

The Economics of Shadow Economy in Real Estate: The Case of Greece

D. Stasinopoulos¹, C.Kastanioti¹

¹ University of Peloponnese, Department of Business & Organization Administration, Kalamata, Greece

Corresponding author: D. Stasinopoulos, Avidou 130 Street, Zografou, Greece, Postal Code 15772,

Abstract:

The paper attempts to measure and report the extent and magnitude of Shadow Economy in Real Estate in Greece. The present research analyzed the sale prices of residential real estate for the years 2018 and 2022. In the first phase, the sale price per square meter was determined for the houses for sale, in particular apartments and detached houses, through websites of real estate ads for sale. In the second phase, the average sale price per square meter was determined for the same years, through the analysis of sales contracts as they are recorded in detail in the application of the Greek Ministry of Finance, the "Register of Real Estate Transfer Values". The comparison that followed showed that the percentage difference between these two figures is related to the shadow economy. From 2018 to 2022, the shadow economy in real estate shows a clear trend of decline, although it is still high. From 49.38% estimated to hide the real sale value in 2018, it decreased to 39.48% in 2022, not counting any discounts made. In 2018 the amount of the declaration of actual sales values was estimated at € 614.6 million and in 2022 at € 728.7 million.

At the same time, a quantitative survey was conducted on a random sample of 715 people in order to estimate the percentage of achieving a discount between the buyer and seller with a period of the last five years. The conclusion is that the discount rate in the majority ranges up to 5% especially in recent years, while rates up to 10% are noted on old properties. The above amount of deduction must be taken into account for the final determination of the estimated shadow economy in the real estate market.

Also identified were those properties that were sold with a significant difference from their objective value, i.e. over € 100,000.00 and over € 200,000.00, an important indication for "laundering" non-taxable and / or dirty money. In 2018, money laundering was estimated at €192.5 million to €231 million and in 2022 at €227 million to €303 million.

Keywords: Shadow Economy, Tax Evasion, Money Laundering, Real Estate

1. Introduction

1.1 Tax Evasion, Money Laundering in Real Estate

The shadow economy encompasses all those economic activities and income generated that escapes government regulation, taxation, or surveillance [12],[15],[16].

The real estate market contributes negatively to the phenomenon of the shadow economy when fraudsters choose either to launder money through it, or not to pay the real taxes for the purchase and sale of real estate, or to channel to it amounts that may not constitute "dirty money from illegal activities", but have not been fully taxed because it was not declared in their tax returns.

In particular, on the one hand we may have those who want contracts to show a low purchase price, in order to be taxed less and pay less transfer tax, which is around 3%.

Also in addition to the transfer tax, the purchase amount of a property is declared in the annual income statement, and must be justified by income from previous years. If a buyer concealed income in previous years, and subsequently declares the actual acquisition amount for a purchase, he will be taxed under the system of objective criteria, on nominal income covering the purchase of the property.

Thus, the buyer has an interest in declaring a purchase too low not to be taxed on income that he did not declare in the past. When drawing up the contract of acquisition of the property, the minimum acceptable amount of value ("objective value") is usually indicated and the remaining surplus is given "under the table" black to the seller by the buyer.

Here it is clarified that by using the term "objective value", we mean the minimum acceptable tax rates established by the Ministry of Finance for almost all regions of Greece based on predetermined criteria. These objective values are usually much lower than the actual commercial values.

On the other hand, we have people who want to launder dirty money through the real estate market. The process of money laundering through real estate is mainly as follows:

-A transfer of immovable property takes place at a price unusually higher than its objective value.

-The purchase price of a property is paid with cheques payable to the bearer or endorsed in favor of a third party, or related to the purchase.

-A property purchase price is paid through multiple checks issued to a seller's order on the same day.

-A purchase price of a property is paid with money coming from an account of a third party, which is not related to the buyer who appears in the purchase contract.

- A real estate transaction appears to have taken place without having complied with the form required by law, e.g. by private agreement.

- The details of the property mentioned in the transfer contract show that the property has become the property of the seller very recently.

1.2 Offshore companies and Real Estate Market

This is a common practice of indirect revenue channelling. Fraudsters exploit the anonymity of offshore companies to hide their financial transactions. The role of offshore centres in money laundering is important. They contribute to the laundering of illicit money, which is achieved by selling shares or selling property owned by the offshore company. Thus, money is reintegrated into economic cycles through legal transactions.

Offshore companies are seen as the best tool for money laundering. The crucial issue is the difficulty in identifying the beneficial owner behind these companies.

The difficulty lies in the fact that the financial institution does not have the ability to know the profile of the end investor buying shares or real estate in an offshore company with illicit money. As a result, the source of the money is lost.

For example, the one who owns black money in an offshore company, virtually lends a large portion of this money to the intermediary partner, who buys a property of value.

The middleman then sells the property outside the bank, at twice the price to the holder of the black money, and then returns the loan virtually outside the bank.

From then on, the holder of the black money sells the property to the offshore company at three times the amount he supposedly lent. In this way, black money is now transferred through a bank, as it was legalized by the purchase and sale of the property.

1.3 The real estate market in Greece

The real estate sector may not represent a large percentage of GDP as a percentage of economic transactions, but it is a lever of the economy as it is associated with macroeconomic aggregates and mainly with the economic development of a country. The state generates revenue through the real estate industry and there are many businesses employed in it.

The real estate market is a driving force of the economy mainly in periods of growth. Greece underwent major changes in its construction sector, especially after the major reconstruction that followed the country's accession to the Eurozone and the subsequent economic crisis of 2008 that changed construction activity worldwide. In general, the real estate market is greatly affected by fluctuations in the economic cycle, because it affects the general level of commodity prices, real estate prices and the level of housing interest rates in combination with the growth rate of the economy [7].

Before the outbreak of the Covid-19 pandemic and already in 2017, the real estate market in Greece had begun to grow due to the development of tourism both in urban centers and in the rest of the country. The real estate market in Greece is currently showing great mobility despite the adverse effects of the pandemic. It is of high investment interest and banks and Real Estate Investment Companies have played an important role in this.

The literature confirms that real estate investments are related to the general economic activity and prosperity of a region or a country. According to the model of DiPasquale & Wheaton (1992), a productive economy positively influences the demand for real estate. According to Chin et al. (2006) A strong and organized economic structure and a stable and predictable economy are considered important factors for the region's ability to attract foreign investment in real estate [2],[5].

According to the data of the OECD-2023 revenue report for the years 1990-2022, the tax structure of Greece's revenue is presented in detail. Of the 100% of the tax structure, 5.7% comes from real estate while the OECD average stands at 6%. As shown in Table 1, Greece's position in the world ranking for the years 2015-2016 is 11th [8].

Table 1: Greece, tax revenues

	Billion EUR					% of GCP				
	1990	2000	2010	2021	2022	1990	2000	2010	2021	2022
Total tax revenue	11.5	47.2	72.4	72.7	85.2	25.2	33.4	32.3	40.0	41.2
1000 Taxes on income, profits and capital gains	2.3	12.7	16.0	15.2	17.5	5.0	9.0	7.1	8.4	8.5
1100 Of Individuals	1.6	6.1	9.0	10.8	11.5	3.6	4.3	4.0	6.0	5.6
1200 Corporate	0.6	5.6	5.7	3.6	5.1	1.4	4.0	2.6	2.0	2.5
1300 Unallocable between 1100 and 1200	0.0	0.9	1.2	0.7	0.8	0.1	0.6	0.5	0.4	0.4
2000 Social security contributions	3.5	14.3	24.7	23.4	25.2	7.6	10.1	11.0	12.9	12.2
2100 Employees	1.7	7.6	13.3	12.2	13.6	3.8	5.4	5.9	6.7	6.6
2200 Employers	1.7	6.7	11.5	11.2	11.6	3.8	4.7	5.1	6.2	5.6
2300 Self-employed or non-employed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2400 Unallocable between 2100, 2200 and 230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3000 Taxes on payroll and workforce	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
4000 Taxes on property	0.5	3.6	3.7	5.3	5.7	1.2	2.6	1.7	2.9	2.7
4100 Recurrent taxes on immovable property	0.0	0.4	0.6	3.2	3.2	0.0	0.3	0.2	1.8	1.5
4200 Recurrent taxes on net wealth	0.0	0.7	1.3	1.2	1.3	0.0	0.5	0.6	0.6	0.6
4300 Estate inheritance and gift taxes	0.1	0.4	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1
4400 Taxes on financial and capital transactions	0.4	2.0	1.1	0.7	0.9	0.8	1.4	0.5	0.4	0.5
4500 Non-recurrent taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4600 Other recurrent taxes on property	0.0	0.1	0.6	0.0	0.0	0.0	0.1	0.3	0.0	0.0
5000 Taxes on goods and services	5.1	16.6	28.0	28.8	36.8	11.2	11.8	12.5	15.9	17.8
5100 Taxes on production, sale, transfer, etc	4.9	14.8	25.5	24.6	32.2	10.7	10.5	11.4	13.5	15.6
5110 General taxes	3.0	9.2	16.5	15.3	18.9	8.7	6.5	7.4	8.4	9.1
5111 Value added taxes	2.8	8.9	16.0	15.2	18.6	6.2	6.3	7.1	8.4	9.0
5120 Taxes on specific goods and services	1.8	5.5	8.9	9.2	13.3	3.9	3.9	4.0	5.1	6.4
5121 Excises	1.4	4.1	7.6	7.5	7.8	3.0	2.9	3.4	4.1	3.8
5200 Taxes on use of goods and perform activities	0.2	1.3	1.7	3.6	4.0	0.5	0.9	0.8	2.0	1.9
5300 Unallocable between 5100 and 5200	0.0	0.5	0.8	0.7	0.7	0.0	0.4	0.4	0.4	0.3
6000 Other taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Revenues collected on behalf of tie EU, total	0.1	0.2	0.3	0.4	0.6	02	0.2	0.1	0.2	0.3
Customs duties	0.1	0.2	0.3	0.3	0.4	02	0.1	0.1	0.2	0.2
SRf contributions				0.1	0.1				0.1	0.1

Source: OECD, 2023

1.4 The Real Estate Tax System in Greece

The tax is an important public financial source of revenue that contributes to the state budget and covers many public expenditures [6]. Tax laws are effective tools for influencing economic growth, the tendency to invest by opening new avenues for productive direction in a country's economy [4]. Taxation, apart from the role of cash collection of the country's public revenues, also plays an economic role, as it achieves a redistribution of wealth to the strata of society, control of inflation and improvement of business productivity [13],[14],[17].

In addition, it has a social role due to the exemptions given to citizens with low incomes or its maximization in products that harm public health such as smoking species.

According to Anderson (2019) property is a set of legal rights concerning certain objects, resources or interests to the exclusion of others, which are limited by responsibilities. The state sets taxes on property, and property tax is a tax system whose importance lies in perfecting the national taxation system and achieving the goals of the state's real estate and investment policy. Taxes are an effective tool for determining social, political and economic values in the state [1].

In all taxes that make up the tax system of a State with the primary objective of collecting public revenues, property taxation holds a prominent place. The imposition of various types of taxes, regular and exceptional, on real estate is not only of a savings nature, as is the case with other taxes, but aims, on the one hand, to prevent the concentration of excessive real estate in the hands of a few owners and, on the other hand, to provoke their economic exploitation through their exploitation, lease or sale, contributing to addressing the issues of unequal distribution of wealth and irrational distribution of resources. For example, a property owner who is liable to pay property tax has a greater incentive to rent or sell it in order to avoid the tax burden

In the Greek tax system, the following taxes are mainly found through real estate, directly or indirectly.

- *Income tax arising from real estate (rents)*
- *Taxation on the possession of immovable property*
- *Taxation on the transfer of immovable property*
- *The taxation of inheritance / parental benefit and donation of real estate.*
- *Taxation in favour of local authorities*
- *Cadastral fees, copies, etc. to the Hellenic Cadastre.*
- *Taxes, Fees and Contributions for building permits, arbitrary buildings, etc.*

1.5 Focus of this work

Through this paper, an attempt is made to identify the amount for the purchase of residential real estate that is indicated, in order for buyers either not to pay all the corresponding tax but mainly not to be called by the tax authorities to explain the source of the money. Thus, the problem is more serious and deeper than the apparent tax evasion of the amount usually of 3% on the transfer of real estate. On the contrary, if the entire purchase amount was declared and the buyer could not support its source of origin, he would be taxed either as non-taxable income if he declared it himself, as mentioned above, or at 33% in accordance with the provisions of paragraph 4 of article 21 of Law 4172/2013, if this was discovered by the audit of the tax authorities.

At the same time, the declaration of amounts for the purchase of real estate may conceal not only the crime of tax evasion but also proceeds from illegal activities.

2.Theoretical Background

The informal economy is not directly observable and measurable, so various methods have been developed to estimate it. Methods can be classified in several ways, such as distinguishing between methods using microeconomic data and methods based on macroeconomic variables, or between accounting and econometric methods.

In the literature, direct and indirect methods are distinguished. The direct method attempts to determine the extent of the informal economy by investigating the behavior of taxpayers. In particular, information is collected from those involved in the shadow economy anonymously, through investigations carried out or audits by the tax authority. The main direct methods are voluntary interviews, questionnaire surveys and tax audits.

Indirect methods are based on the fact that although informal economic activities are not directly visible and measurable, cross-checks from different sources may help identify the shadow economy. After all, it is very difficult for people who have evaded or laundered dirty money to admit it directly, even anonymously, to scholars. Therefore, indirect methods, although they may have a higher rate of statistical error, are the only way to identify the trend of the shadow economy [12],[13],[17].

3. Research Methodology

3.1 Data and methods

a) The basic assumption of the method followed in this paper for the estimation of the Informal Economy in the Real Estate Market is the following.

The difference between the average selling prices and the average prices finally recorded in the contracts is an indication of the hidden taxable matter of the purchases. This must also take into account any discounts, reductions made by sellers to buyers. For this purpose, the present study, as described in detail below, conducted quantitative research to investigate this percentage.

It could be argued that the method followed in this investigation concerns indirect technical analysis.

Finally, it is emphasized that this research focuses only on the Shadow Economy of the real estate market in apartments and detached houses and does not investigate the sale of commercial and other real estate.

Clearly, this method has weaknesses, with the main one being the range of any discounts carried out from the sale advertisement to the final sale and agreement of the property, but this paper approached it by conducting a targeted quantitative analysis on the one hand, and on the other hand the discount rates that emerged are consistent with the findings of the bookshelf and the articles on the real estate market.

3.2 Real Estate Ads-Average housing offer prices

The table 2 below shows the average offer price (€/sq.m.) in homes for the second quarter of 2018 and 2022 based on data published on a property promotion website. It is worth noting that these prices, utilized by these authors, were obtained through online classifieds websites [3]. The table below lists the prices per sqm that on average the properties are sold by their owners.

Table 2: Average house offer prices

N/A	Area	Advertisements – 2018 (€ per sqm)	Advertisements – 2022 (€ per sqm)
1	Attica Region	1,506	1,976
1.1	Center of Athens	1,162	1,700
1.2	<i>Athens - Northern Suburbs</i>	2,069	2,583
1.3	<i>Athens - Southern Suburbs</i>	2,233	3,067
1.4	<i>Athens - Western Suburbs</i>	1,111	1,500
1.5	<i>Athens - Eastern Suburbs</i>	1,400	1,714
1.6	<i>Rest of Attica</i>	1,500	1,722
1.7	<i>Piraeus</i>	1,070	1,547

1.7.1	<i>Piraeus (Except Suburbs)</i>	1,139	1,726
1.7.2	<i>Suburbs of Piraeus</i>	1,000	1,368
1.8	<i>Argosaronic Islands</i>	1,667	1,908
2	THESSALONIKI	961	1,392
2.1	<i>Municipality of Thessaloniki</i>	1,000	1,750
2.2	<i>Other Municipalities of Thessaloniki</i>	922	1,034
2.2.2	<i>Regional Municipalities Thessaloniki</i>	1,030	1,282
2.2.3	<i>Remaining Prefecture</i>	813	786
3	Aetolia-Acarmania Prefecture	845	892
4	Argolis Prefecture	1,340	1,500
5	Arcadia Prefecture	1,194	1,154
6	Arta Prefecture	854	732
7	Achaea Prefecture	843	1,000
8	Boeotia Prefecture	1,471	1,462
9	Grevena Prefecture	825	719
10	Drama Prefecture	680	722
11	Dodecanese Prefecture	1,411	1,575
12	Evros Prefecture	1,000	1,264
13	Evros Prefecture	1,136	1,217
14	Evrytania Prefecture	1,000	992
15	Zakynthos Prefecture	1,500	1,688
16	Ilia Prefecture	915	905
17	Imathia Prefecture	723	750
18	Heraklion Prefecture	1,312	1,333
19	Thesprotia PREFECTURE	1,250	1,233
20	Ioannina Prefecture	1,087	1,300
21	Kavala Prefecture	1,071	1,200
22	Karditsa Prefecture	590	688
23	Kastoria Prefecture	756	732
24	Kerkyra Prefecture	1,500	1,688
25	Kafelonias Prefecture	1,659	2,074
26	Kilkis Prefecture	467	644
27	Kozani Prefecture	667	688
28	Corinthos Prefecture	1,154	1,333
29	Kyklades Prefecture	2,467	2,887
30	Lakonia Prefecture	1,078	1,000
31	Larisa Prefecture	867	1,099
32	Lasithi Prefecture	1,667	1,679
33	Lesvos Prefecture	1,059	1,020
34	Leykada Prefecture	1,833	2,151
35	Magnisia Prefecture	1,300	1,403
35.1	Magnisia Prefecture (Except Skaithos Island, Skopelos Island & Alonnisos Islands)	1,000	1,056
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	1,600	1,750
36	Messinia Prefecture	1,250	1,346
37	Xanthi Prefecture	833	915
38	Pellasi Prefecture	676	789
39	Pierias Prefecture	933	1,000

40	Prevezas Prefecture	1,179	1,364
41	Rethymnou Prefecture	1,327	1,534
42	Rodopis Prefecture	885	917
43	Samos Prefecture	926	885
44	Serres Prefecture	667	747
45	Trikala Prefecture	943	974
46	Fthiotida Prefecture	955	1,000
47	Florinas Prefecture	533	542
48	Phocis Prefecture	1,522	1,350
49	Chalkidiki Prefecture	1,455	1,875
50	Chania Prefecture	1,667	1,842
51	Chios Prefecture	1,125	1,082
	<i>AVERAGE</i>	<i>1,158</i>	<i>1,313</i>

Source: [3],[9]

From the first website for the sale of real estate we have the following information:

Table 3: Average house offer prices-website 1

YEAR	AVERAGE SALES sqm
2018	984.25 €
2022	1,324.41 €

Source: [3]

From another real estate website we have the following prices

Table 4: Average house offer prices, website 2

YEAR	AVERAGE SALES sqm
2018	984.58 €
2022	1,361.28 €

Source: [9]

3.3 The Register of Real Estate Transfer Values

The General Secretariat for Public Property of the Ministry of Finance maintains in electronic form a Register of Real Estate Transfer Values, which is technically supported by the General Secretariat for Information Systems and Administrative Support of the Ministry of Finance. The Real Estate Transfer Value Register is a useful tool, which enables all interested parties (citizens, professionals, institutions, etc.) to monitor the formation of the real estate market. The application is informational in nature.

The use of this application is simple and anonymous. The user can receive information on the values of real estate transfers by area, based on criteria that he chooses from those available in the application, being able to perform either general or more specialized searches.

The Register of Real Estate Transfer Values keeps records of transfers of immovable property or rights in rem on immovable property that took place from 1 March 2017 onwards.

The sole purpose of maintaining the Register of Real Estate Transfer Values is to draw statistical conclusions and monitor the real estate market.

Data from transfers of immovable property or rights in rem on immovable property are collected in accordance with article 79 of Law 4484/2017.

Part of these data is published on the website of the Ministry of Finance (www.minfin.gr and www.gsis.gr) through a special application developed and maintained by the Directorate of Application Design and Development of the General Secretariat for Information Systems. Access to the application is done without passwords.

The data collected by Independent Authority for Public Revenue (IAPR) are:

A) Prefecture, Municipality or Community, Municipal or Community District, zone price, number of facades, number of building block, indication for inside/outside U.S.A.A. (System of Objective Determination of Property Values), property category, special conditions code, floor, surface of main building spaces, area of auxiliary spaces of building, year of construction, type of real estate right, percentage of co-ownership, Plot area, type of right in rem, percentage of co-ownership, total area of buildings on the plot.

B) Date of contract, objective value of the property or the real estate right of the certificate, total objective contract value, total contract price. These details are filled in during the finalization of the ENFIA certificate. by the person responsible for remembering and attaching it to the notarial document.

The details of the properties disclosed are:

i) *The area of the property at the level of Prefecture or Prefecture and Municipality*

ii) *The category of property (house or apartment, detached house, etc.)*

iii) *The surface of the property (sq.m.)*

iv) *The year of construction of the property*

v) *The date of the contract*

(vi) *The nature of the right in rem*

(vii) *The price of the right*

The operation and use of the Register shall be carried out in a manner that ensures the anonymity of the parties involved and tax secrecy, applying accordingly the provisions of articles 17 and 17A of Law 4174/2013 [11].

3.3.1 Data from the Register of Real Estate Transfer Values

According to the data of the Register of Real Estate Transfer Values, the following transfers have taken place in the period 2017 to 2023 (see table 5):

Table 5: Number of Properties Transferred

Year	Number of Total Contracts	Difference (%)	Number of Purchase/Sale Contracts For Apartments/Detached Houses	Difference (%)
2017	20,418	-	13,301	-
2018	31,680	55%	21,255	60%
2019	35,662	13%	23,650	11%
2020	27,112	-24%	16,952	-28%
2021	37,105	37%	22,827	35%
2022	36,857	-1%	23,089	1%
2023	39,106	6%	24,779	7%

Source:[11]

Also the total value of the royalty paid is (see table 6):

Table 6: Value of Transferred Real Estate

Year	Value of Total Contracts	Difference (%)	Value of Buying/Selling Apartments/Detached Houses	Difference (%)
2017	1,022,309,980.32 €	-	758,012,124.82 €	-
2018	1,607,929,502.79 €	57%	1,244,552,951.47 €	64%
2019	2,093,078,686.59 €	30%	1,603,762,456.02 €	29%
2020	1,601,187,746.83 €	-24%	1,100,490,942.62 €	-31%
2021	2,890,505,932.54 €	81%	1,558,342,969.64 €	42%
2022	2,521,584,830.58 €	-13%	1,845,756,666.06 €	18%
2023	2,921,567,914.23 €	16%	2,257,180,617.05 €	22%

Source:[11]

3.3.2 Data from the Register of Real Estate Transfer Values

Then, in order to determine the price per sqm, the researchers processed all contracts for sale apartments and detached houses, where there was 100% ownership by the seller while the properties were completed.

Thus, for the year 2018, 15,610 contracts were utilized, for the year 2022 and 15,922 contracts.

Table 7: Comparison of years 2018-2022

N/A	Area	Number of Observations-Contracts 2018	Number of Observations-Contracts 2022
1	Attica Region	8,621	7,834
1.1	Center of Athens	4,216	3,297
1.2	<i>Athens - Northern Suburbs</i>	780	865
1.3	<i>Athens - Southern Suburbs</i>	1,199	1,077
1.4	<i>Athens - Western Suburbs</i>	447	557
1.5	<i>Athens - Eastern Suburbs</i>	502	431
1.6	<i>Rest of Attica</i>	650	716
1.7	<i>Piraeus</i>	827	891
1.7.1	<i>Piraeus (Except Suburbs)</i>	395	361
1.7.2	<i>Suburbs of Piraeus</i>	308	390
1.8	<i>Argosaronic Islands</i>	124	140
2	THESSALONIKI	2,252	2,452
2.1	<i>Municipality of Thessaloniki</i>	1,269	1,168
2.2	<i>Other Municipalities of Thessaloniki</i>	983	1,284
2.2.2	<i>Regional Municipalities Thessaloniki</i>		
2.2.3	<i>Remaining Prefecture</i>		
3	Aetolia-Acarmania Prefecture	94	124
4	Argolis Prefecture	93	127
5	Arcadia Prefecture	64	92
6	Arta Prefecture	29	26
7	Achaea Prefecture	320	447
8	Boeotia Prefecture	45	70
9	Grevena Prefecture	20	9

10	Drama Prefecture	53	94
11	Dodecanese Prefecture	163	200
12	Evros Prefecture	70	97
13	Evros Prefecture	138	213
14	Evrytania Prefecture	12	17
15	Zakynthos Prefecture	37	38
16	Ilia Prefecture	40	71
17	Imathia Prefecture	76	127
18	Heraklion Prefecture	78	50
19	Thesprotia PREFECTURE	29	29
20	Ioannina Prefecture	89	88
21	Kavala Prefecture	252	285
22	Karditsa Prefecture	35	32
23	Kastoria Prefecture	33	26
24	Kerkyra Prefecture	90	90
25	Kafelonias Prefecture	59	35
26	Kilkis Prefecture	44	115
27	Kozani Prefecture	120	130
28	Corinthos Prefecture	179	197
29	Kiklades Prefecture	322	292
30	Lakonia Prefecture	83	115
31	Larisa Prefecture	143	156
32	Lasithi Prefecture	76	79
33	Lesvos Prefecture	96	163
34	Leykada Prefecture	23	23
35	Magnisia Prefecture	240	224
35.1	Magnisia Prefecture (Except Skaithos Island, Skopelos Island & Alonnisos Islands)	208	207
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	32	17
36	Messinia Prefecture	135	125
37	Xanthi Prefecture	128	166
38	Pellas Prefecture	85	83
39	Pierias Prefecture	143	160
40	Prevezas Prefecture	38	35
41	Rethymnou Prefecture	86	112
42	Rodopis Prefecture	118	134
43	Samos Prefecture	47	64
44	Serres Prefecture	105	150
45	Trikala Prefecture	51	43
46	Fthiotida Prefecture	115	137
47	Florinas Prefecture	7	4
48	Phocis Prefecture	14	25
49	Chalkidiki Prefecture	314	386
50	Chania Prefecture	54	51
51	Chios Prefecture	52	80
<i>TOTAL</i>		<i>15,610</i>	<i>15,922</i>

Source:[11]

4. Research Findings

4.1 Estimated Shadow Economy in the Greek Real Estate Market

The table 8 below shows the sales prices per sqm through the ads (Columns 3,5) in relation to the prices per sqm resulting from the sales contracts (Columns 4,6). In the first instance, there is a large difference between the selling price and the contract price. It is obvious that even if a discount percentage (5-10%) is taken, the remaining difference obviously results from a suggestion of real selling prices in the context of the black economy. In any case, this article attempts through quantitative research to determine the level of discount on real estate (apartments or detached houses).

Table 8: Comparison of Website Prices with Real Estate Transfer Values Register

N/A	Area	Advertisements - 2018 (€ per sqm)	Real Estate Transfer Value Registry 2018 Ministry of Finance	Advertisements - 2022 (€ per sqm)	Real Estate Transfer Value Registry 2022 Ministry of Finance
1	Attica Region	1,506.36 €	943.31 €	1,976.14 €	1,398.47 €
1.1	Center of Athens	1,162.00 €	855.73 €	1,700.00 €	1,377.91 €
1.2	<i>Athens - Northern Suburbs</i>	2,069.00 €	1,284.64 €	2,583.00 €	1,721.00 €
1.3	<i>Athens - Southern Suburbs</i>	2,233.00 €	1,179.36 €	3,067.00 €	1,743.68 €
1.4	<i>Athens - Western Suburbs</i>	1,111.00 €	674.38 €	1,500.00 €	896.43 €
1.5	<i>Athens - Eastern Suburbs</i>	1,400.00 €	716.87 €	1,714.00 €	1,240.99 €
1.6	<i>Rest of Attica</i>	1,500.00 €	1,084.18 €	1,722.00 €	1,585.30 €
1.7	<i>Piraeus</i>	1,069.50 €	641.09 €	1,547.00 €	1,007.48 €
1.7.1	<i>Piraeus (Except Suburbs)</i>	1,139.00 €	662.57 €	1,726.00 €	1,033.46 €
1.7.2	<i>Suburbs of Piraeus</i>	1,000.00 €	551.44 €	1,368.00 €	844.64 €
1.8	<i>Argosaronic Islands</i>	1,667.00 €	808.19 €	1,908.00 €	1,382.14 €
2	THESSALONIKI	960.75 €	593.43 €	1,392.00 €	999.38 €
2.1	<i>Municipality of Thessaloniki</i>	1,000.00 €	600.02 €	1,750.00 €	1,074.12 €
2.2	<i>Other Municipalities of Thessaloniki</i>	921.50 €	585.00 €	1,034.00 €	931.38 €
2.2.2	<i>Regional Municipalities Thessaloniki</i>	1,030.00 €		1,282.00 €	
2.2.3	<i>Remaining Prefecture</i>	813.00 €		786.00 €	
3	Aetolia-Acarnania Prefecture	845.00 €	431.21 €	892.00 €	518.23 €
4	Argolis Prefecture	1,340.00 €	680.47 €	1,500.00 €	1,063.83 €
5	Arcadia Prefecture	1,194.00 €	508.30 €	1,154.00 €	576.96 €
6	Arta Prefecture	854.00 €	333.71 €	732.00 €	471.86 €
7	Achaea Prefecture	843.00 €	481.67 €	1,000.00 €	753.96 €
8	Boeotia Prefecture	1,471.00 €	327.33 €	1,462.00 €	520.61 €
9	Grevena Prefecture	825.00 €	405.18 €	719.00 €	395.84 €
10	Drama Prefecture	680.00 €	340.78 €	722.00 €	591.15 €
11	Dodecanese Prefecture	1,411.00 €	819.61 €	1,575.00 €	1,151.91 €

12	Evros Prefecture	1,000.00 €	499.13 €	1,264.00 €	796.19 €
13	Evros Prefecture	1,136.00 €	493.33 €	1,217.00 €	629.24 €
14	Evrytania Prefecture	1,000.00 €	259.05 €	992.00 €	356.19 €
15	Zakynthos Prefecture	1,500.00 €	704.97 €	1,688.00 €	934.06 €
16	Ilia Prefecture	915.00 €	269.91 €	905.00 €	450.41 €
17	Imathia Prefecture	723.00 €	431.04 €	750.00 €	479.45 €
18	Heraklion Prefecture	1,312.00 €	596.04 €	1,333.00 €	681.02 €
19	Thesprotia PREFECTURE	1,250.00 €	437.65 €	1,233.00 €	755.12 €
20	Ioannina Prefecture	1,087.00 €	513.91 €	1,300.00 €	677.09 €
21	Kavala Prefecture	1,071.00 €	543.23 €	1,200.00 €	889.26 €
22	Karditsa Prefecture	590.00 €	264.56 €	688.00 €	433.79 €
23	Kastoria Prefecture	756.00 €	322.19 €	732.00 €	433.84 €
24	Kerkyra Prefecture	1,500.00 €	859.59 €	1,688.00 €	1,180.68 €
25	Kafelonias Prefecture	1,659.00 €	1,020.02 €	2,074.00 €	1,176.46 €
26	Kilkis Prefecture	467.00 €	310.23 €	644.00 €	501.73 €
27	Kozani Prefecture	667.00 €	450.98 €	688.00 €	438.16 €
28	Corinthos Prefecture	1,154.00 €	568.66 €	1,333.00 €	967.52 €
29	Kiklades Prefecture	2,467.00 €	1,375.13 €	2,887.00 €	1,966.97 €
30	Lakonia Prefecture	1,078.00 €	497.14 €	1,000.00 €	445.95 €
31	Larisa Prefecture	867.00 €	397.80 €	1,099.00 €	615.93 €
32	Lasithi Prefecture	1,667.00 €	511.97 €	1,679.00 €	585.03 €
33	Lesvos Prefecture	1,059.00 €	729.33 €	1,020.00 €	445.88 €
34	Leykada Prefecture	1,833.00 €	543.09 €	2,151.00 €	1,012.43 €
35	Magnisia Prefecture	1,300.00 €	513.14 €	1,403.00 €	711.73 €
35.1	Magnisia Prefecture (Except Skaithos Island, Skopelos Island & Alonnisos Islands)	1,000.00 €	468.55 €	1,056.00 €	669.76 €
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	1,600.00 €	802.98 €	1,750.00 €	1,222.86 €
36	Messinia Prefecture	1,250.00 €	569.15 €	1,346.00 €	752.06 €
37	Xanthi Prefecture	833.00 €	507.78 €	915.00 €	591.54 €
38	Pellas Prefecture	676.00 €	384.39 €	789.00 €	402.26 €
39	Pierias Prefecture	933.00 €	462.94 €	1,000.00 €	656.99 €
40	Prevezas Prefecture	1,179.00 €	707.70 €	1,364.00 €	630.59 €
41	Rethymnou Prefecture	1,327.00 €	839.61 €	1,534.00 €	1,054.79 €
42	Rodopis Prefecture	885.00 €	512.06 €	917.00 €	643.78 €
43	Samos Prefecture	926.00 €	318.32 €	885.00 €	564.26 €
44	Serres Prefecture	667.00 €	304.00 €	747.00 €	568.80 €
45	Trikala Prefecture	943.00 €	399.66 €	974.00 €	630.16 €
46	Fthiotida Prefecture	955.00 €	732.28 €	1,000.00 €	450.60 €
47	Florinas Prefecture	533.00 €	480.12 €	542.00 €	52.97 €
48	Phocis Prefecture	1,522.00 €	428.73 €	1,350.00 €	475.78 €
49	Chalkidiki Prefecture	1,455.00 €	760.28 €	1,875.00 €	1,021.39 €
50	Chania Prefecture	1,667.00 €	769.76 €	1,842.00 €	960.09 €
51	Chios Prefecture	1,125.00 €	388.30 €	1,082.00 €	526.57 €
	<i>AVERAGE</i>	<i>1,158.40 €</i>	<i>586.35 €</i>	<i>1,312.82 €</i>	<i>794.53 €</i>

Source:The Authors

The table 9 below shows the percentage of estimated concealment of taxable matter the rank of the areas in the total concealment. Clearly, however, the reader must also take into account the number of contracts from which data were drawn for the most complete picture.

Table 9: Percentage of concealment of value of transferred properties

N/A	Area	Hiding Rate 2018	Position	Hiding Rate 2022	Position
1	Attica Region	-37.38%	56	-29.23%	51
1.1	Center of Athens	-26.36%	63	-18.95%	62
1.2	<i>Athens - Northern Suburbs</i>	-37.91%	55	-33.37%	45
1.3	<i>Athens - Southern Suburbs</i>	-47.18%	38	-43.15%	26
1.4	<i>Athens - Western Suburbs</i>	-39.30%	51	-40.24%	29
1.5	<i>Athens - Eastern Suburbs</i>	-48.80%	36	-27.60%	54
1.6	<i>Rest of Attica</i>	-27.72%	62	-7.94%	65
1.7	<i>Piraeus</i>	-40.06%	48	-34.88%	43
1.7.1	<i>Piraeus (Except Suburbs)</i>	-41.83%	46	-40.12%	30
1.7.2	<i>Suburbs of Piraeus</i>	-44.86%	39	-38.26%	33
1.8	<i>Argosaronic Islands</i>	-51.52%	26	-27.56%	55
2	THESSALONIKI	-38.23%	54	-28.21%	53
2.1	<i>Municipality of Thessaloniki</i>	-40.00%	49	-38.62%	32
2.2	<i>Other Municipalities of Thessaloniki</i>	-36.52%	58	-9.92%	64
2.2.2	<i>Regional Municipalities Thessaloniki</i>		66		66
2.2.3	<i>Remaining Prefecture</i>		67		67
3	Aetolia-Acarnania Prefecture	-48.97%	35	-41.90%	27
4	Argolis Prefecture	-49.22%	34	-29.08%	52
5	Arcadia Prefecture	-57.43%	13	-50.00%	13
6	Arta Prefecture	-60.92%	10	-35.54%	40
7	Achaea Prefecture	-42.86%	42	-24.60%	59
8	Boeotia Prefecture	-77.75%	1	-64.39%	4
9	Grevena Prefecture	-50.89%	27	-44.95%	21
10	Drama Prefecture	-49.89%	31	-18.12%	63
11	Dodecanese Prefecture	-41.91%	45	-26.86%	57
12	Evros Prefecture	-50.09%	30	-37.01%	34
13	Evros Prefecture	-56.57%	15	-48.30%	17
14	Evrytania Prefecture	-74.10%	2	-64.09%	5
15	Zakynthos Prefecture	-53.00%	24	-44.66%	22
16	Ilia Prefecture	-70.50%	4	-50.23%	12
17	Imathia Prefecture	-40.38%	47	-36.07%	39
18	Heraklion Prefecture	-54.57%	17	-48.91%	16
19	Thesprotia PREFECTURE	-64.99%	9	-38.76%	31
20	Ioannina Prefecture	-52.72%	25	-47.92%	18
21	Kavala Prefecture	-49.28%	33	-25.90%	58

22	Karditsa Prefecture	-55.16%	16	-36.95%	35
23	Kastoria Prefecture	-57.38%	14	-40.73%	28
24	Kerkyra Prefecture	-42.69%	43	-30.05%	49
25	Kafelonias Prefecture	-38.52%	53	-43.28%	25
26	Kilkis Prefecture	-33.57%	59	-22.09%	61
27	Kozani Prefecture	-32.39%	60	-36.31%	37
28	Corinthos Prefecture	-50.72%	28	-27.42%	56
29	Kiklades Prefecture	-44.26%	40	-31.87%	46
30	Lakonia Prefecture	-53.88%	21	-55.41%	7
31	Larisa Prefecture	-54.12%	20	-43.96%	24
32	Lasithi Prefecture	-69.29%	6	-65.16%	2
33	Lesvos Prefecture	-31.13%	61	-56.29%	6
34	Leykada Prefecture	-70.37%	5	-52.93%	10
35	Magnisia Prefecture	-60.53%	11	-49.27%	14
35.1	Magnisia Prefecture (Except Skaithos Island, Skopelos Island & Alonnisos Islands)	-53.15%	23	-36.58%	36
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	-49.81%	32	-30.12%	48
36	Messinia Prefecture	-54.47%	18	-44.13%	23
37	Xanthi Prefecture	-39.04%	52	-35.35%	41
38	Pellasi Prefecture	-43.14%	41	-49.02%	15
39	Pierias Prefecture	-50.38%	29	-34.30%	44
40	Preveza Prefecture	-39.97%	50	-53.77%	9
41	Rethymnou Prefecture	-36.73%	57	-31.24%	47
42	Rodopi Prefecture	-42.14%	44	-29.79%	50
43	Samos Prefecture	-65.62%	7	-36.24%	38
44	Serres Prefecture	-54.42%	19	-23.86%	60
45	Trikala Prefecture	-57.62%	12	-35.30%	42
46	Fthiotida Prefecture	-23.32%	64	-54.94%	8
47	Florina Prefecture	-9.92%	65	-90.23%	1
48	Phocis Prefecture	-71.83%	3	-64.76%	3
49	Chalkidiki Prefecture	-47.75%	37	-45.53%	20
50	Chania Prefecture	-53.82%	22	-47.88%	19
51	Chios Prefecture	-65.48%	8	-51.33%	11
<i>AVERAGE</i>		<i>-49.38%</i>		<i>-39.48%</i>	

Source: The Authors

4.2 Estimated Shadow Economy in the Greek Real Estate Market per year

YEAR 2018

Of the 65 areas analyzed, the first places are occupied by provincial cities (see table 10).

Table 10: Classification of Areas by Hiding Rate, year 2018

N/A	Area	Advertisements - 2018 (€ per sqm)	Real Estate Transfer Value Registry 2018	Hiding Rate 2018	Position	Number Of Observations- Contracts 2018
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			Ministry of Finance			
8	Boeotia Prefecture	1,471.00 €	327.33 €	-77.75%	1	45
14	Evrytania Prefecture	1,000.00 €	259.05 €	-74.10%	2	12
48	Phocis Prefecture	1,522.00 €	428.73 €	-71.83%	3	14
16	Ilia Prefecture	915.00 €	269.91 €	-70.50%	4	40
34	Leykada Prefecture	1,833.00 €	543.09 €	-70.37%	5	23
32	Lasithi Prefecture	1,667.00 €	511.97 €	-69.29%	6	76
43	Samos Prefecture	926.00 €	318.32 €	-65.62%	7	47
51	Chios Prefecture	1,125.00 €	388.30 €	-65.48%	8	52
19	Thesprotia PREFECTURE	1,250.00 €	437.65 €	-64.99%	9	29
6	Arta Prefecture	854.00 €	333.71 €	-60.92%	10	29
35	Magnisia Prefecture	1,300.00 €	513.14 €	-60.53%	11	240
45	Trikala Prefecture	943.00 €	399.66 €	-57.62%	12	51
5	Arcadia Prefecture	1,194.00 €	508.30 €	-57.43%	13	64
23	Kastoria Prefecture	756.00 €	322.19 €	-57.38%	14	33
13	Evros Prefecture	1,136.00 €	493.33 €	-56.57%	15	138
22	Karditsa Prefecture	590.00 €	264.56 €	-55.16%	16	35
18	Heraklion Prefecture	1,312.00 €	596.04 €	-54.57%	17	78
36	Messinia Prefecture	1,250.00 €	569.15 €	-54.47%	18	135
44	Serres Prefecture	667.00 €	304.00 €	-54.42%	19	105
31	Larisa Prefecture	867.00 €	397.80 €	-54.12%	20	143
30	Lakonia Prefecture	1,078.00 €	497.14 €	-53.88%	21	83
50	Chania Prefecture	1,667.00 €	769.76 €	-53.82%	22	54
35.1	Magnisia Prefecture (Except Skaithos Island, Skopelos Island & Alonnisos Islands)	1,000.00 €	468.55 €	-53.15%	23	208
15	Zakynthos Prefecture	1,500.00 €	704.97 €	-53.00%	24	37
20	Ioannina Prefecture	1,087.00 €	513.91 €	-52.72%	25	89
1.8	Argosaronic Islands	1,667.00 €	808.19 €	-51.52%	26	124
9	Grevena Prefecture	825.00 €	405.18 €	-50.89%	27	20
28	Corinthos Prefecture	1,154.00 €	568.66 €	-50.72%	28	179
39	Pierias Prefecture	933.00 €	462.94 €	-50.38%	29	143
12	Evros Prefecture	1,000.00 €	499.13 €	-50.09%	30	70
10	Drama Prefecture	680.00 €	340.78 €	-49.89%	31	53
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	1,600.00 €	802.98 €	-49.81%	32	32
21	Kavala Prefecture	1,071.00 €	543.23 €	-49.28%	33	252
4	Argolis Prefecture	1,340.00 €	680.47 €	-49.22%	34	93
3	Aetolia-Acarmania Prefecture	845.00 €	431.21 €	-48.97%	35	94
1.5	Athens - Eastern Suburbs	1,400.00 €	716.87 €	-48.80%	36	502

49	Chalkidiki Prefecture	1,455.00 €	760.28 €	-47.75%	37	314
1.3	<i>Athens - Southern Suburbs</i>	2,233.00 €	1,179.36 €	-47.18%	38	1,199
1.7.2	<i>Suburbs of Piraeus</i>	1,000.00 €	551.44 €	-44.86%	39	308
29	Kiklades Prefecture	2,467.00 €	1,375.13 €	-44.26%	40	322
38	Pellias Prefecture	676.00 €	384.39 €	-43.14%	41	85
7	Achaia Prefecture	843.00 €	481.67 €	-42.86%	42	320
24	Kerkyra Prefecture	1,500.00 €	859.59 €	-42.69%	43	90
42	Rodopis Prefecture	885.00 €	512.06 €	-42.14%	44	118
11	Dodecanese Prefecture	1,411.00 €	819.61 €	-41.91%	45	163
1.7.1	<i>Piraeus (Except Suburbs)</i>	1,139.00 €	662.57 €	-41.83%	46	395
17	Imathia Prefecture	723.00 €	431.04 €	-40.38%	47	76
1.7	<i>Piraeus</i>	1,069.50 €	641.09 €	-40.06%	48	827
2.1	<i>Municipality of Thessaloniki</i>	1,000.00 €	600.02 €	-40.00%	49	1,269
40	Prevezas Prefecture	1,179.00 €	707.70 €	-39.97%	50	38
1.4	<i>Athens - Western Suburbs</i>	1,111.00 €	674.38 €	-39.30%	51	447
37	Xanthi Prefecture	833.00 €	507.78 €	-39.04%	52	128
25	Kafelonia Prefecture	1,659.00 €	1,020.02 €	-38.52%	53	59
2	THESSALONIKI	960.75 €	593.43 €	-38.23%	54	2,252
1.2	<i>Athens - Northern Suburbs</i>	2,069.00 €	1,284.64 €	-37.91%	55	780
1	Attica Region	1,506.36 €	943.31 €	-37.38%	56	8,621
41	Rethymnou Prefecture	1,327.00 €	839.61 €	-36.73%	57	86
2.2	<i>Other Municipalities of Thessaloniki</i>	921.50 €	585.00 €	-36.52%	58	983
26	Kilkis Prefecture	467.00 €	310.23 €	-33.57%	59	44
27	Kozani Prefecture	667.00 €	450.98 €	-32.39%	60	120
33	Lesvos Prefecture	1,059.00 €	729.33 €	-31.13%	61	96
1.6	<i>Rest of Attica</i>	1,500.00 €	1,084.18 €	-27.72%	62	650
1.1	Center of Athens	1,162.00 €	855.73 €	-26.36%	63	4,216
46	Fthiotida Prefecture	955.00 €	732.28 €	-23.32%	64	115
47	Florinas Prefecture	533.00 €	480.12 €	-9.92%	65	7
2.2.2	<i>Regional Municipalities Thessaloniki</i>	1,030.00 €			66	
2.2.3	<i>Remaining Prefecture</i>	813.00 €			67	
AVERAGE		1,158.40 €	586.35 €	-49.38%		

Source: The Authors

YEAR 2022

Table 11: Classification of Areas by Hide Rate, year 2022

N/A	Area	Advertisements - 2022 (€ per sqm)	Real Estate Transfer Value Registry 2022 Ministry of Finance	HIDING RATE 2022	POSITION	NUMBER OF OBSERVATIONS- CONTRACTS 2022
47	Florinas Prefecture	542,00 €	52,97 €	-90.23%	1	4
32	Lasithi Prefecture	1.679,00 €	585,03 €	-65.16%	2	79
48	Phocis Prefecture	1.350,00 €	475,78 €	-64.76%	3	25
8	Boeotia Prefecture	1.462,00 €	520,61 €	-64.39%	4	70
14	Evrytania Prefecture	992,00 €	356,19 €	-64.09%	5	17
33	Lesvos Prefecture	1.020,00 €	445,88 €	-56.29%	6	163
30	Lakonia Prefecture	1.000,00 €	445,95 €	-55.41%	7	115
46	Fthiotida Prefecture	1.000,00 €	450,60 €	-54.94%	8	137
40	Prevezas Prefecture	1.364,00 €	630,59 €	-53.77%	9	35
34	Leykada Prefecture	2.151,00 €	1.012,43 €	-52.93%	10	23
51	Chios Prefecture	1.082,00 €	526,57 €	-51.33%	11	80
16	Ilia Prefecture	905,00 €	450,41 €	-50.23%	12	71
5	Arcadia Prefecture	1.154,00 €	576,96 €	-50.00%	13	92
35	Magnisia Prefecture	1.403,00 €	711,73 €	-49.27%	14	224
38	Pellas Prefecture	789,00 €	402,26 €	-49.02%	15	83
18	Heraklion Prefecture	1.333,00 €	681,02 €	-48.91%	16	50
13	Evros Prefecture	1.217,00 €	629,24 €	-48.30%	17	213
20	Ioannina Prefecture	1.300,00 €	677,09 €	-47.92%	18	88
50	Chania Prefecture	1.842,00 €	960,09 €	-47.88%	19	51
49	Chalkidiki Prefecture	1.875,00 €	1.021,39 €	-45.53%	20	386
9	Grevena Prefecture	719,00 €	395,84 €	-44.95%	21	9
15	Zakynthos Prefecture	1.688,00 €	934,06 €	-44.66%	22	38
36	Messinia Prefecture	1.346,00 €	752,06 €	-44.13%	23	125
31	Larisa Prefecture	1.099,00 €	615,93 €	-43.96%	24	156
25	Kafelonias Prefecture	2.074,00 €	1.176,46 €	-43.28%	25	35
1.3	<i>Athens - Southern Suburbs</i>	3.067,00 €	1.743,68 €	-43.15%	26	1,077
3	Aetolia-Acarmania Prefecture	892,00 €	518,23 €	-41.90%	27	124
23	Kastoria Prefecture	732,00 €	433,84 €	-40.73%	28	26
1.4	<i>Athens - Western Suburbs</i>	1.500,00 €	896,43 €	-40.24%	29	557
1.7.1	<i>Piraeus (Except Suburbs)</i>	1.726,00 €	1.033,46 €	-40.12%	30	361
19	Thesprotia PREFECTURE	1.233,00 €	755,12 €	-38.76%	31	29
2.1	<i>Municipality of Thessaloniki</i>	1.750,00 €	1.074,12 €	-38.62%	32	1,168
1.7.2	<i>Suburbs of Piraeus</i>	1.368,00 €	844,64 €	-38.26%	33	390
12	Evros Prefecture	1.264,00 €	796,19 €	-37.01%	34	97
22	Karditsa Prefecture	688,00 €	433,79 €	-36.95%	35	32
35.1	Magnisia Prefecture (Except Skaithos)	1.056,00 €	669,76 €	-36.58%	36	207

	Island, Skopelos Island & Alonnisos Islands)					
27	Kozani Prefecture	688,00 €	438,16 €	-36.31%	37	130
43	Samos Prefecture	885,00 €	564,26 €	-36.24%	38	64
17	Imathia Prefecture	750,00 €	479,45 €	-36.07%	39	127
6	Arta Prefecture	732,00 €	471,86 €	-35.54%	40	26
37	Xanthi Prefecture	915,00 €	591,54 €	-35.35%	41	166
45	Trikala Prefecture	974,00 €	630,16 €	-35.30%	42	43
1.7	<i>Piraeus</i>	1.547,00 €	1.007,48 €	-34.88%	43	891
39	Pierias Prefecture	1.000,00 €	656,99 €	-34.30%	44	160
1.2	<i>Athens - Northern Suburbs</i>	2.583,00 €	1.721,00 €	-33.37%	45	865
29	Kyklades Prefecture	2.887,00 €	1.966,97 €	-31.87%	46	292
41	Rethymnou Prefecture	1.534,00 €	1.054,79 €	-31.24%	47	112
35.1	Skaithos Island, Skopelos Island & Alonnisos Islands	1.750,00 €	1.222,86 €	-30.12%	48	17
24	Kerkyra Prefecture	1.688,00 €	1.180,68 €	-30.05%	49	90
42	Rodopis Prefecture	917,00 €	643,78 €	-29.79%	50	134
1	Attica Region	1.976,14 €	1.398,47 €	-29.23%	51	7,834
4	Argolis Prefecture	1.500,00 €	1.063,83 €	-29.08%	52	127
2	THESSALONIKI	1.392,00 €	999,38 €	-28.21%	53	2,452
1.5	<i>Athens - Eastern Suburbs</i>	1.714,00 €	1.240,99 €	-27.60%	54	431
1.8	<i>Argosaronic Islands</i>	1.908,00 €	1.382,14 €	-27.56%	55	140
28	Corinthos Prefecture	1.333,00 €	967,52 €	-27.42%	56	197
11	Dodecanese Prefecture	1.575,00 €	1.151,91 €	-26.86%	57	200
21	Kavala Prefecture	1.200,00 €	889,26 €	-25.90%	58	285
7	Achaea Prefecture	1.000,00 €	753,96 €	-24.60%	59	447
44	Serres Prefecture	747,00 €	568,80 €	-23.86%	60	150
26	Kilkis Prefecture	644,00 €	501,73 €	-22.09%	61	115
1.1	Center of Athens	1.700,00 €	1.377,91 €	-18.95%	62	3,297
10	Drama Prefecture	722,00 €	591,15 €	-18.12%	63	94
2.2	<i>Other Municipalities of Thessaloniki</i>	1.034,00 €	931,38 €	-9.92%	64	1,284
1.6	<i>Rest of Attica</i>	1.722,00 €	1.585,30 €	-7.94%	65	716
2.2.2	<i>Regional Municipalities Thessaloniki</i>	1.282,00 €			66	
2.2.3	<i>Remaining Prefecture</i>	786,00 €			67	
TOTAL		-	-	-	-	15,922
AVERAGE		1.312,82 €	794,53 €	-39.48%	-	-

Source: The Authors

Summarizing

Table 12: Estimation of total hidden value

Year	Value of Buying/Selling Apartments/Detached Houses	Difference (%)	Hiding Rate	Estimated Taxable Income Concealment
2017	758,012,124.82 €	-	-	-
2018	1,244,552,951.47 €	64%	49.38%	614,560,247.44 €
2019	1,603,762,456.02 €	29%	-	-
2020	1,100,490,942.62 €	-31%	-	-
2021	1,558,342,969.64 €	42%	-	-
2022	1,845,756,666.06 €	18%	39.48%	728,704,731.76 €
2023	2,257,180,617.05 €	22%	-	-

Source: The Authors

4.3 Indications of money laundering

It was mentioned above that one indication of money laundering is the transfer of property at a price unusually higher than its objective value.

In 2018, regarding properties other than plots and parking spaces that were sold over € 100,000 from the objective value, the following transactions are recorded (regardless of percentage of ownership, ownership, etc.) (see table 13):

Table 13: Properties with Unusually Higher Price, year 2018

Property Type	Number of Contracts with a Value above Objective (100.000 €+)	Total Amounts of Difference Above Objective
Sports facilities	7	2,675,578.25 €
Warehouses / Agricultural-Livestock buildings	15	2,964,647.49 €
Industrial-Craft buildings	6	2,227,254.01 €
Business Premises	48	15,377,333.33 €
Parking spaces	6	830,129.88 €
House or apartment other than a detached house	221	122,803,801.14 €
Other buildings	1	204,334.13 €
House	128	76,765,331.93 €
Tourist facilities / Hospitals / Evagi	6	7,250,696.94 €
Total	438	231,099,107.10 €

Source: The Authors

In 2022, regarding properties other than plots and parking spaces sold over € 100,000, the following transactions are recorded (regardless of ownership, ownership, etc.) (see table 14):

Table 14: Properties with Unusually Higher Price, year 2022

Property Type	Number of Contracts with a Value above Objective (100.000 €+)	Total Amounts Of Difference Above Objective
Sports facilities	8	2,426,167.56 €
Warehouses / Agricultural-Livestock buildings	20	4,791,080.88 €

Industrial-Craft buildings	4	2,593,580.32 €
Special building for livestock use	1	129,087.77 €
Schools	1	4,302,253.30 €
Business Premises	75	43,285,136.38 €
Parking spaces	6	1,827,443.25 €
House or apartment other than a detached house	555	157,184,093.19 €
Other buildings	2	330,911.87 €
House	194	73,393,595.95 €
Tourist facilities / Hospitals / Evagi	17	13,266,329.53 €
<i>Total</i>	883	303,529,680.00 €

Source: The Authors

In 2018, regarding properties other than plots and parking spaces that were sold over € 200,000 from the objective value, the following transactions are recorded (regardless of percentage of ownership, ownership, etc.) (see table 15):

Table 15: Properties with Unusually Higher Price, year 2018

Property Type	Price Above Objective Value	Price Above Objective Value
Sports facilities	4	2,621.19%
Warehouses / Agricultural-Livestock buildings	4	8,926.82%
Industrial-Craft buildings	3	185.51%
Business Premises	23	431.48%
House or apartment other than a detached house	52	2,510.54%
Other buildings	1	1,113.56%
House	65	621.67%
Tourist facilities / Hospitals / Evagi	3	342.23%
<i>Total</i>	155	1,482.39%

Source: The Authors

Areas with sale of real estate over objective with 200.000,00 € in 2018 (see table 16):

Table 16: Properties with Unusually Higher Price, year 2022

Area	Number	Value of Difference
Athens (Prefecture)	67	127,893,485.09 €
Anat. Attica (Prefecture)	16	14,662,632.40 €
Argolida	2	613,464.68 €
Arcadia	1	200,252.87 €
Achaia	1	229,088.80 €
Wt. Attica (Prefecture)	2	1,698,934.99 €
Dodecanese	8	2,956,283.36 €
Thessaloniki	7	2,806,080.50 €
Kavala	1	484,592.50 €
Corfu	3	3,856,756.65 €
Kefalonia	1	243,592.51 €
Kozani	1	6,181,386.00 €

Corinth	1	1,690,446.19 €
Cyclades	19	10,868,954.37 €
Laconia	1	282,385.92 €
Lassithi	1	1,300,270.00 €
Lesvos	1	899,770.00 €
Magnesia	1	345,352.50 €
Messinia	3	943,001.68 €
Piraeus (Prefecture)	9	9,494,377.11 €
Pellis	1	389,372.00 €
Rethymno	1	242,087.50 €
Fthiotida	2	2,662,740.00 €
Halkidiki	4	1,367,485.00 €
Chania	1	216,732.80 €
<i>Total</i>	<i>155</i>	<i>192,529,525.42 €</i>

Source:The Authors

In 2022, regarding properties other than plots and parking spaces sold over € 200,000, the following transactions are recorded (regardless of ownership, ownership, etc.) (see table 17):.

Table 17: Properties with Unusually Higher Price, year 2022

Property Type	Number of Contracts with a Value above Objective (100.000 €+)	Total Amounts of Difference Above Objective
Sports facilities	6	2.144.712,70 €
Warehouses / Agricultural-Livestock buildings	9	3.180.715,75 €
Industrial-Craft buildings	3	2.438.129,14 €
Schools	1	4.302.253,30 €
Business Premises	40	38.139.047,07 €
Parking spaces	3	1.406.201,18 €
House or apartment other than a detached house	165	103.287.640,38 €
Other buildings	1	205.868,80 €
House	93	58.850.559,71 €
Tourist facilities / Hospitals / Evagi	16	13.106.336,03 €
<i>Total</i>	<i>337</i>	<i>227.061.464,06 €</i>

Source:The Authors

Table 18: Properties with Unusually Higher Price, year 2022

Property Type	Price Above Objective Value	Price Above Objective Value (%)
Sports facilities	6	1879,53%
Warehouses / Agricultural-Livestock buildings	9	3589,97%
Industrial-Craft buildings	3	340,67%

Schools	1	459,20%
Business Premises	40	732,69%
Parking spaces	3	1109,37%
Κατοικία ή διαμέρισμα πλήν μονοκατοικίας	165	581,08%
Λοιπά κτιρια	1	806,70%
Μονοκατοικία	93	421,99%
Tourist facilities / Hospitals / Evagi	16	447,53%
<i>Total</i>	<i>337</i>	<i>655,18%</i>

Source:The Authors

Areas with sale of real estate over objective with 200.000,00 € in the year 2022 (see table 19):

Table 19: Areas with sale of real estate above objective with 200.000,00 € in the year 2022

Area	Number	Value of Difference
Athens (Prefecture)	136	81,225,828.27 €
Anat. Attica (Prefecture)	37	19,858,719.09 €
Argolida	8	6,772,494.12 €
Arcadia	1	593,506.50 €
Achaia	6	18,181,956.79 €
Dramas	1	740,104.00 €
Dodecanese	11	5,249,626.08 €
Evia	1	384,771.00 €
Zakynthos	2	872,188.96 €
Imathia	1	845,434.55 €
Heraklion	1	1,384,761.60 €
Thessaloniki	19	18,120,237.44 €
Kavala	4	2,690,314.86 €
Corfu	9	3,006,622.23 €
Kefalonia	2	570,755.40 €
Cyclades	51	41,337,440.86 €
Lassithi	2	738,567.50 €
Magnesia	3	737,478.90 €
Messinia	15	5,788,858.49 €
Piraeus (Prefecture)	13	6,800,532.63 €
Prevezis	2	604,312.00 €
Rethymno	1	202,896.50 €
Serres	1	370,800.00 €
Fokidos	1	757,721.96 €
Halkidiki	7	8,197,238.33 €
Chania	1	495,810.50 €
Chiou	1	532,485.50 €
<i>Total</i>	<i>337</i>	<i>227,061,464.06 €</i>

Source:The Authors

In 2018, regarding plots sold over € 50,000 from the objective value, only cases are recorded, with the difference amounting to € 6.7 million

In 2022, regarding plots sold over € 50,000 from the objective value, only 21 cases are recorded, with the difference amounting to € 6.5 million.

5. Presentation Of Research On The Degree Of Achievement Of Discount When Buying And Selling Real Estate

In the context of this study, researchers conducted a survey on a sample of the population of Greece to determine the degree of achievement of a discount during the purchase and sale of real estate.

The questions asked, apart from demographics, were only five (5) regarding:

- a) if the respondents have in the last five years proceeded to the purchase and sale of real estate (purchase or sale),
- b) If yes, what percentage discount did the seller make (if they bought) or if they sold a property.
- c) were asked about the date of construction of the property,
- d) for their sqm and finally
- e) in which area was the property located?

5.1 Material and Method

Specimen

The sample of the study consisted of tax residents of Greece, for the year 2024, who were randomly selected from the telephone book. Exclusion criteria from the study were: (a) age <18 years, given that the purchase and sale is carried out directly by adults.

Measurement tool

A questionnaire was used (shared through Microsoft Forms and using data from the phone book) with multiple choice type questions.

The small number of questions was chosen so that respondents did not resent the duration of the question.

Statistical analysis

The Statistical Package for Social Sciences (SPSS), version 27.0.1.0, was used for statistical analysis.

5.2 Results

The sample consisted of 715 people with a mean age of 54.5 years (± 2 years). The largest proportion of participants were aged 45–55 years (68.8%) and only 5.20 % of the sample were aged 18–25 years.

Of the sample of respondents, 235 proceeded to sell or buy (32.87%).

The majority of respondents (who sold/bought a house) 93.63 stated that a discount was made (n=220).

Most respondents (who sold/bought a house) stated that the discount ranged up to 5% (71.36%, n=157). A 12.73%, n=28 said the discount ranged from 5.1-10%.

The majority of respondents who stated that they achieved a discount were for properties built in 1951-1970 (45.91%) and 1971-2000 (28.64%):.

Table 20: Question whether respondents have in the last five years proceeded to the purchase and sale of real estate (purchase or sale)

Question	N	N %
Yes	235	32.87
No	480	67.13
Total	715	100

Source: The Authors

To the question "whether those who proceeded to buy and sell used a discount", the percentage of people who answered YES amounted to 93.62% of the respondents (see table 21):

Table 21: Question whether those who proceeded with the purchase and sale used a discount

Question	N	N %
Yes	220	93.62
No	15	6.38

<i>Total</i>	<i>235</i>	<i>100</i>

Source:The Authors

Table 22: Question whether those who proceeded to purchase and sell and used discount to what extent was this?

	N	N %
Up to 5%	157	71.36
5%-10%	28	12.73
15%-20%	19	8.64
20%- UP	16	7.27
<i>Total</i>	<i>220</i>	<i>100.00</i>

Source:The Authors

Table 23: Question whether those who proceeded to the purchase and sale used a discount on what date the property was.

	N	N %
Until 1950	32	14.55
1951-1970	101	45.91
1971-2000	63	28.64
2001-2024	24	10.91
<i>Total</i>	<i>220</i>	<i>100.00</i>

Source:The Authors

Table 24: Question if those who proceeded to the purchase and sale used a discount how many sqm was the property for sale

	N	N %
Up to 49	44	20
50-70	97	44.09
71- 99	53	24.09
100-120	15	6.82
121- and up	11	5.00
<i>Total</i>	<i>220</i>	<i>100.00</i>

Source:The Authors

Table 25: Question if those who proceeded to buy and sell used discount in which area was it?

Area	N	N %
Athens - Thessaloniki - Piraeus agglomeration	133	60.45
Large urban center (over 50,000 inhabitants)	39	17.73
Urban centre (10,000 to 50,000 inhabitants)	19	8.64
Suburban centre (2,500 to 10,000 inhabitants)	16	7.27
Rural area (less than 2,500 inhabitants)	13	5.91
<i>Total</i>	<i>220</i>	<i>100.00</i>

Source:The Authors

6. Results-Discussion

The **first** general observation extracted from the above analysis relates to the trend of the shadow economy in the real estate market has been decreasing since 2018, mainly due to:

-intensification of fiscal controls,

-the application of indirect income control and cross-checking techniques. The introduction of indirect control techniques by the tax authorities since 2011, for the cross-checking of income with the control mainly of bank deposits and the exchange of financial information from abroad, prompted many to increase the amounts declared to the Tax Authority in order not to qualify for the audit sample of the Tax Authority, thus

being able to justify more amounts for the acquisition of real estate -improving the efficiency of the tax Administration

- increasing the use of electronic means of payment.

Second, the estimated concealment of taxable matter ranges from €614.5 million to €728.7 million, from apartments and detached houses alone.

Third, money laundering from criminal activities and/or concealment of taxable transactions (money laundering through real estate market) ranged in 2018 at €192.5-231 million and in 2022 at €227-303 million.

The areas with the most in number and total value of suspected money laundering transactions are Athens and the Cyclades.

In any case, for these cases, the Tax Authority should carry out targeted income checks for traders.

Fourth, as mentioned, it is also important that the decrease observed in the Greek real estate market from 2018 onwards is directly related to the other findings of recent research by the same researchers on the reduction of general tax evasion that has already been demonstrated in the Greek economy. Given that money laundering from non-taxable transactions through the real estate market, the significant reduction of the gap in the real estate market demonstrates the reduction of tax evasion in the other areas.

Fifth, there is a significant increase in real estate prices from 2018 to 2022.

Sixth, the impact of the COVID-19 pandemic on the real estate market was about 30% in annual amounts and depending on the number of contracts. However, in 2021 the market recorded a significant increase of more than 30%, where it normalized over the next two years.

7. Conclusion

This article highlights the necessity of creating and using innovative methodological models for the investigation of the shadow economy through the multicomparative-cross-analysis of various administrative official sources on the one hand, such as the tax authority and on the other, the available data from the internet.

The article, apart from the creation of an original model for the analysis of the shadow economy in the real estate market of residential real estate, evaluated the methodological model itself in terms of its ability to assess the developments over time of the phenomenon and the ability to distinguish the differences in the magnitude of development of the economic phenomenon of the shadow economy in the real estate market.

Thus, it became possible to ascertain the trend of reduction of the shadow economy in the period 2018-2022, in the Greek real estate market, with strong traces of money laundering (from non-taxable and/or illegal activities).

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Biographical Notes Of Each Author

Dr. Dionysios STASINOPOULOS

Postdoctoral researcher in the Department of Business & Organization Administration (School of Management), University of Peloponnese, Kalamata, Greece

Interests: Tax Evasion, Shadow Economy, Health Economics

Prof. Catherine KASTANIOTI

Professor in the Department of Business & Organization Administration (School of Management), University of Peloponnese, Kalamata, Greece

Interests: health economics; health planning; health management; organizational behaviour; organizational culture; leadership; organizational change and development

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