



**UNIVERSITÀ POLITECNICA DELLE MARCHE
FACOLTÀ DI ECONOMIA “GIORGIO FUÀ”
UNIVERSITAT JAUME I**

Master's degree in International Economics and Commerce

Curriculum: International Economics and Business (Università Politecnica delle Marche)

Master's degree in Economics (Universitat Jaume I)

**Tax Evasion: From the neoclassical paradigm to
Behavioural Economics**

Supervisors:

Proff. Simone Samperna

Dr.ssa Annarita Colasante

Disserted by:

Marianna Di Gregorio

Academic year 2018-2019

Table of Contents

Introduction.....	3
1. TAX EVASION	4
1.1 Negative implication of tax evasion.....	8
1.2 The Italian Case	15
1.2.1 Tax evasion and shadow economy	16
1.2.2 Tax evasion: numbers and data.....	21
1.2.3 The fight against tax evasion	27
2. Economic theory of tax evasion	34
2.1 The Neoclassical Model.....	36
2.2 The Behavioural Economics	43
2.2.1 Heuristics and Biases	46
2.2.2 The Prospect Theory	52
2.2.2 Tax morale and Tax compliance: The Slippery Slope model	54
3. Experimental economic and empirical studies on tax evasion.....	57
3.1 Economic Experiments	58
3.2 Experimental Economics and Tax Evasion	64
Conclusion	71

Introduction

The aim of this research is to analyze the tax evasion phenomenon providing an overview of the main academic and theoretical literature behind this issue.

In the first chapter the concept of tax evasion is defined and the negative implications which derive from it are analyzed. A specific section has been dedicated to the Italian case with particular focus on the relation between tax evasion and shadow economy and with a provision of number and statistical data useful to understand the wide scale of the phenomenon.

The second section has the objective to present an overview about the main milestones which led to the transition from the Neoclassical Economics approach to the most recent Behavioral Economics approach and their application to the tax evasion topic. Finally, the third chapter presents the discipline of Experimental Economics as a means to provide empirical evidence to the prediction of the theoretical models.

1. TAX EVASION

The expression: “tax evasion” is defined by the OECD (*Organization for Economic Co-operation and Development*) as the: “illegal arrangements where liability to tax is hidden or ignored”. The IRS (*Internal Revenue Service*) defines the same concept as “an intentional mis-presentation of material fact, performed by the taxpayer (individual or corporate), with the specific purpose of evading a tax known or believed to be owed”. Therefore, tax evasion requires both the presence of a tax due and owed and a fraudulent intent. This definition applies to any type of tax owed such as income taxes, contribution to social security, inheritance, excise tax and states and local taxes, such as sales tax or any type of value added tax. The concept of tax evasion should not be confused with the concept of tax avoidance, which is instead described as an “arrangement of a taxpayer’s affairs that is intended to reduce his liability and that, although the arrangement could be strictly legal, it is usually in contradiction with the intent of the law it purports to follow”.¹ Therefore, avoidance is typically accomplished by designing and structuring legal economic transactions with the objective to minimize tax liability. In several cases avoidance could be also encouraged by tax legislation with favourable tax treatment.

Since the rest of the work will be mainly focused on the Italian case, it is necessary to make some clarifications about the lexicon and terms that will be used in the next

¹ (OECD)

chapters. The IBFD, International Tax Glossary states that there is no single definition of a tax and definitions tend to vary according to the context. In general, a tax may be defined as a government levy that is not in return for a specific benefit and that it is not imposed by way of a penalty, except in some cases where it corresponds to tax-related offences. The OECD Glossary of Tax terms highlights more the concept of coercion defining the tax as a compulsory unrequited payment to the government. In both definitions, the term “tax” includes what, in the Italian Fiscal system, are called: “imposta” and “tassa”. The first one indicated an economic levy that the state or other public authority carries out with respect to whoever has the availability or ownership of an income or assets or who has purchased or sold goods or services. These circumstances (*presupposti di imposta*) are considered as an index of the ability to pay and to contribute to the public expense. Owned assets, incomes and the values of purchased good and services constitute the tax base, while the amount of the tax is determined applying one or more rates, usually expressed as a percentage of the asset, the income or the price. The second and more widespread term “tassa” differs from the one explained above because it is not based on the ability to pay of a tax payer, but it indicates simply the consideration of a service which is provided by the State or by other public authorities (e.g. waste tax). This is merely an academic and formal distinction and all the consideration that are made in the rest of the work are valid for both the

definitions, especially when the link between the service and the tax is perceived as abstract in the mind of the taxpayer.

Given this clarification, the main Italian taxes and the methods usually used to evade them are presented in this section.

The Italian correspondent of the international VAT (Value Added Tax) is the “Imposta sul Valore Aggiunto” (IVA). It is applied on the sale of goods or provision of services rendered in the Italian Territory in connection with business transactions or professional activity and on the importations of goods effected by any person. Therefore, it is generally due on sales of goods and provision of services. IVA is levied on the gross margin at each point in the manufacturing-distribution-sales process of an item and it is assessed and collected at each stage, in contrast to a sales tax, which is only assessed and paid by the consumer at the very end of the supply chain. because the IVA only taxes each value addition—not the sale of a product itself—assurance is provided that the same product is not double-taxed. The IVA is collected fractionally, via a system of partial payments whereby taxable persons (i.e., IVA-registered businesses) deduct from the IVA they have collected the amount of tax they have paid to other taxable persons on purchases for their business activities. This mechanism ensures that the tax is neutral regardless of how many transactions are involved. It also means that the tax is effectively paid to the revenue authorities by the seller of the goods, who is the "taxable person", but it is actually paid by the buyer to the seller as part of the price. It is thus an indirect tax.

In this context, there are two ways to evade the Value Added tax. The first one occurs when the taxable person (the firm or the self-employed) collect the IVA from the final consumer without emitting the receipt or the invoice. In this case, the firm is the only subject that takes economic advantage from the evasion because the buyer pays the IVA-inclusive price. The second one occurs when the seller and buyer collude in evading the tax. Indeed, if the consumer doesn't need the fiscal receipt because he/she cannot use it as a credit, it will not be in his/her interest to pay it.

The income taxes are the most important in terms of revenues and total number of taxpayers. In Italy, the main income tax is the Individual Income tax (IRPEF); it shall be paid by people residing in Italy for tax purposes and it considers income earned in Italy and abroad. Individuals not resident in Italy for tax purposes are subject to IRPEF only on income earned in Italy. Taxable income is taxed at progressive rates currently ranging between 23% and 43%. It shall be paid by people who receive an employee income, by whom has an own activity, by people who gain profit from the exercise of an enterprise (it is not valid for corporations which are subjected to IRES) and, in some cases, by people who gain profits from the use of capitals. The income related to an economic activity is simply the difference between the revenue and the costs, and they are directly declared by the tax-payer. It means that it is possible to evade taxes through an undervaluation of revenues or through an overvaluation of costs. The case of employee labour is quite different and the evasion in this context occurs in a different way. Indeed, in Italy,

as in many other countries, payroll taxes on employees' salaries, are withheld at source by all employers and paid to the State. In this case, the employer acts as substitute for taxes and it means that taxes can be dealt only if the employer does not declare them, totally or in part, to the tax authorities. The same happens for other types of income such as the ones gained from capital investments, subjected to withholding taxes, at the time of their provision. It is clear that, in this type of fiscal systems, there is a defined distinction between incomes subjected to withholding tax and incomes subjected to auto declaration which are potentially subjected to evasion. This kind of distinction is fundamental in the context of the perception of the equity of the tax system by different type of taxpayers, as we will see in the following sections.

1.1 Negative implication of tax evasion

Why tax evasion is considered such an important issue? This question and its possible answer could be obvious if we look at the problem from a moral and ethical point of view, however economists do not judge behaviours on the base of their moral implications, rather considering which kind of consequences the behaviour can have in terms of social welfare. From this point of view, the fiscal system should be a means by which the State could play its role in the allocation of resources and opportunities, with the final objective of the social efficiency. The concept of social

efficiency has long been the subject of debate among economists. The most widespread interpretation of the social efficiency is the concept of Pareto optimality, which is a condition of allocation of resources from which it is not possible to reallocate as to make any individual or preference criterion better off without making at least one individual or preference criterion worse off. Pareto efficiency is considered as a minimal notion of efficiency that does not necessarily result in a socially desirable distribution of resources, indeed does not consider equality or the overall well-being of a society. The concept of Pareto efficiency, for example, implies that there is no possibility to make a distinction between rich and poor people. Considering a fiscal system, which tends to affect most goods consumed by the rich and less the ones consumed by the poor, the natural market's balance automatically changes and this implies a worse situation for the rich and a reduction of the Pareto efficiency. In this perspective, the rich's fiscal evasion is not the real problem since it is just the consequence of a distortive and not efficient fiscal system. One solution to this problem is represented by the concept of weighted social efficiency (the Kaldor-Hicks criterion) according to which, reforms should guarantee an advantage to the poorer, which is bigger compared to the disadvantage of the richer, that compensates the distortions due to individual behaviour in term of taxes. Conversely, according to the theory of the philosopher John Rawls, the level of social efficiency should be evaluated just according to the condition of the poorest individual. In this case, the fiscal evasion of the rich is

considered dangerous if it reduces the resources of the poor, and it happens almost all the times.

Independently from the different definitions of social efficiency that can be used in the fiscal evasion debate, it is a sure fact that fiscal evasion removes resources that are necessary for public expenditures. This phenomenon has a precise theoretical background, which consists on the difficulties in the provision of public goods. Indeed, in order to have an efficient market, goods and services sold must be rival and excludable. A good is said to be rival if its consumption by one consumer prevents simultaneous consumption by other consumers. It is said to be excludable if it is possible to prevent consumers who have not paid for it from having access to it. Private goods such as food or clothes are clearly rival and excludable, through the payment of the price by the consumer. However, not all goods have these features. Considering services such as national defence or goods such as air, it is obvious that they are neither rival, since one person's protection does not prevent another person from receiving protection, nor excludable, since it is impossible to prevent the defence of those people who have not paid for the service. These kinds of goods are defined pure public goods and, given their key features, consumers can take advantage of their use even without paying for them. This is the well-known "free-rider problem": if many consumers decide to free-ride, the private costs for providing the good will exceed the private benefit and, consequently, the incentive to provide this kind of good in the market will disappear. Therefore, due to social

efficiency reasons, these goods are to be provided by the State. Clearly, people who do not pay taxes reduce the possibility to provide public goods, even if they keep on exploit them. Another necessary condition to guarantee the efficiency of the market is that the market price counts for each effect generated from the consumption or from the production of a good or service. If this does not happen, an externality occurs and it could be positive or negative, in both the two cases the intervention of the State is required in order to assure a condition of efficiency. For example, if the production of a firm leads to pollution, the State should create a tax which obliges that firm to count for the social and environmental cost of pollution or it should introduce a regulatory policy for the production of the good. In the first case, the evasion of the corrective tax will harm the social welfare because the firm will continue to pollute avoiding costs; but even the regulatory activities of production implies a cost and should be financed by the fiscal system.

Another example of externality, which justify the intervention of the State, is the one that regard the instruction. It is a private good of both consumption and investment, however who achieves higher level of instruction contribute, at least in theory, to the productivity's increase of other colleagues and this could be considered a positive externality which the market failed to take account of: in this sense the financing of the instruction by the State can be considered as a form of social efficiency.

Another condition required by the economic theory, in order to affirm the superiority of the free market and consequent harmfulness of the taxation, is the availability of information that are needed to correctly set the price for all the parts involved in a transaction. Considering the example of health services and the specific case in which private company are to provide this service. In this context the price paid by the policyholder should be fair, namely it should be established after considering the odds of disease, the cost of care and the margin of profit for the insurance company. In many cases these are variable the are not known to the assurance company and, in order to compensate for this asymmetry of information, the assurance company will charge the insurance premium. By doing this, only a fraction of the population will be guaranteed, and the rest of the population will be excluded, this is clearly the case of a market failure, hence a situation of inefficiency since in this context the number of people without insurance could be significantly high. For all these reasons, generally the market of health insurance it is said to be less efficient than a public health system. Obviously, in order to finance this kind of system, taxation is needed. To summarize, the social inefficiency linked to tax evasion is based on the social efficiency of the public expense that tax evasion tends to reduce.

The reduction of financial resources caused by fiscal evasion, has as the public debt as one of the main consequences and this relation is particularly evident in the Italian case. Till the end of Seventies Italian public accounts are in good condition

because public expenditure is lower than in other developed countries and the public debt is relatively low if compared with the GDP. However, Since the beginning of Eighties, the situation radically changes with a rapid growth of both public expenditure and the ratio of public debt and GDP. The general government expenditure respect to GDP grew from 30,3% of 1980 to the 40,8% of 1990 and, in the same period, public debt goes up from 60% to 100% of GDP.² In this context it is useful for this analysis, the consideration of the influence which evasion has on the growth of public debt in Italy. In their essay, Alberto Alesina and Mauro Marè, analyse this relation and reach an important result. They claim that, if Italians had evaded taxes, from 1970 on, the same ad American did, public debt in Italy in 1992 would have been just above 80% of GDP (about 30% less respect to the 1992'level). If Italians had evaded taxes the same as the British did, public debt would have been just above 60% of GDP which is not far from the limit set by the Maastricht agreements.³ These number are important in scenario of the current debate about the public debt, since many commentators attribute the growth of public debt just to the increase of the public expenditure. Indeed, these numbers confirm that problem of public debt is strictly related to the high evasion rates. It means that, in Italy, not only fiscal evasion has limited the direct intervention of the State, with the subtraction of resources, but it also did it in an indirect way, forcing the State

² (Santoro, 2010)

³ (Alesina & Marè, 1996)

going to debt and bear the burden of interests, which make even worse the possibility of expense for public good and public services.

Finally, the overview about the negative implications of tax evasion, can be concluded considering the relation between evasion, competition and information. Indeed, tax evasion can be included in the series of causes of unfair competition in the market. If there are two entrepreneurs in the same sector with similar economic characteristics and only one of these pay taxes, it obvious that the second one will suffer the unfair competition from the former. Basically, this is the idea behind the famous “*Studi di settore*” conducted in Italy. The concept is that, for certain kind of business, especially the ones related to small and medium enterprises, it is possible to identify the ones who are more likely to evade, through the comparison between the declared data and the average data declared by the taxpayers who belong to the same economic category. When a taxpayer declares information that are very far from the average, he/she is considered incongruous. This kind of investigation was applied in Italy for the first time in 1998. In that year, over 60% of incongruous taxpayers were identified in the retail sector, over 35% in road haulage sector and, in half of sectors included in the study, the share of congruous taxpayers is always below the 50%.⁴ These results reflect pathological situation of Italian tax evasion which, even in this context, undermines those conditions which economic theory

⁴ (Sose)

takes for granted when deals with the efficiency of competitive mechanisms. Moreover, the distortive effects of fiscal evasion go even beyond. Indeed, in order to hide the evasion, the individual is led to cheat about accounts and information about his/her firm. The higher the evasion is, the less truthful the official information contained in the business records and public data are. It means that an external investor cannot judge realistically the degree of risk of the investment because the apparent future profitability could be altered by fiscal evasion. In this context, different researches prove the decisive role of fiscal evasion in the reduction of the development of financial markets.

1.2 The Italian Case

The first section of this chapter presented a general overview about the main Italian taxes and the different method of evasion. In this section an analysis about the important connection between the Italian tax evasion and the shadow economy which in 2017 was worth 211 billion euros (\$232.21 billion), or 12.1% of gross domestic product⁵, will be provided together with a short overview about the main events which had characterized the history of the Italian fiscal system with a synthesis of the trend of tax evasion during the last decades and the description of the main strategies used to fight it.

⁵ (ISTAT)

1.2.1 Tax evasion and shadow economy

Many researchers, who try to measure and analyze the shadow economy, face the difficulty of how to define it. One commonly used working definition is: “all currently unregistered economic activities which contribute to the officially calculated (or observed) Gross National Product”. Philip Smith defines it as “market-based production of goods and services, whether legal or illegal that escapes detection in the official estimates of GDP” ⁶. Certainly, the shadow economy includes unreported income from the production of legal goods and services and so includes all productive economic activities that would generally be taxable were they reported to the tax authorities but that can be hidden in order to avoid value added or other taxes, payment of social security contribution, certain labor market standards or administrative obligations. Together with this, the standard definition of shadow economy also includes all the monetary and non-monetary transactions that belong to the context of illegal activities such as: trade in stolen goods, drug dealing and manufacturing, prostitution, gambling, smuggling, drug and weapon trafficking and so on. However, it must be said that in many studies which deal with the measurement of the shadow economy, illegal underground economic activities that fit the characteristics of classic crimes and the informal household economy are not considered. The activity of measurement of

⁶ (Smith, 1994)

the shadow economy is very difficult since it is not easy to get information about these underground activities and since all individuals engaged in these activities don't want to be discovered. Basically, there are three methods that are the most frequently used in order to determine the size of the shadow economy. The first one is based on statistical models that estimate the shadow economy as an "unobserved" variable; the second one consists of indirect procedures linked to macroeconomic variables used as a proxy of shadow economy over time; the third one is the use of direct procedures at micro level such as survey method.

In this frame, the specific case of Italy has been investigated by Friedrich Schneider and Colin. C. Williams. In their research, the authors tried to produce an estimate of the Italian shadow economy using the MIMIC (Multiple Indicators and Multiple Causes) method that is a model based on the statistical theory of latent variables with the objective to express the size of the variable of interest as a linear combination of a small set of variables. In this study, six explanatory variables are identified. The presentation of these variables could be useful also for the topics that are to be explained in the following sections since they basically represent the potential causes of the shadow economy and consequently of the tax evasion. The explanatory variables included in the model in question are the following:

- The tax burden: indeed, the idea is that an increase in tax rates represents an incentive to work in the unofficial economy;

- Unemployment rate: this variable refers, not only to the official unemployment rate, which is derived from the number of people who belonged to the active work force but are unemployed. It includes also the category of “not known” workers such as illegal immigrants, minors, housewives and people who have both an official and an unofficial job.
- Real Government Consumption: indeed, a positive sign of this coefficient is related with a strong presence of the State in the economy, hence an increase in regulation which might represent an incentive to work in the unofficial economy.
- Self-employment: this is an important variable in the specific Italian case because the strong presence of medium and small firms and the high number of self-employed and professional compared to the total workforce is a peculiar characteristic which distinguish the Italian structure of the productive system from the one of other western countries. All else being equal, the higher the number of self-employed the larger the presence of the shadow economy.
- Index of Efficacy of Judicial System: it is computed considering specific type of crimes and dividing the number of condemned for that crime for the number of the relative recorded crimes. The index could be interpreted as correlated with the efficacy of the fiscal auditing therefore, a negative relation between the index and the shadow economy is what the researchers expected.

- Index of Illegality: it is simply the growth rate of the recorded crime. Moreover, an increase of this index could be interpreted as a potential lack of interest in the possible reputational cost derived from being part of the shadow economy.

In order to complete the design of the model, the researchers chose the Real Gross Domestic Product and the currency in circulation outside the banks, as indicators of the magnitude of the shadow economy. In this way The MIMIC model is built to estimate the size of the shadow economy as percentage of GDP for the period 1962 to 2000. The model was considered by different scholars as to be a work in progress in the field but with relatively robust methodology behind; given this, considering the objective of this work, what deserve to be highlighted are the policy implication derived by the outcome of the model, more than the complex econometric structure that is behind the final result. The size of the State and the tax burden resulted to be always statistically significant and positively related to the shadow economy and the relationship between underground economy and growth rate of GDP is negative as expected. Hence, the substantial stability of the Italian shadow economy up to the first half on Nineties might be caused by the steadiness of the tax and social security burden. Moreover, given the negative relation between the growth rate of GDP and the shadow economy, it is possible to say that the strong growth of official economy could represent an incentive to attract

workers from black market to regular economy⁷ , it means that the potential economic policies developed with the objective of the reduction of the shadow economy, might take into consideration also the business cycle phase of the economy. In the light of the results obtained from this model, different strategies have been implemented to create incentives for the entrepreneurs and with the objective to legalize certain kinds of activities. In particular, the reduction of the social security contributions and guarantee of tax relievers effects, for those who “left” the shadow economy, were allowed. Additionally, a tax amnesty (law 289/2002) was promulgated on behalf of a wide range of tax evaders. The problem was that the empirical results of this kind proceedings were disappointing because such policy measures provide strong incentives to come back to shadow economy waiting and speculating for the next tax amnesty. This is the reason why, as the authors of the research stay, this kind of measure should be combined with a reduction of tax rates and social security burden in order to avoid an increase of people’s distrust toward State and, consequently, a decrease in their tax morale. This is an important concept that will be analyzed more in deep in the following sections.

⁷ (Dell’Anno & Schneider)

1.2.2 Tax evasion: numbers and data

When dealing with numbers, statistics and data related to the topic of tax evasion, it is important to clarify that all the available data must be carefully contextualized both in time and space. Many data about Italian tax evasion are available nowadays, but it is important to say that they do not come from a unique source of information. For many years an official monitoring has missed, but on the other end, the birth of the European Union has forced all the countries involved in the project, including Italy, to take count of the shadow economy, in their statistics. Through the joint study of official data and previous academic researches, it is possible to state that the Italian tax evasion followed an increasing trend during Seventies and Eighties and started to slow down in the Nineties, the latter trend improved during the early years of this century.

Among the many researches in this field, it is worth mentioning the one of Vincenzo Visco (finance minister between 1996 and 1999) and the one of Giuseppe Vitaletti, the father of the famous "*Le cento tasse degli italiani*". From the number provided by both the two researches, even considering the limited information basis and methodology, it is possible to say that, at the end of the Seventies, a share between 15% and 20% of incomes is not declared to tax authorities. Moreover, while the percentages of evasion related to employment income remains about at a steady

level, tax evasion is a phenomenon of significant dimension for what concerns the other kinds of incomes, particularly in the case of self-employment incomes and entrepreneurs' incomes, where the evasion represent between one-third and a

quarter of the potential tax base. During the Eighties tax evasion grows further and reaches one of the highest levels among the ones registered in the latest decades. The result is that, at the Nineties, there conflict among the various categories of tax payers is particularly accentuated: the evasion of individual firms and autonomous workers goes over the 60% of the potential taxable base, while the one related to the employment income would not exceed the 10%. These data come from the studies of Luigi Bernardi and Michele Bernasconi, who try to estimate, together with the evasion, also the evasion of the IVA, which was around the 40% of the potential tax base, and the one related to the corporate tax, that was collocated around the 27%. A further inside on this topic derived from the Italian Revenue Agency which tried to reconstruct the path of the IVA evasion in the period between 1982 and 2002 and which provide data that are quite different from the one which derived from academic researches. The results are summarized in the graph below:

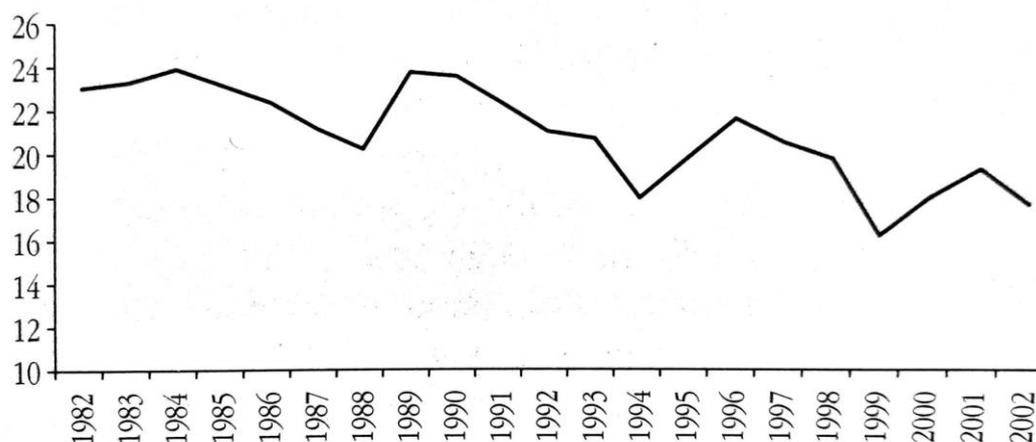


FIG. 1. Evasion of IVA tax base related to the GDP (%) between 1982 and 2002⁸

In this reconstruction the IVA evasion seems to follow a cyclical pattern characterized by an initial growth, a subsequent reduction which lasts till 1988 and a further increase in the next period. The cycles which belong to the period between 1996 and 1999 seems to show an overall reduction of the phenomenon and, in the following period, the variable starts to grow again. What is interesting to notice in the path is that the two cycles which follows the 1994 seem to stay around levels that are lower and lower with a strong tendency to reduction in the period between 1996 and 1999. The general result of this path is that in the last years, between 1999 and 2002, the estimate evasion of the IVA tax base remains stable between 15 and 20% of GDP, while in the first ten years it was in the interval between 20 and 25%.

⁸ (Ufficio studi Agenzia delle Entrate, 2006)

Nevertheless, new estimation, always provided by the same authority, seem to highlight a new growing path for the period 2003-2004.

In the interpretation of this data, it is important to keep in mind the distinction, already mentioned in the first paragraph, between entrepreneurs, retailers and autonomous workers on one hand and employees on the other hand. Most of the time, the Italian debate regarding the topic of tax evasion is strongly focused on this distinction, and the widespread opinion is that the first category is the one who systematically adopt strategies of evasion while the second one is forced to pay taxes without any other chance. Given the Italian productive system, based on a strong presence of small and medium enterprise, this argument is not completely unfounded, but there is more. Indeed, it is important to consider that the phenomenon of the tax evasion is widespread in the Italian territory in a non-homogeneous way. Together with data about IVA evasion, the Italian Revenue Agency provides also an indicator of the evasion's intensity of IRAP (already described in the first section), obtained from the ratio between the IRAP base evaded and the declared one. The consideration of the IRAP allows to include in the analysis many types of taxpayers since it hits, approximately, all the wealth producers: individual entrepreneurs, artisans, practitioners and different types of companies. The average of this values recorded for the period 1998-2002 shows a clear result: the intensity of tax evasion is higher in the North than in the South, with the only exception of Lazio (many big firm are located in this region) and

Liguria (it seems to have a very high propensity to evasion respect to others regions of the North). The value of the indicator varies in a range between a minimum of 13,04 % and a maximum of 30,53% in the North area. In contrast, the extremes value for the South area are 33,11% and 93,89%, therefore the big gap between North and South is evidently strong. Given the data and numbers presented in this section, it is possible to notice that there might be some elements that could be economic, cultural or social, which can determine these enormous differences among Italian region. Moreover, if we go beyond the merely geographic distinction, making a comparison also between the different productive sectors, it is possible to obtain a more complex and complete overview. Indeed, it seems that there is a huge difference between the industrial sector, where the evasion is at the average level, and the services sector and the trade sector where the ratio between evasion and declared income is between 40% and 50%. The construction sector is on an intermediate level.

In order to conclude this section, relative to the analysis of numbers and data on tax evasion, it is important to say that not all the European countries make data about the estimation of shadow economy available and public, therefore sometimes it could be difficult make an effective comparison among them. In case of lack of official information, who wants to deal with this complex topic should take into account all the previous academic researches, but, in many cases, these researches are commissioned by international institution such us OCSE or International

Monetary Fund, that use different methodology and approaches in order to estimate the hidden wealth in these countries. One of the most considered and famous approach is the one developed by a group of Austrian economists led by Friedrich Schneider from Linz University. His works, are based on the hypothesis that shadow economy can be measured through the observation of using currency, given that who chooses to work in the hidden economy are more likely to use this kind of payment instead of cheques or electronic money that are easily trackable. This approach allowed to identify, in the context of developed countries (countries which belonged to OCSE), three group with a respectively low, medium and high levels share of shadow economy. Italy is collocated in the latter level (with a share between 20% and 30% of the GDP) together with other Mediterranean countries like Greece, Spain and Portugal. In this classification, the values are quite different from the ones used by national statistical offices, indeed, in the estimates provided by Schneider, the Italian shadow economy is at least 10 percentage points higher respect to the one quantified by ISTAT. As long as European governments are not forced to share official estimates, academic works will be the only usable source of information. For what concerns the case analyzed in this work, this kind of researches confirm the anomalous Italian situation where shadow economy is the double of the one of other main European countries such as France.

1.2.3 The fight against tax evasion

One of the main milestones in the history of the Italian tax system and the consequent fight against tax evasion, is the tax system reform of the Seventies. The aim of this reform was to implement and give concreteness to two important concepts expressed within the Italian Constitution: the first one states that every citizen must contribute to the public expense according to his/her capacity to contribute. The second refers to the concept of progressivity, which constitutes the base of the Italian fiscal system. Both these concepts are expressed in the art.53 of the Italian Constitution. The criterion of progressivity has the aim to apply the basic idea of justice according to which the contribution to the public expenditure of richer people should be proportionally higher than the contribution of the poorer, it means, translate in economic jargon, vertical equity. However, the most important Italian fiscal reform of 1973 has failed to implement completely this concept in practice, because of tax evasion. The reform in question introduced the IRPEF, an Italian tax already explained in the first section, which focuses on personal income instead of hitting the value of property owned and traded goods, independently of the personal condition of the individual who gains income from these activities, as happened before. The issue is that, in order to reconstruct the total income of an individual in order to apply progressivity, it is necessary to solve two kinds of problems. First of all, tax erosion, namely the fact that some kind of personal

incomes are not included in the total income and therefore are not subjected to progressive withdrawals; in Italy this phenomenon regarded saving incomes (capital gains and interests) and the income coming from property assets; secondly, tax evasion because it infringes the principle of progressivity, especially when it concerns medium-high incomes, as it seems to happen in Italy. As already mentioned, the main problem regards the taxation of income derived from autonomous workers and firms. The tax system implemented from the reform of 1973 is based on the analytical-corporate model. Analytical because it considers the individual economic relationship in the economic system, for example between vendors and purchaser of a good or between lender and borrower, corporate because it is based on the assumption that all these relationships are linked to the firm structure and can be reconnected to the accountancy documentation. It means that the income of a firm directly derives from this kind of documentation and from the balance sheet. This approach, although in line with the one of the main European fiscal systems, is only in part in line with the Italian productive reality. As explained in the previous sections, the Italian economy is mainly characterized by small enterprises, autonomous workers and practitioners, the activity of whom is trackable only in part in the accountancy documentation, moreover, in many cases, this documentation results to be ambiguous and dependent on a subjective will. In this sense it is clear the difference between the small and not well-structured firm and the large companies which are characterized by a complex internal structure

and cannot manage a double accounting in a so easy way. For this kind of firms, it is almost impossible to implement a strategy of revenue's evasion controlling for all the employee involved in the structure, moreover, the activity of book-keeping is fundamental for the internal audit. This is the reason why the analytical-corporate model suits for big enterprises, but it is not sustainable for all the economic realities that are not well structured and that can easily cheat on accounts even at low costs. For what concerns the fight against tax evasion in Italy, it took very long time in order to switch from "drawing controls", based only on a randomness approach, to a new type of controls based on significantly statistical samples. After the Eighties a step further was represented by the introduction of real statistical instruments with the objective to prevent and fight tax evasion. One of the first examples of this methodologies is the introduction of the "*coefficienti presuntivi*" used to compute an ideal level of income of the taxpayer, based on some characteristics such as sector, dimension and localization. In 1992, during the financial crisis, the *minimum tax* was introduced in order to contrast the speculation against the Lira and high level of both debt and deficit. The idea behind is that each economic activity has the final objective to create profit, hence the final income of the owner might be at least equal to the salary of an employee of the same sector. It means that, for the workers of the involved categories, it is not possible to declare an income that is lower than the one set by the financial administration. After a period of protests and complaints, the minimum tax was officially abolished by the Berlusconi

government in 1994. From a juridical point of view, the minimum tax was considered, for some aspects, unconstitutional.

At the end of 1993 a new methodology was applied to the taxation of income derived from small enterprises and autonomous workers, it consisted on the implementation of sector studies. There are three main aspects that differentiate the sectors studied from the minimum tax. First of all, they do not determine any minimum income and does not allow financial administration to automatically compute the amount owed by the taxpayer. This amount, instead, is computed through a comparison between data declared by the taxpayer and data declared by taxpayers who belong to the same economic category. If the declared revenues is below the one that is considered the reasonable one (*congruo*) the financial administration has the possibility to set an action of detection. In order to avoid the something that is similar to the minimum tax, here the point of reference is represented by the revenues instead of the income. However, this procedure allows for a reduction of the final declared income, even with a final far declaration of revenues, through an artificially rising of costs. Moreover, the plausible level is computed using a complex statistical procedure. This complexity should grant a certain level of precision in the indication provided by the sector studies and this is the reason why this activity has been delegated to a specific and autonomous society that in Italy is represented by the “Sose” (Società per gli studi di settore). The reason why this approach preserved a bipartisan trust for more than ten years lies in the

fact that many trade associations and accountants expressed their consensus. It was a sort of compromise between different categories and interests. With the sectors studies the concept of tax evasion became relative since the objective was to discover the taxpayer who evades more respect to his/her own kind with the same productive characteristics. Each economic sector appears as divided in two parts, the ones who evade in a “physiological” way, and the one who excessively, that are the spikes to be progressively cut off. It is clear that this approach is completely different respect to the path followed during the Eighties with the minimum tax. Instead of imposing numerical constrains from above, the authorities tried to obtain the consensus of taxpayers and of their representatives, by presenting the tax evasion as a disruptive phenomenon which can undermine the correct competition in the market.

When the Financial Administration determines the income of a taxpayer can uses two method, the first is the analytical one the second is the synthetic one. In the contest of the sectors studies, the financial authority can exploit a particular type of analytical-inductive investigation that allows to reconstruct an imputed income starting from impudent revenues. The result will be a new total income which determine a higher amount of taxes for the taxpayer under investigation. Instead, using the synthetic approach, the tax authority does not take into account for the average income of a specific category of workers, but analyses the divergence between declared incomes and the standard of living of the taxpayer, namely

his/here savings, consumptions and assets. In Italy, the most widespread typology of synthetic approach is represented by the well-known “*redditometro*”. It was introduced in the 1983 and was modified in 1992. This kind of analysis starts from the consumption of the so-called luxury goods divided in nine macro-categories and establishes an ascertainable income to be verified. The goods included in the category mentioned above are, for example, planes, ships, motorcycle, second-homes, horses and insurances. For each of them, the legislation establishes a set of incomes that are abstractly related to the maintenances-costs of the goods, from these values, it is possible to compute ascertainable income using multipliers and specific coefficients. For many years this instrument has been used by the Financial Administration on a sporadic basis for no more than 5000 annual checks. The reasons of this can be found in the incompleteness and rigidity of the instrument. The easiest way to circumvent the *Redditometro* consists in the use of luxury goods that are registered to fictitious owners, a practice easily feasible given the general chaos that characterizes the data bases in which it is possible to find a match. Indeed, many of the data base that contains the essential information for a potential tracking of luxury goods do not allow for an automatic computation of the relevant parameters. It follows that these computations are hand-built by officers and therefore are subjected to a high possibility of errors. Another point of weakness is represented by the incompleteness of the nine macro-categories above mentioned since they include certain kind of goods that are poorly representative of

a luxury standard of living and that do not include a series of goods such as artworks or high technology goods that are more significant for the identification of high-income people but are hardly trackable. For what concerns the problem of rigidity, from an economic point of view, the deduction of a potential income from the ownership or the consumption of certain kind of goods, might results in daring conclusions. It easy quite easy to hypnotize what the expense of maintenance are, but it is also true that they are subjected to variation in time and space, moreover, the application of the multipliers, which allows to establish the final potential income, assumes a behavioral uniformity that does not correspond to the reality. Despite this, the Redditometro is nowadays considered to have a higher probative value respect to the sectors studies.

2. Economic theory of tax evasion

The aim of this section is to provide a general overview about the two different approaches adopted in the study of complex economic phenomenon, which include, among all the others, tax evasion issue.

The dominant framework that economists usually consider as a reference point for analysing how the economy works, is known as “the neoclassical paradigm”. According to this framework, workers, consumers, families and, more in general, individuals, in order to make economic decisions, all make a rational calculation always coherent to what their own best interest is. By rationality, economists generally accept three levels of meaning. The first level is based on the idea that people act purposefully, namely they make decisions consciously with some sense of purpose. The second level goes beyond and states that individuals who take decisions, in addition to being conscious, always make careful consideration of the costs and benefits, or of the relative value of their actions. However, it is the third level of meaning who sets the pillars of the mainstream economic approach and its method of thinking. Indeed, at this level, rationality is not simply a reasoning process, but consists of a set of assumptions and premises about human decision-making and behaviour. In general, an agent is called “rational” if the following assumptions hold:

- The agent is fully aware of the set of alternatives when he has to make a decision;
- The agent has a complete order over the set of alternatives. It means that the value of each alternative is known;
- The agent's ability to calculate is unlimited;
- The agent's behaviour is always consistent (transitive assumption) and his choice is invariant to logically equivalent changes of description of the alternatives.

This rational agent who satisfied all these characteristics is well-known as the "Homo Economicus".

Hence, the classical models, based on the Homo Economicus assumptions, describe an ideal world where individuals' decisions are simply the result of a careful weighing of cost and benefits and informed by existing preferences. In this context, the agent will always make optimal decisions. The pillars of the so-called "Rational Choice Theory" are explained in detail in the 1976 book *The Economic Approach to Human Behaviour*, in which the Economist Gary S. Becker explains how "*The economic approach assumes maximizing behaviour more explicitly and extensively than other approaches do, be it the utility function of the household, firm, union or government bureau that is maximized.*"⁹. The

⁹ (Becker, 1990)

author also explains how economists of that time had little to contribute to the awareness of how preferences are formed and, therefore, preferences are assumed not to change significantly over time, nor to be substantially different between different people in different societies and cultures. These are the reason why Economists have sometimes described themselves as having an “*Irrational passion for dispassionate rationality*”¹⁰. However, the question is: does Homo Economicus really exist? This is where Behavioural Economics comes in hand focusing the attention on the importance of those behavioural aspects which might have an influence on tax evasion choices. Indeed, the mainstream neoclassical model, as explained in the following section, cannot account for this kind of aspects, therefore, during the last two decades, new approaches have been developed in order to include behavioural dynamic in the analysis of tax evasion process. This is the case of lab-experiments that will be analysed in the last section of the work.

2.1 The Neoclassical Model

In 1972 Allingham and Sandmo developed a model of taxpayer’s decision (to evade or not), as a problem of utility maximization under conditions of

¹⁰ (McKenzie, 2009)

uncertainty. All the assumption mentioned in the previous paragraph are considered to be valid in the settlement of this model, it means that the taxpayer is supposed to be a completely rational Homo Economicus. The model is based on the idea that the taxpayer's decision of either to evade or not is simply a portfolio allocation problem. The decision of making evasion can be considered as a risky asset and the taxpayer has to decide which portion of his/her income (y) wants to invest on it. Here the notion of risk aversion comes in. Indeed, if the taxpayer is not willing to take any risk, he/she surely report the full income, in order to avoid fine. On the other hand, in any other case he/she will report only a fraction of the income, but will take the risk of being audited, caught and fined. The variable considered in the analytical expression of the model are the following:

y : income

t : is fixed tax rate;

a : is the constant probability of audit;

f : represents the fine, which is proportional to the evaded amount;

$Y_{(NA)}$: is the final income if the taxpayer is not audited therefore is gross income minus taxes on underreported income;

$Y_{(A)}$: is the final income in case of audit, therefore is gross income minus taxes paid, minus fine on evasion;

x : is the amount of income to be hidden;

As already explained above, the behavior of the taxpayer is supposed to be perfectly rational and coherent with the Von Neumann-Morgenstern axioms, it means that the initial income represents the only input, the individual has a marginal utility function that is strictly decreasing and is risk adverse.

In this context, the taxpayer will choose “x” maximizing the expected utility in this way:

$$EU(x) = (1-a) U (Y_{NA}) + aU (Y_A) = (1-a) U [yt (y-x)] + aU (y- ty - ftx)^{11}$$

The expected gain from the evasion (g) will be equal to:

$$g = (1 - a)tx^* - atfx^* = tx^*[1 - a (1+f)]$$

that is simply the result of a maximization process, where x^* represent the optimal amount of hidden income. g will be positive in two cases: when $a (1+ f)$ is less than one or when the ratio between 1 and $(1 + f)$ is bigger than a .

Given this result, main conclusions of the authors are the following:

- The magnitude of tax evasion (tx) is inversely correlated with the probability of audit (a) and the fine rate (f). It means that a higher penalty rate or a higher fine rate can discourage tax evasion;

¹¹ (Ritsatos, 2014)

- The magnitude of tax evasion (tx) is inversely correlated with the tax rate (t) and positively correlated with income (y) when the utility function of the taxpayer is characterized by a decreasing absolute risk aversion;
- The proportion of hidden income (x/y) is positively related with income (y) when the utility function of the taxpayer displays relative absolute risk aversion.

Moreover, if the initial assumption of the constant probability of audit is relaxed, a change in this variable will increase declared income and reduce tax evasion. If the model is analyzed in a multi-period context characterized by interdependent decisions, the fine can have cumulative effect and allows for an increase in tax compliance.

The model described above provides a complete explanation of the behavior of the “Homo-Economicus” in condition of uncertainty. It is characterized by simplicity in design and structure and can be considered the starting point in the wide literature about tax evasion and compliance.

Over the years, many other authors tried to extend and improve the model through relaxing assumption and inserting new variable in order to obtain a more complex and explicative structure. In 1974 Yitzhaki relaxed the assumption of the dependence between the fine and the underreported income assuming, instead, the dependence with the magnitude of the tax evasion. This was an attempt to make

the model more realistic¹² and representative of the reality since this reflects the practices carried out in many countries. In 1989 Scotchmer and Slemrod incorporated in the model the perceived uncertainty of the true tax liability and conclude that the problem relative to the taxpayer's decision is more difficult to solve due to multiple potential fine for any level of hidden income. In 1991, Mayshar introduced the concept of tax technology related to the activities of tax authorities toward taxpayers. Indeed, these activities are costly and, analyzing them in a cost-benefit framework, he concludes that the revenue derived from taxes collection is in part consumed by the additional cost needed by the administration, making the increase in tax collecting effort or the increase in tax rate undesirable. In 1987, Baldry evidenced lower compliance at higher income level in a framework of control of the participants income level. The same result was documented by Collins and Plumlee in 1991. On the other hand, Fishlow and Friedman, in 1994, evidenced decreased compliance at low income-levels, but they used empirical data from Argentina, Brazil and Chile, namely developing countries with high inflation rates and low economic growth.

The Neoclassical Model, together with all the succeeding extensions, has the advantage to be simply designed, to be structured on the basis of straightforward assumptions and to provide relatively simple and clear predictions. However, the

¹² (Yitzhaki, 1974)

framework includes the usual limitation of economic models, which tend to abstract from the complex reality the make tax compliance such a difficult topic to analyze. For example, the uncertainty about the real probability of audits or punishment are not included in the model. Strengths and weakness of the A-S model are analyzed in the survey conducted by Alm *et.al* in 1992; the main conclusions of the model can be summarized in the following six points¹³:

- If the structure of the model is applied to realistic values of variables such as fine rates, audit probabilities, tax rate and coefficient of risk aversion, complete tax evasion should be the only outcome (and it does not happen in the real world.
- As already mentioned above, empirical studies have shown that tax evasion increases with a rising tax rate, rather than fall.
- The assumption that all income is self-reported to the tax authority is not realistic given that, in many fiscal systems, including the Italian one, firms often directly report their employees' wage to the tax authority.
- The probability of receiving an audit action cannot be considered as to be common knowledge and, consequently, those taxpayers who are averse to ambiguity might overestimate the probability of audit.¹⁴

¹³ (Alm J., 1992)

¹⁴ (R.S., 2005)

- The design of the model simplifies behavioral dynamics since it does not consider neither psychological effect nor moral consideration.
- There are some effects and variables linked to the dynamics of taxation process, such as social norms, perceived injustice or inequality in the tax system and public good implications, which are not included in the framework. This can be criticized.

Even the structure of the taxpayers' utility function might be criticized. Indeed, it is based on too generic and, sometimes, not realistic hypothesis. The model assumes that the private income is the only variable which can increase the utility of the taxpayers and that it can be decreased only by the taxes' payment. However, in the real world, this utility can be increased also by the benefit gained from the exploitation of public goods and services and this variable is missing in the model considering every payment to the government as irrational even if it is clear that the majority of taxpayers clearly benefit from publicly provided schools, streets, and health systems which might be a valid reason to pay taxes.

All the limits derived from the use of the Homo Economicus and all the critical points analyzed so far, affected the basis of the Neoclassical economics. Neoclassical economics drew its conclusions based on the idea that subjects are completely rational and it is not realistic. This is the reason the need and the

interest in observing what happens without any prior about individual rationality, rose. In response to this evidence, new disciplines came up: Experimental Economics, which uses experiments to address specific economic question and Behavioral Economics which tries to improve the standard approach, by adding new insight from other disciplines such as psychology and sociology. These two topics will be analyzed in the following section.

2.2 The Behavioural Economics

The aim of this chapter is to briefly restate the key milestones, which led to an economic researches approach that is totally different from the ones belonged to the past tradition. Therefore, in this section, the main questions and evidences, which determined the transition from the neoclassical approach to the behavioural one, will be presented. This kind of background will be fundamental in order to understand the rest of the work, which consists of an analysis of the concept of tax evasion based on its behavioural dynamics.

Up to this point, it has been shown how traditional economists are strongly influenced by the concept of Homo Economicus, which has been defined as the rational, utility or benefit maximizing and cost minimizing individual with relatively stable preferences. On the other hand, Behavioural Economics is based on the evidences that human behaviour differs depending on the circumstances,

location, time, influences of the society, emotional judgments, thoughts based on prejudice.

In the early 20th century Psychology was developed and started to become an investigative science. Starting around 1960, the development of cognitive psychology allowed for a new kind of investigation in the field of memory, critical thinking and decision-making; important psychologist like Amos Tversky, Daniel Kahneman, Duncan Luce, and Ward Edwards began to use the economic models as a benchmark against which to contrast their psychological models. Meanwhile, the development of Experimental Economics, through which is possible to obtain accurate measurement of relevant variables that otherwise will remain unchanged, allowed to shed light on the fragility of the neoclassical approach and to better understand the distinction between Economic rationality and Human rationality. Friedman underlined this distinction explaining how even people are not rational in the economic sense, they behave “as if” they were. In order to explain this concept; he provided a very useful example that consider the case of the billiard player in order to describe the characteristics of the economic agent. The example is the following “ [...] the billiard player made his shots as if he knew the complicated mathematical formulas that would give the optimum directions of travel[...] Our confidence in this hypothesis is not based on the belief that billiard players, even expert ones, can do the process described; it derives rather from the belief that, unless in some way or other they were capable of reaching essentially

the same result, they would not in fact be expert billiard players". This, basically, means that examining the truth of the attribution does not provide relevant information about the truth of the as-if claim. If we consider the same kind of example related to the firm's behaviour, Friedman was perfectly aware of the fact that managers do not intentionally try to equalise marginal cost and marginal benefit and, maybe, they do not even know what a cost function exactly is. However, even if they do not intentionally try to maximize profits, their behaviour is so close to the profit-maximizing assumption that one could obtain good predictions on that basis. In this case, Friedman argued that the profit-maximization assumption was enough accurate for the purpose for which it was useful in the price theory. Therefore, according to Friedman, Economics, meant as to be a positive approach, it is able to reproduce the "as if" behaviour.

A step forward, in the evolution of Behavioural Economics, is represented by the essay written by Herbert A. Simon: "Model of Man". The author introduced the concept of "bounded rationality" in order to explain the idea that rationality is limited when individuals make decisions due to the cognitive limitation of their mind and the time available to make decision. Theories of bounded rationality can be generated by relaxing one or more of the assumptions of the subjective expected utility theory. Instead of assuming a fixed set of alternatives among which the decision-maker chooses it is possible to generate a process or generating alternatives. Instead of assuming the maximization of a utility

function, it is possible to postulate a satisfying strategy. These deviations from the SEU assumption of global maximization are derived from what is known empirically about human thought and, especially, from what is known about the limit of human cognitive capacity in discovering alternatives and computing their consequences in condition or certainty or uncertainty, making comparison among them.

The introduction of the concept of Bounded Rationality remained compatible with the neoclassical approach. However, the agent is not more the perfectly rational Homo Economicus as before, he rather is an “unconsciously” maximize that, due to the limited capacity of calculus and the insufficient ability to know the possible consequences of their choices, is able to reach a satisficing (not necessarily the optimal) solution. Simon’s research about the agents’ rationality led to the creation of a new concept: the procedural rationality, according to which agents take their decision step-by-step rather than finding the a priori optimal solution. Based on this background, it was possible to introduce the revolutionary concept of heuristics as a fundamental component of the individuals’ decision-making process.

2.2.1 Heuristics and Biases

Many human decisions, including also the one about the convenience of paying taxes, are based on belief concerning the likelihood of uncertain events. These

believes usually take the form of statements like “It is unlikely that” or “I think that” and so on. It is rare that thoughts about uncertain events are expressed in numerical terms because of subjective probability. What determine these believes and how do people can assess probability of uncertain events? The answer is that people rely on a limited number of heuristic principles which reduce the complex task to take decisions, assessing probability and predicting values. These mechanisms can sometimes lead to severe and systematic errors.¹⁵ What happens in economic decisions and in the field of the assessment of probability can be compared to the subjective assessment of physical quantities such as size or distance. These kinds of judgements are based on limited available data which are processed according to heuristic rule. For example, someone might determine the distance of an object considering its clarity, the more sharply the object, the less is the distance. This argument has some validity, however the total reliance on this rule can might likely led to an overestimation of distance. Therefore, a heuristic can be defined a simple strategy that can be applied to a variety of problems to take a quick decision. Usually the are called also shortcuts because do not consider all the variables involved in a problem. The use of heuristics when taking decisions leads to the emergence of biases, meaning errors made because of the fast decision process. Psychologists have highlighted that human use

¹⁵ (Daniel Kahneman, 1982)

heuristics because they reduce the mental effort to solve problems but also because subjects often tend to substitute complex questions with something simpler by using their past experience (attribute substitution) and because they provide fast solutions that, in many cases, are the correct ones.

Here below a list and description of the main heuristic-mechanism is provided.

- **Anchoring and Adjustment:** it happens when subjects are asked to answer a question and they have no information about it. In this case they look for an anchor as a reference point. Once they have the anchor, they adjust the answer according to some criteria.
- **Availability:** it is a mental shortcut that relies on immediate examples that can come to mind when evaluating a specific decision or problem. The easier it is to consider instances of class Y, the more frequent we think that class Y occurs. It frequently happens when people deal with the likelihood of an event. The estimation will depend on how easily an example or case comes to mind.
- **Representativeness:** it is a heuristic implemented in situations with uncertain outcomes and it consists of assessing the similarity of objects and organizing them based on the category prototype.
- **Framing effect:** it derives from the fact that choices can be presented in a way that highlights the positive or negative aspects of the same decision, leading to changes in their attractiveness. It is a natural tendency of human

perception, by changing the reference point, decision changes. A special case of framing effect is the loss aversion.

- Confirmation bias: it is a cognitive bias consisting in the tendency to search for and recall information in a way that confirms one's pre-existing beliefs or hypothesis and it is generated by use of the Availability Heuristic.
- Bandwagon effect: it is a psychological phenomenon in which people either adopt a specific behaviour, or act in a specific way essentially because other people are doing it. The most important aspect is that people discard their own belief in order to follow the crowd. This effect is especially visible in financial markets during the creation of speculative bubbles.
- Endowment effect: it is a cognitive bias deriving from the observed gaps between willingness to pay and willing to accept. Indeed, people usually attribute more value to things merely because they own them.
- Law of small number: it is a bias also known as "gambler fallacy" and it consist on the belief about the existence of a correlation of a non-correlated random sequence.
- Dunning-Kruger effect: it is a cognitive bias by which people overestimate their abilities thinking that they are smarter than they are.

- Blind spot: it is a bias which induce people to recognize the impact of bases on the judgment of others , while failing to see the impact on one's own decisions.
- Loss aversion: it is a bias founded on the idea "*losses loom larger than gains*" (Kahneman & Tversky, 1979). This affect our willingness to take risks in a gain or losses domain. This effect is one of the main pillars of the Prospect Theory.

This overview of the main types of heuristics which affect the human decision making process is very useful in order to understand that the individual who takes economic choices (for example decision on the amount of income to declare) in the real world, is very far from the fully rational Homo Economicus considered as a reference point by many neoclassical models.

These evidences can deeply affect the design and conclusion linked to economic models and, also, the decisions and the policy implications which derive from them.

In the light of that, the behavioural economics discipline, applied to the context of tax evasion, can be interpreted as an extension of the classical framework which include more realistic assumptions of taxpayers' behaviour. The vast literature about the various behavioural economic concepts and their application to the field of tax compliance can be divided in two types of approaches: models using non-

expected utility theory and models incorporating social interaction into the traditional framework.

For what concerns the first category, differently from the neoclassical economic models where the probability of detection is supposed to be known, non-expected utility theory can account also for taxpayers who tend to overweight the probability of being detected (the loss aversion bias described above). This kind of models can provide with estimation of compliance levels which are closer to the observed compliance rates. Indeed, in the real world, the average taxpayer might not be aware of the real probability of audit, therefore he/she makes decisions under ambiguity (uncertainty with unknown probabilities) rather than under risk (uncertainty with known probabilities). In this context the ambiguity-averse taxpayers might express more compliance if the tax authorities hide specific information on audit mechanism and probabilities. Moreover, heterogeneous compliance behaviour among taxpayers are even accounted for since the taxpayers' probability weighting functions can differ.

Instead, for what concerns the second category, models which try to incorporate social effects account for the fact that taxpayers' decisions might be affected by their specific social and cultural environments. These social effects include factors like psychological costs, perception of fairness, prestige, social norms and group effect. This represents a further extension of the neoclassical model since there will be more variables which can deter people from cheating. For example, as

Hashmizade *et. Al* highlight, the psychological costs might arise because people fear to be detected or publicly shamed.¹⁶ The same authors provide also insights about the influence of fairness on tax compliance distinguishing between the fairness towards the government and the fairness toward other taxpayers. For example, if government provides public good and services of poor quality, it is likely that taxpayers will perceive tax payment as unfair. The authors highlight that models which include social effect can, in general, explain the empirical evidence better than the standard models.

2.2.2 The Prospect Theory

The evidences of the presence of psychological biases in the decision-making process, together with the development of models including social effect, led Daniell Kahneman and Amos Tversky, in 1979, to develop the famous Theory of Prospect, one of the main revolutionary pillars of the behavioural economics.

It was already mentioned that Yitzhaki (1974), showed that, using expected utility theory (EUT), under the assumption of decreasing absolute risk aversion, an increase in the tax rate leads to a decrease in tax evasion. However, in a large majority of cases, experimental, econometric and survey evidence rejects this

¹⁶ (Hashmizade N., 2012)

result. Prospect theory was developed in order to solve this paradox. First of all, differently from the EUT, where utility is based simply on final levels of income, under prospect theory utility is affected by gains and losses relative to some reference point. Secondly, the utility function is considered as to be concave in the domain of gains and convex in the domain of losses. The model is based on the idea that losses are more valuable than gains (loss aversion) and that agents' preferences are influenced by the way a problem is presented (framing effect).

There is a very extensive literature on the application of prospect theory to the tax evasion problem with aim to answer to this question: why should people pay taxes even with very low level of audit probability and punishment that make tax evasion more attractive?

As an example, Alm et al (1992) suggest that an explanation of the "too-much compliance" can be based on the Prospect Theory proposing the idea that taxpayers might be using a non-linear transformation of probabilities to overweight the probability of a tax audit and it could be an obvious deterrent to tax evasion activity. However, they did not formalize this concept. Many other papers applied the prospect theory to the tax evasion problem focusing on the role of paying taxes in advance as a deterrence in tax evasion. The intuition behind is that, in the case where the advanced tax payments exceed actual tax debt, by correctly reporting income the taxpayer can obtain a refund, namely a gain. Under prospect theory, the taxpayer's utility function should be concave for gains. In the

opposite case, if the advanced payment is lower than actual tax liabilities, by reporting additional income the taxpayer would owe taxes to government, namely a loss. Under prospect theory the taxpayer's utility function is convex for losses and so might be more willing to take the risk of the evasion. In this frame, the level of obligatory advance tax payments can complement the deterrence ability of the tax authorities.

This suggestion, together with coherence between prospect theory's prediction and empirical results, can suggest the usefulness use of prospect theory in formulating tax evasion problems and correspondent solution.¹⁷

2.2.2 Tax morale and Tax compliance: The Slippery Slope model

Up to this point of the analysis it is clear that the weakness of the standard neoclassical model le many authors and researchers to integrated their model taking into account even behavioural approaches through the inclusion of psychological factors such as perception of fairness, tax knowledge and tax morale as potential determinant of tax compliance. The concept of tax morale and the Slippery Slope framework were introduced in the tax compliance literature in order to explain both the high degree of tax compliance despite the low deterrence

¹⁷ (Dhami S., 2006)

level and the differences in tax compliance between countries or regions which share the same tax and punishment policies.¹⁸ The example of Italy analysed in the first section might be a suitable example. Indeed, taxes level and policies of punishment and audit are the same in every region, nevertheless, there are very huge differences between the level of tax compliance in the North respect to the one of the South. A possible answer to solve this dilemma can be found in the concept of tax morale.

Tax morale can be defined as “*the intrinsic motivation to pay taxes*” (Jones, 1991), it measures individuals’ attitudes towards paying taxes, in contrast to individual behaviors towards tax evasion. Empirical results of various studies have show that institutional factors such as direct participation rights in a democratic decision-making process as well as federalism can increase tax morale. Moreover, positive relationship is evidenced between tax morale and trust in government and the judicial system.

The Slippery Slope framework rose in the field of Economic Psychology and has Kirchler’s studies as a point of reference. Thea approach of this model distinguish two types of tax compliance: voluntary and enforced. The former is related to the level of trust that taxpayers have respect to tax authorities, the latter is instead related to the power of tax authorities. Therefore, Trust in tax authorities and

¹⁸ (Rothstein, 2000)

power of tax authorities result to be the major determinant of the various forms of compliance. In this frame the positive effect of trust and power on tax compliance might be larger when these two variables are relatively low (hypothesis of diminishing returns). The variable of power is represented by all the disposable deterrence instruments (audit and penalties) while trust depends basically on how tax authorities decide to approach taxpayers: the higher their reliability is, the larger will be the trust of people in their work.

In the formulation of the model, Kirchler explained that a key determinant of voluntary tax compliance could be the presence of high-quality institution characterize, for example, by equity and simplicity of tax system, efficiency and reliability of the government, absence of corruption, understandable and fast bureaucracies, high transparency and so on. All these futures contribute to the creation of a “synergistic tax climate” where the relationship between taxpayer and tax authorities rely on mutual trust. On the other hand, if this relationship presents the futures of the cops-and-robber attitude, trust will be low and tax administration will necessarily use its power leading to an enforcement of enforced compliance rather than voluntary one.

Although the Slippery Slope framework introduced a positive relation between power of tax authorities and tax compliance, empirical evidences are not so clear in this sense. Moreover, very few empirical studies tried to integrate the model with the concept of tax morale.

Nevertheless, the intuition at the base of the model, can lead to the adoption of new tax policy which do not focus only on the improvement of the standard instrument of deterrence (audit and penalty), but also on the increase of tax moral and of the degree of cooperation by taxpayer (for example providing high quality services thus making taxpayers feel respected). An obstacle to this kind of policy can be represented by the fact that they may not be effective in the short-run since the variable of tax morale is usually characterized by very slow attitude in changing.

3. Experimental economic and empirical studies on tax evasion

The second section provided an overview about the transition from the neoclassical approach on the study of tax evasion issue to the most recent behavioral economic approach. The aim of this chapter is to present the main techniques and methodology at the base of experimentation in the economic field and to provide examples of researches, based on the experimental economics approach, which had the aim to enrich the theoretical prediction of behavioral economics with some empirical evidence gained in lab and in field.

Indeed, compared with theoretical modelling and survey evidence, experiments allow for a direct observation of decisions to evade. Theoretical model cannot

include all important factors which affect the taxpayer's decision-making process without occurring in the risk to be excessively complex. Hence, experimental economics will be presented complement of the theoretical modelling.

3.1 Economic Experiments

Economics is a social rather than a natural science. It focuses on the problem of allocation of scarce resources. Such allocation is decided by people who use their judgments, belief, expectation, state of mind to take decision and who are constantly affected to the social environment which surround them. Most of these factors are unobservables and this is the reason why it can be difficult to perform controlled experiments like those in physics or biology.

In this context, experiments in economics allows to analyze factors and behaviors that otherwise will remain unstudied. This happen through the creation of a manageable "*microeconomic environment in the laboratory where adequate control can be maintained and accurate measurement of relevant variables are guaranteed*" (Wilde, 1980). Thus, the laboratory technology can be used to create simple but realistic economies. These simple reproductions can be used to test and evaluate the predictive capability of the general theories.

In recent years the use of experimental methods became an important tool in economics for the following reasons:

- they can help in testing the descriptive validity of economic theory;
- they allow for the exploration of bounded rationality;
- they establish empirical regularities as a basis for new theories;
- they design proper control treatments that allow causal inferences about why theory fails.
- they serve as “testbed” for the development of new policies and regulation;

The main component of an economic experiment are: the environment, which include technologies and initial endowment given to the participants and that could be implemented by appropriate monetary incentives; the institution, which are simply the rules of the game and consist of feasible action and information condition and finally, the framing of instruction which include all the steps of the game presented to the participants.

The main elements which characterizes experiments are: the subject involved (participants); the experimenters (researches); the experiment itself (test of a phenomenon); the treatment (Experimental condition); the session (Experiment Data with a group of subjects).

In general, the experiments consist of one or more treatments which are conducted in one or more sessions.

In the experimental design the researcher is interested in how different values of a specific variable can affect individual decisions and such variable are called “treatment variable”.

The economic experiment can be structured in many different ways, but in order to summarize they can be classified as follows:

- Interactive versus non-interactive games; since subjects’ choice could or not influence other’s behavior and payoff. Public Good Game, Asset Market game and Auctions belong to the first group, while Lottery for risk aversion, guessing game and Sunspot forecasting belong to the second one.
- One shot versus repeated game; since an experiment may consists in a single (one-shot) or multiple (repeated) choices. The first group includes the Dictator Game, the guessing game and the Ultimatum Game, while the second includes Public Good game, Posted offer market and Auctions;
- Simultaneous versus sequential game; since during the experiment subject may submit their decision at the same time ore one by one. The firs group includes Public Good game, guessing game and forecasting, while the second group includes Gift Exchange Game, Ultimatum Game and Trust.

Economic experiments are characterized by the features of independence, since treatment variables are independent (no endogeneity) and by randomization, indeed it is important to randomize the process in order to avoid “nuisance effect”

such as the influence of experience, self-selection, idiosyncrasies of individual subjects.

In order to be effective, the economic experiment should present both internal and external validity. The internal validity is the validity of (causal) inferences in scientific studies. A controlled experiment (in contrast to happenstance data) allows casual inference and thus have high internal validity. Therefore, internal validity refers to how well a piece of research allows to choose among alternative explanation of something. On the other hand, external validity refers to the ability to generalize from the research context to the setting that the research is intended to approximate. In other words, it exists if the lab experiment teaches us something about the real world. It relies on induction. It means that behavioral regularities derived from the experiment will persist as long as the relevant underlying conditions remain substantially unchanged.

A typical lab experiment is usually structured as follows:

- Recruitment phase: subjects involved are invited to a specific session
- Subject arrival: subjects are randomly assigned to a computer
- Instructions: on the screen or in paper format. Usually subjects also answer to few control questions;
- Treatment: subject play the game;
- Questionnaire: to collect additional information

- Payment: in most of cases it depends on the decision in the lab. Payment must be individual and anonymous.

For sure, using the laboratory experiments in social sciences can have the advantage to control for many variables and to have a high level of internal validity. Nevertheless, it is also true that what passes for “control” in laboratory experiments might be exactly the opposite if it is artificial to the subject or context of the task. This is the reason why field experiment occurs. The *Oxford English Dictionary* defines the word “field” in the follows: “Used attributively to denote an investigation, study, carried out in the natural environment and not in the laboratory” therefore field experiments, conversely to lab experiments are characterized by the use of field subject instead of student subject that are usually used in lab experiment since they are a convenient sample for academics, but they automatically loose the power of control, leading to a lower internal validity.

In order to distinguish among different kind of experiments Harrison and List (2004) proposed the following taxonomy of experiment:

- A *conventional lab experiment* is one that use standard subject pool of students, an abstract framing and imposed set of rules;
- An *artefactual field experiment* is the same as a conventional lab experiment but with a no-standard subject pool;

- A *frame field experiment* is the same as an artefactual field experiment but with field context in either the commodity, task, or information set that the subjects can use;
- A *natural field experiment* is the same as a framed field experiment but where the environment consists of a situation where the subjects naturally undertake the task proposed and do not know that they are in an experiment.

The conventional lab experiment is comfortable considering that students are relatively easy to recruit and to reward and are also used to use abstract reasoning. In addition, the computer lab can be easily settled in order to isolate one subject to another. Nevertheless, an experiment of this kind is likely to lead to the following oppositions: “the result is interesting, but who says that real people would behave like this?”. Field experiment can provide a solution to this question but giving up for control.

Despite these academical differences, it should be avoided to interpret the difference between lab and field experiment as being automatically synonymous with the trade-off between internal validity and external validity. This correlation can not be established a priori since, if the controls in the lab do their job and do not constrain behavior, then the lab will lead to more control and to useful and realistic results.

As already mentioned above, the use of experimental economics can represent a means to complement the theoretical models. coming back to the hub of this work, namely the taxation issue, many of the experiment methodologies presented in this section have been used in order to enlarge the theoretical structure of behavioral economic with some empirical evidences. Therefore, in order to conclude, an overview of these researches and of their conclusion will be provided in the following section.

3.2 Experimental Economics and Tax Evasion

As it was explained in the previous section, experiments have the advantage, compared to theoretical models, survey evidences and estimation since they allow for direct observation of phenomena and allow to test the effect of change in the social environment as well as the effects of institutional changes. This concept can be easily applied also to the topic of tax evasion.

Experimental research conducted in the las decades have shown that among others, reciprocity, fairness and social norms have the power to affect final decision. Even the decision that concerns the taxes' payment represents a social dilemma where private ad common interest are opposing since paying taxes is individually costly but represents a benefit in terms of social welfare.

We have also seen that taxation is something that is strongly related with the provision of public goods and services, since governments must provide these goods and services in order to contrast the “free-rider” problem and taxes are necessary to finance those activities. Therefore, it derives that tax compliance is strongly related to the quality of public goods. In this context laboratory experiments highlighted that higher return from public goods leads to an increase in tax compliance levels (Blackwell, 2007)¹⁹. The social effects have been deeply explored in the laboratory experiment using the public good typology leading interesting results. The aim of a public good experiment is to represent the social situation related to the provision of public good in the lab context, therefore, firstly, an abstract situation of private public good provision is created than, participants are usually divided in different groups. Each participant is given with a certain monetary endowment and is asked to make an investment decision, namely, how much of the initial endowment to dedicate to the financing of public good. At the end, all the contributions are collected by the experimenter and equally split among all the participants.

In this framework, the social dilemma is present because the maximum payoff can be achieved only if every participant decides to devote all the endowment to the public good, however the individual utility can be increased by keeping all the

¹⁹ (Blackwell C., 2007)

endowment since he/she is not aware of the decisions of other participants. The standard economic theory would predict the free riding attitude of all group members and, therefore, no contribution. However, many lab experiments highlighted a substantial heterogeneity in levels of contributions and cooperation even if they are completely voluntary. In recent experiments, even the cost of punishment has been introduced in the design and it seem that it can increase cooperation. These findings have led to the analysis of the differences in cooperation norms among different cultural environment with evidence of correlation between norm of cooperation and civic cooperation and the rule of law in the countries in question.

Another interest topic which rose from lab experiments on public goods are the concepts of reciprocity and conditionally cooperation. Indeed, recent laboratory experiments have shown that conditionally cooperative individuals tend to cooperate in case they expect other individuals cooperate too and, on the other hand, they do not cooperate if they expect their peers to be uncooperative. We have already explained that problem of external validity related to lab experiments and the fact that decision in laboratory can differ from real decision of taxpayers, however taxes are the means to provide public goods and it is not unrealistic to presume that taxpayers act in a conditional cooperative way. This means that the voluntary compliance in taxation process might be higher if taxpayers expect

others to comply or can be more easily involved in evasion activities if they expect others to cheat.

The economic experiment can be considered particularly suitable as means to detect the topic of tax compliance. Indeed, the experimental literature in this field has grown fast in recent years. The standard framework of a lab experiment on tax compliance involved many participants who receive an income and are asked to declare this income to a fictitious tax authority without any check on the correctness of the amount declared. Participants pay taxes facing a certain probability to be audit. In case of cheating, taxes on undeclared income plus a fine have to be paid. In 2007 Blackwell conducted a meta-analysis of twenty laboratory experiments and use aggregated data to test the influence of a change in the tax rate, fine rate, probability of audit and the per-capital return of a public good on tax evasion. For all except the tax rate, the author highlighted a significant positive effect on tax compliance. Hence, the finding on the effect of a rising in tax rate is against the prediction of the neoclassical model.

In general, the experimental work on this topic can be divided into four types of studies:

1. *Testing biases in individual decision-making*: taxpayers tend to overweight the probability of an audit.
2. *Testing the effect of social influences*: Public goods, fairness, social norms and public shame may influence decisions. For example, the

public announcement of the result of an audit can constitute an additional punishment.

3. *Testing theory*: even if fines and audit probability do not change too much in reality, people reaction can be explored with experiments.

For what concerns field experiments, as already mentioned, they can provide higher external validity because they take place in natural setting where subjects are not informed about the participation to the experiment. On the other hand, the reliable measurement of tax compliance is complex and costly. This is the reason why field experiments in tax compliance are rare, however some studies exist.

An interesting experiment is the one conducted by Slemord *et al.*, as it is one of the first. The authors try to analyze the effect of differences in perceived audit rates by sending a letter to a group of taxpayers, the experiment took place in Minnesota. The letter announced a close examination of the tax report the taxpayers had to fill in. A comparison was made with the payment of a control group of taxpayers who did not receive the letter. The authors find out that the effect of the letter changes in line with income level and opportunity of evading: low and middle-income groups declared an higher income respect to the control group while the high income group did not change the amount declared. The experiment was conducted using a relatively small size group of 1724 taxpayers.

In 2012, Torgler analyzed the influence of moral appeals on tax compliance in a field experiment using a sample of 578 taxpayers in Switzerland. Half of the

sample received the standard tax form followed by a letter which highlighted the moral obligation to pay taxes. He reported that the letter had positive effect on tax compliance, although it is not significant. Indeed, the use of a group taxpayers belonging to a small reality can bias the effect of moral persuasion.

Another interesting field experiment was conducted by Gangl *et. Al* in 2013 and it had companies as subjects instead of individual taxpayers. In this study, conducted in Austria, small enterprises were randomly selected and contacted by a tax auditor. The companies were relatively small and belonging to sector which was considered to be characterized by likely evasion. Companies in the treatment group were approached by a “friendly” tax auditor and closely audited in the course of the year. The control group was not approached nor audited closely. The study showed that: one is that audits reduced the willingness to pay taxes on time crowding out other motivation to pay. They however reduce the amount due to tax authorities after the official payment date highlighting that this kind of policy might have a two ways effect.

The literature on economic experiment in the field of tax evasion is becoming more and more wide since a new awareness about the importance of sociological and psychological variables in the decision-making process is contaminating the recent economic approach. This section is concluded with short list of some evidences which derive from these studied and that might be considered also in the future approach on the policy against tax evasion:

- Higher institutional quality is associated with a higher intrinsic motivation to pay taxes;
- Trust in government and tax authorities can help to maintain higher level of compliance;
- Promoting social norms on tax compliance can be determinant in the final result of tax payment;
- Cultural effects should be taken into account when shaping policy measures to boost tax compliance.
- The presence of a honour code before filling the tax self-reports can trigger more compliant behavior because it can remind people of their moral concept and self-perception as honest citizens.

Conclusion

For decades, one of the key objectives of all Italian governments, and of many other governments of developed countries, has been to fight tax evasion, for which Italy still ranks as one of the most non-compliant countries in the world. This objective has been pursued by introducing very high rates of administrative penalties and by combining a severe administrative penalty system with criminal sanctions.

The history of the Italian fight against tax evasion has been characterized by the presence of many instruments of contrast, from the well known *Redditometro* to the debated Sectors studies and electronic invoices. These instruments surely led to some results, but still insufficient if compared with tax evasion levels of other European countries. The Italian tax evasion is a mass phenomenon which is strictly related to the productive structure, to the public administration as well as to the culture and history of the Country. Over the years this phenomenon has contributed in a decisive way to the growth of public debt and to the lack of respect of constitutional precepts of progressivity and universal participation to the financing of public expenditure.

For what concerns the theoretical and academic study of this issue, we have seen that the traditional Neoclassical Model of tax evasion, according to which the tax evasion is simply a rational choice under condition of uncertainty, had provided useful tools for tax policy and its publication stimulated a variety of tax

researches, however, empirical evidence for its validity is rather weak. The weakness of the traditional model has led to the development of the Behavioral Economics which tries to overcome the idea of the neoclassical “Homo Economicus” and to enrich the classic economic model with insights from other disciplines such as sociology and psychology based on the evidences that human behaviour differs depending on the circumstances, location, time, influences of the society and emotional judgments. The analysis of the tax evasion issue through the lens of Behavioural Economics allowed to enrich the academic literature on this topic with new and original insights, introducing other variables such as the subjective knowledge of taxpayers about the fiscal system, the perception of equity in the tax payment, the concept of tax moral and the social influence. Behavioural Economics has also highlighted how interaction among the various entities involved in the taxation process and the dynamic that these interactions might generate, have an important role on the actual level of tax compliance. In this new framework, Experimental Economics methodologies tried to support the Behavioural Economic theory with empirical evidences.

The new insight provided by both Behavioural Economics and Experimental Economics might be used in order to have a more complete overview of the tax evasion issue and also to implement new kind of policies against tax evasion.

Nowadays, many countries chose to include the Behavioral Economics aspects in the strategic policy to fight tax evasion especially through the use of “nudges”

which should induce taxpayers to be more compliant. This is the case of the letter of compliance in the UK, which tries to induce people to pay taxes by leveraging on their intrinsic moral norms; the Austrian “Finance Online” which tries to reduce the perception of taxpayment effort through the simplification of the underlying bureaucracy ; the Chinese “Fapiao” and many other instrument which allow these States to improve the level of their tax revenues.

In order to conclude, taking together all the results of previous studies presented in this research, the general statement is that behavioural economic factor can significantly affect tax compliance and, if well applied, can increase it. There is not a uniform approach of using insight derived from behavioural economics, but they can represent a new input for policy maker and administration which constantly deal with the tax evasion problem.

References

- Alesina, A., & Marè, M. (1996). *"Evasione e debito" in La finanza pubblica italiana dopo la svolta del 1992*. Bologna: Il Mulino.
- Alm J., M. G. (1992). Why do people pay taxes? *Journal of Public Economics* , Vol. 48, No. 1, p. 21–38.
- Becker, G. S. (1990). *The Economic Approach to Human Behavior* . United States of America: The University of Chicago Press.
- Blackwell C. (2007). A Meta-Analysis of Tax Compliance Experiments. *Internation Centre for public Policy Working Paper Series*.
- Daniel Kahneman, S. P. (1982). *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge University Press.
- Dell'Anno, R., & Schneider, F. (n.d.). The Shadow Economy of Italy and other OECD Countries:. *Journal of Public Finance and Public Choice*, 15.
- Dhami S., A.-N. A. (2006). *Why Do People Pay Taxes? Prospect Theory Versus Expected Utility Theory* .
- Friedman, M. (1966). The Methodology of Positive Economics. *Essays in Positive Economics*, 3-16,30-43.
- Hashmizade N., M. G.-N. (2012). Application of behavioural economics to tax evasion. *Journal of Economic Surveys*, 23-24.
- ISTAT. (n.d.).

- Lehtien, A. (n.d.). Three kinds of "as-if" claims. *Journal of Economic Methodology*.
- McKenzie, R. B. (2009). *Predictably Rational? In search of Defenses for Rational Behavior in Economics*. Springer Science & Business Media.
- OECD. (n.d.). *OECD Centre for Tax Policy and Administration's Glossary of Tax Terms*.
- R.S., S. A. (2005). Ambiguity about audit probability, tax compliance, and taxpayer welfare . *Economic Inquiry*, Vol. 43, No. 4, p. 865-871.
- Rehman, T. u. (2017). Historical context of behavioral economics. *Intellectual Economics*.
- Ritsatos, T. (2014). Tax evasion and compliance; from the neoclassical paradigm to behavioural economics, a review. *Journal of Accounting & Organizational Change* , 246.
- Rothstein, B. (2000). Trust, Social Dilemmas and Collective Memories. *Journal of Theoretical Politics*, 477-501.
- Santoro, A. (2010). *L'evasione fiscale* . Bologna: il Mulino.
- Simon, H. A. (1990). *Utility and Probability*. London: Palgrave Macmillan.
- Smith, P. (1994). p.18.
- Sose. (n.d.).
- Ufficio studi Agenzia delle Entrate. (2006).
- Yitzhaki. (1974). A note on Income tax evasion: A theoretical analysis. *Journal of Public Economics*, p. 201-202.

