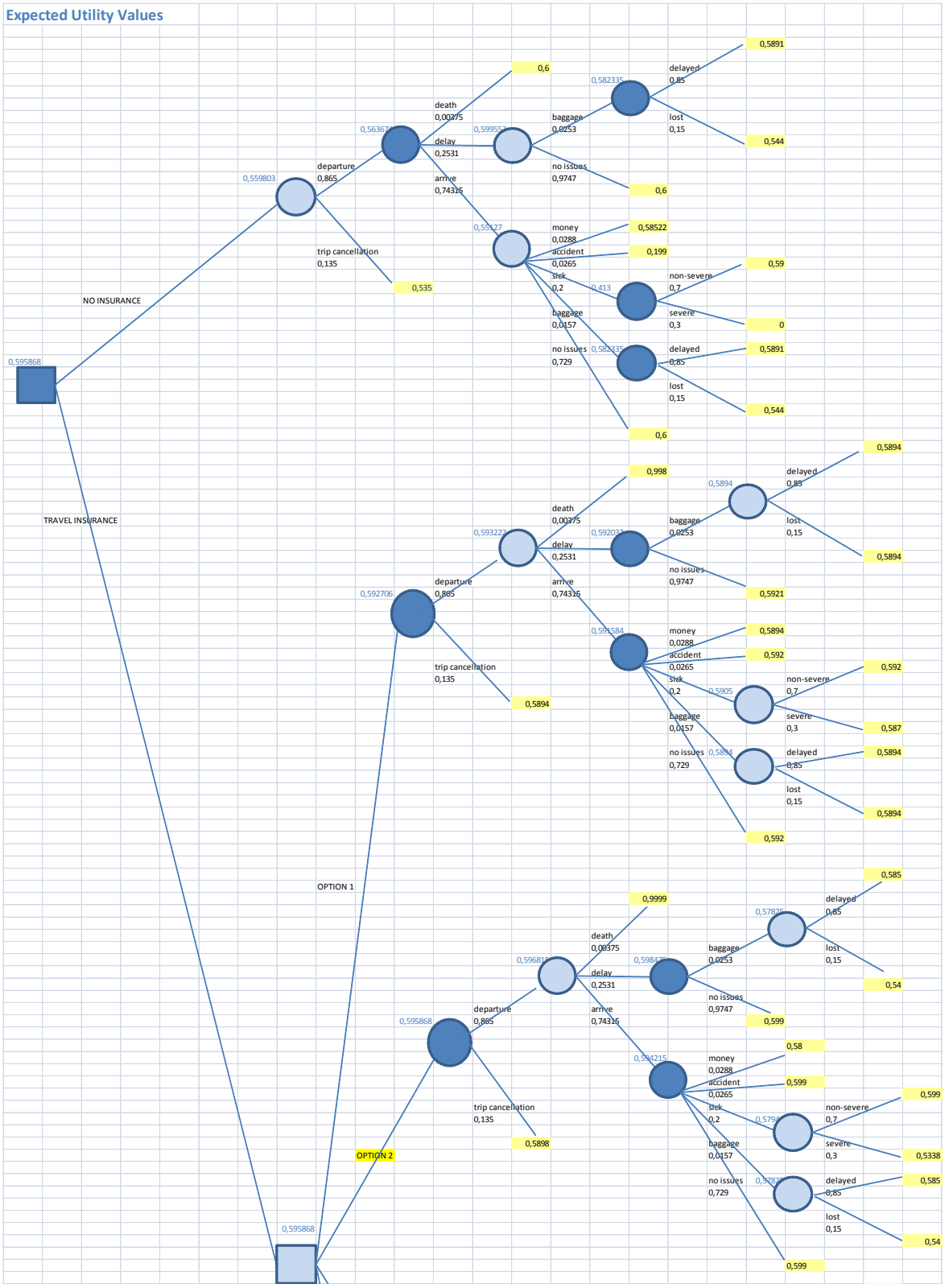
Payoffs	Utilities
€ 14.113,69	1
€ 14.106,35	0,9999
€ 14.099,03	0,999
€ 14.091,70	0,998
€ 3.750,00	0,75
€ 2.477,00	0,66667
€ 0,00	0,6
-€ 51,31	0,5998
-€ 58,65	0,599
-€ 65,97	0,596
-€ 73,30	0,5921
-€ 73,70	0,592
-€ 100,00	0,59
-€ 164,65	0,5898
-€ 171,97	0,5895
-€ 179,30	0,5894
-€ 193,31	0,5892
-€ 200,00	0,5891
-€ 200,65	0,589
-€ 207,97	0,588
-€ 215,70	0,587
-€ 250,00	0,58522
-€ 251,31	0,5852
-€ 258,65	0,585
-€ 301,31	0,582
-€ 308,65	0,58
-€ 1.120,00	0,544
-€ 1.171,31	0,542
-€ 1.178,65	0,54
-€ 1.255,00	0,535
-€ 1.306,31	0,533
-€ 1.320,97	0,53
-€ 1.807,00	0,5
-€ 4.153,00	0,25
-€ 4.983,00	0,199
-€ 9.752,00	0

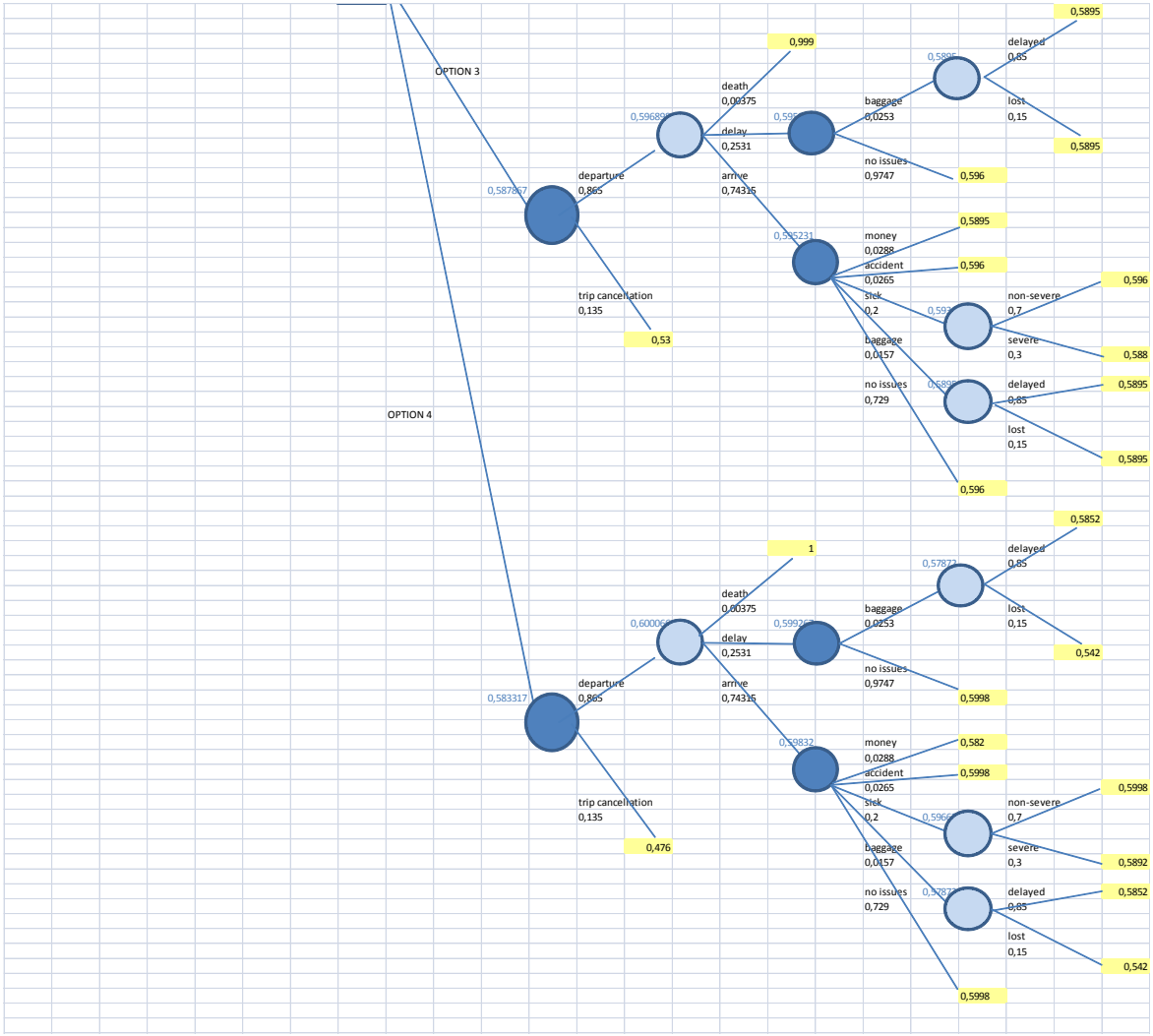


Utilities table, age 30 and over

		IP CANCELLATI 0,135	DEPARTURE 0,865										
			DEATH IN FLIGHT 0,00375	FLIGHT DELAY 0,2531			ARRIVE AT DESTINATION 0,74315						
				BAGGAGE 0,0253		no issues 0,9747	BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
				delayed 0,85	lost 0,15		delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES	**option 1**	0,5894	0,998	0,5894	0,5894	0,5921	0,5894	0,5894	0,592	0,587	0,5894	0,592	0,592
	option 2	0,5898	0,9999	0,585	0,54	0,599	0,585	0,54	0,599	0,589	0,58	0,599	0,599
	option 3	0,53	0,999	0,5895	0,5895	0,596	0,5895	0,5895	0,596	0,588	0,5895	0,596	0,596
	option 4	0,533	1	0,5852	0,542	0,5998	0,5852	0,542	0,5998	0,5892	0,582	0,5998	0,5998
NO INSURANCE		0,535	0,6	0,5891	0,544	0,6	0,5891	0,544	0,59	0	0,58522	0,199	0,6

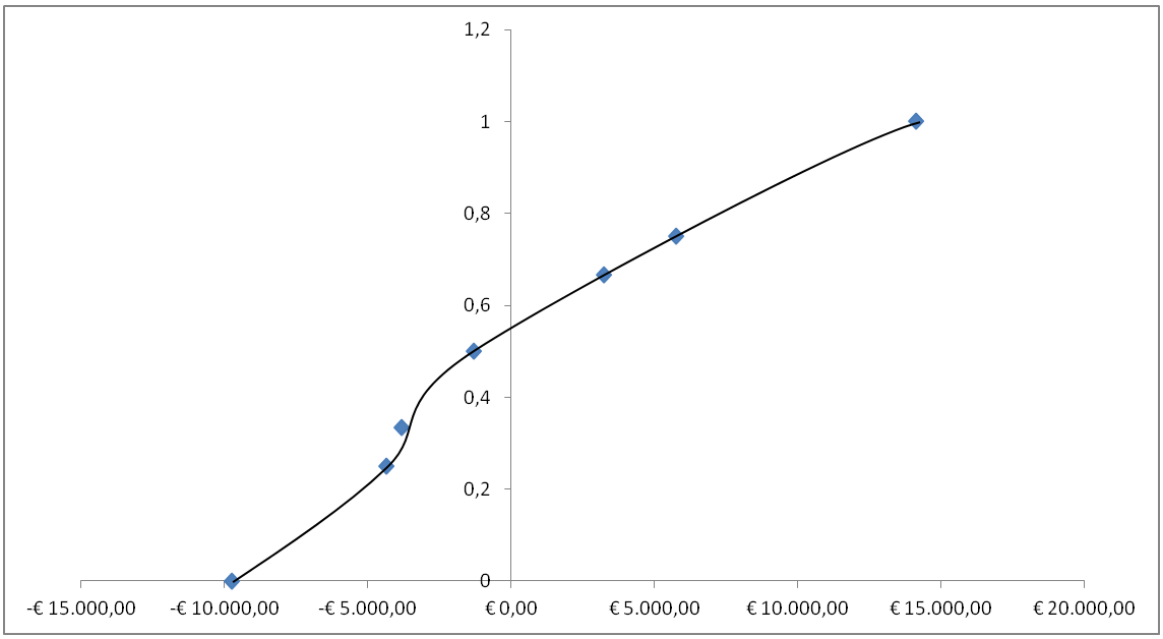
Decisional Tree, age 30 and over




OPTION 3
OPTION 4
0,587867
departure
0,865
trip cancellation
0,135
0,53
0,596895
death
0,00375
delay
0,2531
arrive
0,74315
0,999
0,595231
baggage
0,0253
no issues
0,9747
0,596
0,5895
delayed
0,85
lost
0,15
0,5895
money
0,0288
accident
0,0265
stek
0,2
baggage
0,0157
no issues
0,729
0,596
non-severe
0,7
severe
0,3
0,588
0,5895
delayed
0,85
lost
0,15
0,5895
0,596
0,583317
departure
0,865
trip cancellation
0,135
0,476
0,600068
death
0,00375
delay
0,2531
arrive
0,74315
1
0,599263
baggage
0,0253
no issues
0,9747
0,5998
0,57872
delayed
0,85
lost
0,15
0,5852
0,542
0,59832
money
0,0288
accident
0,0265
stek
0,2
baggage
0,0157
no issues
0,729
0,582
0,5998
0,5998
non-severe
0,7
severe
0,3
0,5892
0,5852
delayed
0,85
lost
0,15
0,542
0,5998

Utility function, females

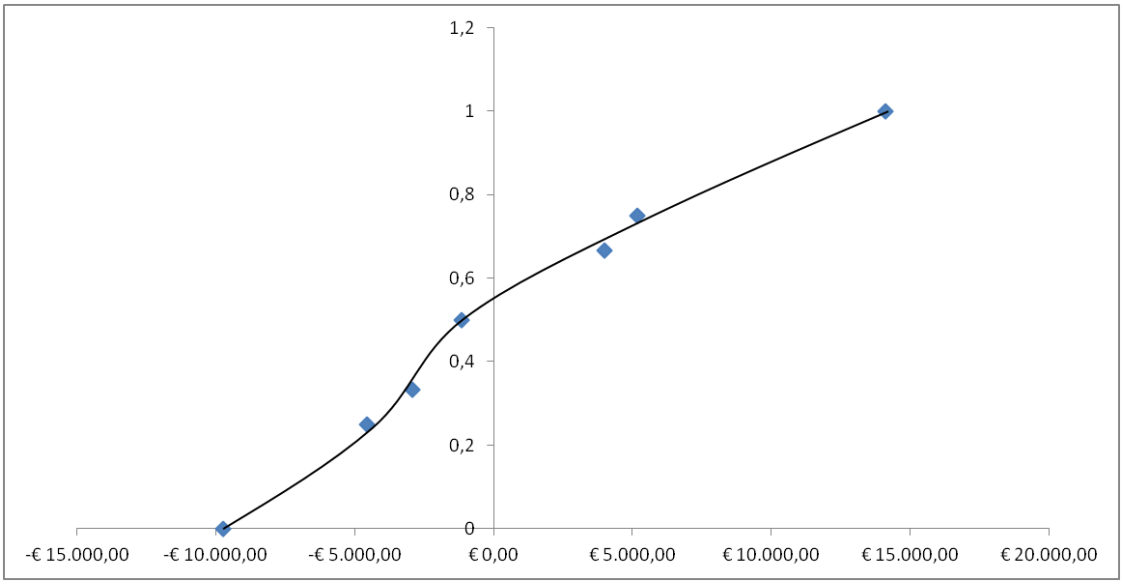
0,25000	0,33333	0,50000	0,66667	0,75000
-4732,758621	-3840,517241	-1314,655172	3232,758621	5745,689655



(Fig. 4.1.1c)

Utility function, males

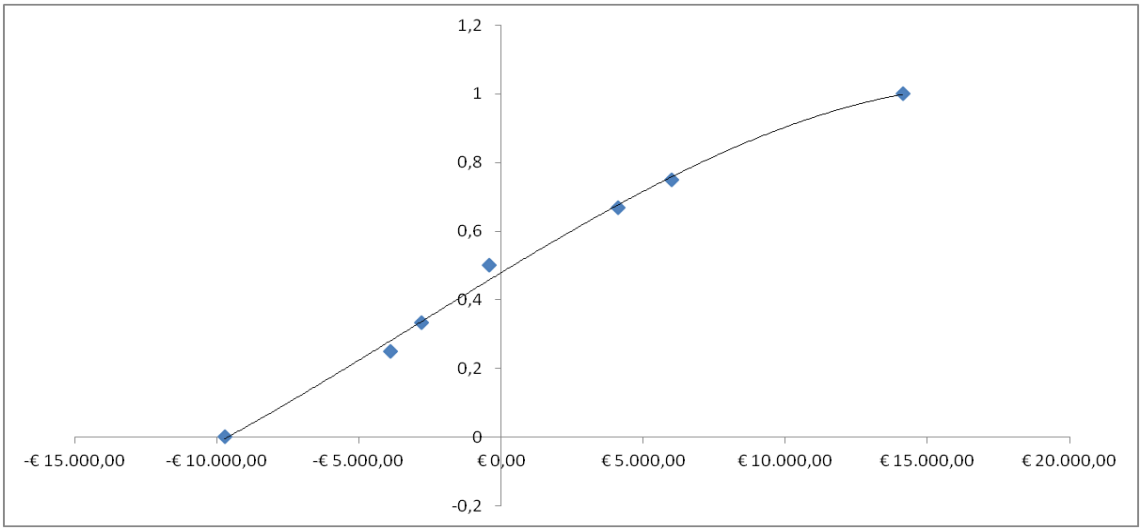
0,25000	0,33333	0,50000	0,66667	0,75000
-4564,189189	-2908,445946	-1156,418919	3999,864865	5172,432432



(Fig. 4.1.1d)

Utility function, Italians

0,25000	0,33333	0,50000	0,66667	0,75000
-3920,4545	-2812,31061	-421,022727	4083,257576	5986,818182

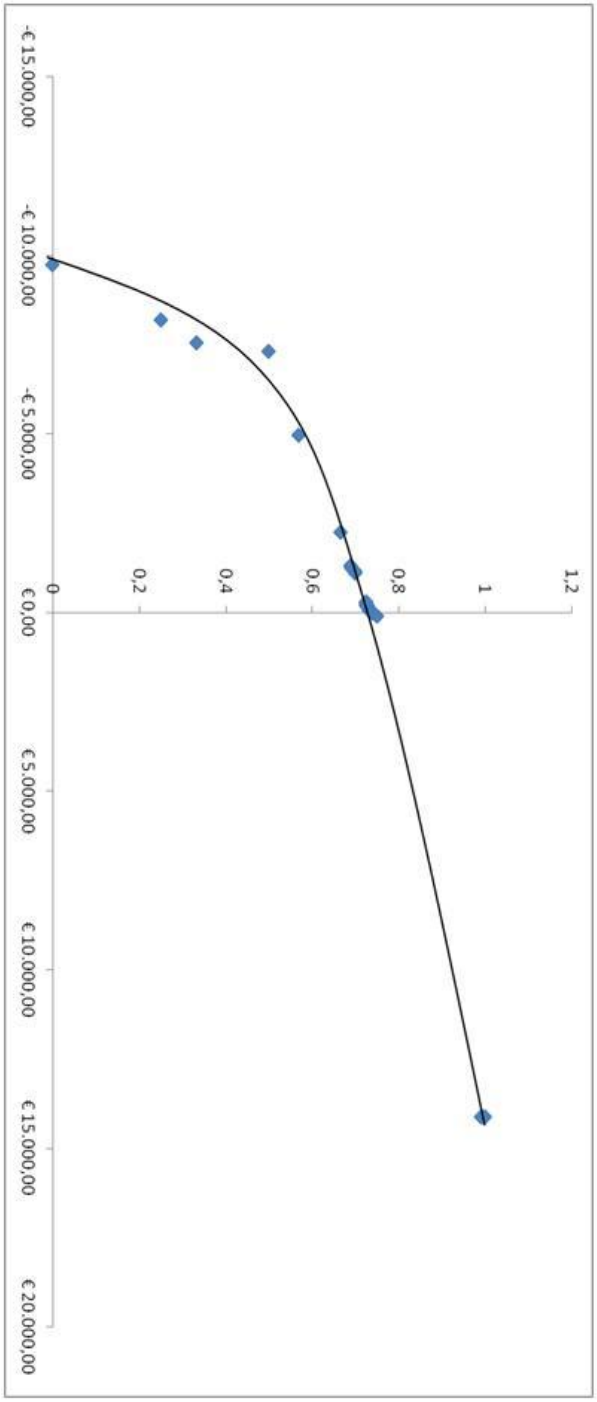


(Fig. 4.1.2a)

Utility function, Belgians **(Fig. 4.1.2b)**

1/4	1/3	1/2	2/3	3/4
-8197,916667	-7562,5	-7312,5	-2250	83,333333

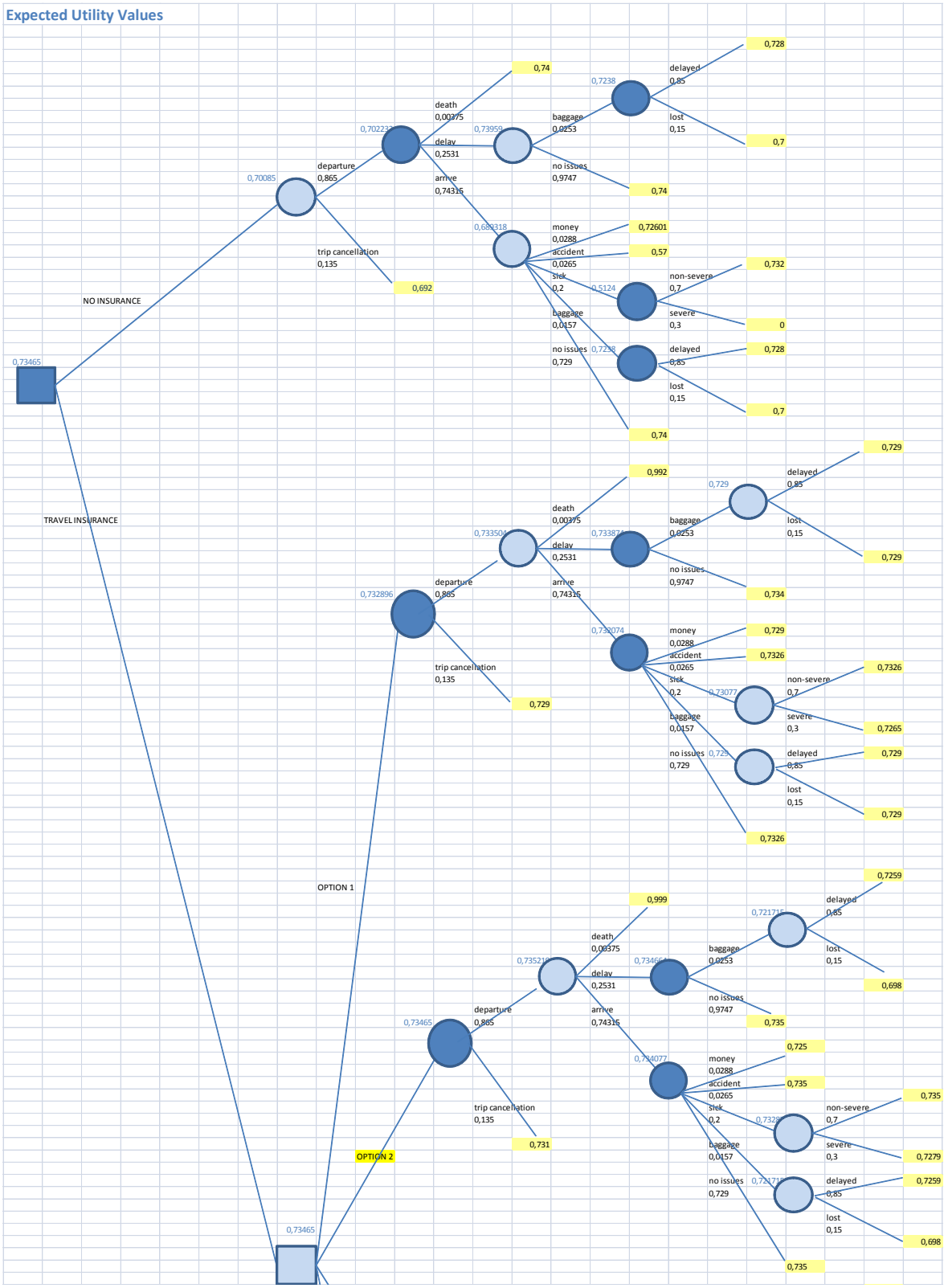
Payoffs	Utilities
€ 14.113,69	1
€ 14.106,35	0,999
€ 14.099,03	0,994
€ 14.091,70	0,992
€ 83,33	0,75
€ 0,00	0,74
-€ 51,31	0,736
-€ 58,65	0,735
-€ 65,97	0,7345
-€ 73,30	0,734
-€ 73,70	0,7326
-€ 100,00	0,732
-€ 164,65	0,731
-€ 171,97	0,73
-€ 179,30	0,729
-€ 193,31	0,7285
-€ 200,00	0,728
-€ 200,65	0,7279
-€ 207,97	0,727
-€ 215,70	0,7265
-€ 250,00	0,72601
-€ 251,31	0,726
-€ 258,65	0,7259
-€ 301,31	0,7256
-€ 308,65	0,725
-€ 1.120,00	0,7
-€ 1.171,31	0,6999
-€ 1.178,65	0,698
-€ 1.255,00	0,692
-€ 1.306,31	0,69
-€ 1.320,97	0,689
-€ 2.250,00	0,66667
-€ 4.983,00	0,57
-€ 7.312,50	0,5
-€ 7.562,50	0,33333
-€ 8.198,00	0,25
-€ 9.752,00	0

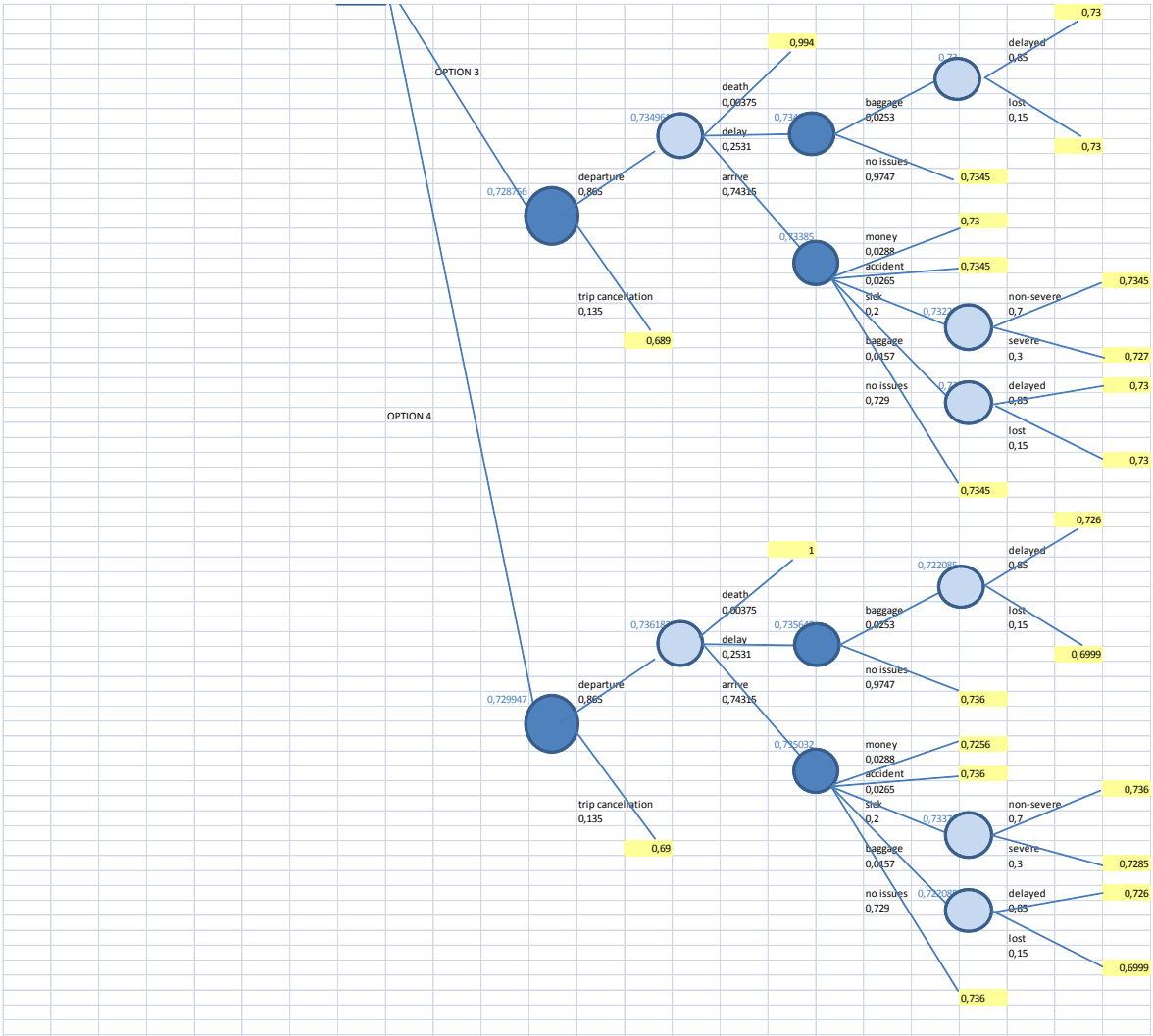


Utilities table, Belgians

		IP CANCELLATIO 0,135	DEPARTURE 0,865										
			EATH IN FLIGH 0,00375	FLIGHT DELAY 0,2531			ARRIVE AT DESTINATION 0,74315						
				BAGGAGE 0,0253		no issues 0,9747	BAGGAGE 0,0157		SICK 0,2		MONEY 0,0288	ACCIDENT 0,0265	no issues 0,729
				delayed 0,85	lost 0,15		delayed 0,85	lost 0,15	non-severe 0,7	severe 0,3			
TRAVEL INSURANCE POLICIES	option 1	0,72900	0,99200	0,72900	0,72900	0,73400	0,72900	0,72900	0,73260	0,72650	0,72900	0,73260	0,73260
	option 2	0,73100	0,99900	0,72590	0,69800	0,73500	0,72590	0,69800	0,73500	0,72790	0,72500	0,73500	0,73500
	option 3	0,68900	0,99400	0,73000	0,73000	0,73450	0,73000	0,73000	0,73450	0,72700	0,73000	0,73450	0,73450
	option 4	0,69000	1,00000	0,72600	0,69990	0,73600	0,72600	0,69990	0,73600	0,72850	0,72560	0,73600	0,73600
NO INSURANCE		0,69200	0,74000	0,72800	0,70000	0,74000	0,72800	0,70000	0,73200	0,00000	0,72601	0,57000	0,74000

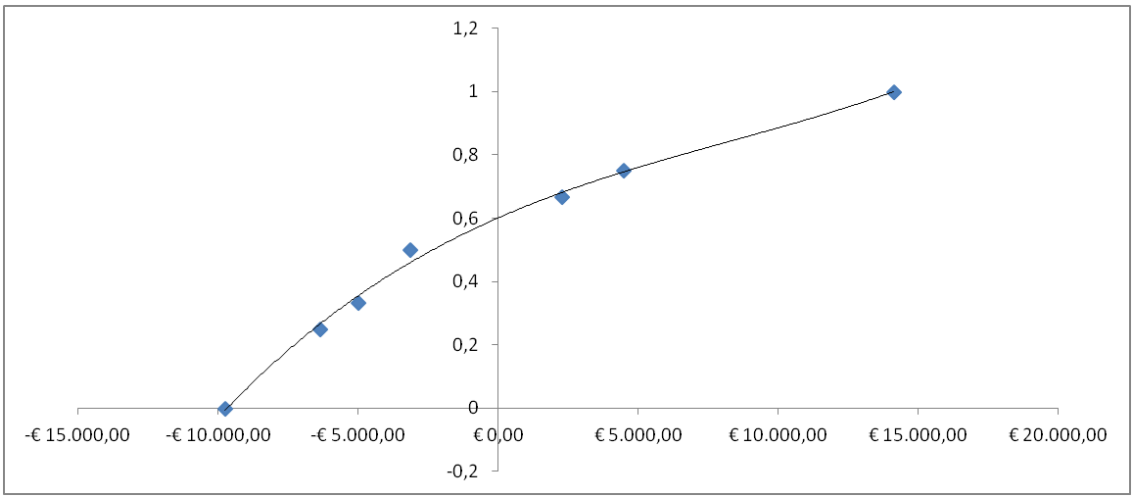
Decisional Tree, Belgians




OPTION 3
OPTION 4
0,728756
departure
0,865
trip cancellation
0,135
0,689
0,734963
death
0,00375
delay
0,2531
arrive
0,74316
0,994
baggage
0,0253
no issues
0,9747
0,7345
0,73385
money
0,0288
accident
0,0265
sick
0,2
baggage
0,0157
no issues
0,729
0,73
0,7345
delayed
0,85
lost
0,15
non-severe
0,7
severe
0,3
0,727
0,729947
0,69
0,736193
1
0,735632
0,735032
0,722085
0,7256
0,736
0,7285
0,6999
0,726

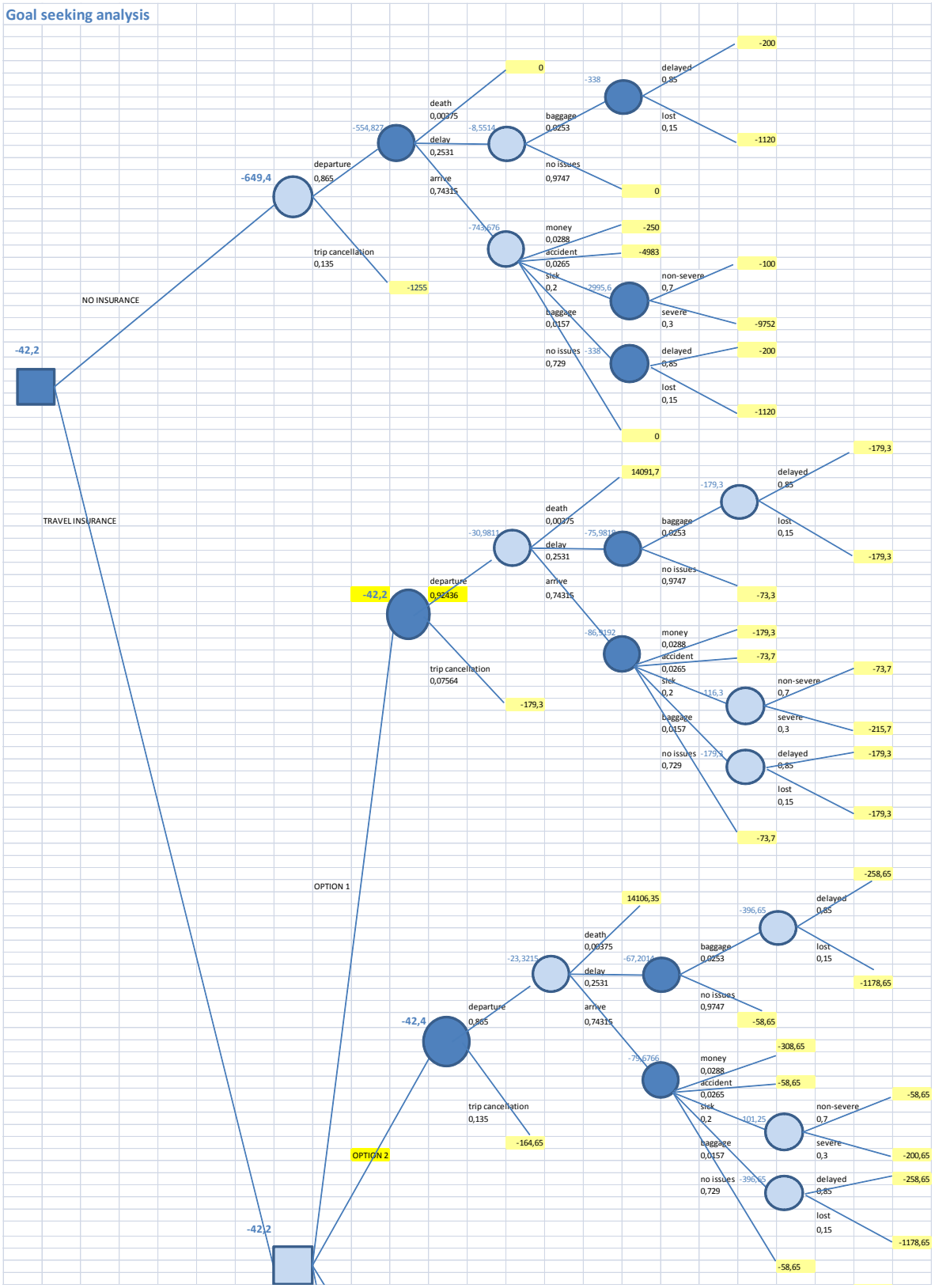
Utility function, non Italians

0,25000	0,33333	0,50000	0,66667	0,75000
-6366,37931	-4991,37931	-3146,551724	2275,862069	4465,517241

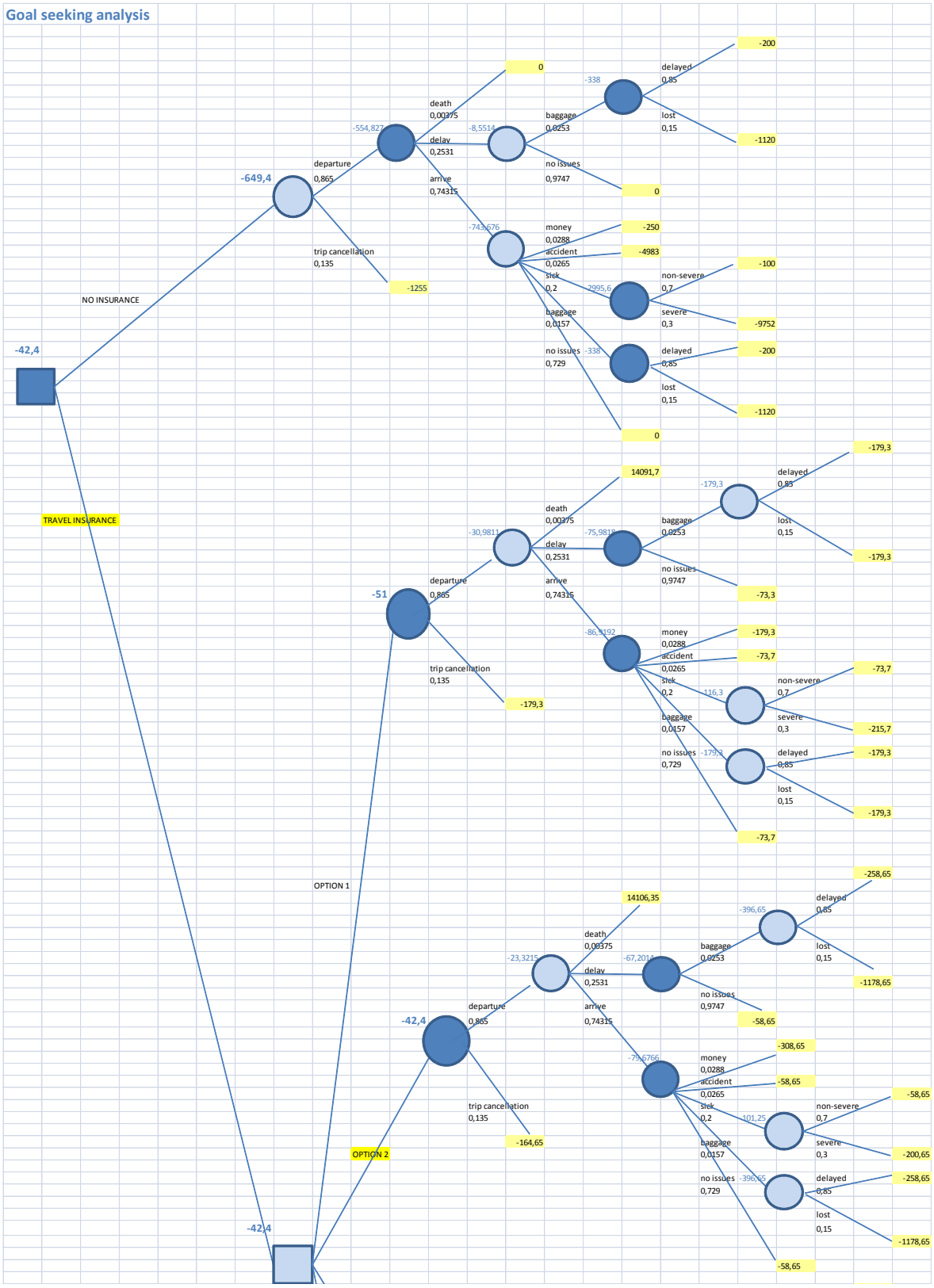


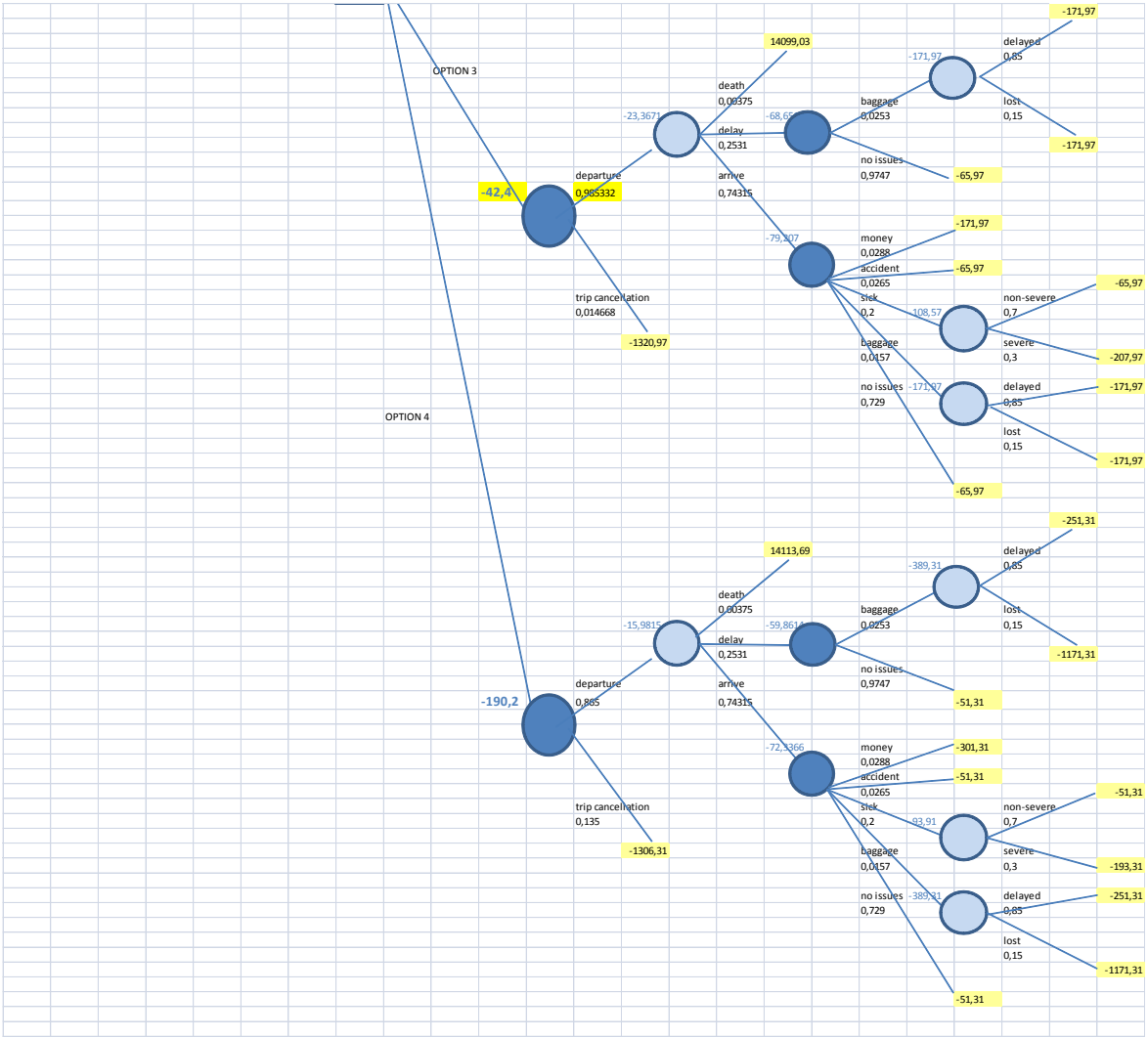
(Fig. 4.1.2c)

BEP Options 2 – 1, risk neutral

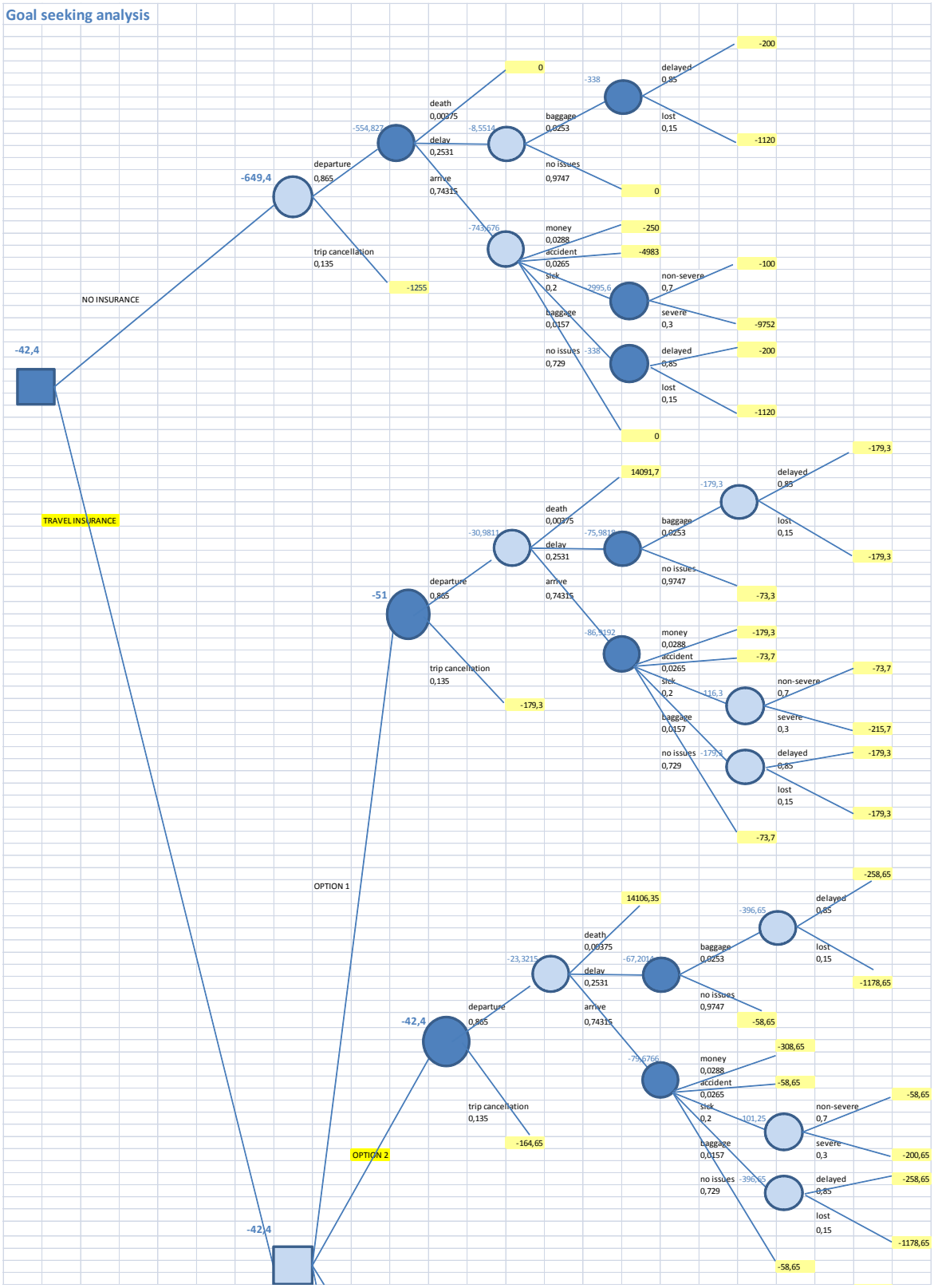


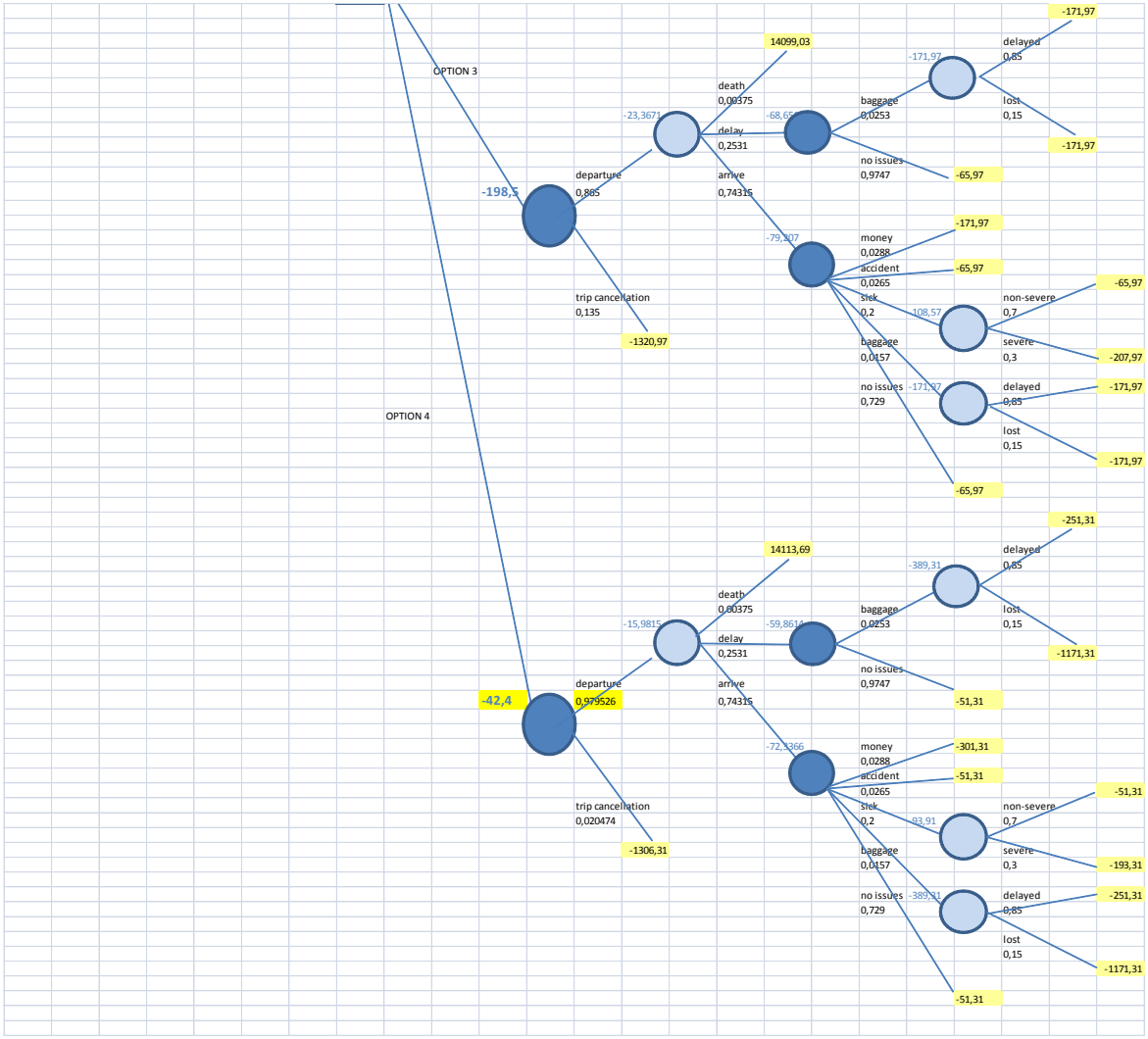
BEP Options 2 – 3, risk neutral



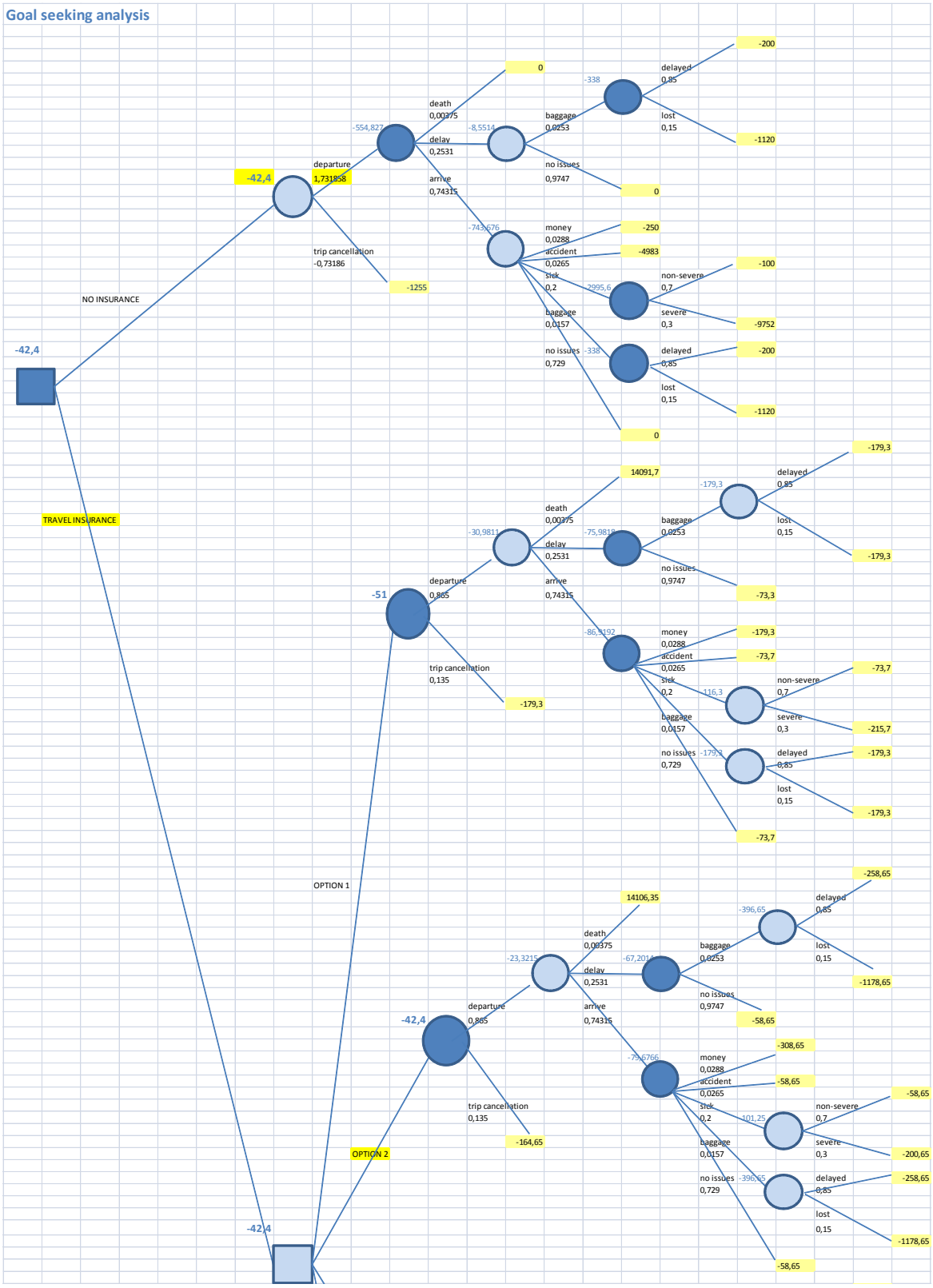

OPTION 3
-42,4
departure
0,985332
trip cancellation
0,014668
-1320,97
-23,367
death
0,00375
14099,03
delay
0,2531
-68,65
baggage
0,0253
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
no issues
0,9747
-65,97
arrive
0,74315
-79,207
money
0,0288
-171,97
accident
0,0265
-65,97
sick
0,2
-108,57
non-severe
0,7
-65,97
severe
0,3
-207,97
baggage
0,0157
no issues
0,729
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
-65,97
OPTION 4
-190,2
departure
0,865
trip cancellation
0,135
-1306,31
-15,9815
death
0,00375
14113,69
delay
0,2531
-59,8614
baggage
0,0253
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
no issues
0,9747
-51,31
arrive
0,74315
-72,5366
money
0,0288
-301,31
accident
0,0265
-51,31
sick
0,2
-93,91
non-severe
0,7
-51,31
severe
0,3
-193,31
baggage
0,0157
no issues
0,729
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
-51,31

BEP Options 2 – 4, risk neutral

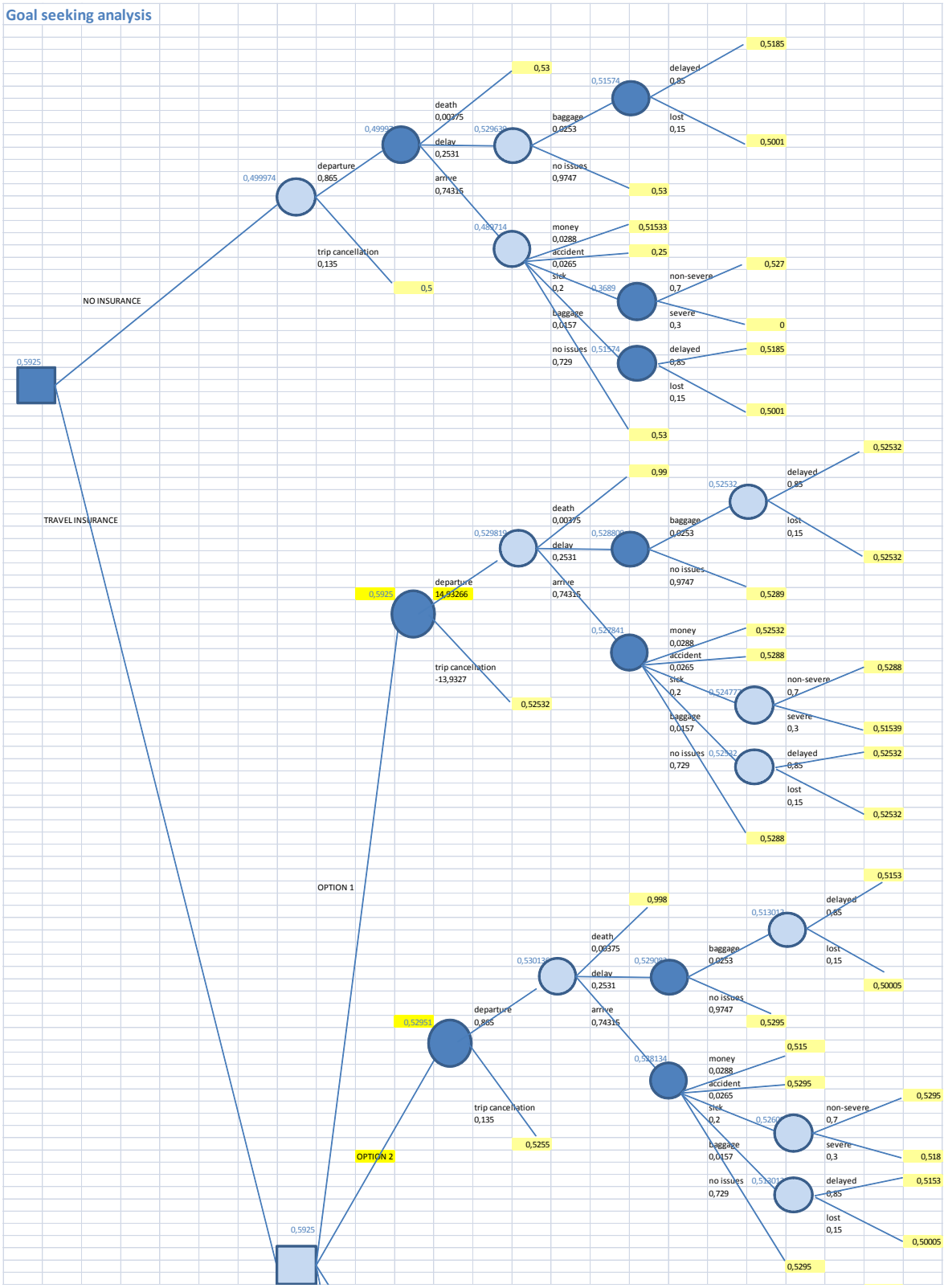



OPTION 3
-198,5
departure
0,865
trip cancellation
0,135
-1320,97
-23,3671
death
0,00375
14099,03
delay
0,2531
-68,65
arrive
0,74315
-79,207
baggage
0,0253
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
no issues
0,9747
-65,97
money
0,0288
-171,97
accident
0,0265
-65,97
sick
0,2
108,57
non-severe
0,7
-65,97
severe
0,3
-207,97
baggage
0,0157
no issues
0,729
-171,97
delayed
0,85
-171,97
lost
0,15
-171,97
-65,97
OPTION 4
-42,4
departure
0,979526
trip cancellation
0,020474
-1306,31
-15,9815
death
0,00375
14113,69
delay
0,2531
-59,8614
arrive
0,74315
-72,3366
baggage
0,0253
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
no issues
0,9747
-51,31
money
0,0288
-301,31
accident
0,0265
-51,31
sick
0,2
93,91
non-severe
0,7
-51,31
severe
0,3
-193,31
baggage
0,0157
no issues
0,729
-389,31
delayed
0,85
-251,31
lost
0,15
-1171,31
-51,31

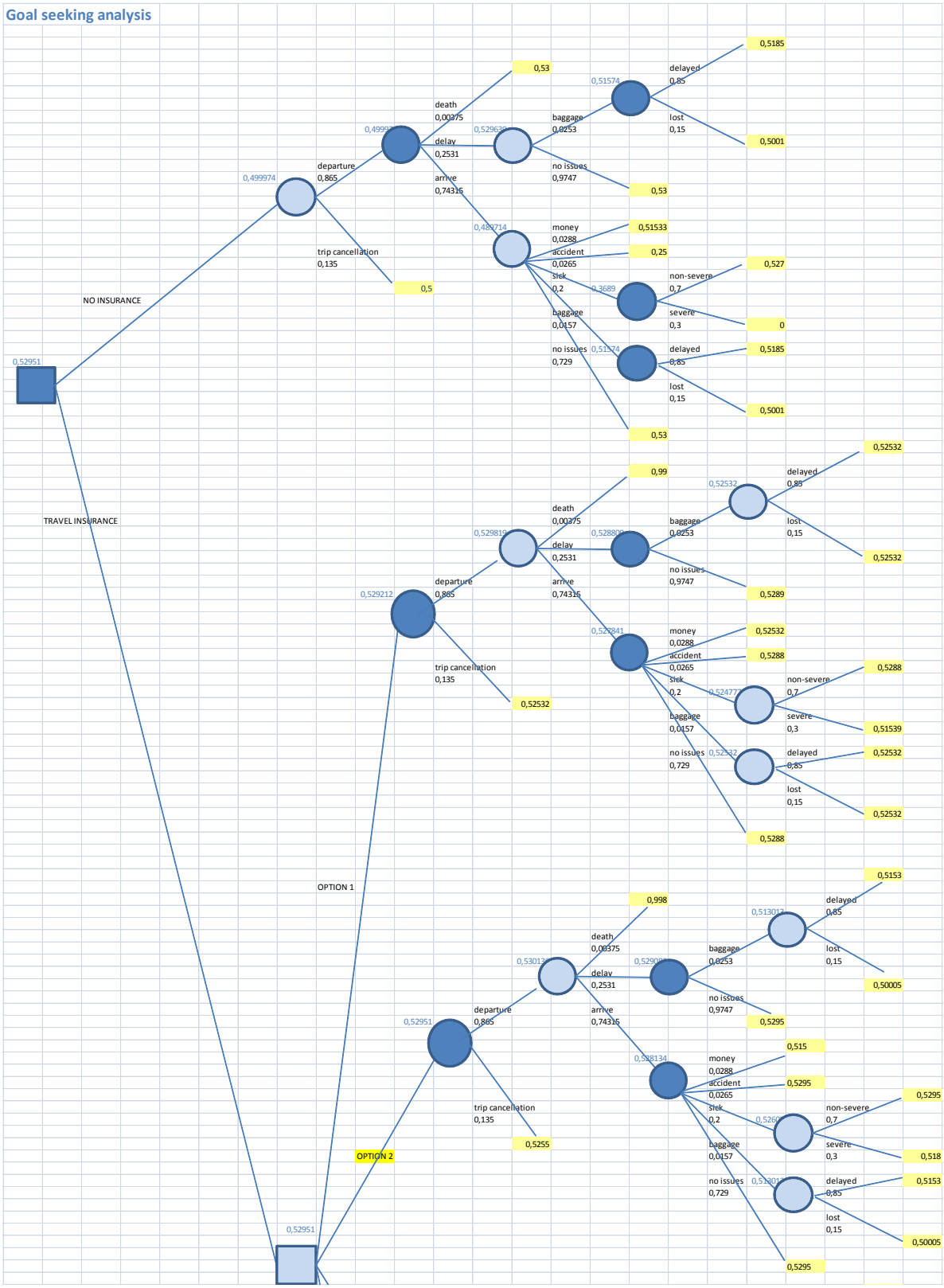
BEP Option 2 – no insurance

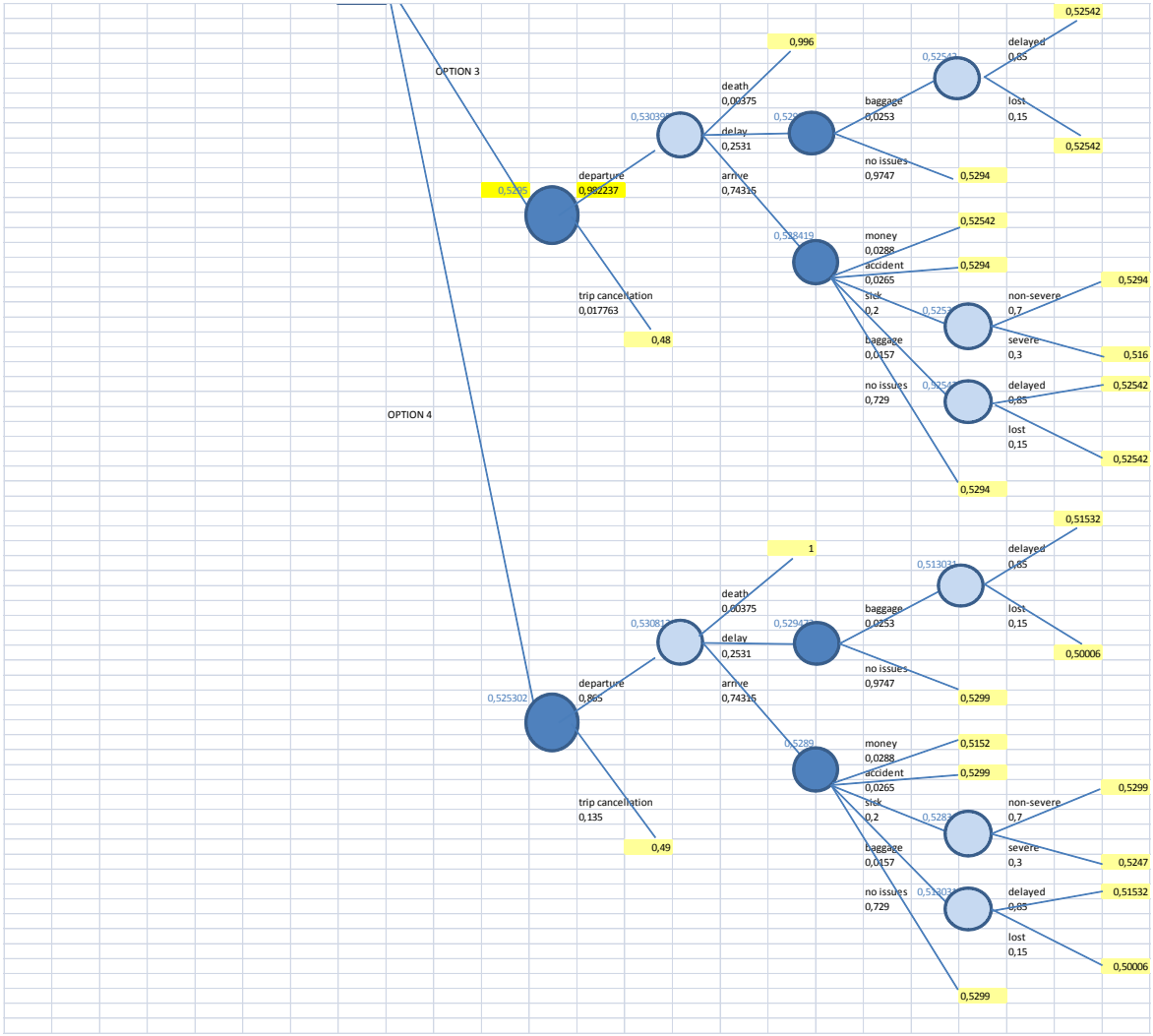


BEP Options 2 – 1, considering risk attitude

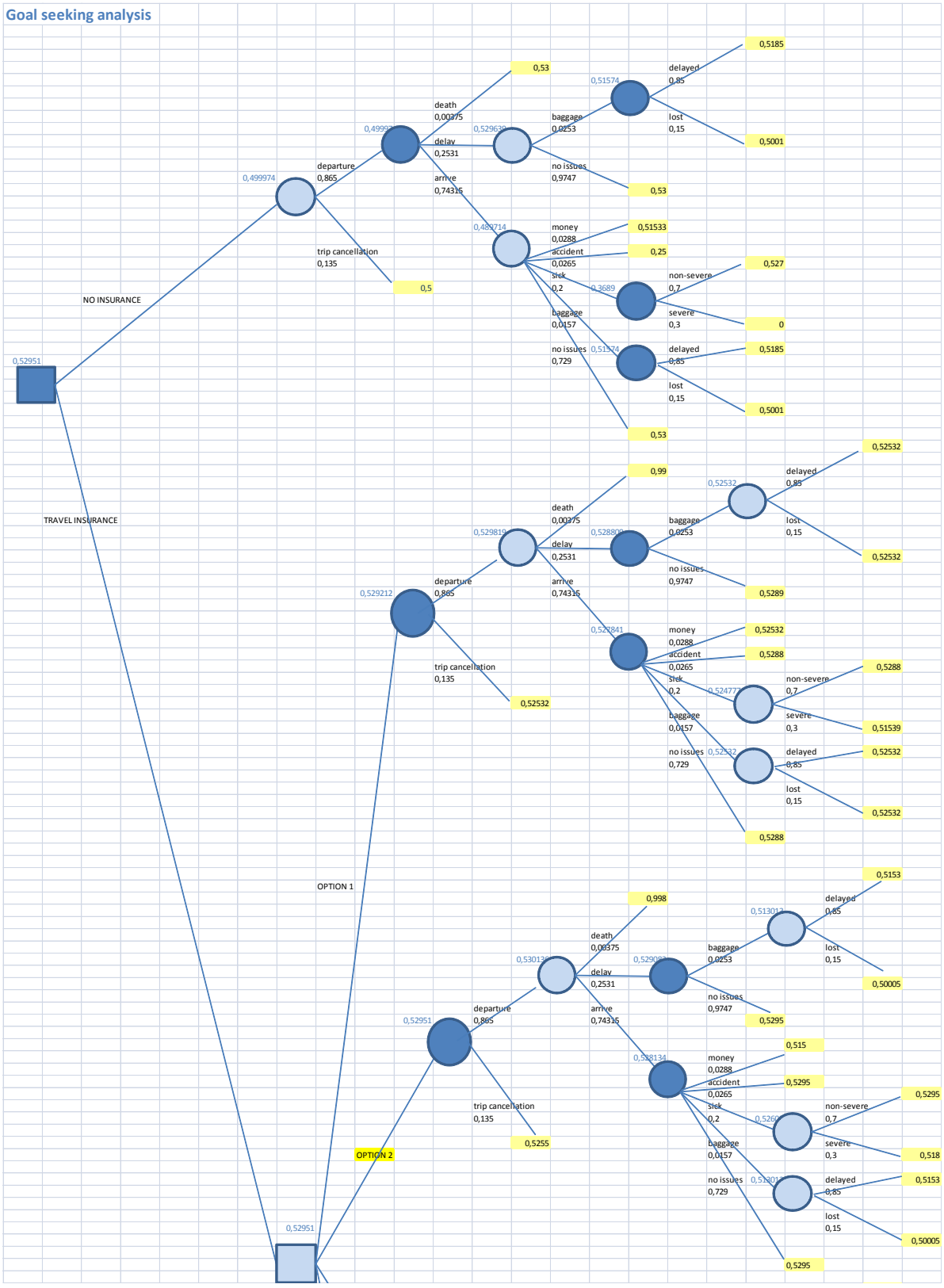


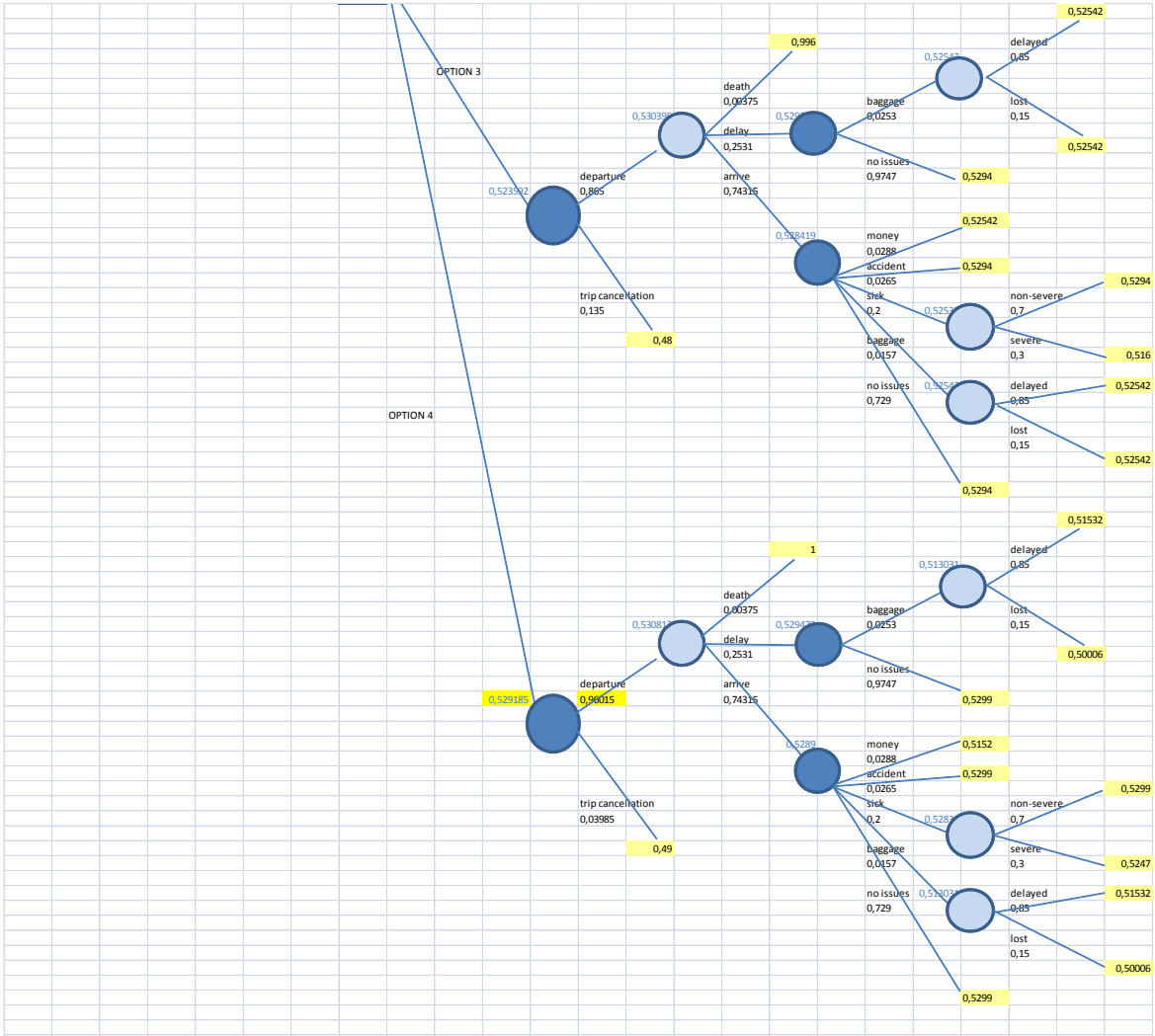
BEP Options 2 – 3, considering risk attitude




OPTION 3
OPTION 4
departure
0,982237
trip cancellation
0,017763
0,48
death
0,00375
delay
0,2531
arrive
0,74315
0,996
baggage
0,0253
no issues
0,9747
0,5294
delayed
0,85
lost
0,15
0,52542
money
0,0288
accident
0,0265
sick
0,2
baggage
0,0157
no issues
0,729
non-severe
0,7
severe
0,3
0,516
0,525302
departure
0,865
trip cancellation
0,135
0,49
1
0,5299
0,51532
0,50006
0,5152
0,5247

BEP Options 2 – 4, considering risk attitude




OPTION 3
OPTION 4
0,523592
departure
0,865
trip cancellation
0,135
0,48
0,996
death
0,00375
delay
0,2531
arrive
0,74315
baggage
0,0253
no issues
0,9747
0,5294
0,52542
delayed
0,85
lost
0,15
0,52542
0,52542
money
0,0288
accident
0,0265
sick
0,2
0,5294
non-severe
0,7
severe
0,3
0,516
0,5294
baggage
0,0157
no issues
0,729
delayed
0,85
lost
0,15
0,52542
0,52542
0,5294
0,529185
departure
0,99015
trip cancellation
0,03985
0,49
1
death
0,00375
delay
0,2531
arrive
0,74315
baggage
0,0253
no issues
0,9747
0,5299
0,51532
delayed
0,85
lost
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money
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accident
0,0265
sick
0,2
0,5152
0,5299
non-severe
0,7
severe
0,3
0,5299
0,5247
baggage
0,0157
no issues
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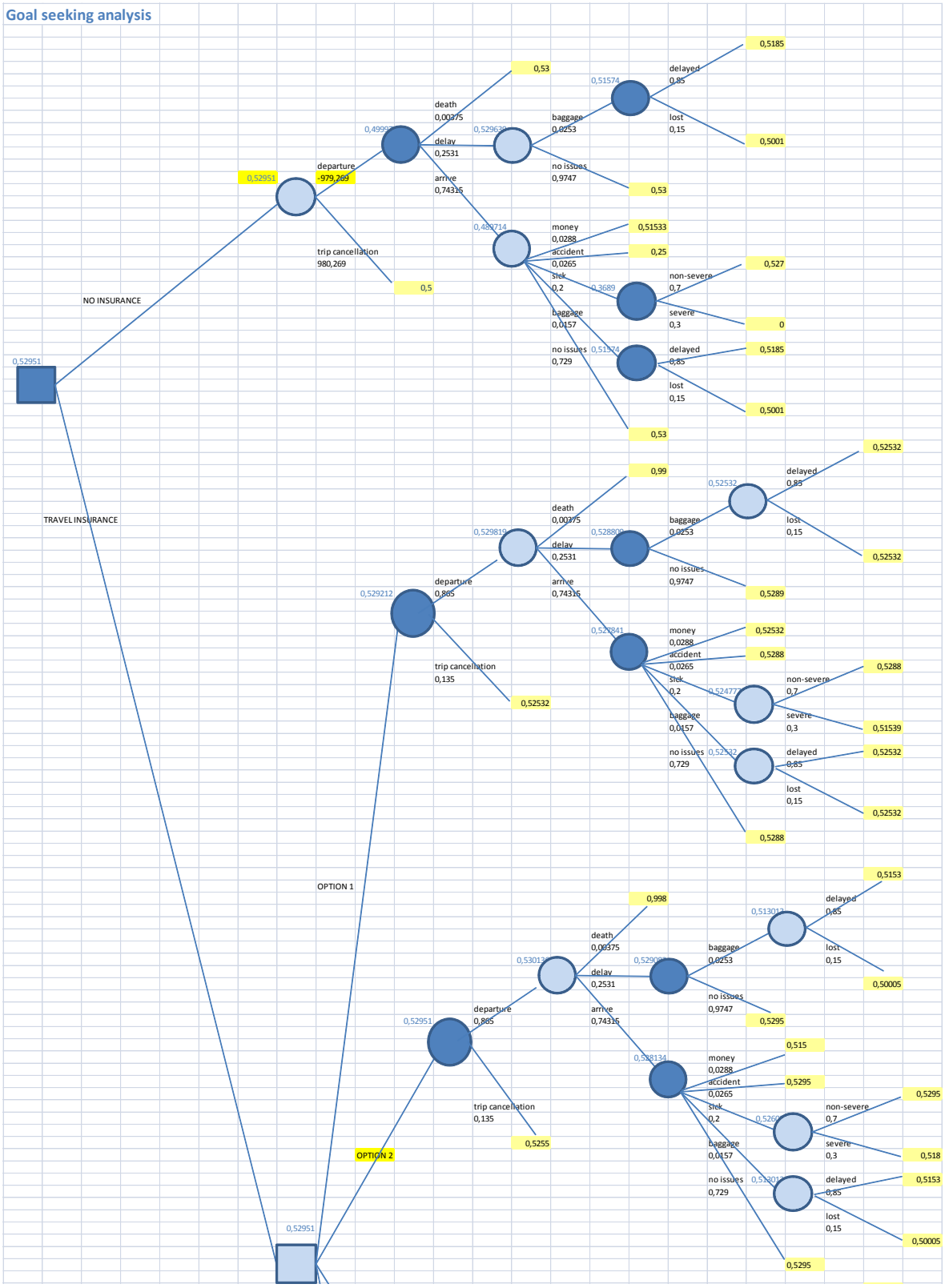
delayed
0,85
lost
0,15
0,51532
0,50006
0,5299

BEP Option 2 – no insurance, considering risk attitude



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