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Understanding the Shadow Economy, The Shadow of the Greek Economy

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Abstract

The title of the work reveals what was the motivation for dealing with the shadow economy. Understanding through study and impartiality. The shadow economy is a very difficult issue to expand on, because there are no reliable data (numerical data) that can safely confirm its existence and size. There are very serious indications but not reliable proofs. What is certain is that the phenomenon "lives and reigns" and affects to a greater or lesser extent, depending on its size, the lives of citizens, the activity of businesses, the functioning of the state. Its existence is based on the concealment of values, on silence, on deception of authorities, on deception, on avoidance, on non-compliance. That is why most researchers refer to estimates, and these are uncertain, and not to reliable measurements. The research methods they use are many. Some with weaknesses and others with more serious weaknesses. In this work, I used the findings of researchers, Greek and foreign, to understand the shadow economy (conceptual understanding of its components: Shadow Economy, Tax Evasion, Tax Avoidance, Tax Exemption) as well as the numerical data (quantitative estimates) of their studies to monitor the diachronic evolution of the shadow economy in our country. I believe that the shadow economy is not a purely economic phenomenon (there are no purely economic phenomena). It is both social and political. It interacts with the functioning of the capitalist economy and bourgeois democracy, essentially constituting a "gear" of them. The position I am putting forward is based on this logic, that ultimately the shadow economy becomes a brake on social development and economic and political transformation, as well as a mechanism (there are others) for the reproduction and perpetuation of the society of inequalities.

Keywords: Shadow Economy, Tax Evasion, Tax Avoidance, Informal Economy, Economic, Policy, Fiscal Regulation

Introduction

Just as the Moon has its invisible side, just as the universe has its dark matter and the oceans have their depths where light does not reach and it is difficult for man to approach them, so too does the economy have its shadowy side. We call it both foggy but also parallel and gray and black and informal and unofficial and hidden.

When you do not know, when you ignore the characteristics of something or a phenomenon, then your imagination runs wild and you baptize it with whatever name comes to mind at the moment. When we talk about the economy, we refer to the way, the conscious way, of producing, distributing and consuming the material goods and services of a society, in a specific historical era and within a specific network of rules, principles, social relations, economic division and political correlations. We refer to the free economy or the market economy or otherwise the Capitalist economy and we try to record and understand a paradox, a contradiction that exists within the framework of this economy. While its development requires, among other things, detailed recording and analysis of production cost data, distribution and consumption data, in order to avoid "failures" to achieve maximum profit, nevertheless it is observed to operate within the framework of this strictly recorded and analyzed economy, a second one where it operates in the "shadow".

It does not leave a visible imprint on the official national accounts and on official statistical economic analyses. It functions as a substitute for the official economy but also as its complement. Its size increases or decreases, influenced by fluctuations

in the economic cycle, the social situation, changes in political correlations (changes in the mix of fiscal and monetary policy of each government). It can go unnoticed and for many years no one or almost no one deals with it (science certainly does). When it exceeds 15% of the GDP, an alarm is sounded and above 20%, a "general conscription" is declared.

Incorrect statistics that lead to the failure of the implemented economic policy, reduced tax revenues, failures in determining inflation and unemployment, an increase in public debt due to the increase in borrowing, are just some of the negative consequences of the shadow economy on the official economy, in the womb of which the parallel economy is "gestated", "born", and many times "grows" abruptly, causing a severe headache for the official economy when its size exceeds 30% of the official GDP. The shadow economy is a "way out" in periods of high unemployment, low incomes and sluggish consumption for population groups that experience job and income insecurity, as well as for people who are "rejected" by the official economy. It contributes to stimulating the productive activity of sectors of the economy where small and medium-sized enterprises and self-employment dominate, providing a way out, mainly in periods of low consumption, high competition and tax pressure.

It can function as a "safety valve" especially in developing countries, with chronic economic and social problems, essentially transferring to the "weaker" the responsibility for solving their economic and social problems.

Does it Become a Habit?

It acquires the characteristics of custom. A "tacit consent" with a stable social conscience which is also manifested "tacitly", with the conviction that it is acting within the framework of a rule of law creating its own codes of social and economic behavior [1, 2].

It contains elements of disobedience, of reaction, towards economic policies that tolerate the degradation of the lives of segments of the population, that do not promote tax justice, that reduce the quantity and quality of public services and alienate citizens from decision-making centers, reinforcing entanglement and corruption. At the same time, it can act as a deterrent against modernization, innovation, and efforts at social and economic transformation, feeding nihilism and the erosion of consciences. Large companies have the ability to hide capital and avoid taxation, essentially transferring their own tax obligations to the "most backward". Their size, their technological capabilities, the expertise they have in managing tax legislation, but above all the security they feel from the tolerance and assistance offered to them by the organization of the capitalist economy and the political and legal support of governments, allows them to avoid taxation of many billions of euros. The concealment of income is mainly done by the most educated and wealthy strata of the population. The world's billionaires have real tax rates equivalent to 0% to 0.5% of their [3]. Billionaires have not yet achieved immortality, but they have certainly become more flexible in avoiding tax (ibid.-Foreword). The core of the shadow economy has a class coloration. The Capital factor benefits from its existence.

In this paper, we examine the shadow side of the Greek economy (this is what interests us most) while presenting data on the informal economy in Europe.

- We approach the shadow economy conceptually, presenting the concepts of the shadow economy, tax evasion, tax avoidance, tax exemption, their consequences, their causes, their differences (CHAPTER A).
- We list the methods of calculating the shadow economy, its positive elements for the economy, and the difficulties of calculating it (CHAPTER B).
- We refer to the methods of estimating tax evasion and the obstacles that exist for its correct estimation (CHAPTER C).
- We collect data and numerical data from studies by Greek and foreign researchers on the shadow economy and tax evasion in Greece and Europe, presenting relevant tables (CHAPTER D).
- We try to determine the characteristics of those who are shadow economy and tax evasion.
- We mention various professions where there is extensive tax evasion in Greece. Through research data, we refer to the views of citizens, the country, on the shadow economy and tax evasion.
- We propose measures to address the shadow economy (CHAPTER E). At the end of the work, we list the sources we used.

Chapter A

Concepts: Shadow Economy - Tax Evasion - Tax Avoidance.

In the modern economy, taxation of natural and legal persons constitutes the main source of state revenue. Through taxation, the governments of states try to achieve:

- The financing of public spending,
- The strengthening and stabilization of economic growth,
- The redistribution of public wealth with the aim of alleviating social and economic inequalities (el.wikipedia.org) while maintaining social stability. Taxation of individuals and businesses has two characteristics:
- It constitutes a compulsory financial provision to the state.
- It is not accompanied by direct consideration [4].

Due to these two characteristics, taxation is not easily accepted by all citizens and businesses. There are obvious reactions (worker demonstrations, strikes, etc.) but also less obvious ones (changes in political affiliations). Reactions can also be characterized as active and passive. Passive reactions concern the effect of taxation on economic behavior, and active reactions concern tax evasion and avoidance by savers, as well as the transfer of their economic activities (part or all) from the official sector of the economy to the informal, i.e., the shadow economy [5].

Definition of the Shadow Economy

There is great confusion among researchers regarding the definition of the shadow economy. Researchers from various disciplines (statisticians, economists) understand the concept of the informal sector of the economy in different ways, having different research objectives. The economic concept (shadow, informal, hidden, shadow economy) has a different meaning for economists than the meaning given by statisticians (observed economy, produced production) [6].

Finding an excellent definition is linked to the parallel effort to measure it [7]. The differences in definitions reflect the different perspective from which each researcher decides to investigate it [8].

A study by the IMF defines the shadow economy only as the legal and productive activities that are hidden from the authorities, which, if recorded, would contribute to GDP [9]. Illegal or criminal activities as well as charitable or domestic activities are excluded [10].

Also, the shadow economy is defined as the economic activity whose result is not calculated in the national income [11]. Professor Pavlopoulos defines as the shadow economy the part of the economic activity that should be included in the national product – since it creates added value- but for various reasons cannot be measured – recorded by the competent services [12]. According to Tanzi, the shadow economy is that part of the G.A.P. which is not included in the measurement by the competent authorities either because it is not declared at all or is partially declared or is hidden from the official authorities for monetary, regulatory and institutional reasons [13, 14].

Professor Schneider calls the shadow economy the legitimate business activities carried out outside the reach of state authorities, excluding illegal and criminal activities (drugs, prostitution, smuggling, etc.) and informal economic activity [15, 16]. The Bank of Greece (Monetary in its published assessment does not distinguish between the shadow economy and tax evasion and refers only to legitimate activities and transactions [17, 18]. Negreponti points out (p.32) that the shadow economy should include all economic activities without exception whose product is included in the economic circuit, changing economic figures to a degree and in a way different from that which the official national income figures are able to predict and influence.

Finally, Tatsos accepts as a shadow economy any economic activity which, for various reasons, some or all of the participating members attempt to hide from the public authorities [19]. In my opinion, I consider Negreponti's reasoning in the definition of the shadow economy to be more complete.

Housework, caring for the elderly, young children, production for self-consumption, mutual aid and solidarity between people generate income that should somehow be included in the country's GDP. Illegal activities, such as illegal gambling, drugs, prostitution, smuggling, create their own economy alongside the official legal economy. The values produced in this economy are converted into wages, profits, consumption of production factors for private consumption and ultimately into a "way out" for the many, and power and strength for the few, calling into question the official statistical data on the country's GDP or on real unemployment, consumption, etc.

Therefore, the effort to calculate them and include them in the national accounts would give a better picture of the economic reality of the country.

This does not mean legalizing and accepting these activities (the illegal criminal ones). The effort to eliminate them should be continuous.

Consequences of the Shadow Economy

- The shadow economy has serious consequences on the functioning of the official economy.
- Its consequences are negative but also paradoxically positive, which should not be underestimated and not considered by researchers and planners of the economic policy of a country.

The Negative Consequences are the Following: [20].

Incorrect Statistics

The size of the shadow economy creates problems in the correct calculation of official statistics. The calculation of macroeconomic figures such as GDP, savings, price levels, employment, investments, income distribution, etc. is in doubt, especially when the percentage of the shadow economy is significant and changing over time the effectiveness of economic policy is affected. If the percentage of growth of the shadow economy is greater than the percentage of growth of GDP, the inaccuracy and unreliability of statistical data leads to a certain failure of economic policy. More specifically:

1. In conditions of high shadow economy, it is difficult to calculate the appropriate inflationary or anti-inflationary measures that the economy needs to achieve the desired result. Inflation is overestimated. The prices of goods in the shadow economy will be lower than those in the official-overt economy, since the cost of production in the shadow economy, due to the non-payment of taxes and social security contributions, will be lower.
2. The level of unemployment appears higher in the official economy than it actually is due to the employment of part of the workforce in the hidden - informal economy. The phenomenon occurs, due to the inability of the authorities to exercise effective control over the labor market, that workers in the underground economy are subsidized as unemployed people in the official economy.
3. The growth rate of the economy is underestimated, pushing the government to increase public spending, at the risk of causing an increase in inflation.
4. Because economic activity appears anemic when the shadow economy is not considered, governments increase taxation in the official economy in order to finance its recovery. This can lead to an increase in social discontent, a reduction in citizens' confidence in the effectiveness of the implemented economic policy and, ultimately, to the creation of incentives for an increase in the shadow economy and tax evasion.

According to the opinion of the European Economic and Social Committee (https://eur-lex.europa.eu/legal-conten), public finances lose resources, resulting in a decrease in tax and social security revenues and an unequal distribution of the costs of public services and the welfare state.

5. The shadow economy affects the distribution of income, making it difficult to implement redistributive income policy efforts, since it is not easy to confirm which incomes are favored by the shadow economy, since the shadow economy has a different impact on employees, employers, and the self-employed. Although many believe that the development of the shadow economy provides a job and income outlet for people who cannot be satisfied with their work, and income from the official economy, however there are studies (OECD, which prove that long-term unemployed and people with low levels of specialization, skills and so-

cial relations, have difficulty restoring themselves in terms of employment and income and in the informal labor market. Thus, inequalities are transferred and reproduced in it [21].

The Shadow Economy Affects the Effectiveness of Monetary Policy

The shadow economy increases the demand for money for cash, causing a decrease in the elasticity of money demand in relation to the interest rate. In parallel with the official money market, the unofficial money market is developing, cultivating socially pathogenic phenomena such as usury, the circulation of counterfeit banknotes, etc., eroding economic and social cohesion [22].

Low Labor Productivity

Workers in the informal economy are very likely to have lower productivity compared to workers in the formal economy due to:

- Work strain
- Lack of motivation
- Poor organization of production

In the informal economy, production is generally less capital-intensive [23].

The informal economy affects the smooth functioning of productive activities and the quality of the workforce, hindering economic social and fiscal policies aimed at growth, challenging efforts to achieve ambitious goals that have been set within the framework of the Europe 2020 strategy and concern the sectors of the economy and employment. The negative effects are exacerbated by the impact of the economic crisis on society and employment, which reduces employment opportunities and jeopardises profit and income prospects for businesses and workers Higher rates of work-related accidents. Work-related accidents and occupational diseases due to fatigue and the complete lack of control over workplaces are likely to be more frequent than in the formal economy. Meanwhile, the exploitation of workers by employers-companies is becoming easier and more frequent, particularly when it comes to categories of workers such as undocumented migrants, public employees, minors, the unskilled and people belonging to minorities. E) Low quality of goods and services [24].

Production in the shadow economy - informal economy does not ensure high quality of goods and services due to:

- Lack of control of the production process at all stages, transport of raw materials, storage, production, etc.
- Lack of incentives for maintaining quality by both employees and employers.

Ultimately, consumers will choose the products of the informal economy due to their lower price compared to the corresponding products of the official economy. Unfair competition is created between those who respect the rules and those who do not.

A dynamic of inefficiency is also created when smaller businesses do not grow so that they can remain illegal, having insufficient access to credit and less participation in research and innovation [25].

The Positive Consequences are the Following: [26].

Creation of Additional Prosperity

There are quite a few researchers who, under the weight of the hegemony of classical, neoclassical, monetarist views, on minimizing state intervention in economic activity, believe that the shadow economy as a source of employment and income in the absence of opportunities in the official sector or as security during cyclical crises contributes to the increase of prosperity-of overall growth, when this cannot be achieved within the framework of the official economy [27, 28].

Also, the shadow economy can become a powerful force for promoting institutional changes and can stimulate the overall production of goods and services in the economy [29].

Economic figures such as GDP are larger than those officially recorded. The larger the shadow economy, the greater its difference from the official economy. According to the proposed law Explanatory Report “Tax and other incentives for support” Athens March 2012 – Hellenic Parliament, the shadow economy has indirect positive effects as it is estimated that 2/3 of the income generated by the shadow economy ultimately returns and circulates through official economic activity (p. 12).

The same report states that Professor Schneider argues that "the underground economy functions as a stabilizing factor" in the current economic situation in Greece, as it represents the only way out for large parts of the population.

The losses of public revenue due to the shadow economy are not so significant as it is estimated that 2/3 of the black economy returns to the real economy mainly through consumption. Other researchers also argue that the shadow economy functions complementary to the official economy [30].

The shadow economy leads to an increase in consumption. A study in Turkey found that people who act informally spend more than people in the official economy [31]. Ultimately, more development more opportunities for engaging in the shadow economy [32].

Increase in Employment

It is possible that a significant part of the workforce is absorbed by macroeconomic activities. Individuals who, for various reasons, are excluded from the formal economy, may find a way out in usually part-time employment positions, improving their income situation.

The informal economy labor market functions as a substitute for the formal labor market. It can also function as a complement if the reason for resorting to the informal economy labor market is the low wages in the formal labor market.

There are studies that prove that in periods of recession there is a tendency for the demand for work in the informal economy to decrease due to the decrease in income. In Greece, the size of the informal economy decreased from 28% in 2008 to 25% in 2011 and by 2015 it continued to fall, reaching 223.2% of GDP. Since 2016 it has been increasing on average by 2.35% annually. The decline is a result of high unemployment, 8% in 2008, 24.5% in 2012, 26.5% in 2014. The income effect dominated. The large

reduction in disposable income led to a decrease in consumption in the formal and informal economy [33].

Strengthening Competitiveness

Businesses operating in the informal economy gain a comparative advantage over their counterparts in the formal economy due to lower labor costs, lower tax burden, etc. [34]. Increasing their competitiveness both against domestic businesses and their international competitors, boosting the growth of exports.

Decentralization of Business Activity

The shadow economy helps to decentralize business activity. This mainly concerns small businesses that operate under labor-intensive conditions where they can grow in areas outside of large industrial and commercial centers. These businesses can contribute to the revitalization of the local economy by reducing local unemployment and creating a local market where it will not be under the pressure of competition from large businesses. In conclusion, we would say that the benefits of the shadow economy are short-term and often precarious [35].

The shadow economy creates serious obstacles to a long-term economic policy plan that will bring about growth on a sound basis. I believe that the existence of a consistently high size of the shadow economy brings about changes in the consciousness of citizens, regarding their position and their attitude towards the social and economic system. The "perpetuation" of impunity for participation in the shadow economy cultivates the logic of saving ourselves, indifference towards social problems, and the reproduction of social inequalities. It becomes an obstacle to the search for solutions to unemployment, the unequal distribution of income, poor working conditions, underdevelopment, etc., since it constitutes a path of "personal escape", a "way out" for workers and businesses. Economic and social defeatism and complacency are becoming an element of the population's psyche impeding any efforts made for modernization, for innovation, for social change, feeding conservatism and ultimately regression. The vision of social liberation encounters another obstacle.

Causal factors of the Shadow Economy

The shadow economy is part of the official economic activity. The causes of the appearance of the shadow economy are linked to economic reasons but also to other ones such as social, administrative, psychological, etc. A weak rule of law, corruption and weak judicial systems play a role in the size of the shadow economy. The better rule of law and the improvement of governance is the solution [36].

The quality of institutions, state services, tax ethics as well as political factors such as the regime, political decisions, legislation can be causes of the emergence of the shadow economy [37].

Tax Burden

A high tax burden is considered by many researchers to be the main reason for the emergence and development of the informal economy. Greece in the period 2010-2019 presents one of the highest tax burdens as a percentage of GDP, 25% compared to the 20% European average [38]. Concealment by businesses and employees in the shadow economy of part of their activity leads to their tax relief. Many times, it is possible, between various parties, e.g. seller - buyer, to cooperate with the aim of concealing a financial transaction or part of it, since there is a benefit for both. The tax burden arises as the ratio of tax revenues to the GDP, which according to the bibliography has a positive relationship with the shadow economy. The increase in the tax burden also leads to an increase in the shadow economy [39]. An increase in taxes by one percentage point reduces the GDP. by 2.8% when there is a shadow economy and by 1.5% when there is no shadow economy. While an increase in taxes by two percentage points doubles the decrease in GDP, with a shadow economy of 5.6% and 3.1% without a shadow economy [40].

However, there are researchers who express doubts about the universality of this view, since in reality there is no evidence to support this proposition. Greece in 1965 and 1983 had the lowest tax burden in relation to GDP compared to OECD countries, but the tax burden on its employees was extremely high [41].

Unemployment Level

The unemployment rate is defined by the number of unemployed as a percentage of the total labor force [42]. The level of unemployment is a significant cause of labor displacement in the shadow economy. Institutional restrictions on the labor market from state interventions result in an increase in the degree of inelasticity of the labor market increasing labor costs, resulting in businesses seeking employees in the secondary labor market Also:

- The high level of unemployment benefit
- The increase in the number of unemployed people receiving unemployment benefit
- The reduction of working hours and restrictions on overtime work
- The equalization of pay between men and women, etc.

They are considered by a large part of the literature to contribute to the creation and development of the underground economy.

Nevertheless, there are studies that consider that the high tax burden and state interventionism in the labor market cannot autonomously lead to the creation of an underground economy without the existence of the appropriate economic – social environment. Social "exclusion" pushes part of the workers into informal activities to secure their income [43].

The relationship between the informal economy and unemployment is questioned when the income effect prevails, i.e. a decrease in income will cause a decrease in demand in both the formal and informal economy [44]. There is a case where many workers are employed simultaneously in both sectors of the economy or in the informal sector where a large part of the workforce is employed that is not declared, e.g. housewives, minors, undocumented immigrants, etc. Thus, the relationship between unemployment and the informal economy becomes loose.

Level of Self-Employment

The self-employed have greater potential to save money in relation to employees and pensioners. Employees and pensioners can hardly hide their income. Greece has consistently shown the highest rates of self-employment among OECD countries after Colombia and Turkey [45].

Self-employment in Greece in 2020 reached 32% of total employment, while in Europe it was approximately 15.2% A.V [46]. The real income of the self-employed in Greece is 75-84% lower than declared. It is estimated that the loss of income reached 10-11 billion euros per year for the years 2006-2009 [47].

Self-employment is also linked to undeclared work. In Greece, high rates of undeclared work are observed, which together with high unemployment cause a delay in the collection of tax revenues and social security contributions. Undeclared workers are disadvantaged compared to registered workers in terms of social security protection rights and opportunities for professional development [48]. Undeclared workers can be family members, teachers, agricultural workers etc. may be Greek citizens or immigrants. It is estimated that undeclared work represents 25% of GDP and is very high in small enterprises with 1-9 employees which employ 55% of the workforce in Greece compared to 30% in the EU of 28. The dominance of small enterprises in the economy as well as the high percentage of self-employed are structural features of the Greek economy contributing to the increase in undeclared work.

When tax revenues increase by one percentage point, undeclared work increases by 1.4 percentage points of GDP in an economy with an underground economy and by 2.7 percentage points when tax revenues increase by 2 percentage points in an economy with an underground economy (BoG Interim Report a Eurobarometer survey revealed that 30% of Greeks had purchased undeclared goods and services in the previous 12 months, spending on average 750 euros [49].

The self-employed (950 euros per year) and the unemployed (780 euros per year) are most likely to buy "black products", i.e. without documents and are followed by employees (490 euros per year), while the self-employed hide 5,000 euros per year and employees 1,000 euros [50].

Citizens' Attitude Towards State Power

The degree of acceptance and consent of the economic choices of the government by citizens largely determines the position they will hold in the economic life of the country. Thus, individuals are more willing to develop under-economic activities if they consider that economic policy and state intervention put a barrier to their well-being, and state power hinders their social development. This psychological attitude of individuals is usually expressed by the term "tax morality" (Tatsos 2001). The negative attitude of individuals towards state power contributes to the under-economy by 22% to 25% [51].

The Role of the State in the Effort to Limit the Under-Economy

The emergence and development of the shadow economy depends to a decisive extent on the possibilities offered by the economic, political and administrative system of each country. A political system with the will to fight the shadow economy by properly organizing the administrative mechanisms of control, prevention and detection, without considering the political cost and economic interests, is certain to succeed in reducing or controlling the shadow economy. The fear of detection is a deterrent factor for involvement in the shadow economy while the fines imposed are higher for men than for women.

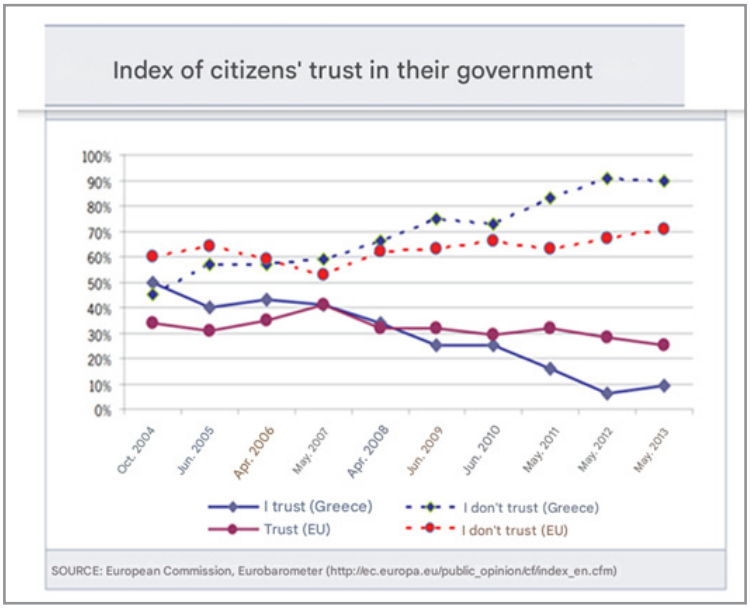


Chart 1: presents the trust index of Greek citizens in their government in the period 2004-2013 in relation to EU citizens.

The "I do not trust" increases rapidly in the first years of the deep economic crisis 2008-2013. The same goes for the "I trust" which also decreases rapidly in these years [52].

The level of Economic Development

In general, it is considered that the level of GDP is positively associated with the development of the shadow economy. In the tertiary sector of the economy, services, the highest percentage of shadow economic activities is observed in economies with a high level of economic development.

The agricultural sector also contributes positively to the shadow economy. Low per capita income leads individuals to the shadow economy mainly in the service sector. There are researchers who

argue that in times of crisis and recession, the shadow economy is the refuge for people with low incomes. Therefore, their relationship is negative and they are substitute sectors, while other researchers find evidence of complementarity between GDP and the shadow economy. Greater growth leads to a greater shadow economy (Giles, in the long term due to increased consumption [53].

Structural Factors of the Economy

The way an economy is structured affects the percentage of the shadow economy. Where the participation of low-capital-intensive industry in economic activity is high, where small and medium-sized enterprises dominate economic activity, where agricultural production is carried out with "backward" labor-intensive methods, within the framework of family ownership, where the tertiary sector, the result of an irrational urbanization, is called upon to provide a solution to the labor and income impasses of the broader masses, shadow economic activity will be encouraged and developed [54].

Definition of Tax Evasion

The precise definition of tax evasion is not easy. The large number of taxes and the possibilities that individuals and various professional groups have in not paying these taxes, direct and indirect taxation, make extremely difficult to formulate a single and generally accepted definition. Thus, according to Kanellopoulos (1995), tax evasion is the portion of income tax which is not voluntarily declared by taxpayers to the authorities, as well as the portion of indirect and other direct taxes, which are collected and should be voluntarily paid to the state coffers, never reaching them. Also, tax evasion is understood as any illegal act of intentional concealment from the authorities of taxable income and other tax items, as well as the failure to pay the tax due, e.g. VAT, fees or contributions, to the tax authorities [55].

In the e-journal of science and technology (e-JST) in the article "Distinction between tax evasion and the shadow economy" p. 66, tax evasion is defined as:

- The part of the income that should be voluntarily declared in order to be taxed, but this does not happen
- The direct and indirect taxes that should be imposed and paid voluntarily to the state coffers, but this is not done
- The interest on taxes that are paid with a delay
- The taxes that are not collected, due to tax relief or for other reasons.

From the above definitions it follows that tax evasion is an illegal action that circumvents tax laws.

Tax evasion occurs in two ways:

1. the concealment of income in order to pay less tax,
2. the appearance of excessive or false expenses in order to benefit from tax deductions and exemptions.

The Tax Procedure Code in article 66 characterizes tax evasion as a crime. It states that the crime of tax evasion is committed by anyone who, with the intention of avoiding the payment of income tax, ENFIA, VAT, insurance premium tax, withheld fees or contributions, ship tax, etc., conceals taxable income or assets:

- Not submitting a tax return or submitting an inaccurate return
- Registering fictitious (total or partial) expenses in the accounting records or invoking such expenses, not showing the taxable amount or showing it as reduced.
- Not paying or not paying accurately or offsetting or deducting inaccurate taxes that have been collected, misleading the tax administration by presenting false facts, or by concealing or concealing true facts and not paying or paying inaccurately these taxes by receiving a refund, as well as anyone who withholds such taxes, fees or contributions.

The Tax Procedure Code (TPC) provides for prison sentences of a few months to several years as well as fines of a few thousand euros or many thousands of euros depending on the type of violation. Tax evasion is today in Greece the most massive and the most tolerated manifestation of antisocial behavior and violation of laws [56].

Consequences of Tax Evasion

Tax evasion is a pathogenic social and economic situation with negative effects on the proper functioning of the economy and the effort to achieve the objectives of economic policy.

Negative Consequences of Tax Evasion

1. It negates the social character of the state. It deprives the state of the necessary resources for the exercise of social policy in the fields of health, education, welfare, civil protection.
2. It prevents the redistribution of national wealth to improve the position of the weaker, reproducing and widening social inequalities, with the accumulation of wealth in the hands of those who evade taxes.
3. It contributes decisively to the unequal distribution of economic burdens to the benefit of the "sophisticated" and the "successful", the "self-made" to the detriment of the consistent taxpayers, mainly employees and pensioners.
4. It reduces the state's tax revenues by limiting the ability to finance infrastructure and public utility projects, undermining economic growth. The reduced tax revenues are usually covered by new borrowing, internal or external, an increase in taxation, or the issuance of new money, increasing the risk of rising inflation.
5. It causes unfair competition between businesses and individuals, essentially rewarding those who save illegally.

Positive Consequences of Tax Evasion

As in the case of the shadow economy, there are also views regarding tax evasion that tax evasion has positive consequences for the economy, which are:

- Increase in private savings
- Increase in consumption, which leads to an increase in the state's tax revenues through the collection of VAT

The view of that the budget benefits from high tax evasion and that there is no shift in the tax burden from those who evade taxes to those who do not evade taxes, is considered extreme.

He also argues that private spending benefits citizens more than public spending, therefore tax evasion increases social benefit. A similar view is expressed by who argues that the state budget benefits from tax evasion, because the motive of entrepreneurship is maintained, which would disappear if there were

no tax evasion. It is obvious that these views reflect the views of classical, neoclassical, monetarist economic thought on the dominance of the individual over the social whole and the necessity of eliminating state interventionism in economic activity. These views see only the economic phenomenon, disconnected from social reality, that is, the needs of individuals and societies. They fail to understand that tax evasion, tax avoidance, and the underground economy are more than just economic variables. They are social phenomena that hide relationships of dominance and subordination (social relations), personal pursuits and ambitions, class relations, and the reproduction and perpetuation of these relationships in order to impose economic and political "hegemony."

Causal Factors of Tax Evasion

Each country has its own level of tax evasion and the citizens of each country are not all potential tax evaders. Tax evasion is an antisocial behavior with economic and social dimensions. The nature of tax evasion is multidimensional and its treatment requires a collective, systematic and multifaceted effort. The parameters that determine the level of tax evasion are mainly [57].

The Level of Tax Rates

High tax rates are considered the main cause of tax evasion (speech of the Governor of the Bank of Greece 17/03/2021-bankofgreece.gr). Greece has higher tax rates on income and consumption than the OECD average. However, revenues have been lowering over time. A greater increase in tax rates would produce poor results (Speech of the Governor of the Bank of Greece 17/03/2021). The continuous upward change in tax rates reinforces the climate of suspicion among taxpayers, reduces economic activity, and increases the flight of capital, both natural and human, abroad. In Greece, the VAT collection gap in 2013 was one of the largest in the EU-26, reaching 34%, while the average in the EU-26 was According to the European Commission's research (2015), for 2014 the VAT revenue ratio for Greece amounted to 36.3%, when the corresponding average for the Eurozone was 48.1%. High tax rates as a cause of tax evasion are also linked to the distribution of the tax burden. When tax burdens are not distributed according to the rules of fiscal and social justice, that is, those with the highest incomes are taxed more heavily, the tendency - the propensity towards tax evasion by those who feel wronged is greater due to the fact that:

- Business competition is altered, with businesses that evade taxes gaining a business advantage.
- Consistent taxpayers gain the incentive to evade taxes and the desire to be tax-equal with tax evaders.

The Probability of Detection and Punishment

The probability of detection and imposition of penalties, and even severe ones, plays a significant role in the quality of a taxpayer's tax behavior. When the probability of detection is also linked to the speed of disclosure of the violation, the more the taxpayer becomes consistent. Lax monitoring and the inability to enforce the law are a strong incentive for tax evasion and wage understatement. The imposition of penalties must be fair, impartial and transparent. It must be done in a legal and institutionalized manner in order to be socially acceptable, in order to implement the requirement of article 4 of the Constitution which provides that Greeks must contribute indiscriminately to the tax burden according to their tax-paying capacity (hellenicparliament.gr - Explanatory report to the draft law "combating tax evasion").

The degree of organization of the audit and tax services contributes significantly to the possibility of detecting tax evaders. It is required:

- Systematic maintenance of records and data.
- Electronic computerization of the tax administration. Only in 2013 did the electronic submission of income tax returns of legal entities begin, while for other procedures the physical presence of the citizen is required (speech of the Governor of the Bank of Greece 17/03/2021.
- Timely updating of information systems with changes in the legislation.
- Training of tax and audit officials in modern methods of tax evasion, e.g. online sales, use of cryptocurrencies in transactions, etc.

In Greek tax law, there is no specific regime governing the profits that taxpayers acquire from capital gains on the sale of cryptocurrencies. This gap in the legislation is exploited by many investors, while those who declare profits from cryptocurrencies are very few, mainly people without income but with real estate because they want to cover their living expenses.

The Amount of The Fines Imposed

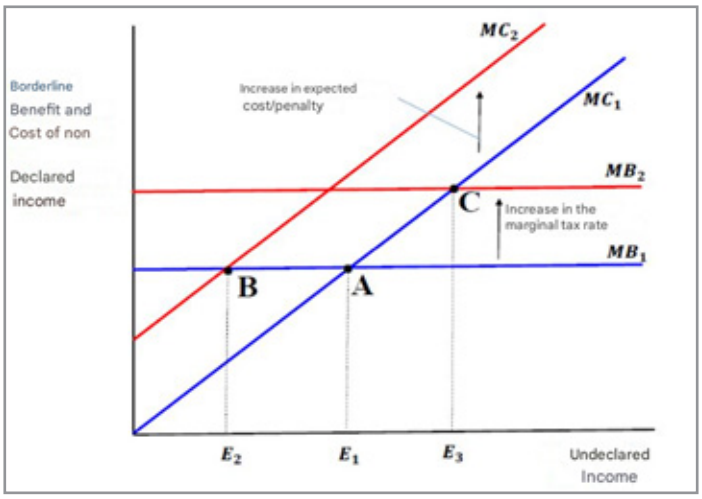
The amount of the fines imposed can contribute preventively to the fight against tax evasion, since the taxpayer knows that the chances of his offense not being discovered by the authorities will be few and that he will definitely pay the fines imposed on him.

The Tax Procedure Code (TPC) provides for a one-year prison sentence for fictitious tax information exceeding 75,000 euros and a 10-year prison sentence if the above amount exceeds 200,000 euros (esd.gr). Political will to tackle tax evasion and enforce tax justice plays a key role. Politicians and tax authorities must confront organized political and economic interests in order for the imposition of fines to be effective.

Punishing large tax evaders has multiplier effects in dealing with tax evasion through exemplary behavior and the administration of justice [58].

Figure 2 presents the optimal amount of income that the taxpayer will not declare, which is located at point A, where the expected marginal cost from tax evasion equals the marginal benefit. Tax evasion decreases with the increase in the probability of detection and the amount of the penalty imposed at point B, while conversely it increases at point C when the probability of detection and the amount of the penalty decrease.

Chart 2



Source: Theodoros Palivos, University notes for the course "Criminal Suppression of Economic Crime and Combating Corruption" of the DPMS "Law and Economics", May 2017

The multiplicity and complexity of the tax system. The simplification of tax legislation, the creation of a flexible, rational regulatory framework contributes to the effective planning of tax policy.

Complexity and multiplicity create insecurity among taxpayers and tax authorities (Speech of the Governor of the Bank of Greece 17/03/2021), while the continuous revision of the relevant provisions increases the possibility of exceptions, special regulations.

Multiplicity and complexity create bureaucracy in tax administration. Bureaucracy increases the cost of any business activity, leading individuals and businesses to the most economical solution, which is tax evasion.

The way the Market is Organized

The existence of many small businesses in an economy and a few large ones and the opposite affects the level of the shadow economy and tax evasion in the country. In large businesses, the possibilities for tax evasion are smaller due to the more complete accounting organization they have compared to smaller ones.

Thus, tax control is easier and more effective. In Greece, small businesses hold a very high share in the economy and the country "enjoys" higher levels of shadow economy and tax evasion in relation to the rest of Europe.

Lack of Tax Culture

The existence and cultivation of a correct tax conscience is considered a cause of reduction in tax evasion. Tax culture is linked to the education of a people and mainly to correct and socially fair economic management.

Definition of Tax Evasion

Tax evasion is the application of well-designed accounting practices, which, after careful study of commercial legislation, tax practice, aim to reduce the taxable amount of a natural or legal person.

It is a legal process of avoiding paying taxes, which exploits the gaps or imperfections of the legislation, a dishonest method of secret actions, in order for the tax authorities to have a false picture of reality with the aim of not paying taxes.

It is a practice that is contrary to the spirit of the law and not to the letter of the law, which is why we can also call. The Council of Europe characterizes tax avoidance practices as “hybrid”. It emphasizes the need to restore confidence in the fair character of tax systems. It considers it necessary to establish rules to address:

- Mismatches in the treatment of hybrid instruments involving third countries when at least one of the parties involved is a taxable company or entity in a Member State as well as imported mismatches.
- Mismatches in the treatment of hybrid instruments, such as those involving permanent establishments.
- To include rules on hybrid transfers, double deduction situations so as not to allow taxpayers to exploit any loopholes that may exist.
- To prevent mismatches in the treatment of hybrid instruments from leading to double deduction or deduction without registration, to inconsistencies in the characterization of financial instruments, payments and entities or in the accounting of payments (source: EU Council- consilium. europa.eu)

An example of tax avoidance or legal tax evasion is the transfer of profits of multinational enterprises established in countries with high taxation, to group enterprises operating in countries with low or zero taxation, the well-known ¨tax havens¨. (source: naftemporiki.gr).

Another practice of ¨legal¨ tax evasion is the placement of money and other values, e.g. real estate, in offshore companies based in tax havens. Today, more than 50% of the capital that circulates worldwide passes through tax havens. Offshore companies are now dominant in the shipping, aviation and insurance sec-

tors. Over 1,000,000 offshore companies have been established around the world in the last decade.

The main incentives for establishing an offshore company are:

- Saving money
- The speed and ease of its creation
- The confidentiality and anonymity they offer, regarding the real owners.

These companies also enjoy a series of legal, economic and tax incentives aimed at accumulating capital in the country of establishment of the company (source: Wikipedia).

There are estimates that show that for 2007-2008 90%-95% of the offshore financial cycle was not declared to the tax authorities, resulting in large losses of revenue for governments, while there are not a few who hide their wealth by investing in real estate, works of art, gold by moving, 12 trillion dollars (only stock market assets) or 12% of global GDP, in offshore at the end of 2022.

Tax Exemptions

Finding resources to finance their economic plans is a major "headache" for all economies. The high percentage of the shadow economy is considered by several researchers to be the main factor in the inability to limit public sector deficits. Many scientific studies confirm that the contribution of Capital to the tax revenues of states, internationally, is constantly decreasing. This decrease worsens the fiscal figures by shifting the tax burden to those segments of the population and to businesses that cannot in some way hide their income. The shipping capital, a powerful sector of the economy with internationalized activity and huge profits, enjoys the benefits of under-taxatio internationally and in Greece.

In Greece, public revenues from shipping companies correspond to a very small percentage of the GDP. The taxation of the shipping capital in Greece is characterized "voluntary" after the signing of the relevant agreement between the Greek government and the shipowners. According to this agreement, the shipping capital will voluntarily increase its participation in tax revenues from 40 million to 60 million per year, approximately 20 euros per day per ship (rizospastis.gr-iefimerida.gr). Greek shipowners took loans from Chinese banks for the construction of their ships, through intergovernmental agreements between Greece and China and therefore could be taxed, at least some of them. On the contrary, the Greek state exempts them from taxation by waiving taxes. According to IOBE, the annual turnover of the sector was 13-14 billion for Law 27/1975 provides for 56 tax exemptions for Greek shipowners (capital.gr). The Greek tax system provides for 2023 1,047 tax exemptions from each type of tax. In 2016, tax exemptions reached 716. The cost to the public is estimated at 12.9 billion euros.

Tax exemptions in income tax reach 5 billion while exemptions in capital tax are 3.8 billion. In corporate income tax, there are 200 tax exemptions that cost the public coffers 1.3 billion. 53,021 businesses benefit from them. In capital tax there are 152 exemptions at a cost of 3.8 billion (imerisia.gr). Another form of tax exemption is “deferred tax” for banks. Banks are given the opportunity to offset amounts of debit differences in subsequent profitable years (newmoney.gr). Losses are offset against tax liabilities.

It is a tax relief measure that is applied throughout Europe. The deferred tax represents 65% of the CET1 capital ratio eroding the quality of their regulatory capital which consists to a large extent of tax claims that will be offset by future profits.

Tax exemptions should be a mechanism to protect the most vulnerable citizens and supplement their income, while for businesses they should be a means of increasing their competitiveness by reducing costs. Tax exemptions cannot conflict with the social feeling of tax justice, nor be mechanisms for perpetuating and reproducing the economic dominance of an elite of individuals and businesses.

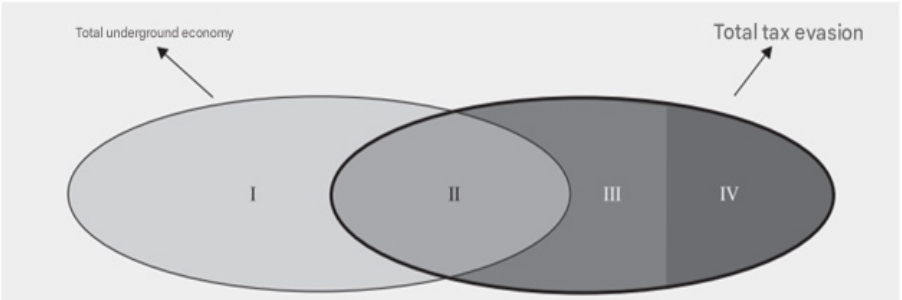
According to a study during the pandemic, by David Hope of the LSE and Julian Lieberg of King’s College London, tax breaks and tax reductions on high incomes cultivate and widen inequality. Refuting those who believed that tax breaks on high incomes benefit the economy, since businesses create jobs and stimulate growth. Tax breaks over the last 50 years have benefited only the recipients [58].

Differences Between the Shadow Economy and Tax Evasion

Often there is confusion with the concepts of shadow economy and tax evasion. Many people identify them and are necessarily led to untrue conclusions. They are two different economic phenomena and one can exist without the other or both together. In diagram 3 the four cases between the shadow economy and tax evasion are presented

Diagram 3

Chart | Relationship between shadow economy and tax evasion



I: Economic activity that is not recorded, but the corresponding incomes and indirect taxes are declared (attributed) to the tax office. Shadow economy without tax evasion.
II: Economic activity that is not recorded and the corresponding incomes and indirect taxes are not declared (attributed) to the tax office. Shadow economy and tax evasion.
III: The added value is recorded in the national accounts, but the corresponding incomes and indirect taxes are not declared attributable) to (the tax office, e.g. agricultural production and construction activity. Tax evasion without shadow economy.
IV: The part of tax evasion that is not linked to the current economic activity, e.g. tax evasion in transfer payments, in the taxation of inheritances, donations and parental benefits, in traffic taxes. Tax evasion without shadow economy.

Source: Kalyvianakis et al. (1993).

Tax evasion is one of the consequences of the shadow economy. The generated income is hidden from the tax authorities and is not taxed, while tax evasion can occur both in registered economic activity and in unregistered, undeclared e.g. taxation of property and capital transfers.

The shadow economy concerns undeclared economic activities, whose income and tax do not appear, are not declared to the competent authorities. The direct taxes paid by illegal economists are zero, while tax evaders pay taxes lower than they should.

When illegal economic activities are due, for example, to the avoidance of state restrictions and regulations, tax evasion is automatically created in order for the activities to remain hidden. Tax evasion is a broader dimension than the illegal economy and in terms of tax evasion, possibly twice as large.

The tax legitimacy of an individual or a business is determined by the cost-benefit ratio. The benefit is associated with the exemption from paying tax and the cost from the possibility of revealing the illegal activity and paying a fine. The cost can also be associated with psychological factors, i.e. with feelings of shame regret, guilt with social factors, e.g. the fear of social disapproval and stigmatization.

The cost-benefit relationship is given by the equation:

$$SE = SE\left[\underset{-}{p}\left(\underset{+}{A},\ \underset{-}{F}\right); \underset{-}{f}; \underset{+}{B}\left(\underset{+}{T},\ \underset{+}{W}\right)\right]$$

Where SE, the shadow economy is negatively affected by the probability of detection p and the fines imposed by the authorities and positively by the opportunity cost of not entering the informal economy. The opportunity cost B depends positively on the tax rate T and the labor cost W. An increase in labor costs and the tax burden increases the shadow economy. The probability of detection P depends positively on the ability of the authorities to detect offenders, i.e. the inability of the tax authorities to detect tax evaders increases tax evasion and is negatively affected by the activities F of avoiding detection of shadow activities.

CHAPTER B

Methods of calculating the shadow economy. The importance of the shadow economy phenomenon for the economic success of a country makes it imperative to find an appropriate method of calculating it. By measuring the shadow economy, the non-obvious part of economic activity is mapped.

Official data, tax data, etc., due to the fact that a part of economic activity moves in the "fog", appear insufficient for the planning of economic policy due to the shadow economy. There are researchers who believe that the "hidden" economy is an important and growing part of the official economy.

Various micro and macroeconomic approaches try to calculate the shadow economy. The numerous approaches-methods of estimating (not measuring) the shadow economy underestimate it making the results of most surveys unreliable, since the shadow economy is a non-measurable variable.

Approaches-Methods of Estimating the Shadow Economy

Direct Approaches

This is information obtained from the public, from anonymous surveys. These surveys can yield important information about the shadow economy (Schneider 2013). The surveys are based on samples, from tax audits, cross-references of income data, or on voluntary responses (Transparency International Greece 2022 p.10). They refer to disclosures by individuals about their own or others' involvement in the shadow economy.

Estimation of the shadow economy. However, the information obtained may not be representative (Explaining the shadow economy in Europe-WP/19/278 p.5) and is sensitive to the willingness of individuals to cooperate, failing to depict all shadow economic activities.

Direct methods are distinguished by their high cost, which prevents their regular repetition. Nevertheless, direct methods can reveal qualitative characteristics and other parameters that encourage tax evasion - the shadow economy, such as the level of tax ethics, the acceptance of government policy in the economy, the level of compliance with tax legislation, Also, important data emerge on the activities that present the greatest trends of shadow economy and tax evasion.

Indirect Approaches

Indirect approaches provide data on the evolution of the shadow economy over time, using economic and non-economic indicator. They are based on the use of indicators and econometric models using the theory of the macroeconomic approach. Indirect approaches are sensitive to the underlying assumptions, elasticity, velocity of money, base year of estimation, etc.

Another classification of indirect methods is that which seeks to capture the shadow economy:

- In the gap between income and expenditure
- In the gap between official and real labor force
- In monetary aggregates

Gap Between National Expenditure and National Income

The logic of this method is that if a part of the income is not declared then a large part of it will appear as expenditure. Those who operate in the "underground" economy can hide a part of their income, however, they cannot hide the fact that they travel, buy clothes and shoes, have fun, etc., that is, they cannot hide their expenses.

The difference between expenditure and income, which in the national accounts must be balanced, is an indication of illegal economic activity. This method is used both at a macro level, i.e. in the total income of production factors and in the total of the entire economy, but and at a micro level, i.e. in the discrepancy between income and expenditure of individual households.

This approach assumes that all components on the expenditure side are measured without error and constructed so as to be statistically independent of income factors.

Discrepancy Between Official and Actual Labor Force

The discrepancy between the actual and the official percentage of the labor force in the total population, used in production, is examined as an element of the underground economy, assuming that the percentage of labor force participation in the overt economy is constant, ceteris paribus and that changes in the percentage of labor force participation are not due to factors unrelated to the underground economy.

Employment in the Greek economy (+15 years) in 2022 was 4140.6 thousand people (four-quarter average), but according to the national accounts, employment in the Greek economy reached 4975.3 thousand people.

The difference is 16.8%. It is an indication and not a proof of the size of the informal economy (Estimates of the size of the informal economy in Greece and policy proposals 2023.

The method of the deviation of the participation of the official and the real percentage of the labor factor is an accounting method not allowing for structural and independent changes of the informal sector in the labor force, such as the aging of the population, which does not always imply an increase in the shadow economy.

The change in the participation rate is affected by the position in the business cycle, by the difficulty of finding a job and education, by retirement decisions. Also, this method does not consider the fact that a part of the labor force is simultaneously engaged in the official economy.

Monetary Methods

The currency demand approach was first used by who calculated the relationship between currency demand and fiscal pressure as a cause of the shadow economy in the USA in the period 1919-1955. Twenty years later, Gutmann (1977) used the same method but did not use any statistical procedure. The basic idea of these methods is that in shadow economic activities and transactions, cash is mainly used in order to make the footprint of underground activity faint (Transparency International Greece. The difference between the estimated demand for currency and the actual amount of currency in circulation is an element of shadow economic activity. The use of cash is – under certain conditions – a characteristic of countries with high levels of the shadow economy.

The weakness of this method is based on the fact that:

- It has not been proven that in the shadow economy all transactions are carried out in cash.
- The amount of money in an economy is affected by transaction patterns and new technology (credit cards, cryptocurrencies) as well as by the general price level. An increase in inflation increases the need for more cash to circulate from one point in time to the next, without necessarily increasing the shadow economy.

Ways to Approach the Shadow Economy Based on Monetary Methods

Developed by Feige (1979,1982) starting from the assumption that there is stability between the volume of transactions PT and the official GDP (Enste Schneider: increasing shadow economies.

It is based on Fisher's quantity theory of money where MV=PT where:

- M= the quantity of money in the economy
- V= the velocity of money circulation
- P= the general price index
- T= the volume of transactions.

It calculates income based on the volume of transactions and compares this estimate with that of the national accounts. It accepts that transactions in the shadow economy are also made by checks and assumes a base year without shadow economy. The assumptions that: the changes between the volume of transac-

tions and GDP are due to the shadow economy, that a base year without shadow economy is needed and the fact that data on the volume of transactions are not always accurate, make many questions the validity and reliability of the method.

Currency Demand Approach

We assume that shadow transactions are carried out only in cash, therefore an increase in the demand for cash is a sign of an underground economy. This method was used by Tanzi who used the ratio of cash demand to total monetary instruments, in order to examine the diachronic expansion of the underground economy in the USA.

Tanzi assumes that this ratio depends on:

- Income trends (wages)
- Payment practices
- Interest rates
- Tax burden (direct and indirect taxes)
- Government regulation and complexity of the tax system
- Factors that push people into the informal economy

This method has been criticized because:

- It underestimates the size of the informal economy, because not all transactions are made in cash.
- There may be increases (interest rate) on demand deposits in foreign currency due to a slowdown in deposits rather than an increase in the currency used in informal activities.
- The assumption of the same velocity of money in both economies is arbitrary.
- The assumption that there is no shadow economy in a base year is questionable.

Electricity Approach

According to Kaufmann-Kaliberta (1996) electricity consumption is the best natural indicator of total, formal and informal, economic activity. They show that if the elasticity of demand for electricity in total GDP is approximately equal to unity, then the increase in electricity consumption, subtracted from the increase in GDP, gives us an indicator of the growth of the shadow economy.

It is a simple method that has been criticized because:

- Not all shadow activities require a significant amount of electricity energy or require other energy sources, e.g. gas. Therefore, only a small part of the shadow economy can be calculated.
- The elasticity of electricity consumption with respect to GDP does not remain constant, it varies over time and from country to country.

Other Macroeconomic Methods

Lacko Method

Maria Lacko applied the household electricity approach to estimate the shadow economy of a country. She focused on the relationship between household electricity consumption and a country's GDP. She assumes that a part of the shadow economy is linked to household electricity consumption. She was based on the work of Their observations show that electricity consumption and GDP elasticity were close to a one-to-one ratio. If household electricity consumption for shadow economy activities is high then the rest of the shadow economy will also be high. The main criticism of this method, as well as the previous ones based on electricity consumption, is that: there is no stability in electricity consumption, since it is also affected by factors such as weather changes not all para-economic activities require a significant amount of electricity, e.g. personal services. Other energy sources can also be using the shadow economy does not occur only in the household sector.

Denison Method

According to Denison, there is a direct relationship between the shadow economy and officially declared employment, a negative relationship. It was applied in Italy to measure the shadow economy. A weak point of the method is the assumption that the employment rate in the economy is constant and any change in it is due only to the shadow economy.

Blades Method

Blades suggests the need to monitor the same national accounts figures, but they are calculated in different ways. Thus, the national accounts estimate the added value of, for example, buildings based on the value of materials. Those who operate in the shadow economy do not declare their activity. It also attempts to calculate the volume of informal employment in working hours.

Multiple Indicator Multiple Cause (MIMIC) Method

This method examines multiple causes and multiple effects of the shadow economy. It uses correlations between observable causes and the effects of an unobservable variable, e.g. the shadow economy. The MIMIC model has been applied to psychometric and social science research since the model confirms the influence of the latent variable (shadow economy) by a set of exogenous causal variables.

The first to apply the MIMIC model to estimate the shadow economy in 17 OECD countries were Frey. The criticism that the model has received mainly concerns its confirmatory and not its exploratory side. It is also difficult to ensure that certain criminal activities are excluded from the analysis. The MIMIC method is an important tool for estimating shadow activities. It is characterized by flexibility as it allows the selection and combination of various causes and indicators and has no restrictive assumptions. The MIMIC approach allows us to compare the shadow economy of different countries, while its impact is based on the broad coverage and internal coherence of the data set.

CHAPTER C

Methods for Estimating tax Evasion Calculating tax evasion is not an easy task either for researchers or for government authorities. Incomplete and often unreliable data, as well as the tax system itself, prevent the correct calculation (estimation) of the size of tax evasion.

The amount of the tax burden is adjusted to the revenue lost to the state coffers due to tax evasion. Despite the efforts of recent years, tax evasion in Greece remains at high levels, impeding the reduction of public debt. In Greece, the problem is even more acute compared to other developed countries. Between 2008-2018, the country's GDP decreased by 26%, while tax revenues

increased by almost 6 percentage points of GDP, from 33% to 39% of GDP, approaching the Eurozone average, but with the participation of indirect taxes dominating tax revenues, compared to direct taxes, hitting the weaker sections of society harder (Speech of the Governor of the Bank of Greece.

According to the OECD, if tax authorities collected VAT, income tax and social security contributions, as OECD countries do on average, tax revenues would increase by 5% of GDP, highlighting the weakness of tax mechanisms to detect tax evasion and collect taxes. The most common way to estimate tax evasion is to calculate the difference between declared income and recorded income in national accounts. If we have proportional taxation, then undeclared income reveals the taxes owed. With progressive taxation, the calculation becomes difficult and assumptions must be made about the impact of the tax rate. The discrepancy between total family expenses and total declared family income is another way of estimating-measuring tax evasion.

The characteristics of each household are considered, grouped, assuming that the members have the same propensity to consume. The survey is voluntary and there is a risk of bias (inaccurate assessment) of the sample and underestimation of the phenomenon. Also, sample surveys from taxpayer lists and tax returns, which compare the declared income with that of the survey, are another method of calculating-estimating tax evasion, after first cross-checking the survey data with the declared ones. If all taxpayers had complied with all their legal tax obligations for a period of time, the potential tax revenues would equal the revenues that the state ultimately collected in the same period of time. Their difference gives an estimate of tax evasion. Another method of estimating-calculating tax evasion is when in a base year we calculate the constant ratio of collected taxes to GDP assuming that tax evasion in this base year is small. The difference between the collected taxes and those of the base year gives us an estimate of the amount of tax evasion. The survey method of electricity, tax morale, undeclared work and money demand, as well as the shadow economy, are used in the attempt to estimate tax evasion [58].

It should be borne in mind that all estimation methods have disadvantages. The method of income difference is faced with the unreliability of statistical data, due to errors. The survey approach is sensitive to the wording of the questions and the honesty of the answers, even in face-to-face interviews. Monetary methods can overestimate the importance of the money market by assuming that all transactions are carried out in cash. The survey method can measure a lower rate of undeclared work in an economy, the tax ethics survey measures only hypothetical tax ethics and not actual compliance while the electricity method assumes, as in the shadow economy, that undeclared work uses only electricity.

CHAPTER D

Estimation of the Shadow Economy in Europe and Greece

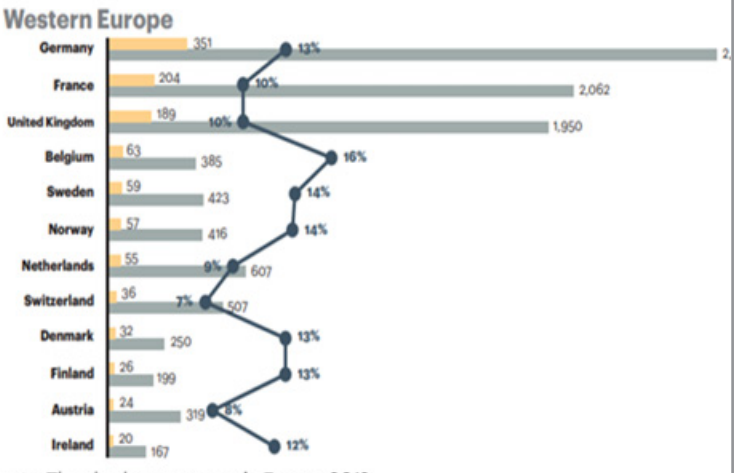
The Shadow Economy in Europe According to the International Labour Organization (ILO 2018a) 61.2% of global employment (about 2 billion workers) is informal. Informal work is the main source of professional activity in developing countries. While in developed economies it has an important role in providing employment and income for the "social margin". The size of the shadow economy and undeclared work concerns all countries in Europe and the European Union. The European Economic and Social Committee (EESC) underlines the negative impact of the shadow economy and undeclared work on business development, innovation and the improvement of human capital.

Professor Schneider, studying the shadow economy of Europe in the period 2003-2013, points out that the shadow economy in Europe is worth more than 2.1 trillion euros. The dominance of cash, the lack of transparency around transactions as well as the limited enforcement of laws, fuel the shadow economy.

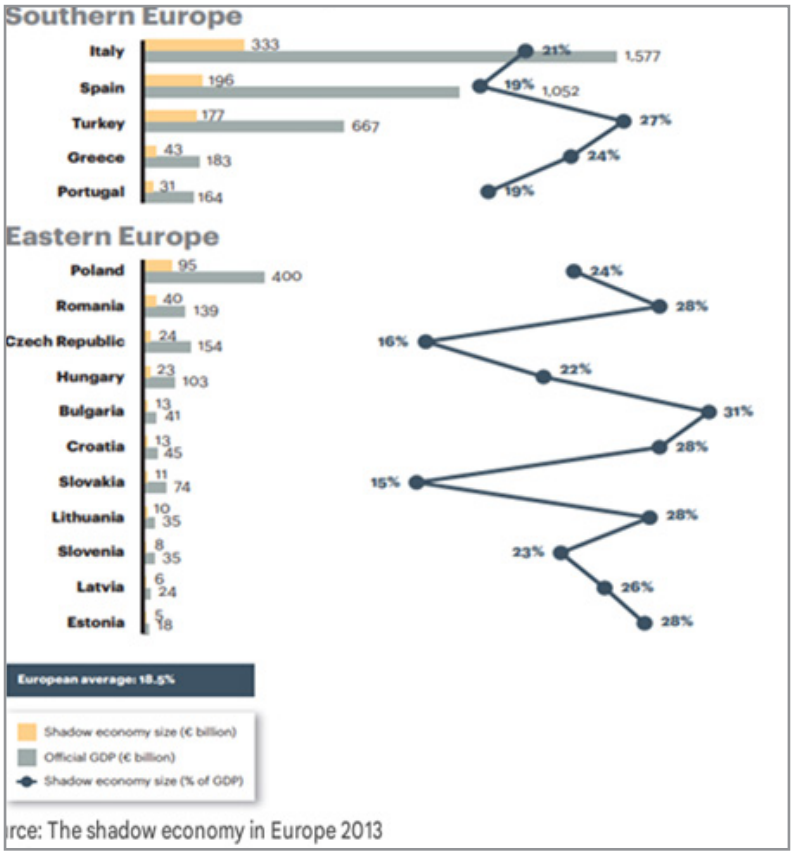
Undeclared work accounts for 2/3 of the total shadow economy, mainly in the sectors of construction, agriculture and domestic services. For the remaining 1/3, the shadow economy comes from businesses that transact in cash. The average shadow economy in Europe was 18.5% with 2/3 of it coming from the five leading economies, Germany, France, Spain, Italy, United Kingdom.

Table 1

The shadow economy in relation to GDP



Source: The shadow economy in Europe 2013



The shadow economy reached a decade-low in 2013. In Eastern Europe, the shadow economy is larger in relation to GDP than in Western Europe. The largest shadow economy in Eastern Europe was Bulgaria with 31%, in Southern Europe Turkey with 27% and in Western Europe Belgium with 16% of GDP (The shadow economy in Europe 2013 –VISA- p.4. The figures are calculated using the MIMIC method).

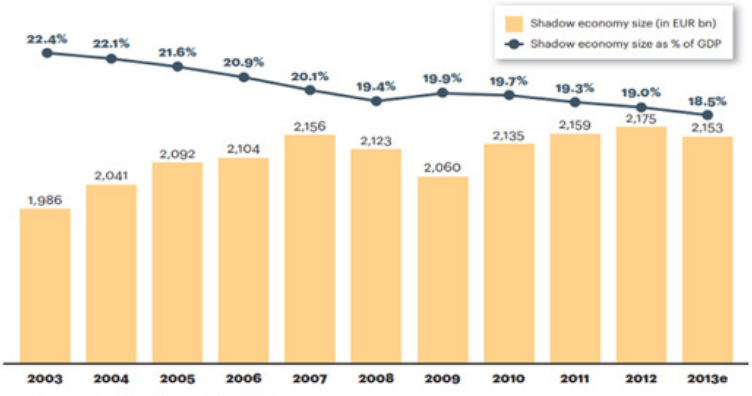
Tackling the shadow economy phenomenon requires its quantitative and qualitative assessment, the exchange of information between the countries of the union, with specific data and information and a unified strategy to combat it.

According to Schneider, the shadow economy is directly related to the economic cycle. Economic recession and increased unemployment will contribute to the growth of the informal economy.

In the following table 2, I observe the growth of the shadow economy in Europe.

Table 2

The development of the shadow economy in Europe



Source: The shadow economy in Europe 2013

The shadow economy in Europe has been on a downward trend since 2003, when it was 22.4%, reaching 19.4% in 2008. It rose to 19.9% in 2009 and continued its downward trend, reaching 18.5% in 2013 (same page 5).

The driving forces of the shadow economy during this period are:

- Avoidance of taxes and social security contributions
- Bypassing tax and labor regulations
- Dealing with bureaucracy
- Dealing with the positive relationship between tax rate and shadow economy, especially in periods of recession.

There is a lack of "guilty conscience" especially in countries:

- With poor quality state institutions.
- With inadequate social benefits.
- With a deficit of trust in the state.
- With a low risk of detection, arrest and punishment of offenders.

The use of cash is considered the fuel in the engine of the shadow economy, of the period 2003-2013 (The shadow economy in along with undeclared work and incomplete recording of sales (Steve Perry, Commercial Director, Visa Europe - source: Taxheaven.gr).

The increase in electronic payments by an average of 10% for four consecutive years, contributes to the contraction of the shadow economy by up to 5% (The shadow economy in Europe 2013 –VISA).

The relationship between online shopping and the shadow economy is negative. In the period 2010-2012 the number of online consumers increased by 8% and the shadow economy decreased by 1.4% of GDP (VISA Europe–source: kathimerini.gr 9/5/23).

Hassan-Schneider (2016) estimate that for developed economies the MO of the shadow economy for 2013 was 20.5% of GDP. The MO for their updated estimations was 20.7% for 2013 and 2016.

Using a MIMIC model, they find that regulatory burden, unemployment, and self-employment rates are the driving forces of the shadow economy. The fluctuation of these causal variables affects the rate of the shadow economy (Econpapers.repec.org).

Schneider (2015) gives a lower MO for developed economies at 15.8% for 2013. Cyprus, the Czech Republic, Iceland, Slovakia do not appear in the sample. Their average estimate for 31 European countries is 18.2%. Medina-Schneider's (2018) estimate for advanced economies is also 15.8% for 2013.

The shadow economy has shown a decline in recent years in Europe, but remains at significant levels in Eastern Europe. It represents, according to estimates, 15% to 20% of GDP in developed economies and 30% to 35% in less developed, emerging economies. In the countries of the Commonwealth of Independent States it is over 40% and in some of them even more. The determining factors of the shadow economy, especially in emerging economies are the following:

- The amount of regulations
- Tax administration together with macroeconomic factors such as, productivity, trade openness.

Remittances are negatively associated with informality, suggesting that migration and the shadow economy are considered substitute activitie. The relationship between the shadow economy, unemployment, corruption and agriculture is positive, while the relationship between the shadow economy and GDP per capita, credit to the private sector, income stagnation, human development and regulation is negative. These relationships are stable over time For Eastern European countries, the determinants are: regulatory quality, government effectiveness and human. Below we present data on the underground economy in 38 European countries, using the MIMIC method.

Austria, Luxembourg and Switzerland have the lowest shadow economy in Europe at 10% of GDP or close to 10%, while the Balkan and Baltic countries have a shadow economy above or close to 30% of their GDP by MO.

Table 3

Appendix III. MIMIC Estimation Results

Table. Shadow economy estimates*

Country	Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
Albania	WHITE	27.8	28.9	28.5	28.2	28.6	29.2	29.3	29.0	28.7
Austria	AUT	9.3	8.8	9.2	9.5	9.4	10.0	9.9	9.4	9.4
Belgium	BEL	20.8	21.4	21.8	22.1	21.6	22.2	21.7	21.7	22.4
Bosnia and Herzegovina	BIH	34.1	34.2	35.3	35.3	34.2	33.9	32.5	33.8	34.7
Bulgaria	BGR	36.9	37.3	38.3	37.7	37.1	37.2	36.9	37.2	36.0
Croatia	HRV	33.4	33.4	32.9	35.1	34.5	35.4	34.7	35.1	34.7
Cyprus	CYP	28.6	28.2	28.5	29.5	29.7	29.9	30.4	29.7	29.8
Czech Republic	JUN	18.9	19.0	19.8	19.7	19.2	19.3	19.6	19.4	20.1
Denmark	DNA	17.7	17.4	18.5	18.8	18.4	18.5	18.2	18.1	19.1
Estonia	EAST	33.1	33.6	34.4	34.6	34.7	35.2	35.7	34.4	36.8
Finland	END	18.1	19.6	19.8	20.4	20.8	20.7	21.2	19.8	20.4
France	FROM	14.3	14.4	14.8	15.4	15.2	15.3	15.4	15.1	15.3
Germany	ITGAVE	15.7	15.7	17.0	17.4	16.6	17.8	17.1	16.4	15.9
Greece	GRC	28.1	28.9	29.4	29.7	30.5	30.0	31.1	30.7	31.0
Hungary	SHE	25.1	25.7	27.4	27.7	26.5	27.9	27.7	26.6	26.6
Iceland	ISL	15.9	15.8	15.9	16.6	16.8	16.7	16.5	16.8	17.0
Ireland	IRL	14.3	15.2	15.6	16.0	15.7	16.2	16.1	16.0	16.6
Italy	SHE	25.6	25.8	26.7	26.9	27.0	28.2	27.3	27.0	27.6
Kosovo	KOS	37.8	36.5	38.9	38.4	38.8	38.6	41.0	37.6	36.3
Latvia	LION	28.5	28.5	28.6	29.5	28.6	28.7	29.3	29.4	30.9
Lithuania	LTU	33.7	34.7	34.7	35.2	35.3	34.6	34.8	35.2	35.1
Luxembourg	LUX	9.4	9.3	9.1	9.7	9.7	9.7	10.0	9.5	9.7
Macedonia, FYR	MKD	38.2	39.7	38.2	36.5	35.9	38.4	39.9	38.5	33.4
Montenegro	ME	36.8	37.1	37.8	38.8	38.9	39.0	37.8	38.1	37.2
Netherlands	NLD	12.6	12.6	13.1	13.5	13.8	13.4	12.9	12.9	13.4
Norway	NOR	19.1	20.1	20.7	21.9	20.8	20.2	19.7	20.2	20.6
Poland	POL	27.6	27.4	29.2	29.4	26.3	27.4	27.7	25.4	27.3
Portugal	PRT	23.3	23.7	24.3	24.8	24.8	25.2	24.5	24.5	24.6
Romania	ROM	34.4	33.9	34.4	33.6	32.7	34.8	34.6	35.9	36.0
Serbia	SRB	33.0	32.4	34.2	34.5	33.8	34.4	34.7	35.0	34.8
Slovak Republic	SVK	19.2	18.5	18.4	19.1	19.5	19.9	19.9	19.1	19.0
Slovenia	SVN	27.1	27.9	27.3	29.0	28.3	27.7	27.7	27.8	27.9
Spain	ESP	18.9	19.1	19.5	19.7	19.7	19.9	20.0	19.5	20.8
Sweden	SWE	17.9	18.2	18.6	18.7	18.4	19.9	18.9	18.1	18.1
Switzerland	THAT	9.2	10.2	10.0	10.5	10.2	10.3	10.3	10.2	9.8
Turkey	SHOULD	29.5	30.5	28.7	28.7	28.8	28.9	29.7	30.7	30.6
United Kingdom	GBR	12.3	12.5	12.9	12.7	12.5	13.4	13.1	13.2	12.3

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Country	2009	2010	2011	2012	2013	2014	2015	2016
Albania	29.0	28.3	27.8	27.8	27.5	27.1	27.5	28.3
Austria	10.4	9.8	9.2	9.3	9.4	9.6	9.7	9.6
Belgium	24.2	22.7	22.8	21.6	21.8	22.0	22.3	22.1
Bosnia and Herzegovina	36.5	35.8	35.4	36.0	35.7	36.3	35.3	34.4
Bulgaria	39.3	39.7	39.0	38.5	38.1	38.0	38.2	37.8
Croatia	36.4	36.6	36.7	36.5	36.7	36.3	36.4	35.0
Cyprus	31.7	31.3	31.3	32.1	32.1	31.9	31.8	30.4
Czech Republic	21.0	21.0	19.1	18.4	18.0	18.0	18.5	19.4
Denmark	20.1	19.2	18.7	17.8	18.4	17.6	19.1	18.4
Estonia	37.2	35.4	33.2	33.1	33.4	32.7	32.9	34.6
Finland	21.7	20.8	20.2	20.2	19.3	20.0	20.8	20.0
France	16.9	15.6	14.9	14.7	14.9	14.5	14.7	15.0
Germany	17.3	17.3	16.3	16.2	15.3	16.1	16.9	16.7
Greece	32.2	31.8	31.3	30.6	30.4	29.8	30.4	30.2
Hungary	27.7	27.8	26.8	25.9	26.0	25.3	26.1	26.9
Iceland	16.6	16.1	15.7	15.6	15.9	16.1	16.3	16.2
Ireland	17.1	16.4	16.1	16.2	16.0	15.4	15.8	15.8
Italy	29.6	28.8	27.9	27.1	26.9	27.6	27.9	27.3
Kosovo	37.1	37.4	38.0	38.8	39.1	39.2	39.8	38.8
Latvia	31.5	29.2	29.6	29.3	29.7	29.8	30.4	29.6
Lithuania	37.9	36.9	35.7	34.6	35.0	35.6	35.7	35.3
Luxembourg	10.0	10.0	10.0	9.6	9.7	9.6	10.1	9.7
Macedonia, FYR	37.4	37.5	38.2	39.2	36.9	36.3	37.2	37.6
Montenegro	38.6	40.2	39.1	40.1	38.7	37.9	37.5	38.2
Netherlands	14.2	13.3	13.9	13.9	13.5	13.2	13.2	13.3
Norway	21.5	20.2	20.7	21.7	21.5	21.1	20.4	20.4
Poland	29.0	28.1	26.6	27.5	26.7	27.6	29.1	27.8
Portugal	26.6	25.7	25.4	25.7	24.6	24.3	24.5	24.5
Romania	37.9	36.6	34.5	35.2	34.9	34.7	34.4	34.8
Serbia	35.9	35.5	35.0	35.7	35.0	34.7	35.2	34.5
Slovak Republic	20.7	21.3	20.1	19.9	19.0	18.2	19.3	19.5
Slovenia	29.8	29.6	28.1	28.4	29.1	27.9	28.1	28.0
Spain	22.5	21.5	21.3	21.1	20.5	20.6	20.7	20.3
Sweden	19.3	18.6	18.5	19.1	19.6	19.6	19.4	18.8
Switzerland	10.1	10.4	10.1	10.4	10.2	10.2	10.5	10.2
Turkey	30.4	29.4	28.8	28.9	29.0	29.3	29.0	29.6
United Kingdom	13.9	12.6	12.6	12.9	12.6	12.9	12.9	12.9

Πηγή:Explaining the shadow economy in Europe WP/19/278

Taxasstion of the informal economy in Europe (1999-2000) is the title of a study prepared by Professors Schneider and Asllani for the European Parliament (November 2022). Our results show that Eastern, Central and Southern European countries such as Bulgaria, Cyprus, the Czech Republic, Latvia and Lithuania have larger shadow economies than Western European countries such as Germany, the Netherlands, Austria and France. Also, in the economies of Southern Europe, the shadow economy is considerably larger than that of Central and Western European countries. As we can see from Table 4 below, the unweighted average for 2003 gives us a shadow economy of 22.6% of GDP. It decreases in 2008 to 19.6% reaching in 2022, after small fluctuations, to 17.3% of GDP.

A trend of decreasing the shadow economy was observed in all European countries between 1999-2010, due to the large increase in GDP and national income. The covid19 pandemic left its mark on the economies of European countries, causing recession and lockdown, increasing the shadow economy from 16.3% in 2019 to 17.9% in 2020. A significantly high increase of 1.69 percentage points or 9.8% compared to 2019. It was the largest increase in the last 20 years.

The decline in GDP and the increase in the unemployment rate lead people, in their attempt to restore their lost income and to maintain their quality of life at the same level, to participate in shadow economic activities.

The largest increases between 1999-2010 were recorded in Croatia and Bulgaria and the smallest in Finland and Denmark. In Greece the increase was 1.7 percentage points, from 19.2% to 20.9% or 8.8% of GDP. The forecast for 2021 was 17.4%, a decrease compared to 2020. Increased public spending, subsidies to businesses and transfer payments to citizens and workers led to an increase in GDP and a decrease in the unemployment rate. (Taxation of the in formal economy in Europe-Schneider-Asllani www.europarl.europa.eu).

Table 2.1: Size of the Shadow Economy of the 27 EU-Countries + United Kingdom (up to 2020) over 2003 – 2022 (in % of official GDP)

Country / Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Austria	10.8	11.0	10.3	9.7	9.4	8.1	8.5	8.2	7.9	7.6	7.5	7.8	8.2	7.8	7.1	6.7	6.1	7.2	6.9	6.6
Belgium	21.4	20.7	20.1	19.2	18.3	17.5	17.8	17.4	17.1	16.8	16.4	16.1	16.2	16.1	15.6	15.4	15.1	16.2	16.0	16.0
Bulgaria	35.9	35.3	34.4	34.0	32.7	32.1	32.5	32.6	32.3	31.9	31.2	31.0	30.6	30.2	29.6	30.8	30.1	32.9	32.4	33.1
Croatia	32.3	32.3	31.5	31.2	30.4	29.6	30.1	29.8	29.5	29.0	28.4	28.0	27.7	27.1	26.5	27.4	26.4	29.6	29.0	29.7
Czech Republic	19.5	19.1	18.5	18.1	17.0	16.6	16.9	16.7	16.4	16.0	15.5	15.3	15.1	14.9	14.1	13.6	13.1	14.2	13.9	13.5
Denmark	17.4	17.1	16.5	15.4	14.8	13.9	14.3	14.0	13.8	13.4	13.0	12.8	12.0	11.6	10.9	9.3	8.9	9.8	9.6	9.7
Estonia	30.7	30.8	30.2	29.6	29.5	29.0	29.6	29.3	28.6	28.2	27.6	27.1	26.2	25.4	24.6	23.2	22.1	23.6	23.1	22.7
Finland	17.6	17.2	16.6	15.3	14.5	13.8	14.2	14.0	13.7	13.3	13.0	12.9	12.4	12.0	11.5	11.0	10.6	11.4	10.9	10.8
France	14.7	14.3	13.8	12.4	11.8	11.1	11.6	11.3	11.0	10.8	9.9	10.8	12.3	12.6	12.8	12.5	12.4	13.6	13.1	14.2
Germany	16.7	15.7	15.0	14.5	13.9	13.5	14.3	13.5	12.7	12.5	12.1	11.6	11.2	10.8	10.4	9.7	8.5	10.4	10.0	8.8
Greece	28.2	28.1	27.6	26.2	25.1	24.3	25.0	25.4	24.3	24.0	23.6	23.3	22.4	22.0	21.5	20.8	19.2	20.9	20.3	20.93
Hungary	25.0	24.7	24.5	24.4	23.7	23.0	23.5	23.3	22.8	22.5	22.1	21.6	21.9	22.2	22.4	22.7	23.2	26.0	25.0	25.4
Ireland	15.4	15.2	14.8	13.4	12.7	12.2	13.1	13.0	12.8	12.7	12.2	11.8	11.3	10.8	10.4	9.7	8.9	9.9	9.4	10.1
Italy	26.1	25.2	24.4	23.2	22.3	21.4	22.0	21.8	21.2	21.6	21.1	20.8	20.6	20.2	19.8	19.5	18.7	20.4	20.2	20.3
Latvia	30.4	30.0	29.5	29.0	27.5	26.5	27.1	27.3	26.5	26.1	25.5	24.7	23.6	22.9	21.3	20.2	19.8	20.9	20.2	19.9
Lithuania	32.0	31.7	31.1	30.6	29.7	29.1	29.6	29.7	29.0	28.5	28.0	27.1	25.8	24.9	23.8	23.0	21.9	23.1	22.9	22.4
Luxembourg	9.8	9.8	9.9	10.0	9.4	8.5	8.8	8.4	8.2	8.2	8.0	8.1	8.3	8.4	8.2	7.9	7.4	8.6	8.4	8.3
Malta	26.7	26.7	26.9	27.2	26.4	25.8	25.9	26.0	25.8	25.3	24.3	24.0	24.3	24.0	23.6	23.2	22.0	23.5	23.1	23.4
Netherlands	12.7	12.5	12.0	10.9	10.1	9.6	10.2	10.0	9.8	9.5	9.1	9.2	9.0	8.8	8.4	7.5	7.0	8.1	7.8	8.2
Poland	27.7	27.4	27.1	26.8	26.0	25.3	25.9	25.4	25.0	24.4	23.8	23.5	23.3	23.0	22.2	21.7	20.7	22.5	22.0	21.9
Portugal	22.2	21.7	21.2	20.1	19.2	18.7	19.5	19.2	19.4	19.4	19.0	18.7	17.6	17.2	16.6	16.1	15.4	17.0	16.5	15.7
Romania	33.6	32.5	32.2	31.4	30.2	29.4	29.4	29.8	29.6	29.1	28.4	28.1	28.0	27.6	26.3	26.7	26.9	29.3	28.9	29.0
Slovenia	26.7	26.5	26.0	25.8	24.7	24.0	24.6	24.3	24.1	23.6	23.1	23.5	23.3	23.1	22.4	22.2	21.5	23.1	22.5	22.1
South-Cyprus	28.7	28.3	28.1	27.9	26.5	26.0	26.5	26.2	26.0	25.6	25.2	25.7	24.8	24.2	23.6	23.2	22.1	24.3	23.7	23.9
Spain	22.2	21.9	21.3	20.2	19.3	18.4	19.5	19.4	19.2	19.2	18.6	18.5	18.2	17.9	17.2	16.6	15.4	17.4	16.9	15.8
Slovakia	18.4	18.2	17.6	17.3	16.8	16.0	16.8	16.4	16.0	15.5	15.0	14.6	14.1	13.7	13.0	12.8	12.2	14.0	13.7	13.1
Sweden	18.6	18.1	17.5	16.2	15.6	14.9	15.4	15.0	14.7	14.3	13.9	13.6	13.2	12.6	12.1	11.6	10.7	11.7	11.0	10.8
United Kingdom	12.2	12.3	12.0	11.1	10.6	10.1	10.9	10.7	10.5	10.1	9.7	9.6	9.4	9.0	9.4	9.8	9.6	10.7	10.2	10.9
28 EU-Countries / Average (unweighted)	**22.6**	**22.3**	**21.8**	**21.1**	**20.3**	**19.6**	**20.1**	**19.9**	**19.6**	**19.3**	**18.8**	**18.6**	**18.3**	**17.9**	**17.3**	**17.0**	**16.3**	**17.9**	**17.4**	**17.3**

Source: Own Calculations, January 2022.

Note: The values for some countries in 2021 and all in 2022 are projections. The United Kingdom left the EU on 31 December 2020.

Table 2. 2: Size of the Shadow Economy of 3 European OECD-Countries (Non-EU Members) over 2003 – 2022 (in % of official GDP)

Country / Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Norway	18.6	18.2	17.6	16.1	15.4	14.7	15.3	15.1	14.8	14.2	13.6	13.1	13.0	12.6	12.2	11.8	10.8	11.6	11.1	10.4
Switzerland	9.5	9.4	9.0	8.5	8.2	7.9	8.3	8.1	7.8	7.6	7.1	6.9	6.5	6.2	6.0	5.8	5.5	6.1	5.8	5.6
Turkey	32.2	31.5	30.7	30.4	29.1	28.4	28.9	28.3	27.7	27.2	26.5	27.2	27.0	26.8	27.2	28.3	29.4	32.5	32.0	32.9
3-Non-EU Countries / Average	**20.1**	**19.7**	**19.1**	**18.3**	**17.6**	**17.0**	**17.5**	**17.2**	**16.8**	**16.3**	**15.7**	**15.7**	**15.5**	**15.2**	**15.1**	**15.3**	**15.2**	**16.7**	**16.3**	**16.3**
Unweighted Average of all 31 European Countries	**22.4**	**22.1**	**21.6**	**20.9**	**20.1**	**19.4**	**19.9**	**19.7**	**19.3**	**19.0**	**18.5**	**18.3**	**17.9**	**17.7**	**17.1**	**16.7**	**16.2**	**17.8**	**17.3**	**17.2**

Source: Own Calculations, January 2022.

Note: The values for some countries in 2021 and all in 2022 are projections.

The study used the multiple causes method (MIMIC). With this method one calculates relative prices. Other methods such as the currency demand approach or the income deviation method are used to calibrate the MIMIC prices to absolute prices. Schneider (2015) records the lowest rates of shadow economy in Europe between 2003-2015 in Luxembourg and Austria with an average of 8.9% and 8.8% respectively. The highest are recorded in Bulgaria with an average of 32.8%, in Romania with an average of 30.1% and in Croatia with an average of 30%. The shadow economy shows a decrease in all European countries between 2003-2015 and ranges between 8.2% and 33.6% for 2003 and between 8.2% and 30.6% for 2015. Also, the study by for the period 2003-2013 reveals that the largest percentage of the shadow economy was Bulgaria with 34.2% on average of GDP, followed by Romania with 31.5%, Estonia, Turkey, Lithuania with approximately 30%. The lowest shadow economy in Europe was in Switzerland with 8.2% and Austria with 9.1% average of GDP.

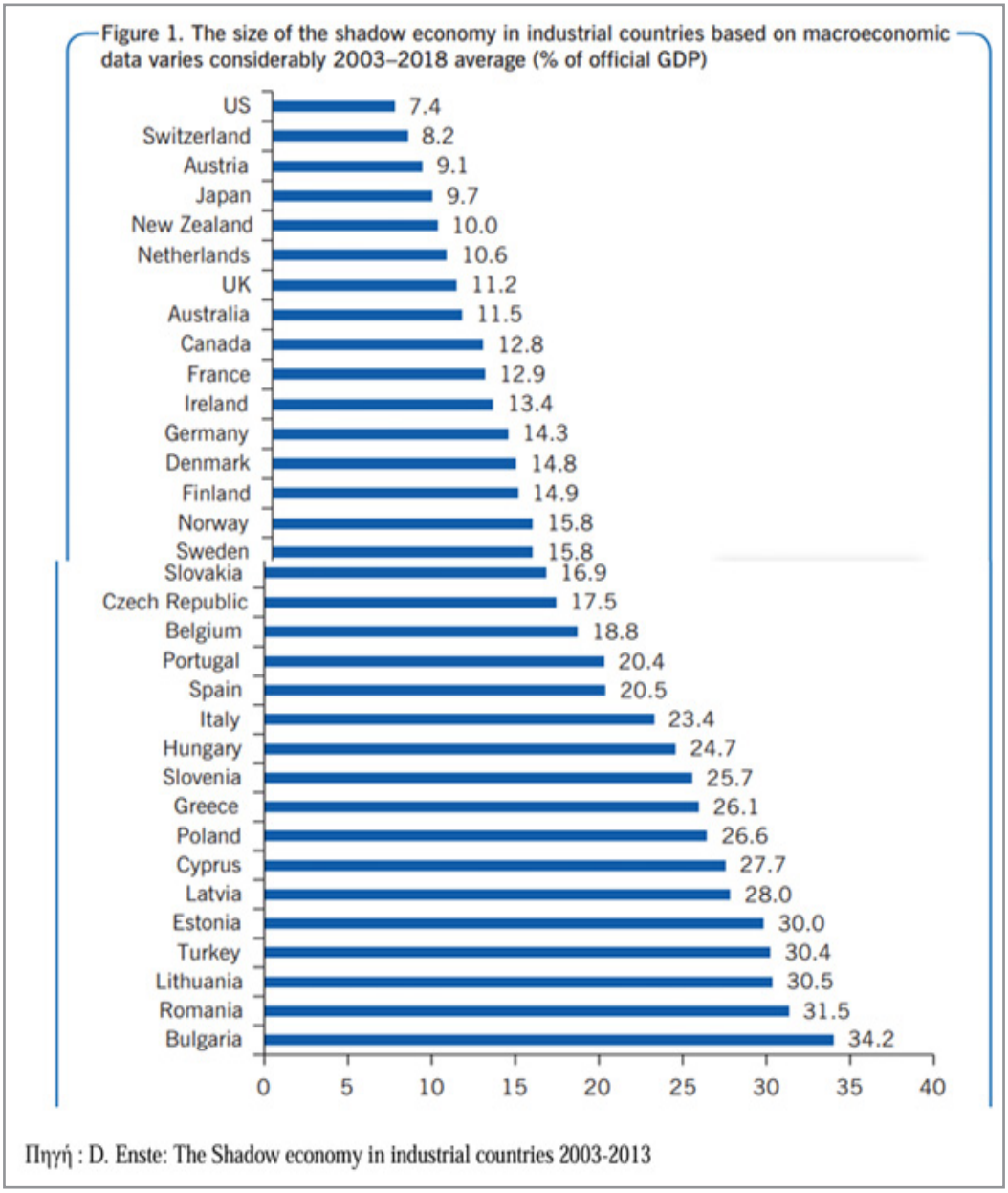
The shadow economy is much smaller in economically developed countries in compared to countries in Eastern and Southern Europe where the shadow economy is 20% or more of GDP. Their size is much smaller when we use survey data for its measurement.

Based on Enste's research, the causes of the shadow economy are:

- Increase in taxation
- High levels of regulation in industrial countries
- Lack of stable institutions in some Eastern countries
- Reduced tax ethics
- Lack of trust in government policy – Democracy deficit.

Research has shown that people's decision to participate in the informal economy depends more on the acceptance of the tax system, the overall situation in the labour market, the unemployment rate and perceived values than on detection rates.

Europeans reported that in 2013 they purchased undeclared services for home repairs or renovations at a rate of 29%, car repairs at a rate of 22%, house cleaning at a rate of 15% and food at a rate of 11%. The corresponding figures for the provision of undeclared work were 19% for repairs or renovations, 14% for gardening, 13% for cleaning, 12% for babysitting and 11% for work as restaurant wait staff. The following is table 5 with the percentages of the underground economy in Europe in the period 2003-2013.



Tax Evasion in Europe

Professors Schneider and Buehn (2012) study tax evasion in 38 OECD countries. Their analysis shows that not all factors of tax evasion are equally important for all countries. However, there are some constant ones.

Indirect taxes have the greatest influence on tax evasion at a rate of 29.4%, followed by self-employment with an average relative impact of 22.2%, the unemployment rate with 16.9%, personal income tax with 13.1%, tax ethics with 9.5%, the business freedom index with 8.1% and finally GDP growth with an average relative impact of only 0.9%. Personal income tax has a major impact on tax evasion in Denmark at 34.6%, Sweden at 23.5%, Iceland at 19.9%, Finland at 19.7%, while it has a smaller impact in Romania at 4.2%, Cyprus at 4.3%, Turkey at 4.9%, and Bulgaria at 5.1%. On the contrary, indirect taxation has an impact on tax evasion in Malta and Iceland at 39.7%, Bulgaria at 37.7%, Estonia at 36%, and Slovakia at 33.9%. Indirect taxation has the smallest impact in Spain with 17.9%, in Italy with 18.9%, in Belgium with 20.2% and in Greece with 21.8%.

Tax ethics has the largest impact on tax evasion in Luxembourg with 20%, in Belgium with 19.1% and the lowest in Turkey with 0.7%. The unemployment rate has the greatest impact in Spain with 29.2% and in Poland with 26.1% in Germany with 24.3%, in Greece with 18% while it affects the level of tax evasion less in Iceland with 7.1%, Denmark with 9.5% and Switzerland with 9.6% Self-employment has a great impact in Portugal with 31.1% in Turkey with 41.4% in Romania with 37.7% and in Greece with 37.6% (https://www.cesifo.org/p.11).

The research uses the MIMIC model presenting microeconomic estimations for tax evasion. It is recognized that the survey is sensitive to the wording of the participants' questions, since they may not tell the truth, while the tax audit method is prone to sample selection bias. Table 6 below presents the size and evolution of tax evasion as a percentage of GDP, in 38 countries, considering only indirect taxation as the driving force of tax evasion. In Greece, tax evasion is 1.8% on average of GDP for the years 1999-2010. Austria, Switzerland and Luxembourg have the lowest tax evasion with a percentage of up to 1% of

GDP while Bulgaria, Cyprus, Estonia, Hungary, Lithuania, Malta, Poland, Romania, Turkey, Estonia have the highest tax evasion with well over 2% of GDP.

Size and development of tax evasion (in % of GDP) in 38 OECD countries

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
Australia	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.9	0.8	0.9	1.0
Austria	0.9	0.8	0.8	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.8	0.8
Belgium	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.0	1.1	1.3
Bulgaria	4.6	4.3	4.3	4.3	4.4	4.2	4.0	3.7	3.5	3.3	3.0	3.3	3.9
Canada	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.8
Chile	2.3	2.2	2.1	2.2	2.2	2.1	2.1	1.9	1.8	1.7	1.8	1.9	2.0
Cyprus	3.5	3.2	3.1	3.2	3.3	3.2	3.1	2.9	2.8	2.6	2.4	2.5	3.0
Czech Rep.	2.0	1.8	1.8	1.8	1.9	1.8	1.7	1.6	1.4	1.2	1.2	1.3	1.6
Denmark	2.0	1.9	1.9	1.9	2.0	1.9	1.8	1.7	1.6	1.3	1.3	1.5	1.7
Estonia	-	2.9	2.8	2.8	2.8	2.7	2.6	2.4	2.3	1.9	2.2	2.2	2.5
Finland	1.8	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.4	1.2	1.2	1.3	1.5
France	1.3	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.0	0.9	0.9	1.0	1.1
Germany	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.1	1.0	0.9	0.9	1.0	1.1
Greece	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.5	1.4	1.5	1.8
Hungary	2.9	2.7	2.7	2.7	2.8	2.7	2.6	2.4	2.3	2.1	2.0	2.2	2.5
Iceland	2.1	2.0	1.9	2.0	2.1	1.9	1.9	1.8	1.6	1.4	1.4	1.6	1.8
Ireland	1.9	1.8	1.8	1.8	1.9	1.8	1.8	1.7	1.6	1.5	1.6	1.6	1.7
Italy	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.5	1.4	1.3	1.2	1.4	1.5
Korea, Rep.	2.5	2.3	2.3	2.3	2.4	2.3	2.2	2.1	2.0	1.8	1.6	1.8	2.1
Latvia	2.5	2.4	2.3	2.3	2.4	2.3	2.2	2.0	1.9	1.9	1.6	1.9	2.1
Lithuania	2.6	2.4	2.4	2.4	2.4	2.3	2.2	2.0	2.0	1.9	1.7	2.0	2.2
Luxembourg	1.1	1.0	1.0	1.0	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.9	1.0
Malta	3.6	3.4	3.3	3.4	3.5	3.5	3.4	3.2	3.0	2.8	2.6	3.0	3.2
Mexico	4.3	4.0	3.9	4.1	4.2	4.0	3.9	3.6	3.4	3.2	3.1	3.4	3.8
Netherlands	1.4	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.2	1.1	1.0	1.2	1.3
New Zealand	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.9
Norway	2.0	1.9	1.8	1.9	1.9	1.8	1.8	1.7	1.6	1.4	1.4	1.6	1.7
Poland	2.5	2.4	2.4	2.4	2.5	2.4	2.3	2.2	2.0	1.8	1.7	1.8	2.2
Portugal	2.3	2.1	2.1	2.2	2.2	2.2	2.2	2.0	1.9	1.7	1.6	1.8	2.0
Romania	2.8	2.6	2.5	2.6	2.6	2.5	2.4	2.2	2.1	2.0	1.8	2.1	2.4
Slovak Rep.	2.0	1.9	1.8	1.9	1.9	1.8	1.7	1.6	1.5	1.3	1.2	1.4	1.7
Slovenia	3.0	2.9	2.8	2.9	2.9	2.8	2.7	2.5	2.4	2.1	2.0	2.2	2.6
Spain	1.4	1.3	1.2	1.3	1.3	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.2
Sweden	2.0	1.8	1.8	1.8	1.9	1.8	1.8	1.6	1.5	1.4	1.4	1.5	1.7
Switzerland	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.7	0.6	0.6	0.7	0.8
Turkey	3.4	3.1	3.2	3.2	3.2	3.1	2.9	2.7	2.5	2.3	2.3	2.5	2.9
UK	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.0	1.1
United States	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Average	2.0	1.9	1.9	1.9	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.5	1.8

Source: Own calculations.

Πηγή: Schneider και Buehn (2012)

Self-employment is a key factor in tax evasion since the self-employed have greater possibilities and opportunities to hide income. Governments can encourage self-employment, for example, to reduce unemployment or discourage it to control the shadow economy and tax evasion. Table 7 below informs us about the participation of self-employment in tax evasion as a percentage of GDP.

Size and development of tax evasion (in % of GDP) in 38 OECD countries accounting for self-employment

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
Australia	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.8	1.7	1.5	1.5	1.6	1.8
Austria	1.6	1.5	1.4	1.5	1.5	1.5	1.5	1.4	1.3	1.2	1.1	1.4	1.4
Belgium	2.8	2.6	2.6	2.6	2.7	2.6	2.6	2.4	2.2	2.0	1.9	2.1	2.4
Bulgaria	6.8	6.4	6.2	6.3	6.4	6.1	5.9	5.5	5.1	4.8	4.4	4.8	5.7
Canada	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.8	1.7	1.5	1.5	1.7	1.9
Chile	4.5	4.2	4.1	4.2	4.3	4.1	4.0	3.7	3.5	3.3	3.4	3.7	3.9
Cyprus	6.3	5.9	5.7	5.8	6.0	5.9	5.7	5.3	5.0	4.7	4.4	4.5	5.4
Czech Rep.	3.4	3.2	3.2	3.2	3.3	3.2	3.0	2.8	2.5	2.1	2.1	2.3	2.9
Denmark	2.6	2.4	2.4	2.5	2.5	2.4	2.4	2.2	2.0	1.7	1.7	1.9	2.2
Estonia	-	3.7	3.6	3.7	3.7	3.5	3.4	3.1	2.9	2.5	2.8	2.8	3.2
Finland	2.7	2.5	2.4	2.5	2.5	2.5	2.4	2.2	2.1	1.9	1.8	2.0	2.3
France	2.0	1.9	1.8	1.9	1.9	1.9	1.8	1.7	1.6	1.4	1.4	1.6	1.7
Germany	2.2	2.1	2.0	2.1	2.2	2.1	2.1	1.9	1.8	1.6	1.5	1.7	1.9
Greece	5.6	5.3	5.2	5.3	5.3	5.1	5.0	4.6	4.4	4.0	3.7	4.0	4.8
Hungary	4.5	4.2	4.1	4.1	4.2	4.1	4.0	3.7	3.6	3.2	3.0	3.3	3.8
Iceland	3.0	2.9	2.8	2.9	3.0	2.8	2.7	2.5	2.3	2.0	2.1	2.3	2.6
Ireland	3.1	2.9	2.8	2.9	3.0	2.9	2.8	2.6	2.6	2.4	2.5	2.6	2.8
Italy	4.6	4.2	4.1	4.2	4.4	4.3	4.2	4.0	3.8	3.4	3.3	3.6	4.0
Korea, Rep.	6.7	6.2	6.0	6.1	6.2	6.0	5.9	5.5	5.2	4.7	4.3	4.8	5.6
Latvia	3.7	3.5	3.4	3.4	3.4	3.3	3.2	2.9	2.7	2.7	2.3	2.7	3.1
Lithuania	4.1	3.9	3.8	3.8	3.8	3.6	3.5	3.2	3.1	3.1	2.7	3.2	3.5
Luxembourg	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.0	1.2	1.3
Malta	5.5	5.2	5.1	5.3	5.4	5.3	5.2	4.8	4.6	4.2	4.0	4.6	4.9
Mexico	7.7	7.1	7.1	7.3	7.5	7.2	7.1	6.5	6.1	5.8	5.6	6.2	6.8
Netherlands	2.3	2.1	2.1	2.2	2.3	2.2	2.2	2.0	1.9	1.7	1.7	1.9	2.0
New Zealand	2.1	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.5	1.4	1.6	1.8
Norway	2.8	2.7	2.6	2.7	2.7	2.6	2.6	2.4	2.3	2.0	2.0	2.2	2.5
Poland	4.9	4.6	4.6	4.7	4.8	4.6	4.5	4.2	3.8	3.4	3.2	3.5	4.2
Portugal	4.6	4.3	4.2	4.4	4.6	4.5	4.4	4.2	3.9	3.4	3.3	3.7	4.1
Romania	7.0	6.7	6.5	6.6	6.6	6.3	6.2	5.6	5.4	5.0	4.6	5.2	6.0
Slovak Rep.	2.8	2.7	2.6	2.7	2.7	2.6	2.5	2.3	2.1	1.9	1.8	1.9	2.4
Slovenia	5.0	4.7	4.6	4.7	4.8	4.6	4.5	4.1	4.0	3.5	3.2	3.6	4.3
Spain	3.2	3.0	2.9	3.0	3.0	3.0	2.9	2.8	2.6	2.5	2.5	2.7	2.8
Sweden	2.8	2.6	2.6	2.6	2.7	2.6	2.5	2.4	2.2	2.0	1.9	2.2	2.4
Switzerland	1.6	1.5	1.4	1.5	1.6	1.5	1.4	1.3	1.2	1.0	1.0	1.2	1.4
Turkey	7.8	7.3	7.4	7.5	7.5	7.1	6.8	6.3	5.7	5.3	5.3	5.7	6.7
UK	2.1	1.9	1.9	1.9	2.0	1.9	1.9	1.8	1.7	1.5	1.6	1.6	1.8
United States	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Average	3.6	3.4	3.4	3.4	3.5	3.4	3.3	3.1	2.9	2.6	2.5	2.8	3.2

Source: Own calculations.

Πηγή:Schneider και Buehn (2012)

Thus, we see that in Greece it is 4.8%, in Bulgaria 5.7%, in Cyprus 5.4%, in Malta 4.9%, in Romania 6%, in Turkey 6.7%. The lowest percentages appear in Austria 1.4%, in Luxembourg 1.3%, in Switzerland 1.4%. Tax evasion in Germany is 1.9%, in France 1.7%, while very high tax evasion is presented in Italy with 4% of GDP (https://www.cesifo.org/p.11 p.18).

The following diagram 4 shows us the size and development of tax evasion in six EU countries including Greece for the period 1999-2010.

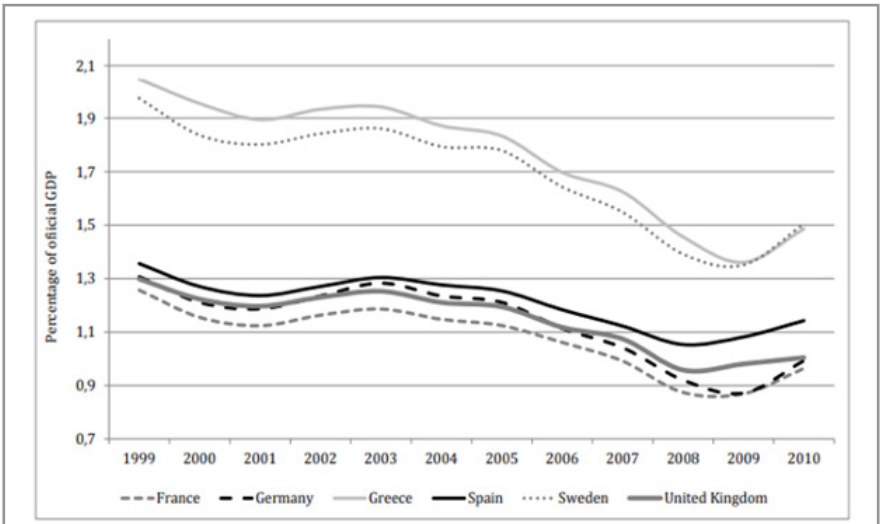


Figure 2: Size and development of tax evasion in selected countries (1999:2010)

Πηγή:A.Buehn-F.Schneider 2012

The tax evasion rate in Greece and Sweden shows a downward trend until 2008, with Greece showing a higher rate, showing an upward trend after 2008.

Tax evasion in Europe is estimated at 825 billion per year, while since 2012 a goal has been set to strengthen national measures. A report by Professor Richard Murphy, University of London, for the period 2015-2016 states that the highest tax evasion occurs in the countries with the highest tax burden, which represents the percentage of taxes compared to income. The highest rates of tax evasion are found in Southern and Eastern Europe compared to the Scandinavian countries and Central European countries.

The highest non-payment of VAT is observed in Romania with 35.9%, in Greece with 29.2%, in Italy with 25.9%, in Slovakia with 25.9%, in Lithuania with 21.4% and in Hungary with 13.3%.

On the contrary, Luxembourg has 0.8% and Sweden 1%. The study considers only tax evasion and not tax avoidance by large companies and high-income earners worth 50 to 190 billion euros.

The state coffers of European countries are deprived of 1,634 euros in revenue per resident. The Italians have the highest per capita tax evasion with 3,156 euros per resident, followed by the Danes with 3,027 euros per resident. In Greece, the per capita tax evasion is 1,847 euros.

According to a study by the European Parliament, Cyprus, Belgium, Hungary, Ireland, Malta, Luxembourg and the Netherlands are characterized as "tax havens". It also finds that there is no political will among the member states to tackle tax evasion, tax avoidance and all kinds of economic crime (kathimerini.gr – 30/03/2019).

In 2019, it is estimated that EU Member States did not add 134 billion euros to their coffers due to:

- VAT fraud and tax evasion
- lack of VAT optimization
- Bankruptcies and bankruptcies
- Miscalculations
- Administrative errors

Greece had losses of 5.35 billion euros from VAT in 2019. The largest increases in the VAT deficit were observed in Malta (+5.4 percentage points), Slovenia (+3 percentage points) and Romania (+2.3 percentage points). Large reductions in the VAT deficit were observed in Greece, Lithuania, Bulgaria and Slovakia by -3.2 and -2.2 percentage points. Table 8 below shows the VAT deficit in percentage and in million euros for EU Member States.

Member State	Deficit VAT %	VAT deficit (in million euros)	Member State	Deficit VAT %	VAT deficit (in million euros)
Belgium	12,3 %	4 .444	Lithuania	21,4 %	1.048
Bulgaria	8,3 %	508	Luxembourg	6,6 %	267
Czech Republic	14,3 %	2.835	Hungary	9,6 %	1.483
Denmark	8,6 %	2 .778	Malta	23,5 %	287
Germany	8,8 %	23.443	Netherlands	4,4 %	2.66
Estonia	4,5 %	116	Austria	8,7 %	2.895
Ireland	10,1 %	1.721	Poland	11,3 %	5.379
Greece	25,8 %	5 .350	Portugal	7,9 %	1.609

Spain	6,9 %	5.84	Romania	34,9 %	7.411
France	7,4 %	13. 858	Slovenia	7,1 %	298
Croatia	1,0 %	77	Slovakia	16,1 %	1.313
Italy	21,3 %	30.106	Finland	2,9 %	646
Cyprus	2,7 %	54	Sweden	1,4 %	597
Latvia	8,3 %	237	United Kingdom	8,9 %	17.176

Tackling tax evasion and tax fraud at EU level is among the objectives of the competent institutions. This includes:

- Establishing rules against tax avoidance practices and addressing mismatches with third countries regarding the treatment of hybrid instruments.
- Exchange of tax information.
- Package of tax measures for fair and simple taxation
- Exchange of information and access to data to combat money laundering and terrorist financing.
- Creation of a common tax rulebook for a fairer distribution of taxing rights between Member States. (Europarl.europa.eu. General tax policy – European Parliament 31/03/2023).

The Extent of the Shadow Economy in Greece

Signs of the shadow economy have existed in Greece since the 1980s, but it was not until the 1990s that the first attempts to record it began. The inability to control high public deficits and the need to increase public revenues to limit them, brought to the fore the shadow economy and the need to monitor and address it.

The study by is the first attempt in Greece to systematically delimit the size of the shadow economy, to identify its foci and to improve the weaknesses of its statistical recording method examines the way in which production is calculated in various sectors and sub-sectors of the Greek economy, trying to identify cases where value added is underestimated or overestimated. He concluded that the majority of the shadow economy comes from small businesses and that the participation of the public sector in the informal economic activity is insignificant. This method moves on the border between micro and macro approaches. study has been carried out using the national accounting method and practice.

He estimates that the shadow economy in 1984 was 28.6% or approximately one trillion drachmas. The health-education sector shows a shadow economy of 30.1%, housing and construction 91% and 71% respectively, various services 64.9% while banks-insurance show the smallest margins for the development of informal economic activity 3.1%. The KEPE study (1995) estimates the shadow economy at 40.9% of domestic household consumption for 1982 and 34.6% for 1988, estimate that it reached its highest point in 1987 with 31.7% (in 1972 it had the lowest value with 21% of GDP) while the average level of the shadow economy for the years 1958-1988 was 24.6% of GDP. The relevant table 9 follows:

The paraeconomy in Greece, 1958-1988

Year	Percentage in official GDP	Year	Percentage in official GDP
1958	24,9	1974	21,5
1959	25,3	1975	21,7
1960	25,9	1976	22,6
1961	24,8	1977	22,6
1962	26,3	1978	22,3
1963	25,2	1979	22,7
1964	24,8	1980	23,0
1965	23,7	1981	23,5
1966	24,1	1982	25,5
1967	24,5	1983	27,0
1968	24,7	1984	27,8
1969	23,7	1985	28,0
1970	22,8	1986	29,4
1971	22,0	1987	31,7
1972	21,0	1988	31,6
1973	19,7		

Source: Io. Vavouras, Andr. Kourtis: "Paraeconomy. The extent of the phenomenon in Greece and abroad", ed. Papazisi, Athens 1991, p.107.

The Institute for Mediterranean Studies made the first attempt to record tax evasion (1991). It investigated, based on the personal income tax returns, the discrepancy between citizens' tax liability and the adjusted accounting figures. It estimates the size of tax evasion for the years 1970-1986 at 650 billion drachmas. Tax evasion in 1986 was 280 billion drachmas.

The KEPE study (1995) records significant tax evasion in small and medium-sized enterprises, where, due to their large number, tax audit is difficult and costly. The estimate of the size of the shadow economy in showed that the shadow economy in the period 1960-1980 had an average value of 22.8% while for the period 1981-2000 the average value of the shadow economy was27.3% of GDP. Between the two periods the shadow economy increased by 4.5% or by 0.23% per year.

The average value throughout the period under review was 25% with a minimum value in 1962 of 17.92% and a maximum value in 2000 of 36.67% ("STUDIES" Volume 53 Issue 3 2003 p. 14 36). The IMF estimates that in the period 1989-1990 the shadow economy in Greece was 22.6% of GDP while in the period 1999 -2000 it reached 28.7%. Within 10 years, it increased by 6.1% or by 0.61% per year.

The diachronic evolution of the shadow economy 1960-1977 was studied by Tatsos and his collaborators. They calculated the shadow economy at 30.1% of GDP on average. 1960 was the year with the lowest shadow economy of 26.1% and 1997 the year with the highest 36.7%. From 1982 to 1997, a shadow economy of consistently over 30% was recorded, with an average shadow economy for the years.

Professor Pavlopoulos, criticizing the results of Tatsos and his colleagues (2021), questions the reliability of the results of the aforementioned research for Greece for the period 1960-1997 “with the relatively less laborious effort to estimate the shadow economy using the econometric model method”. He believes that only the national accounting approach could provide an answer with an acceptable degree of reliability. Pavlopoulos considers the sectoral approach the only reliable approach for assessing the phenomenon, which can also be used in "politics". He believes that it is very unlikely that the shadow economy will exceed 15% and that this percentage will increase (Institute of Tourism Research and Forecasting - The Shadow Economy in Greece - Athens 2002).

The following is a brief presentation of the shadow economy and tax evasion in Greece.

Summary presentation of studies on the underground economy in Greece

Authors	Objective	Methodology	Data	Reference years	Estimate result
KEPE: • Kanellopoulos • Kousoulakos • Radish (1995)	Empirical assessment of the shadow economy	Income Expenditure Variance Method - Macroeconomic Level	Household Budget Surveys National Accounts	1982 1988	27% of GDP 34% of GDP
(1991)	Estimating the paraeconomy and investigating determinants	Method of determining factors - Macroeconomic approach	SSYE OECD National Accounts	1970-1985	1970: 4.5% of urban GDP 1985: 24.95% of it urban GDP 1970-1985: average value 11% of urban GDP
Vavouras, her Ship. Tsouchlou (1990)	Indirect assessment of the shadow economy - Evolution over time	Money Demand Method – Macro economic approach	Bank of Greece Statistics	1958-1988	1958-1968: average 24.9% of GDP 1969-1973: average 21.8% 1974-1988: average 25.4% of GDP 1988: 31.62% of GDP
IOB: Pavlopoulos (1987)	Empirical assessment of shadow economy Analysis by sector of economic activity	Method of deviations at the macroeconomic level Identification of branches of economic activity	National Accounts	1984	Total 30% of GDP (950 billion dirhams) Housing 91% Construction 71% Misc. Services 65%

TABLE 3.4 (continued)

Authors	Objective	Methodology	Data	Reference years	Assessment-result
		rity where the para-economy is very likely			Transport - Communications 30% Health - Education 30% Trade 29% Manufacturing 15%
Foundation for Medieval Studies: Kalyvianakis, Leventis, Manesiotis, Xanthakis, Trachanas, Flesiopoulou (1991)	Estimation of tax evasion	Econometric model - Separation of tax evasion from official economy and shadow economy	National Accounts	1986	650 billion Drach, of which 470 billion Dr. from shadow economy 34.6% of tax revenue Steady upward trend during the 80s

source: Tatsos 2001 p. 80-81

Recent Studies on the Shadow Economy in Greece

The study by D.Enste – F.Schneider (2000) states that the shadow economy in Greece in the period 1990-1993, using the foreign exchange demand method was 27.2%. While for 1990 with the electricity consumption method it was 21.8% (WP / 00/26 p.11// https://www.imf.org) while the average for the period 1994-1995 with the same method, was 26.9% of GDP, the highest among the developed countries of Europe. For the period 1996 -1997 the shadow economy was 30.1% (foreign exchange demand method). The highest of the 20 countries that participated in the survey.

The burden of taxation and social security contributions as a percentage of GDP was for 1970 25.3% , for 1980 29.4% , for 1990 36.8% and for 1996 27.9%. Schneider, studying the shadow economy in Europe during the period 2003-2013, reports a shadow economy rate for Greece of 24% of GDP for 2013, which corresponds to 43 billion euros (Schneider 2013 p.4). For 2008, 2009, 2010 the shadow economy in Greece was 24.3%, 25%, 25.4% respectively, while for the years 2011, 2012 and 2013 the shadow economy was 24.3%, 24% and 23.6% respectively, i.e. an average of 24.4%.

Also, Schneider 2015, studying the shadow economy, with the MIMIC method, in Europe 15 countries for the years 2003-2015, calculates the shadow economy in Greece at 25.2% of GDP on average. The years 2003-2004-2005 recorded the highest percentages of shadow economy with 28.2%, 28.1% and 27.6% respectively. While for the years 2014 and 2015 recorded the lowest percentages with 23.3% and 22.4% respectively. The decline in the shadow economy between 2003 and 2015 is 20%. The following is a relevant table 10 (Brindusa. M –Ralluca I // an analysis of the shadow economy in European countries p.7 // https://www.researchgate.net/ publication).

Dynamics of the shadow economy for the UE-15 (%GDP)

State	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Luxembourg	9.8	9.8	9.9	10.0	9.4	8.5	8.8	8.4	8.2	8.2	8.0	8.1	8.3
Austria	10.8	11.0	10.3	9.7	9.4	8.1	8.5	8.2	7.9	7.6	7.5	7.8	8.2
UK	12.2	12.3	12.0	11.1	10.6	10.1	10.9	10.7	10.5	10.1	9.7	9.6	9.4
Netherlands	12.7	12.5	12.0	10.9	10.1	9.6	10.2	10.0	9.8	9.5	9.1	9.2	9.0
France	14.7	14.3	13.8	12.4	11.8	11.1	11.6	11.3	11.0	10.8	9.9	10.8	12.3
Ireland	15.4	15.2	14.8	13.4	12.7	12.2	13.1	13.0	12.8	12.7	12.2	11.8	11.3
Germany	17.1	16.1	15.4	15.0	14.7	14.2	14.6	13.9	13.2	12.9	12.4	12.2	12.2
Denmark	17.4	17.1	16.5	15.4	14.8	13.9	14.3	14.0	13.8	13.4	13.0	12.8	12.0
Finland	17.6	17.2	16.6	15.3	14.5	13.8	14.2	14.0	13.7	13.3	13.0	12.9	12.4
Sweden	18.6	18.1	17.5	16.2	15.6	14.9	15.4	15.0	14.7	14.3	13.9	13.6	13.2
Belgium	21.4	20.7	20.1	19.2	18.3	17.5	17.8	17.4	17.1	16.8	16.4	16.1	16.2
Portugal	22.2	21.7	21.2	20.1	19.2	18.7	19.5	19.2	19.4	19.4	19.0	18.7	17.6
Spain	22.2	21.9	21.3	20.2	19.3	18.4	19.5	19.4	19.2	19.2	18.6	18.5	18.2
Italy	26.1	25.2	24.4	23.2	22.3	21.4	22.0	21.8	21.2	21.6	21.1	20.8	20.6
Greece	28.2	28.1	27.6	26.2	25.1	24.3	25.0	25.4	24.3	24.0	23.6	23.3	22.4
UE-15 average	17.8	17.4	16.9	15.9	15.2	14.4	15.0	14.8	14.5	14.3	13.8	13.7	13.6

Source: Based on Friedrich Schneider (2015)

WP /19/278 studying the shadow economy in Europe in the period 2000-2016 determine the shadow economy in Greece with an average of 30.4% of GDP.

2009 was the year with the largest shadow economy 32.2% and 2000 was the year with the smallest 28.1% of GDP (pp. 25-26 https://static.ecestaticos.com). Schneider and Asllani (2022) determine an average shadow economy for the twenty years 2003-2022 of 23.7% of GDP. The years 2003-2004 recorded the highest percentage of the informal economy in Greece with 28.2% and 28.1 respectively, while in 2019 the lowest percentage of the informal economy was recorded at 19.2% of GDP.

Between 2003 and 2022 the shadow economy decreased by 25.9%. For the years 2021-2022 they make an estimate -Taxation of the informal economy in Europe p.15 table 2.1 https://static.ecestaticos.com.

Medina -Schneider (WP/7981 2019) determine a lower size of the informal economy for Greece between 1991-2017 which reaches just under 25% at 24.9% (p.46-46 table 1). The trend was negative until 2009. From 2009 the trend began to become positive, the shadow economy increased every year and fluctuated between 23% and over 25% until the end of 2016. The debt crisis in which the country was plunged during this period is responsible for the increase in the shadow economy (taxation of the informal economy eu. Paper for Greece 2022). While Enste determines the shadow economy in Greece between 2003 -2018 on average at 26.1% of GDP.

The latest estimates for Greece have been given by Schneider. They estimate that the size of the shadow economy is approximately 22.3% of GDP on average between the years 2022-2023.

Almost all studies agree that the causal factors for the shadow economy in Greece are:

- The high level of self-employment
- The level of indirect and direct taxation
- The unemployment rates
- The level of social security
- The personal income tax
- The level of entrepreneurial freedom
- Low tax morale, understood as distrust towards tax and not only institutions. Tax morale is also linked to the inefficiency of fiscal authorities in achieving tax targets 2013 source: taxation of the informal economy.

The study on the informal economy in Greece, 1980-2020 by Transparency International Greece 2020 is interesting. The study uses the multiple indicator multiple causes (MIMIC) method. The results record as the main causes of the shadow economy in Greece:

- The level of self-employment
- The tax burden (only social security contributions are considered significant)
- Unemployment
- Government policy (p. 44)

Encouraging stronger popular participation in government decision-making, expanding elements of direct democracy and eliminating corruption can reduce the shadow economy.

There is evidence that the more direct democracy, the lower the incentive to participate in the informal economy. Their model suggests that as the extent of direct democracy increases, the fiscal policies implemented reflect citizens' preferences more and thus reduce their incentives for informal activity. The theory demonstrates a negative relationship between the extent of direct democracy and the size of the informal economy, when it is at low or intermediate values and when the electoral system is characterized by a larger District size.

In the Transparency study, the variable "government policy" is statistically significant at the 5% level and the coefficient of the parameter is negative. This shows that the government decisions of the period had the consent of the citizens, resulting in the reduction of the shadow economy.

Also, the variable "trade" is significant and its relationship with the shadow economy is positive. While the existence of unemployment has a negative impact on the size of the shadow economy. The income effect prevails, that is, an increase in unemployment reduces income and therefore demand in both the formal and informal economy. The relationship between GDP and unemployment in the case of Greece is negative.

One explanation for the negative relationship between the size of unemployment and the shadow economy is the size of undeclared personnel, which was estimated at 30% of total employment in 2011, with immigrants having the largest share of participation with 38%.

The study records a decrease in the shadow economy from 1980-2020 by 16 percentage points on average. The decrease is likely due to the decrease in self-employment, which fell from 50.5% in the 1980s to 34.6% in the 2010s. With the onset of the economic crisis, the shadow economy decreased from 28% in 2008 to 25% in 2011, reaching 23.2% in 2015. Since 2016, it has been increasing by 2.35% annually. The decrease is due to the increase in unemployment (income effect) and the increase in electronic transactions due to capital control.

During the 2020 pandemic, the shadow economy remained at the same levels as in 2019, at approximately 27%, and approached the levels of 2009 and 2001-2004.

Health restrictions (travel ban, business closures) led to a decrease in demand for goods and services, reducing the possibilities for engaging in shadow economic activity.

The estimate for the level of the shadow economy in Greece was:

- 2021 > 24.9%
- 2022 > 25.4%
- 2023 > 25.2%
- 2024 > 25.5%
- 2025 > 25.4%
- 2026 > 25.6%
- 2027 > 25.7%

In 2020, the shadow economy was estimated at 26.9% of GDP, while for the period covered by the study, the average size per year was calculated at 28.5% of GDP with a reduction rate of 0.41% of The estimates for the evolution of the shadow economy were made with an inflation rate much lower than that which has existed for the last two years in Europe and in our country, without any forecast growth.

Inflation has a negative effect on income levels (price increases, interest rates) leading the underground economy to higher levels [58].

Newer Estimates of Tax Evasion in Greece

The systematic study of the level of tax evasion in our country is limited, a fact that is also linked to the difficulties of well-founded documentation and measurement of the phenomenon. The measurements of tax evasion are very difficult and therefore perhaps very few Each estimate of tax evasion is based on a different methodological approach, making the comparison of individual estimates weak.

The large loss of State revenue as well as the inability of the state to cover its needs, causing serious distortions in the allocation of resources and economic activity, make tax evasion a particular phenomenon for each country. If Greece had no losses from VAT, social security contributions and income tax and the collection mechanism had the capacity of OECD countries, tax revenues would increase by 5% of GDP (OECD 2011 source.

In Greece, direct tax revenues are significantly lower than those of the Eurozone countries. There is a permanent lag in the tax yield of personal income despite the highest tax rates among OECD countries. The same picture is observed in the taxation of corporate profits, whose tax revenues fall short of the European average.

Tax revenues in Greece have historically been 5-10 percentage points lower as a percentage of GDP than in the rest of Europe,

(minfin.gr Speech of the Deputy Minister of Finance) due to tax evasion. Since 2017, there has been a downward trend in revenues due to low growth rates, reduced profits, and tax fatigue. Revenues from indirect taxes are higher in our country than in the Eurozone.

The top position in revenue evasion is occupied by the embezzlement of public money from VAT (Explanatory report: tax and other incentives to support electronic transactions – Proposal for a law.

A report by the European Commission (2015) estimates the VAT deficit in Greece for 2013 at 6.5 billion. If we assume that this deficit in its entirety is tax evasion, then in 2013 terms the lost VAT revenue amounted to 3.5% of GDP.

Undeclared tax income for 2009 is estimated at 28 billion for the self-employed alone. If the evaded tax revenues were taxed at 40%, they would correspond to 31% of the budget deficit and 48% for 2008. The average real income of the self-employed is 1.92 times higher than the declared one Tax evasion is not so much committed by the working class, but mainly by the financially strong strata of the population, by businesses, entrepreneurs and professionals of all sectors. Tax evasion in Greece as a percentage of GDP in the period 1999-2010 "ran" at an annual average, while the participation of income tax in tax was 5.8%, indirect taxes 21.8%, tax ethics 10.4%, unemployment 18%, self-employment 37.6%, business freedom 5.7% and GDP growth 0.7%.

Who Pays Taxes in Greece

In Greece, out of the 9 million taxpayers, 800,000 pay 65% of taxes, approximately 2/3 and the other 1/3 all the rest. More specifically:

- 47.7% of taxpayers declare up to 10,000 euros, pay 28% of total income and 4.93% of total tax, i.e. 400 million euros.
- One in four declares from 10,000 -20,000 euros with a total income of 30 billion, that is, 35% of the total who pay 30% of the total tax income of approximately 2.4 billion euros.
- From 20,000-50,000 euros, 734 thousand taxpayers declare, that is, 8.23 of all taxpayers who pay 20 billion euros or 23.28% of the declared income.
- For incomes from 50,000 euros and above, deductions for taxes and contributions reach 60%. There are approximately 70 thousand taxpayers who pay 25% of taxes.

Of the 100 euros that the state collects from income tax, the following are paid:

- 43 euros by employees
- 22 euros by pensioners
- 3 euros by farmers
- 12 euros by income earners
- 20 by entrepreneurs (source: kathimerini.gr -12/06/2023 12:44)

The above data confirm the existence of significant tax evasion in personal income tax as well as the large income inequalities in Greek society.

In Greece, the main burden of taxation is borne by employees who evade tax at a rate of 0.5%-1% (Matsaganis – Phlebotomou 2010 source: Dianeosis). It is difficult for employees to hide income since these are automatically declared to the tax authorities by the employer. There is the possibility of an “agreement”, a “mutual understanding” between employee and employer, the former to declare lower incomes and the latter to pay reduced insurance contributions, gifts, etc., when there is the mediation of undeclared work.

The governor of the Bank of Greece, citing data, described Greece as the champion in Europe in tax evasion. While declared income is 80 billion, consumption reached 140 billion. The difference of 60 billion with increased savings is an amount of "unknown origin". He estimates tax evasion at 18 billion euros, almost 10%.

Tax Evasion by the "Haves" and Businesses.

Tax evasion is widespread, by businesses in Greece, which mainly concerns the collection and non-return of VAT to state coffers. For 2023, the AADE scheduled 16 thousand audits in large-scale tax evasion investigations. In the seven-month period January-July 2022, 109 audits were carried out by the YEDDE and 98 violations were identified with a delinquency rate of 89.9%. VAT fraud also occurred at very high rates in 2021. 178 investigations were carried out and 139 violations were found with a delinquency rate reaching 81.5%.

The AADE Audits Focus on Large Businesses and Large Wealth

The High Wealth Taxpayers Audit Center has issued 656 audit orders for 2023, while another 1,248 audits are in progress. Additional taxes and fines of 48.5 million euros have been confirmed. At the same time, the control center for large enterprises has issued 448 new orders for 2023 and has confirmed additional taxes and fines of 129 million euros. The AADE is managing 175 cases of large debtors who owe 325 million euros, i.e. 1,857,142 euros on average each.

A common practice of large enterprises is to transfer tax profits to tax "havens". Research by the University of Berkeley and Copenhagen estimates the pre-tax profits that large companies earn from their activities in Greece at 23 billion. 1 billion is directed to tax havens like Ireland, Bermuda, Luxembourg. The Greek state collects 7% less revenue from corporate taxation. The study estimates that without these losses, the country would have a trade surplus of 0.3% instead of a deficit.

The study estimates that for every dollar paid in taxes in a low-tax country, approximately 5 dollars are lost in high-tax countries. Profit shifting shifts income from workers to shareholders, widening inequalities.

Profit shifting does not lead to a corresponding increase in wages and capital in countries with low rates. Only shareholders of multinationals are benefite. In January 2017, the OECD estimated the erosion of the tax base and the shifting of profits of multinationals to their own benefit at 100-200 billion dollars per year. Academic Gabriel Zoucman estimated that this figure is closer to 200 billion dollars. The erosion is greater in developing countries. Half of the global profits that “rest” in tax “havens” come from American multinationals, 25% from EU countries, 10% from the remaining OECD countries and 15% from developing countries (Hellenic Parliament Period 18 – Session 2 minutes.

Large companies have more opportunities for more efficient tax planning. Approximately 60% of global trade takes place with-

in multinational groups through intra-group transactions, which create large opportunities for tax evasion, through the transfer of profits to countries with lower taxation. Therefore, 4%-10% of income tax worldwide is not taxed, an amount corresponding to 100-240 billion dollars annually OECD /G20 source [58].

Conclusions

For a better understanding of the phenomenon of the shadow economy in Greece, we present the summary of the estimates for the shadow economy from the studies we mentioned from 1990 to the present:

Summary of estimates for the shadow economy in Greece

STUDENTS	HMEPOMHNIA	QUOTA
IMF	1989-1990	22,6%
IMF	1990-2000	28,7%
Palaiologou-Kassar 2003	1960-2000	25% (MO)
Enste- Schneider	1990-1993	27,2% (MO)
2000	1990	21,8%
	1994-1995	29,6% (MO)
	1996-1997	30,1% (MO)
Schneider 2013	2003-2013	24% (MO)
	2008-2013	24,4% (MO)
Schneider 2015	2003-2015	25,2% (MO)
Kelmanson WP/19/278	2000-2016	30,4% (MO)
Schneider–Asllani 2022	2003-2022	23,7% (MO)
Enste	2003-2018	26,1% (MO)
Medina-Schneider 2019	1991-2017	24,9% (MO)
Schneider-Davidescou 2022	2003-2022	22,03% (MO)
Transparency International Greece 2022	2008	28%
	2011	25%
	2015	23,2%
	2019	27%
Transparency International Greece 2022 Assessment 2021-027	2020	27%
	2021	24,9%
	2022	25,4%
	2023	25,2%
	2024	25,5%
	2025	25,4%
	2026	25,6%
	2027	25,7%

All estimates show that the shadow economy in Greece in recent decades has ranged from over 20% of GDP to approximately 30% of GDP.

To understand this difference in estimates, we should keep in mind that:

- Estimating the size of the shadow economy is not easy and the final estimate depends on the measurement method. The results of the estimates should be treated with caution and compared with the results of other studies.
- There is no ideal or superior method of measuring the shadow economy (WP/19/278). It is difficult to quantify the shadow economy. Nevertheless, using modern statistics, an estimation of this phenomenon with a reasonable degree of confidence can be achieved (analysis of the shadow economy in Europe p.1 https://ceswp.uaic.ro/articles)
- The final results depend on the choice of estimation methods which are numerous and often underestimate it [59].

However, it mainly depends on the nature of the phenomenon that remains in the shadows and expects us to illuminate it, to bring it to the surface.

The shadow economy in Greece is among the highest in the EU, exerting a significant influence on the exercise of economic policy. In conclusion, the shadow economy in Greece is encouraged by:

1. the high level of self-employment
2. taxation, mainly indirect and social security contributions.
3. unemployment

4. government policy (Transparency International Greece 2022)
5. Income Tax
6. tax ethics
7. the regulatory burden or the business freedom index (Taxation of the informal Economy in the EU Table.

In Greece, the participation of tax ethics in the shadow economy is quite high. Distrust of institutions continues to be the main cause of the failure of fiscal authorities to achieve the intended goals. Greece has many characteristics of a "transitional economy" and is more prone to higher levels of shadow activity [59].

High levels of regulation lead to a higher incidence of bribery, high taxes on official functions and a huge regulatory framework that leads to a large shadow economy. The business freedom index has a 5.7% impact on the shadow economy.

The overall unemployment rate in Greece remains high at 11.4% in February 2023 and 29.7% for young people under 25 (Eurostat), which contributes to the easy transfer of personnel from the formal to the informal sector of the economy for "exit" reasons. Unemployment has a positive effect on the economy since 2/3 of the income of the official unemployed created in the informal economy is spent in the official market. It has been found that the impact of unemployment on the informal economy of Spain ranged between 18% -22% of GDP with tax losses for the state but with gains for individuals [59].

In Greece, the impact of unemployment on the informal economy in the period the increase in immigration has slightly reduced the level of self-employment and unemployment. Self-employment in Greece offers great opportunities for tax evasion espite the bureaucratic obstacles, high taxation and the lack of manageable borrowing faced by the self-employed.

The percentage of self-employed people in Greece is over 32% when in the EU of 28 it is 14%, contributing to the increase in the shadow economy. For the period 1997-2017 the effect of self-employment on the shadow economy was 37.6% while the effect of direct taxes was 21.8% and 0.7% was the effect of GDP [60].

CHAPTER E

The Characteristics of those who Save Illegally and Evade Taxes in Greece.

Informal Economy

In Greece, more than half of the population is concentrated in these two regions of Attica and Central Macedonia (Elstat), while in terms of the participation of the regions in Gross Added Value, Attica participates with a percentage of 47.7% and Central Macedonia with 13.7% (Elstat 2022 Press Release for the year 2019). It is logical that where more than 60% of the Gross Added Value is produced, the largest percentage of the country's informal economy is also "produced". According to Tatsos (2001), 38.8% of informal economy workers are concentrated in Attica and 15.9% in Central Macedonia. The Cyclades and the Dodecanese present very high participation rates of the informal economy in the total population, reaching 75.5%. The effect of tourism and the professions that revolve around it is obvious.

We could mention the following as basic characteristics of the informal economy:

- The informal economy appears overwhelmingly greater in urban areas, followed by rural areas and finally semi-urban areas. The percentage of informal economy tends to decrease in urban areas and increase in rural areas.
- The informal economy mainly concerns workers and to a lesser extent retiree. Students and the unemployed "participate" dynamically in the informal economy.
- High employment in the service sector encourages informal economic activity.
- Small-sized businesses, especially in developing economies, "belong to the invisible side of the economy".
- The informal economy is intense in sectors with "seasonal" activity, e.g. tourism, agricultural work, where part-time or undeclared work is particularly widespread.
- The "part-time" employed are more likely to save money informally than the "fully" employed.
- Employment in the public or private sector does not determine a priori whether or not to participate in the informal economy.
- The higher a person's level of education, the lower the likelihood of saving money informally, because their income improves.
- Young people up to 35 years of age are closer to the "door" of the informal economy, covering its needs with seasonal work, e.g. tourism food service, due to the high unemployment rates in these ages. Greece is among the OECD countries with the highest rates of long-term unemployment and youth unemployment. The youth unemployment rate is doubling the total employment.
- Participation in the shadow economy does not seem to be affected by gender. Single people evade taxes less than married people with, children. The more children, the more tax evasion.
- The structure of the Greek economy drives shadow economic activity, affecting all the factors that have been internationally recognized as influencing it. A part of shadow economic activity is recorded in its official statistical data [61].

Tax Evasion

The classical theory of tax evasion assumes that people behave according to the neoclassical model, i.e. rationally. A taxpayer's compliance should be the result of a cost-benefit analysis. Thus, the degree of taxpayer compliance will increase if tax authorities increase inspections and fines The data show that tax evasion among freelancers is extensive. It is found that doctors, engineers, teachers, economists, accountants, lawyers and business consultants have the highest ratio of actual to declared income.

Table 11 below shows us the highest average tax evasion in various professions and the income multiplier.

Table 11

Professional categories	Average tax evasion (euro)	Income multiplier	Bill
Medical Professions	29.343	2,45	YES
Mechanical Professions	28.625	2,4	YES
Education	24.742	2,55	
Accounting & financial services	24.573	2,22	YES
Legal services	24.032	2,24	YES
Production units	22.598	2,26	
Media & Arts	18.36	2,22	
Hotels & restaurants	15.884	1,99	
Constructions	13.919	1,85	
Business services	9.438	1,62	MIXED
Transportation	9.32	1,51	
Agriculture	9.288	1,75	
Personal services & pharmacies	7.531	1,49	
Retail trade	5.215	1,27	
But	3.37	1,22	

source: Artavanis - Tsoutsouras --Morse

It is estimated that the actual income of the self-employed is 1.75 to 1.84 times higher than their declared income. For 2009, the evaded taxable income for the self-employed ranged between 26.8 and 29.9 billion euros with a median of 28.2 billion euros. The evaded income would correspond to 30% of the fiscal deficit for 2009.

Tax evasion is widespread throughout Greece, both in urban centers and in rural areas, where it may be stronger, perhaps due to less formal contracts with large companies or more social contracts with smaller communities. The delinquency rate for June 2019 across Greece, according to the AADE, reached 32%. Athens had a delinquency rate of 37%, Thessaloniki 55%, Patras 36%, Zakynthos 41%, Heraklion 28%, Argostoli 29%, Mykonos 43%, while delinquency in Corfu reached 62% (source: Iefimerida.gr -26/07/2019).

The sectors in which the highest delinquency was found, according to always according to the data of the AADE, are the following:

- Taxi operation 81%
- Car washes 75%
- Florists 73%
- Travel agencies 68 %
- Manicures and pedicures63%
- Lawyers 63%
- Grill houses 62%
- Hairdressers-Barbers62%
- Motorbike rental 57%
- Gas stations 54%
- Land-Sea Transport 53%
- Retail Trade 36%
- Catering 33%
- Accommodation 24%

(source: newsbeast.gr 27/07/2019)

Extensive tax evasion is observed in the construction sector where almost 1/3 of the sector's gross added value is produced in the shadows and does not appear in official statistics.

Undeclared work is widespread in construction (mainly when there are subcontractors) and in retail trade. Also, the number of cash transactions is high, mainly in small and medium-sized enterprises which are prone to bargaining and tax evasion.

According to the Eurobarometer survey no. 402 in 2013, of the total undeclared work in Greece, 67.3% concerned wage employment with 13.3% completely undeclared wage employment and 54% declared employment. 10.2% was undeclared self-employment and 22.5% was paid due to close social relations. 94- ILO - Diagnostic Report on undeclared work in the rates of undeclared work in Greece are very high.

IOBE (Foundation for Economic and Industrial Research 2012) reports the rate of undeclared work in the enterprises that were audited in 2011 was 30%, while IME-GSEE that in 2013 the undeclared work in the enterprises that were audited was 40.5% (ILO 2016 p. 25). The inspections at the SDOE recorded a high level of violations in the trade of liquid fuels, reaching 63% for 2018, with violations involving the smuggling of liquid fuels for quantities exceeding 1,665,000 liters of LPG and the failure to issue a large number of tax documents (tax evasion).

Also, the inspections of the SDOE in 2018 seized 13,367,740 pcs. of cigarettes and 17,979,650 grams. of tobacco. While for 20198 they seized. And 14,040,410 grams. of tobacco.

Cash seizures in 2018 were 79,115 and in 2019 153,275,000. Large tax evasion is also observed in the alcoholic beverages sector of branded products (Ministry of Economy.

3. Citizens' views on the underground economy and tax evasion. The views of public opinion on tax issues are interesting, as recorded by the study by Dianeosis on "Income Taxation in Greece".

76% of respondents believe that freelancers' "mockery" the state in the field of taxation, 85% believe that the tax burden is borne mainly by employees and 37.8% state that they evade taxes when they can, since so many evade taxes. There is also a 76.9% who consider those who believe that tax evasion in Greece can be suppressed to be naive. The acceptance of the shadow economy as a reality that does not change and the lack of trust in institutions and authorities, is clear for a large part of society. 57.6% consider tax evasion an antisocial behavior while 40.7% consider it a "legitimate defense" against excessive taxation. To address tax evasion, 41.7% call for a change in the tax system, 18.4% for a change in the justice system, 17.7% for a change in the education system, and 16.9% for a rationalization of public administration.

Also, a survey by PAMAK on a nationwide sample of 15,000 within the framework of the "Thalis" research program determined the percentage of respondents who participate in the shadow economy, ranging from an average of around 60% while among the unemployed it reaches 71.6%. The corresponding percentages are:

- For employees of the Private Sector 64%
- For retirees 61.3%
- For the self-employed 61.3%
- For entrepreneurs 60.7%
- For Public Employees 57.3%
-

Justify the shadow economic activity by:

- 52.4% of entrepreneurs
- 50.4% of the self-employed
- 46.7% of the unemployed
- 42.5% of employees in the private sector
- 32.4% of civil servants
- 30.7% of retirees

As for the causes, four out of ten consider the activity in the shadow economy justified due to:

- The tax burden 82.3%
- The unfair distribution of 77.1%
- The low quality and quantity of public services 72%
- "The others" do it too, 46%, while regarding tax ethics.
- 42% believe that this discourages tax evasion and
- 73.9% believe that high fines prevent it (Researcher V. Vlachos PAMAC).

Countermeasures – Policy Proposals

The size of the shadow economy in Greece makes it imperative to take immediate measures to address the phenomenon. The measures to be taken should be designed to arrest the possible trend for the increase of the shadow economy, in order to improve the economic and fiscal performance of the state mechanism. Stopping the shadow economy will improve state revenues, helping to finance the new plan to address the informal economy, directly improving the state's fiscal capabilities. Such measures could be:

1. Increase targeted tax audits in categories of professions and sectors of the economy where there is proven widespread tax evasion. The imposition and especially the collection of fines should be immediate, ensuring that their collection will not be delayed due to bureaucratic anchorages and political pressures.
2. Reduction of the tax burden in sectors of the economy and categories of professions where the tax burden they bear is much greater than their productive capabilities and in which extensive underground economy and tax evasion are observed, with the aim of their reintegration into the official economy. Providing incentives such as easy access to low-interest loans with favorable terms, providing consultants and technological support for their productive upgrading and easier reintegration into the formal economy, reducing bureaucratic obstacles and regulations are some measures that could be adopted by the state.
3. Training of the unemployed, immigrants, people with low skills and low level of education in specialties that the market needs in order to withdraw them from the undeclared labor market and integrate them into the formal economy. In parallel with the immediate measures, a redesign of the entire tax and fiscal policy of the state can be initiated, with the aim of reducing the benefits and increasing the costs for businesses and employees that operate in the shadow economy, creating negative conditions for participation in it. The redesign should include measures that will be characterized by:

- The stability of the tax system (in key points) for at least a decade. The continuous changes in the tax system create a climate of insecurity and uncertainty in businesses and employees, making it difficult for businesses, especially small and medium-sized ones, and employees to take decisions and initiatives. At the same time, a climate of suspicion is being cultivated for the favorable treatment of specific economic interests and professional groups.

- The rationalization of the tax system, e.g. taxes that have high administrative costs can be abolished and replaced with others. It is also necessary to review tax exemptions for the benefit of the weaker citizens and businesses. The provocative regime of tax immunity and tax exemption for multinational companies, banks, shipowners, etc. must stop.
- The simplification of the tax system by limiting interpretative circulars and tax laws. Their limitation will contribute to their better understanding by citizens and to their easier management by small and medium-sized enterprises, which in their majority do not have either the appropriate human resources or the know-how to cope with the difficulties posed by a complex tax system.
- Fairer distribution of tax burdens. The distribution of tax burdens should not conflict with the social perception of tax justice. A fair tax system should aim to protect weak citizens and sectors of the economy by reducing the tax burden and shifting it to citizens and businesses that can demonstrably meet their tax obligations. The imposition of tax burdens should be strictly progressive. Proportional taxation should be abandoned where it is imposed. There should be a drastic reduction in indirect taxation, mainly VAT on basic necessities in order to protect the income and consumption capacity of the weakest.

The enforcement of tax justice in combination with the strengthening of policies to improve the welfare state, protect maternity, youth, increase citizens' participation in political decisions and the possibility of their intervention in the economic decisions of each government, e.g. the possibility of a referendum on essential tax issues and issues of more general policy, the unemployed, etc. improves citizen confidence in government choices, cultivating tax awareness, an important enemy of the shadow economy. Citizen associations and labor unions should actively participate and intervene in the enforcement of tax justice and in the effort to reduce the shadow economy.

Technological Proficiency

The complexity and speed with which transactions are carried out in our time require a high level of technological sufficiency from the tax authorities in order to monitor transactions, collect taxes, deal with the shadow economy.

Weakening Cash Transactions and Strengthening Electronic Transactions

All research shows that cash transactions strengthen tax evasion, the circulation of "black money", corruption. Electronic transactions reduce tax evasion by helping tax authorities in carrying out quick checks with cross-checking of data. In Greece, electronic transactions have increased in recent years, however, the share of private consumption carried out through electronic transactions in 2018 was the second lowest among the eurozone economies.

State Intervention

Ultimately, state power is the one that is responsible for the course of an economy. Through coordinated processes, as foreseen by the functioning of a bourgeois democracy and the competent bodies and mechanisms that it manages and controls, it determines the terms of organization and operation of the economic field. The management of the shadow economy and its dealing with, to the extent that there is the political will to deal with it, will be carried out within the framework set by the implementation of the overall policy of each government and which should therefore be judged by society.

Epilogue

The shadow economy is not a natural phenomenon that exists and operates independently of the will of individuals and societies. It is directly linked to the way of organization of the economy (in this case the Capitalist one), to its goals and the means it uses to achieve them, but also to its capabilities. It is not part of “human nature”, nor a characteristic feature of some peoples, unless someone believes otherwise. Man is a “product” of the economic and social system of his time. It is what defines the legal and cultural framework within which the individual is shaped into a “conscious” or “unconscious” being, acting accordingly. The shadow economy, as "revealed" to us through this work, is part of the official economy, that is, the registered one, constituting its "structural component". It functions in a subsidiary manner to it in order to overcome weaknesses such as lack of liquidity, reduced accumulation of capital, increased unemployment, reduced investment activity, etc. When it forms tendencies of "autonomization" by growing excessively, it is treated as the great "enemy".

From the few elements we have cited, I think that the class dimension of the shadow economy is not in doubt. All researchers admit, directly or indirectly, that it contributes to the expansion of inequalities, fueling the vicious circle of social reaction-acceptance-participation, business irresponsibility and state bias in favor of an elite of individuals and businesses. Ultimately, it turns into a mechanism for transferring-expropriating wealth to the economic oligarchies, “weakening trust in institutions and eroding the social contract” (J.Stiglitz). It can be addressed if there is the necessary political will and social demand, but its elimination is impossible in the existing economic organization, unless we are led to “transcend” it.

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