economies

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Cryptocurrencies, Tax Ignorance and Tax Noncompliance in Direct Taxation: Spanish Empirical Evidence

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Abstract: This article highlights the complexity of taxation surrounding cryptocurrency transactions due to the lack of uniform regulation, creating uncertainty for both taxpayers and tax authorities. After determining the tax obligations of individuals in taxation, a survey has been conducted to assess the level of knowledge and compliance with tax obligations related to cryptocurrencies. The survey, in which 103 people participated, reveals the confusion and errors that prevail in perceptions of the tax obligations for cryptocurrencies, particularly in transactions such as swapping and staking in personal income tax. This results in almost half of the respondents (49.5%) not declaring any of their operations with cryptocurrencies. The reasons for this include the fact that the majority of respondents (66%) find the regulation of cryptocurrencies in Spain confusing and difficult to understand. Additionally, 87.4% believe that tax agencies should provide more information and resources on the taxation of cryptocurrencies and digital assets, and that there should be clearer and more comprehensive regulation. However, it should be noted that 41.7% also consider that tax regulation discourages investment in cryptocurrencies.

Keywords: taxation; cryptocurrencies; tax evasion; personal income tax; wealth tax; tax obligations; tax compliance

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Citation: Hernández Sánchez, Álvaro, Beatriz María Sastre-Hernández, Javier Jorge-Vazquez, and Sergio Luis Náñez Alonso. 2024. Cryptocurrencies, Tax Ignorance and Tax Noncompliance in Direct Taxation: Spanish Empirical Evidence. *Economies* 12: 62. https://doi.org/10.3390/economies12030062

Academic Editor: Gaetano Lisi

Received: 21 January 2024
Revised: 27 February 2024
Accepted: 1 March 2024
Published: 4 March 2024

1. Introduction

The rise of cryptocurrencies has been one of the most impactful phenomena of the last decade. In 2008, a certain Satoshi Nakamoto openly published a paper entitled "Bitcoin: A Peer-to-Peer Electronic Cash System", which presented an economic–financial alternative based on the creation and widespread use of electronic currencies that, with the support of cryptographic techniques, guaranteed payments in economic transactions (Nakamoto 2008). The code enabling operations, however, was released in 2009. In this way, cryptocurrencies, since those years, have been conceived as a new possibility within innovative payment mechanisms and their growth within the virtual payment market has been such that it has generated a previously unknown financial dilemma, in which banks and other types of intermediaries no longer have within their reach the total control of the payment flow market (Álvarez-Díaz 2019; Almeida and Gonçalves 2023). As virtual, decentralized, and independent currencies, they have presented a progressive growth but been very volatile in terms of value as a consequence of the effect caused by speculations (Vučinić and Luburić 2022; Portugal Duarte et al. 2023). Currently, the supply market for such assets is composed of about 9953 varieties of digital currencies (CoinMarketCap 2023).

Bitcoin, being the pioneer currency, has always shown a growth in its monetary value considerably higher than its followers. However, like the rest, it is not recognized as a financial asset to be listed on stock exchanges as it does not enjoy a controlling body that supports it and fulfills a role similar to central banks, nor a legal regulatory framework that guarantees its free circulation within the world's economic markets (Cunha et al. 2021; Vučinić and Luburić 2022; Náñez Alonso et al. 2024). Bitcoin, throughout its trajectory, has suffered different liquidity and legal crises in the financial markets, to the point of surprising the world economy due to the rapid growth and valorization experienced (Akins et al. 2015; Chohan 2017). Its price went from USD 1 in February 2011 to a peak of USD 69,000 in November 2021, and the number of users, estimated at around 5 million in 2016, has been approximately 220 million in 2022 (Auer et al. 2023). In addition, it is the cryptocurrency with the largest market capitalization, valued at more than USD 580 billion (CoinMarketCap 2023). After Bitcoin, many other cryptocurrencies appeared, such as Ether, Ripple or Litecoin, to name a few. So, in the last 15 years, cryptocurrencies have transformed from being a peer-to-peer-oriented technology (payments without supervision by a centralized authority) to become mainly financial assets traded by millions of users worldwide (Corbet et al. 2019; Kyriazis 2021; Kaygin et al. 2021). Therefore, it can be stated that there is some interest in determining the degree of adoption of cryptocurrencies. However, its determination remains a complicated task today (Al-Amri et al. 2019; Alonso et al. 2023b). The reason for this is that there is no homogeneous or reliable data to draw on, since different methodologies are used to calculate them: in some cases, estimates are based on transactions, while in others, they are based on surveys and market sources, interviews, and app downloads. This implies that, both globally and nationally, there is no precise comparable data for each country and cryptocurrency.

Globally and nationally, the outlook for cryptocurrency adoption in 2023 is not very promising, similar to what happened in 2022, but quite the opposite of 2021. Regulatory uncertainty and problems with companies such as FTX have caused such a situation. While some slowdown began to manifest itself in the market in 2022, the turmoil and uncertainty about the future of these assets still persist in 2023 (Vučinić 2020). The high risk involved in cryptocurrencies due to their remarkable volatility always makes one wonder how the person is willing to invest in something so risky (Portugal Duarte et al. 2023).

Various studies (Arias-Oliva et al. 2019; Gil-Cordero et al. 2020; Alonso et al. 2023a; Gasiorowska et al. 2023) indicate that the typical cryptocurrency investor is an individual who frequently uses information technologies, holds a university education, and typically allocates 5% of their capital to this type of asset. Some 9% of investors do so on a regular basis, 23% invest in falls in value, 26% do so when available and the remaining 41% invested in the past and consider cryptocurrency their long-term investment (García 2023). Attending to gender, current habitual investors are men (74%) compared to women (26%). The objective of this study is to analyze the behavior of people who operate with cryptocurrencies, and specifically why they do not declare their profits on their tax returns. Currently, the adoption of cryptocurrencies worldwide (led by Bitcoin) has not stopped growing. Not only has the growth of its price been exponential but also the number of users, which was estimated at 5 million in 2016 and, in 2021, hovered around 220 million (Auer et al. 2023). Some authors estimate that there are 300 million users worldwide and more than 10,000 cryptocurrencies (García-Corral et al. 2022). This implies that, globally, its possession reaches 14% of the population (Finder 2024), although its use among population strata is not homogeneous and is especially concentrated in men between 18 and 35 years of age with a medium–high economic level (Alonso 2023). The motivations of these people when operating with digital assets are diverse, although, in most cases, the scientific literature points to speculation (Auer and Tercero-Lucas 2022; Balutel et al. 2023). Companies should also take this volatility into account when calculating and establishing their financial risk profiles (Kaczmarek et al. 2021).

In short, cryptocurrencies have become an accepted method of virtual payment as well as speculation, the rise of which has forced authorities to strive to understand blockchain technology and its applications in e-commerce. In fact, as stated in 2021 by the Bank of Spain and the National Securities Market Commission in the European Union, there was still no "framework that regulates cryptocurrencies such as BTC and provides guarantees and protection similar to those applicable to financial products". For some time, a regulation known as the "Markets in Crypto Assets" (hereinafter MiCA), aiming to establish a regulatory framework for the issuance of cryptoassets and service providers, has been under negotiation and study at the European level. On 31 May 2023, the European Parliament approved the "MiCA Regulation", related to the cryptocurrency market. Therefore, the regulation of this market is a reality, enacting the first harmonized regulation on this matter, and it will have an impact on all market players in all EU Member States, both on cryptocurrency issuers and related service providers, but, in any case, a staggered application of the Regulation is foreseen (Bofill et al. 2023).

Our article proposes five fundamental hypotheses that seek to shed light on the following. (1) The taxation of cryptocurrencies in Spain is neither clear nor easy to understand. (2) There is insufficient knowledge regarding the taxation of cryptocurrency transactions in personal income tax and wealth tax. (3) There is widespread non-compliance in terms of the taxation of cryptocurrency transactions. (4) Despite widespread non-compliance, those operating with cryptocurrencies have not experienced negative consequences, such as the opening of tax proceedings or penalties. (5) There is a widespread belief that more information and resources are needed from the Treasury regarding the taxation of cryptocurrencies.

To address these hypotheses, we designed a questionnaire that included questions of different types, such as closed, semi-closed, evaluation questions with several options and only one correct answer (test type), as well as questions with semantic differential scales. We used the Google Forms tool for the dissemination of the questionnaire. The collection of responses was carried out using the Snowball Sampling method, which is based on the dissemination of the questionnaire through various social networks. In this way, the individuals reached were able to disseminate it in turn among their own contacts. To verify the normality of the sample, we applied the Kolmogorov–Smirnov test. We performed the Kruskal–Wallis nonparametric test to assess the homogeneity of the response groups for each variable and to determine whether there were statistical differences between them. In addition, we performed an analysis of independence between the variables addressed in the hypotheses using the Chi-square test.

Our article is structured as follows. It starts with an introduction that sets out the context and importance of the topic: the taxation of cryptocurrencies in Spain for individuals. It highlights the lack of clarity in tax regulations and the need to address this problem. This is followed by five research hypotheses that address different aspects of cryptocurrency taxation, from the lack of knowledge to the perceived effectiveness of enforcement measures. The Materials and Methodology section describes in detail how the research was conducted, highlighting the questionnaire design and the use of the Google Forms tool. The Snowball Sampling method to obtain representative responses is explained and the statistical tests used, such as the Kolmogorov–Smirnov test and the Kruskal–Wallis analysis, are detailed. In the Results section, the findings obtained from the analysis of the data collected are presented. The answers to the hypotheses raised are highlighted and an overview of the results is provided. The Discussion of Results delves into the interpretation of the findings, relating them to the existing literature and highlighting their relevance in the context of cryptocurrency taxation in Spain. Possible implications are addressed and the contribution of the study to the knowledge on the subject is highlighted.

Finally, the Conclusions section synthesizes the key results and responds to the hypotheses raised.

2. Taxation of Cryptocurrencies in Spain for Individuals

Cryptocurrencies are assets mostly used for speculative purposes (Auer and Tercero-Lucas 2022). Cryptocurrency buying and selling, also known as trading, refers to the process of buying and selling digital assets such as Bitcoin, Ethereum or other cryptocurrencies on exchange platforms (Aspris et al. 2021; Fang et al. 2022). This activity can generate capital gains or losses, depending on whether the value of cryptocurrencies increases or decreases between the time of purchase and sale. In personal income tax (IRPF), these gains or losses are considered as capital variations and must be declared. For its part, swapping or cryptocurrency exchange refers to the process of exchanging one cryptocurrency for another, generally through exchange platforms or third-party services (Woebbeking 2021; Cipollini 2024). This exchange can generate income from movable capital in personal income tax, especially if profits are obtained from the difference between the value of the cryptocurrency at the time of acquiring it and the value at the time of exchange (Cipollini 2024). Finally, staking is an activity that involves participating in the validation of transactions and the security of a blockchain network by holding and blocking a certain number of cryptocurrencies in a digital wallet (Murugappan et al. 2023; Riposo and Gupta 2024). In exchange for holding these locked cryptocurrencies, participants receive rewards in the form of new cryptocurrencies or interest (Murugappan et al. 2023; Riposo and Gupta 2024). In the context of personal income tax, income obtained through staking is considered income from movable capital and is subject to declaration.

Undoubtedly, operations with cryptocurrencies have tax implications, as business transactions with virtual currencies manifest economic capacity—an essential element of tax requirements (Baer 2023; Náñez Alonso 2019). The uses of cryptocurrencies are not always legitimate, and despite the apparent security they offer, fraudulent use exists. This has led to the adaptation of legislation (Teichmann and Falker 2020; Issah et al. 2022; Watters 2023; Lucero and Muslera 2022). This type of asset faces an additional difficulty because, in addition to being a means of payment, it can represent any good that its creators have intended it to symbolize. Regarding their legal definition, some authors have pointed out that cryptocurrencies represent a “true legal disruption” (Pastor Sempere 2017, 2018), going so far as to firmly state that we are faced with a “multifunctional cryptoasset of a heteroclite nature, that is, in a virtual asset that has a heterogeneous structure that allows it to adapt at each moment to the utility that is intended of it” (Pastor Sempere 2017; Villaroig Moya and Pastor Sempere 2018).

At the European level, various entities have expressed opinions on cryptocurrencies, often to warn of their risks and associate them with possible fraud. The only positive regulation is the recent Directive (EU) 2018/843 of the European Parliament and of the Council, dated 30 May 2018, known as the “Fifth Directive”. This directive focuses on preventing the use of the financial system for money laundering purposes and establishes concepts related to virtual currencies, guiding countries on how national regulations should be.

As per Alm (2021) or Noked (2018), the problems arising from tax evasion related to the operation of cryptocurrencies (buying, selling, staking) generate inequality. However, they also view blockchain technology positively as a means to increase revenue collection in the future.

Consequently, tax evasion resulting from these operations has been studied and identified as a problem in various countries. For example, in the United States of America by Alm (2021) and Nguyen (2022), in South Korea by Jeong (2022), in Turkey (Zengin and Kocoglu 2022), in the Caribbean (Marcelino et al. 2023), in Europe (Solodan 2019) and (Ferreira and Sandner 2021). All these authors agree on highlighting the problem and the need for adequate regulation. Therefore, given this situation, our study focuses on the field of the direct taxation of individuals, where the Spanish tax system considers four major figures: the personal income tax (hereafter IRPF), the wealth tax (hereinafter IP), and the inheritance and gift tax (hereinafter ISD). Additionally, as a novelty, a new figure will be added in 2022: the solidarity tax on large fortunes (hereinafter ISGF). The latter, along with the gift tax (ISD), is excluded from this study. Table 1 provides a summary of the tax obligations and regulations applicable to cryptocurrency transactions.

The personal income tax in Spain, regulated by Law 35/2006 (LIRPF hereafter), is the reference tax for resident individuals. This tax, which covers the general and savings tax base, is governed by rates that fluctuate according to the Autonomous Community. In the context of cryptocurrencies, whose obtaining through the “mining” process is subject to personal income tax, the qualification of this income is determined by the particular conditions of the activity (Náñez Alonso 2019). The taxation of cryptocurrencies is analyzed in three categories: income from work, income from economic activities and capital gains and losses. The distinction between carrying out the activity professionally or for entertainment, as well as being self-employed or employed, influences the qualification of the income obtained. In relation to employment income, it is considered as such when the "miner" renders services in an employed and dependent regime (Náñez Alonso 2019). However, the identification of the employer is complicated due to the anonymity inherent in the cryptocurrency system, posing challenges in the application of this qualification. Income from economic activities applies when the activity is carried out in a professional and self-employed manner (Peláez-Repiso et al. 2021). In this case, the income must be included in the general personal income tax taxable base, allowing the deduction of expenses necessary for the exercise of the activity, such as the amortization of computer equipment or the rental of premises. As for the income from movable capital, those who carry out "staking" must be taxed in the personal income tax as a transfer to third parties of their own capital. Cryptocurrencies are valued at their market value in EUR at the time they are received.

Table 1. Tax obligations and regulations applicable to operations with cryptocurrencies in the personal income tax and wealth tax.

Tax	Action	Tax Obligation	Regulation/Consultation
Personal Income Tax	Buy	Without obligation [1] Recommended to keep a proper record of purchases, including the amount in EUR and the acquisition date, as these may be necessary data to calculate gains or losses at the time of sale or exchange	Personal Income Tax Law (LIRPF) and Binding Consultation DGT V2616-22 [2]
	Sell	Capital gains or losses (difference between the selling value in EUR and the acquisition value in EUR)	LIRPF Arts. 14-1-c, 33-1, 34, and Binding Consultation V0808-2018 [3]
	Swap	Capital gains or losses (the market value of the cryptocurrencies involved is considered in EUR)	LIRPF Arts. 2, 14-1-c, 33-1, 34-1-a, 35, 37-1-h, 49-1-b. Binding Consultation DGT V2005-22 and V2520-22. [4]
	Staking	Capital gains	LIRPF 25-2, 46, 49; D 439/2007 arts. 75, 76; and Binding Consultation DGT V1766-22 [5]
		Income from economic activity	Art. 27.1 LIS, in analog application to individuals.
Wealth Tax	Holding	Include in the declaration along with the rest of the assets and rights	LIP arts. 1, 3, 24, and 29; Binding Consultation DGT V0250-18, Binding Consultation V0590-18, and Binding Consultation V2289-18 [6]

Source: Own elaboration based on data obtained from LPERSONAL INCOME TAX, LIS, LIP, LISD and binding consultations of the DGT.

Capital gains and losses come into play when the "miner" performs the activity for entertainment. The transfer of cryptocurrencies and their variation in the value of the taxpayer's assets determine the qualification of this income, and its valuation can be based on the market price on the day of the transaction (Náñez Alonso 2019).

Regarding wealth tax (IP), cryptocurrencies must be included in the taxable base due to their nature as assets or rights with economic content (Pastor Sempere 2018). The obligation to declare them and the amount to be paid are subject to the regulation of each region, and in the absence of this regulation, the minimum exempt amount is EUR 700,000. The DGT has confirmed that cryptocurrencies are considered part of the assets and must be valued at market price at the date of accrual, i.e., 31 December of each year. Table 1 provides a guide to the regulations applicable in each situation.

In addition to the tax complexity of complying with personal income tax and wealth tax obligations, new obligations have been added. As of 1 January 2024, residents in Spain, both individuals and legal entities, will have to declare to the Tax Agency their holdings in cryptocurrencies abroad. The obligation starts with a balance equivalent to EUR 50,000 in cryptoassets, and holders must report the amount in digital assets on foreign platforms. The deadline to comply with this tax obligation is until the end of March 2024, using the new form designated by the Tax Agency, known as model 721. The obligation includes both "hot wallets" connected to the internet and "cold wallets" without network connection. The balance in EUR of all offshore digital currencies must be indicated, using the quote as of 31 December provided by trading platforms or price-tracking websites, or a reasonable estimate of the market value in euros. In addition, users of cryptocurrencies in Spain must include on the income tax return the capital gains and losses related to transactions carried out with these digital currencies. Entities offering services with cryptoassets in Spain must also declare balances and transactions, using forms 173 and 172 for different types of services, respectively.

3. Research Hypothesis

Having analyzed in the previous section the tax complexity affecting transactions with cryptocurrencies in direct taxation, and the existence of tax evasion in this area of taxation, we propose the following hypothesis.

1. The taxation of cryptocurrencies in Spain is neither clear nor easy to understand.
2. There is a general lack of knowledge when it comes to taxing transactions with cryptocurrencies in the personal income tax and wealth tax.
3. There is a general lack of compliance in terms of the taxation of cryptocurrency transactions.
4. Despite the generalized non-compliance, those who operate with cryptocurrencies have not had any negative experience (opening of tax proceedings or penalties).
5. There is a widespread belief that more information, training, and resources are needed from the Treasury regarding the taxation of cryptocurrencies.

4. Materials and Methodology

4.1. Materials

The material used to obtain the information was the survey, created from scratch based on the previous assumptions and hypotheses. The survey questions were of different types: closed, semi-closed, evaluation questions with several options and only one correct answer (test), and finally, questions with semantic differential scales included.

For the dissemination of the survey, which is available as Supplementary Materials S1. Questionnaire, the Google Forms tool was used.

4.2. Methodology

The method used to obtain the responses was the so-called "snowball", Parker et al. (2020), based on the dissemination of the survey through different social networks, so that the individuals reached could in turn disseminate it to their own contacts. This method has been proposed and validated in the field of social sciences by various authors, such as Johnson (2014), Mejía Navarrete (2014), Handcock and Gile (2011), García-Estévez (2022) and Gautam and Kumar (2023).

In order to check the normality of the sample, the Kolmogorov–Smirnov test was applied (Kozarić and Dželihodžić 2020):

$$D = \max |Fn(x) - F(x)| \tag{1}$$

where:

- D is the test statistic.
- Fn(x) is the empirical cumulative sample distribution function.
- F(x) is the theoretical cumulative distribution function under the null hypothesis.

The Kruskal–Wallis nonparametric test, where we tested the homogeneity of the response groups for each variable and determined whether there are statistical differences between them (Kumar et al. 2019; Nain and Kamaiah 2020):

$$H = 12/N(N+1)\sum(R_i{}^2/n_i) - 3(N+1) \tag{2}$$

where:

- H is the Kruskal–Wallis test statistic.
- N is the total number of observations in all the groups.
- R_i is the sum of ranks for group i.
- n_i is the size of group i.

In addition, an analysis of independence between the variables addressed in the hypotheses was performed using the Chi-square test (Judith et al. 2022):

$$\chi^2 = \sum(O_i - E_i)2/E_i \tag{3}$$

where:

- χ^2 is the Chi-square statistic.
- O_i represents the observed frequency in each category.
- E_i is the expected frequency in each category if there were no association between the variables.

5. Results

Following the application of the snowball method, the study obtained a sample of 103 responses. The answers are accessible as Supplementary Materials S2. Survey Results. The sample indicates a tendency toward a relatively mature population, ranging from 25 to 60 years of age, with evident economic resources and an acceptable personal criterion considering their level of education. In fact, this observation is further confirmed by the fact that over 90% of the surveyed individuals reside in municipalities with 50,000 inhabitants or more.

Hence, the sample appears to have been appropriately targeted. This aligns with findings from various studies in Spain, indicating that the primary users of cryptocurrencies are men aged between 18 and 35, residing in urban areas, with a medium–high level of education and high-income levels (Arias-Oliva et al. 2019; Gil-Cordero et al. 2020; Alonso et al. 2023a).

The data suggest that the majority of respondents possess some level of knowledge about cryptocurrencies and their tax implications, although a significant portion still has limited knowledge. Additionally, perceptions of tax obligations vary among respondents, with differences in responses to how to meet these obligations depending on the specific circumstances of cryptocurrency transactions. All these details are presented in Tables 2–4.

Regarding knowledge of cryptocurrencies, the majority (33.0%) have limited knowledge, and only 3.9% have very high knowledge.

Regarding tax obligations related to cryptocurrencies in Spain, 38.8% have no knowledge at all, 26.2% have limited knowledge, and only 1.0% have very high knowledge on this topic.

Nearly half (49.5%) of the respondents consider it necessary to declare ownership of cryptocurrencies in the income tax (personal income tax). The obligation to calculate and declare the value as of 31 December is answered by 31.1% of investors, highlighting the need to assess the value of cryptocurrencies at the end of the fiscal year. In other words, 87.4% of the respondents would act incorrectly when declaring ownership of cryptocurrencies in the personal income tax. On the other hand, a low percentage (12.6%) believe that there is no tax obligation in the personal income tax for acquiring and holding cryptocurrencies, which is the correct answer. This indicates some confusion or misinformation about tax obligations related to cryptocurrencies for buying and holding them and their impact on the personal income tax.

Table 2. Experience and degree of knowledge of cryptocurrencies.

My knowledge regarding the operation of cryptocurrencies is on a scale from 0 (no knowledge) to 5 (very high knowledge).	Frequency	Percentage
0	9	8.7
1	8	7.8
2	34	33
3	31	30.1
4	17	16.5
5	4	3.9
Are you aware of the tax obligations associated with cryptocurrencies in Spain? Scale from 0 (no knowledge) to 5 (very high knowledge).		
0	40	38.8
1	27	26.2
2	25	24.3
3	10	9.7
4	1	1
5	0	0

Source: Own elaboration through data obtained via the survey and SPSS.

Table 3. Knowledge of the taxation of transactions with cryptocurrencies in personal income tax.

As a cryptocurrency investor during this year, which of the following tax obligations must you fulfill in relation to the personal income tax (personal income tax)?	Frequency	Percentage
Declare ownership of the cryptocurrency	51	49.5
Calculate and declare the value as of 31 December	32	31.1
Calculate and declare the value of the cryptocurrency based on the last quarter's quotation	7	6.8
There is no tax obligation in the personal income tax for acquiring and holding cryptocurrencies	13	12.6
If, as a cryptocurrency investor, during this fiscal year, you have made a sale of cryptocurrencies, what tax obligations must you fulfill regarding the personal income tax?		
I don't have to do anything, as there is no tax obligation in the personal income tax for acquiring and selling cryptocurrencies	2	1.9
Calculate and declare the value of the cryptocurrency at the market price as of 31 December	37	35.9
Calculate and declare the value of the cryptocurrency based on the average quotation of the last quarter	2	1.9
I must include the gain from the sale of the cryptocurrency in my personal income tax declaration as a capital gain, calculating the difference between the acquisition value and the selling value	62	60.2
If, as an individual, in this fiscal year, I have performed a cryptocurrency swap for others, for personal income tax purposes, I must. . .		
Calculate the gain or loss from the swap and include it in my personal income tax declaration as a capital gain or loss	49	47.6
Calculate and declare the value of the new cryptocurrency received in the swap at the market price as of 31 December	25	24.3
Calculate and declare the value of the new cryptocurrency received in the swap, based on the average quotation of the last quarter	7	6.8
There is no tax obligation in the personal income tax for the cryptocurrency swap, as it is an internal change within my portfolio	22	21.4

Table 3. *Cont.*

If, as a cryptocurrency investor, in this fiscal year, I have engaged in staking, how should I manage the returns for personal income tax purposes?		
The generated returns must be declared in the personal income tax as a capital gain in the savings base, either as a gain or loss	29	28.2
The generated returns must be declared in the personal income tax as income from movable capital in the savings base	9	8.7
I must calculate and declare the value of the cryptocurrency at the market price as of 31 December	40	38.8
There is no tax obligation in the personal income tax for staking cryptocurrencies, as I am keeping my portfolio unchanged	25	24.3

Source: Own elaboration through data obtained via the survey and SPSS.

Table 4. Knowledge about the taxation of cryptocurrency transactions in the wealth tax (IP).

What are the tax obligations I must fulfill as an individual if I have acquired and held cryptocurrencies in my digital portfolio during the current fiscal year in relation to the wealth tax (IP)?	Frequency	Percentage
Calculate the gain or loss obtained and include it in my wealth tax declaration with the rest of the assets and rights	59	53.7
If the value of cryptocurrencies, along with the rest of the assets, exceeds EUR 700,000, I am obligated to file the wealth tax declaration, including the balance of each different virtual currency of which I am the owner as of 31 December of each year, at its market value	27	26.2
If the value of cryptocurrencies, along with the rest of the assets, exceeds EUR 700,000, I am obligated to file the wealth tax declaration, including the balance of each different virtual currency of which I am the owner as of 31 December of each year, at its purchase value	7	6.8
There is no tax obligation in the wealth tax for the acquisition and holding of cryptocurrencies	10	9.7

Source: Own elaboration through data obtained via the survey and SPSS.

The majority of investors (60.2%) recognize the obligation to include the gains from the sale of cryptocurrencies in their personal income tax declaration as a capital gain, calculating the difference between the acquisition and sale values. While this result reflects a proper understanding of the tax obligations associated with cryptocurrency transactions, it should be noted that almost 40% indicate tax options that are not the correct answer.

Less than half of the respondents (47.6%) recognize the need to calculate the gain or loss suffered in the exchange (swapping) of one cryptocurrency for another and include it in the personal income tax return as a capital gain or loss.

Regarding staking, it should be classified as income from movable capital obtained by the transfer to third parties of one's own capital (article 25.2 of the Personal Income Tax Law). Table 3 reflects that only 8.7% of respondents choose to declare staking-derived income as income from movable capital in the base of savings, which is the correct answer. Therefore, the majority (91.3%) of respondents would be incorrectly taxing the benefits received from staking.

As we can observe in Table 4, only 26.2% of respondents would correctly declare their cryptocurrencies in the wealth tax. The majority response (53.7%) incorrectly suggests that one should calculate the gain or loss from cryptocurrencies and include it in the wealth tax (IP) declaration along with other assets and rights. Moreover, 9.7% mistakenly believe that there is no tax obligation in the wealth tax for acquiring and holding cryptocurrencies, which is incorrect according to the correct answer provided. Additionally, 6.8% confuse market value with purchase value. Thus, the majority (70.2%) of respondents would incorrectly declare their cryptocurrencies in the wealth tax.

The data presented in Table 5 indicate a general lack of understanding and clarity regarding cryptocurrency tax regulations in Spain. Moreover, a significant proportion of individuals appears to be non-compliant with the tax obligations associated with cryptocurrencies, possibly due to a lack of comprehension or confusion surrounding existing regulations. Nearly half of the respondents (49.5%) have not declared any of their cryptocurrency investments, and the majority (66%) find cryptocurrency regulation in Spain confusing and difficult to understand, reflecting a lack of clarity in tax laws related to cryptocurrencies, likely leading to the aforementioned non-compliance. Only about 9.7% of respondents have had negative experiences, suggesting potential issues with the application of tax regulations or difficulties in compliance.

Table 5. Ease/difficulty of taxation, regulatory clarity, and information needs regarding cryptocurrencies and their taxation.

		Frequency	Percentage
Have you declared your cryptocurrency investments during the last fiscal year when you have carried out any of the operations described above?	Yes, I have declared all my cryptocurrency investments	5	4.9
	I have declared some	30	29.1
	I have not declared any of my cryptocurrency investments	51	49.5
	I prefer not to answer	17	16.5
Do you think the taxation of cryptocurrencies in Spain is clear and easy to understand?	Yes, I find the regulation clear and easy to understand	4	3.9
	Some parts of the regulation are clear, but others are not	31	30.1
	No, the regulation is confusing and difficult to understand	68	66
Have you had any negative experiences related to the taxation of cryptocurrencies?	Yes, I have had a negative experience	10	9.7
	No, I have not had any negative experiences	69	67
	I am not sure	24	23.3
Do you think that the tax regulation encourages or discourages investment in cryptocurrencies in Spain?	The tax regulation encourages investment in cryptocurrencies	12	11.7
	The tax regulation discourages investment in cryptocurrencies	43	41.7
	The tax regulation neither encourages nor discourages investment in cryptocurrencies	25	24.3
	I am not sure	23	22.3
Do you think the AEAT (Spanish tax agency) should provide more training and resources on the taxation of cryptocurrencies and other digital assets?	Yes, it is necessary to receive more information and resources	90	87.4
	No, it is not necessary to receive more information and resources	1	0.9
	I am indifferent; I will continue investing based on the knowledge I have	12	11.7

Source: Own elaboration through data obtained via the survey and SPSS.

The majority of respondents in Spain (41.7%) believe that cryptocurrency tax regulation discourages investment, while only 11.7% think it encourages it. About 24.3% believe that the regulation neither encourages nor discourages investment, and 22.3% are unsure. The reason for this is that, as previously stated, most people use cryptoassets for speculation. So further tax regulation means having to pay tax on these possible gains. And that means less profit. Regarding the need for education, an overwhelming 87.4% believe that the AEAT (Spanish tax agency) should provide more information and resources on the taxation of cryptocurrencies and digital assets, while only 0.9% believe that more information is not necessary. Moreover, 11.7% are indifferent.

As observed in Appendix A Table A1, all the variables show significance values lower than 0.005 (working with a confidence level of 99%), indicating that, according to the null hypothesis of the normality test based on Kolmogorov–Smirnov, the variables analyzed in the survey do not follow a normal or Gaussian probability distribution.

In Appendix A Table A2, the significant results of the Kruskal–Wallis test are evident, analyzing statistical differences between the response groups of variables that address the proposed hypotheses, meaning the responses vary widely among the response modes of the variables.

The taxation and regulation on cryptocurrencies are considered confusing and challenging across all the variables, far exceeding those who find it easy and clear. This is coupled with a low level of interest in taxation. Additionally, a significant number of people who find it difficult and confusing incorrectly believe that they should calculate and declare the value of the cryptocurrency at the market price as of 31 December. Most do not declare their cryptocurrency investments, and there is a perception that taxation may discourage cryptocurrency investment (Aldeia et al. 2023).

Concerning knowledge about tax obligations for cryptocurrency investors, there is a notable lack of understanding, with only 12.6% answering the question correctly. Based on this premise of ignorance, there appears to be a relationship with the variables related to cryptocurrency tax obligations in sales, exchanges, staking, acquisition, and maintenance, as well as whether respondents have invested in cryptocurrencies and their level of household income. In other words, all the variables are related to managing money and the obligations associated with it in cryptocurrencies.

Regarding tax obligations on the sale of cryptocurrencies, it is observed that 60.2% of respondents correctly state that they should include the gains from the sale of the cryptocurrency in the personal income tax declaration as a capital gain, calculating the difference between the acquisition and sale values. Therefore, knowledge about cryptocurrency obligations appears to be well-known among cryptocurrency investors in Spain, although there are differences in responses among other variables associated with cryptocurrency investments in the database.

Concerning tax obligations for performing a cryptocurrency swap in Spain, there is not particularly clear knowledge about these obligations. Only 47.6% of respondents have correctly answered that they should calculate the gain or loss from the swap and include it in the personal income tax declaration as a capital gain or loss. What seemed clearer in terms of the responses is that there is no need to calculate and declare the value of the new cryptocurrency received from the swap according to the average quotation of the last quarter; only 6.8% of survey participants provided this response.

As previously mentioned, the level of knowledge about managing returns for personal income tax purposes when staking has been carried out during the economic year is low. Only 8.7% of respondents correctly answered that the generated returns should be declared in the personal income tax as income from movable capital in the savings base. When combining the responses for various variables, this percentage is significantly reduced, indicating a widespread lack of understanding about returns as cryptocurrency investors.

In general terms, the responses to the variable analyzed regarding tax obligations in terms of the wealth tax (IP) show that 26.2% of respondents know that the tax obligations to be fulfilled as an individual who has acquired and held cryptocurrencies in the digital portfolio during the economic year include filing the wealth tax declaration and paying the corresponding taxes if the value of the cryptocurrencies exceeds the established threshold.

Regarding the declaration of investments, in overall terms, almost 50% have not declared any of the investments made in cryptocurrencies, while less than 5% have declared all the investments made. Therefore, there is non-compliance regarding taxes on cryptocurrency transactions. Non-negative experiences related to cryptocurrency taxation account for 67% of respondents, of which 70% are men. In other words, only 9.7% have had negative experiences. There is a significant difference in responses between those who have had negative experiences and those who have not. This discrepancy in the data is also evident in the gender variable, where 72.8% are men and only 25.2% are women.

Moreover, 87.4% of participants believe that it is necessary to receive more information and resources from the Spanish tax agency (AEAT). Table 6 presents the results of the Chi-square test of the independence of variables.

Table 6. Chi-square test of the independence of the variables.

p-Value Chi-Square Test of Independence	17. Taxation and Taxation of Cryptocurrencies Is Clear and Easy to Understand	11. Tax Obligations as an Investor (PERSONAL INCOME TAX)	12. Tax Obligations, I Have Made a Sale of Cryptocurrencies (PERSONAL INCOME TAX)	13. I Have Exchanged Cryptocurrencies for Other Currencies for Personal (PERSONAL INCOME TAX)	14. I Have Made Staking; How Should I Manage the Income for PERSONAL INCOME TAX?	15. Wealth Tax Obligations (WEALTH TAX)	16. Declaration of Investments in Cryptocurrencies	18. Negative Tax-Related Experience	20. Information and Resources on Taxation and Taxation of Cryptocurrencies
1. Gender	0.6499	0.1961	0.1123	0.7868	0.00779	0.6238	0.8432	0.06699	0.2848
2. Age	0.5535	0.5846	0.5566	0.6743	0.02161	0.08812	0.1068	0.7103	0.7244
3. Level of education	0.9527	0.6743	0.1040	0.8345	0.09331	0.6057	0.9114	0.4778	0.9971
4. Main occupation	0.7586	0.5649	0.9847	0.2352	0.6949	0.6075	0.6543	0.5079	0.9839
5. Household economy	0.8598	0.06853	0.6144	0.5269	0.5925	0.5555	0.2396	0.6422	0.2804
6. Inhabitants of the municipality wealth tax	0.8240	0.1928	0.5067	0.1799	0.03144	0.4394	0.8753	0.7556	0.5467
7. Personal financial situation	0.4289	0.1890	0.8814	0.1784	0.4026	0.2000	0.09728	0.6212	0.5454
8. Cryptocurrency trading	0.7244	0.01367	0.00885	0.6157	0.1546	0.1723	0.00004	0.1337	0.6019
9. My knowledge of how cryptocurrencies work	0.4951	0.7007	0.00233	0.01316	0.2154	0.3498	0.01185	0.3225	0.00973
10. Tax obligations associated with cryptocurrencies	0.00442	0.3504	0.01774	0.1403	0.2391	0.09188	0.00008	0.7362	0.00818
11. Tax obligations (PERSONAL INCOME TAX) as an investor	0.5636		0.00226	0.00024	0.01154	0.00000	0.03630	0.3571	0.7981
12. Tax obligations (PERSONAL INCOME TAX), I have made a sale of cryptocurrencies	0.01197	0.00226		0.00355	0.09841	0.00008	0.00437	0.8284	0.9691
13. I have exchanged cryptocurrencies for other currencies for personal income tax purposes.	0.1399	0.00024	0.00355		0.00133	0.00002	0.2358	0.6789	0.2164

Table 6. *Cont.*

p-Value Chi-Square Test of Independence	17. Taxation and Taxation of Cryptocurrencies Is Clear and Easy to Understand	11. Tax Obligations as an Investor (PERSONAL INCOME TAX)	12. Tax Obligations, I Have Made a Sale of Cryptocurrencies (PERSONAL INCOME TAX)	13. I Have Exchanged Cryptocurrencies for Other Currencies for Personal (PERSONAL INCOME TAX)	14. I Have Made Staking; How Should I Manage the Income for PERSONAL INCOME TAX?	15. Wealth Tax Obligations (WEALTH TAX)	16. Declaration of Investments in Cryptocurrencies	18. Negative Tax-Related Experience	20. Information and Resources on Taxation and Taxation of Cryptocurrencies
14. I have carried out staking, how should I manage the income for personal income tax purposes?	0.03310	0.01154	0.09841	0.00133		0.00019	0.5368	0.6851	0.1535
15. IP tax obligations	0.03451	0.00000	0.00008	0.00002	0.00019		0.1034	0.2092	0.4105
16. Declaration of investments in cryptocurrencies	0.00000	0.03630	0.00437	0.2358	0.5368	0.1034		0.1814	0.3343
17. Taxation and taxation of cryptocurrencies is clear and easy to understand.		0.5636	0.01197	0.1399	0.03310	0.03451	0.00000	0.4003	0.5085
18. Negative experience related to taxation	0.4003	0.3571	0.828407322	0.6789	0.6851	0.2092	0.1814		0.1244
19. Tax regulation is conducive to or discourages investment	0.00017	0.4913	0.08490	0.8308	0.2041	0.05461	0.00027	0.8057	0.9285
20. Information and resources on taxation and taxation of cryptocurrencies	0.5085	0.7981	0.9691	0.2164	0.1535	0.4105	0.3343	0.1244	

Source: Own elaboration through data obtained via the survey and SPSS.

The cells highlighted in green in Table 6 pertain to the variables that have demonstrated significance in the Chi-square test of independence. This implies a connection between these variables, signifying that the responses are not independent across all the survey variables. A distinct relationship exists among the responses to various variables, particularly those concerning tax obligations. Notably, negative experiences are associated solely with gender. The inclination to seek additional information from the Spanish tax agency (AEAT) is linked to variables concerning the level of knowledge of cryptocurrencies and associated tax obligations. An association between age and tax obligations in the wealth tax (IP) is also evident. In the context of managing returns in the personal income tax related to staking, associations are found with gender, age, level of education, and the population size of the municipality where the individual engaged in staking resides. Family income is connected to the understanding of tax obligations among cryptocurrency investors.

6. Discussion of Results

The rapid rise of cryptocurrencies has been remarkable in recent years, attracting mostly young adults between 18 and 35 years old, residing in urban areas, with a medium–high educational level and high income (Arias-Oliva et al. 2019; Gil-Cordero et al. 2020; Alonso et al. 2023a). This trend has become a global phenomenon, challenging not only traditional notions of investment but also presenting new challenges for tax agencies around the world (Solodan 2019; Yalaman and Yıldırım 2019). The ease of access through digital platforms and the attractiveness of potentially high returns due to speculation (Auer and Tercero-Lucas 2022; Alonso 2023) have contributed to this massive growth. However, this boom has not gone unnoticed by tax agencies and public finances, which now face the challenge of adapting their regulatory frameworks to this new financial reality (Baer et al. 2023; Caliskan 2022; Tyc and Siuciński 2020; Ozili 2020).

The decentralized and pseudonymous nature of cryptocurrency transactions poses significant obstacles to the effective identification and taxation of gains (Kaygin et al. 2021; Peláez-Repiso et al. 2021). Tax compliance is emerging as a key piece of this puzzle. It is essential that cryptocurrency users understand and comply with their tax responsibilities to avoid penalties, ensure state revenue collection, and maintain fairness in the distribution of the tax burden (Náñez Alonso 2019; Sanz-Bas et al. 2021; Caliskan 2022; Ozili 2020).

Tax compliance in the field of cryptocurrencies is not only crucial for maintaining the legitimacy and stability of the financial market but also reflects the fundamental principles of economic capacity and generality, ensuring that all citizens contribute equitably to support state functions (Cumming et al. 2019; Sanz-Bas et al. 2021; Caliskan 2022; Paleka and Vitezić 2023).

In our study, we found that most individuals who engage in cryptocurrency transactions face high or very high difficulties in correctly reporting these transactions for direct taxation. For example, in terms of personal income tax, 87.4% of respondents would act incorrectly when declaring ownership of cryptocurrencies. In addition, almost 40% indicate tax choices that are not the correct answer in terms of the obligation to include gains from the sale of cryptocurrencies in their personal income tax return as capital gains. Less than half of the respondents (47.6%) recognize the need to calculate the gain or loss from cryptocurrency swaps. As for gambling, the majority, 91.3% of respondents, would incorrectly declare profits received from gambling. As for wealth tax, the majority (70.2%) of respondents would incorrectly declare their cryptocurrencies for this tax.

Possible reasons for this situation have been identified. First, almost 50% of respondents admit to having low or very low knowledge about cryptocurrencies, which creates a barrier and an increased risk of tax non-compliance when dealing with them, aligning with the findings of studies such as Arli et al. (2020) or Smutny et al. (2021). Moreover, 89.3% of respondents claim to have no or very low knowledge of cryptocurrency taxation, despite actively engaging in cryptocurrency transactions (Fabris 2019; Fabris and Ješić 2023). As a result, 49.5% of respondents did not declare any of their cryptocurrency investments in the previous tax year, a result similar to that reported in the study by Hoopes et al. (2022).

Despite this, a majority of 67% of respondents have not had any negative experiences with tax authorities, indicating a loss of revenue and a niche for tax evasion that tax agencies need to combat.

The current state of tax non-compliance in cryptocurrency transactions is also explained by 66% of respondents stating that tax regulations are confusing and difficult to understand, aligning with the findings of studies such as Yalaman and Yıldırım (2019) or Solodan (2019). This poses a fundamental barrier to achieving "voluntary compliance" with tax obligations (Paleka and Vitezić 2023). A possible solution to this issue is suggested by the majority of respondents (87.4%), who express that tax authorities should provide more education and resources on the taxation of cryptocurrencies and other digital assets. This proposal is also echoed by Caliskan (2022). Cong et al. (2023) indicate that increased tax scrutiny leads crypto investors to use conventional tax planning with tax loss harvesting as an alternative to non-compliance. Now, one may wonder whether respondents have really been entirely truthful in answering the questionnaire. Respondents have no incentive to disclose illicit behavior related to tax evasion; which may lead them to rely on the argument that tax regulations are confusing and difficult to understand (Gonzálvez-Gallego and Pérez-Cárceles 2021; Martinčević et al. 2022).

It is important to keep in mind that more regulation, bringing more information and tax clarity, may pose a challenge for the emerging decentralized finance industry, as 41.7% believe that tax regulation discourages investment in cryptocurrencies, a potential problem highlighted by Auer and Claessens (2021), Chokor and Alfieri (2021) or Grennan (2022). In addition, it is also worth asking whether more regulation would be efficient in ensuring greater tax compliance. The reason is that, as previously indicated, the majority motive for using cryptocurrencies is speculative (Auer and Tercero-Lucas 2022; Alonso 2023). Can we convince to pay the taxes derived from trading those people who seek the highest possible profit and who see the payment of taxes as an expense (and a lower income)? Authors such as Hampl (2020), Meider (2023) or Reiners (2020) present serious doubts in this respect.

At this point, it is clear that states must act, but how? Some states, such as El Salvador, have opted to establish a cryptocurrency (in this case, Bitcoin) as legal tender (Alonso et al. 2024), although most states do not contemplate it and see these assets not as money but as assets used for speculation. Other countries and monetary areas are betting on the implementation of CBDCs as an alternative to cryptocurrencies, although their success and acceptance is not homogeneous (Ozili and Alonso 2024). Through a combination of strong regulations, international cooperation and advanced technologies, states can strengthen their capabilities to collect taxes derived from cryptocurrency transactions and ensure that taxpayers comply with their tax obligations in this emerging area.

1. Implement specific regulations: States can strengthen their regulatory framework for cryptocurrencies by establishing clear and specific regulations addressing the taxation of transactions with these digital assets (Garcia and Garcia 2019; Marian 2021; Ylönen et al. 2023). These regulations could include precise definitions on how to tax capital gains, exchange transactions and other aspects related to cryptocurrencies. By having clear rules, taxpayers would be more informed about their tax obligations, making collection easier for the state.
2. International cooperation: Given the global nature of cryptocurrencies, states can promote international cooperation to share information on relevant transactions. Agreements between countries to exchange tax data could help track transactions and profits generated by citizens in different jurisdictions (Emelianova and Dementyev 2020; Peláez-Repiso et al. 2021). This collaboration could close potential tax loopholes and increase the efficiency of tax collection related to cryptoassets.
3. Develop advanced monitoring technologies: States can invest in advanced monitoring and data analytics technologies to track cryptocurrency transactions (Scarcella 2019). The implementation of artificial intelligence and blockchain tools could facilitate the identification of fraudulent activities, tax evasion and the tracking of cryptoasset

ownership (Faúndez-Ugalde et al. 2020). This would allow tax authorities to have a more complete view of transactions and ensure more accurate and efficient collection.

The challenge is to strike a balance between financial innovation and the need to establish a clear and enforceable tax framework. International collaboration is also essential to address the cross-border nature of cryptocurrencies and ensure consistent taxation on a global scale.

Our study closes an existing gap in the academic literature. Firstly, because, although there are previous studies on this issue, such as the Czech Republic study conducted by Hampl (2020), the Ukraine study conducted by Bondarenko et al. (2019), Malaysia (Ter Ji-Xi et al. 2021) or Germany (Steinmetz et al. 2021), ours has focused on Spain. Secondly, although in Spain the phenomenon of Bitcoin and other cryptocurrencies adoption has been previously studied in general terms by Arias-Oliva et al. (2019), or the factors affecting the unequal adoption between men and women (Alonso et al. 2023a) or its adoption as a financial instrument (Gil-Cordero et al. 2020), our research is different from the previous ones. It is the first research that studies the reasons why Spanish cryptocurrency investors do not comply with their tax obligations when they engage in activities such as staking, trading or cryptocurrency swaps.

As to the limitations of our study, it should be noted that it is a survey carried out at a specific time, with specific social and economic circumstances. Therefore, the generalization of the results may be conditioned by the temporal and situational context in which the research was conducted. In addition, the changing nature of the cryptocurrency market and evolving regulations may influence tax compliance behaviors in the future. Consequently, further research is required to delve deeper into the reasons for voluntary or involuntary non-compliance with tax obligations related to cryptocurrency transactions, considering different temporal and situational contexts, as well as the analysis of additional factors that may influence such behavior.

7. Conclusions

This article underscores the lack of clarity in cryptocurrency regulation and the absence of consistent tax criteria, causing uncertainty for both taxpayers and tax authorities. It emphasizes the necessity for governments and international supervisory bodies to establish a specific regulatory framework to ensure more effective and precise taxation of cryptocurrencies. In terms of the survey's statistical analysis, the sample predominantly falls within the 26 to 35 age range, reflecting the typical profile of cryptocurrency users according to various studies. Notably, there is a gender disparity in the responses, with men constituting the majority, which aligns with the predominant user demographic of cryptocurrencies.

Regarding tax obligations, opinions are muddled and often incorrect. While most respondents understand the necessity of declaring capital gains from cryptocurrency sales, there are discrepancies in how to fulfill these obligations, particularly concerning swap operations and staking. Additionally, a notable portion of respondents appear to disregard tax obligations, likely due to the ambiguity in cryptocurrency-related tax laws. The overall perception is that current tax regulations deter investment in cryptocurrencies, attributable to confusion and lack of clarity in existing regulations. The majority of respondents express a clear need for enhanced education and resources from tax agencies to better grasp the tax implications of cryptocurrencies.

Hence, the data indicate an urgent need for clearer tax regulations concerning cryptocurrencies in Spain, alongside more comprehensive and accessible education for citizens. This initiative aims to foster understanding and ensure proper compliance with tax obligations in this dynamically evolving field driven by innovation. The latter statement can be achieved in three possible ways: by implementing specific regulations, international cooperation and through the development of advanced monitoring technologies.

Supplementary Materials: The following supporting information (Questionnaire and survey results) can be downloaded at https://www.researchgate.net/publication/378652541_Survey-Knowledge_of_Crytocurrency_tax_obligations (accessed on 15 September 2023).

Author Contributions: Conceptualization, S.L.N.A. and Á.H.S.; methodology, S.L.N.A., Á.H.S. and B.M.S.-H.; software, B.M.S.-H. and Á.H.S.; validation, J.J.-V.; formal analysis, S.L.N.A., Á.H.S. and B.M.S.-H.; investigation, Á.H.S. and J.J.-V.; resources, J.J.-V. and S.L.N.A.; data curation, Á.H.S. and B.M.S.-H.; writing—original draft preparation, S.L.N.A., Á.H.S. and B.M.S.-H. and J.J.-V.; writing—review and editing, J.J.-V.; supervision, S.L.N.A.; Funding, S.L.N.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available in the article and as Supplementary Material.

Acknowledgments: The authors want to express our sincere gratitude. First, we extend our thanks to Economies journal and its editorial team for generously covering the APCs, facilitating the publication of this article. Secondly, we would also like to acknowledge the unwavering support from the Universidad Católica de Ávila. Additionally, our heartfelt appreciation goes to the diligent reviewers for their insightful suggestions, which have significantly contributed to enhancing the quality of the article.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Normality according to the Kolmogorov–Smirnov test.

	N	Normal Parameters [a,b]		Maximum Extreme Differences			Test Statistic	Significance (Bilateral) [c]
		Mean	Standard Deviation	Absolute	Positive	Negative		
1. Gender	103	1.29	0.498	0.449	0.449	−0.279	0.449	0.000
2. What is your age?	103	35.84	9.974	0.107	0.107	−0.083	0.107	0.005
2.1. Age coded in ranges	103	2.31	0.767	0.252	0.220	−0.252	0.252	0.000
3. What is your level of education?	103	2.93	0.582	0.405	0.405	−0.401	0.405	0.000
4. What is your current main occupation?	103	1.43	0.736	0.409	0.409	−0.281	0.409	0.000
5. In which of the following ranges would you situate your household economy?	103	3.38	1.077	0.201	0.201	−0.188	0.201	0.000
6. How many inhabitants does the municipality in which you live have?	103	3.64	0.969	0.251	0.251	−0.196	0.251	0.000
7. If you had to define your personal financial situation, this would be:	103	2.47	0.539	0.325	0.321	−0.325	0.325	0.000
8. Have you made any transactions with cryptocurrencies (buying, selling, swapping. . .) to date?	103	1.63	1.129	0.411	0.411	−0.288	0.411	0.000
9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	103	2.50	1.228	0.178	0.152	−0.178	0.178	0.000

Table A1. *Cont.*

	N	Normal Parameters [a,b]		Maximum Extreme Differences			Test Statistic	Significance (Bilateral) [c]
		Mean	Standard Deviation	Absolute	Positive	Negative		
10. Are you aware of the tax obligations associated with cryptocurrencies in Spain?	103	1.08	1.054	0.235	0.235	−0.159	0.235	0.000
11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations do you have to comply with in relation to personal income tax (PERSONAL INCOME TAX)?	103	2.44	1.063	0.323	0.222	−0.323	0.323	0.000
12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	103	2.28	0.984	0.389	0.263	−0.389	0.389	0.000
13. If as an individual, during this financial year, I have exchanged cryptocurrencies for other cryptocurrencies, for personal income tax purposes, must I. . .	103	2.66	1.071	0.314	0.182	−0.314	0.314	0.000
14. If as an investor in cryptocurrencies, in this financial year, I have carried out staking, how should I manage the income for personal income tax purposes?	103	2.18	1.194	0.231	0.231	−0.178	0.231	0.000
15. What are the tax obligations that I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	103	1.88	1.105	0.361	0.361	−0.212	0.361	0.000
16. Have you declared your investments in cryptocurrencies during the last tax year when you have carried out any of the transactions described above?	103	2.78	0.779	0.273	0.222	−0.273	0.273	0.000
17. Do you think that the taxation of cryptocurrencies in Spain is clear and easy to understand?	103	2.62	0.562	0.410	0.250	−0.410	0.410	0.000
18. Have you had any negative experiences related to the taxation of cryptocurrencies?	103	2.14	0.561	0.363	0.363	−0.307	0.363	0.000
19. Do you think that tax regulation favors or discourages investment in cryptocurrencies in Spain?	103	2.57	0.966	0.257	0.257	−0.160	0.257	0.000
20. Do you think that the AEAT should provide more information and resources on taxation and taxation of cryptocurrencies and other digital assets?	103	1.24	0.649	0.520	0.520	−0.354	0.520	0.000

Source: Own elaboration through data obtained via the survey and SPSS. [a] The test distribution is normal. [b] It is calculated from data. [c] Lilliefors significance correction.

Table A2. Significant results of the Kruskal–Wallis test.

Variable	Grouping Variable	H de Kruskal-Wallis	gl	Sig. Asin.
17. Do you think that the taxation of cryptocurrencies in Spain is clear and easy to understand?	10. Are you aware of the tax obligations associated with cryptocurrencies in Spain?	18.181	4	0.0011
	12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	15.931	3	0.0012
	16. Have you declared your investments in cryptocurrencies during the last tax year when you have made any of the transactions described above?	22.822	3	0.000044
	19. Do you think that tax regulation favors or discourages investment in cryptocurrencies in Spain?	18.294	3	0.00038
11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	11.250	3	0.0104
	13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must. . .	11.202	3	0.0107
	15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	18.220	3	0.00040
12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	8. Have you carried out any transaction with cryptocurrencies (purchase, sale, swap. . .) to date?	14.338	4	0.0063
	9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	13.438	5	0.0196
	10. Are you aware of the tax obligations associated with cryptocurrencies in Spain?	18.361	4	0.0010
	11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	12.205	3	0.007
	13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must. . .	7.579	3	0.0556
	15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	14.799	3	0.0020
	16. Have you declared your investments in cryptocurrencies during the last tax year when you have made any of the transactions described above?	8.291	3	0.0404
	17. Do you think that the taxation of cryptocurrencies in Spain is clear and easy to understand?	11.370	2	0.0034

Table A2. *Cont.*

Variable	Grouping Variable	H de Kruskal-Wallis	gl	Sig. Asin.
13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must. . .	6. How many inhabitants does the municipality in which you live have?	13.640	4	0.009
	9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	11.754	5	0.038
	11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	11.211	3	0.011
	14. If as an investor in cryptocurrencies, in this financial year, I have carried out staking, how should I manage the income for personal income tax purposes?	11.786	3	0.008
	15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	16.982	3	0.001
	20. Do you think the AEAT should provide more information and resources on taxation and taxation of cryptocurrencies and other digital assets?	4.986	2	0.083
14. If as an investor in cryptocurrencies, in this financial year, I have carried out staking, how should I manage the income for personal income tax purposes?	1. Gender:	11.455	2	0.003
	9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	9.287	5	0.098
	11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	10.855	3	0.013
	13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must. . .	9.596	3	0.022
	15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	17.461	3	0.001
15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	18.277	3	0.00039
	12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	12.406	3	0.0061
	13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must. . .	11.451	3	0.0095
	14. If as an investor in cryptocurrencies, in this financial year, I have carried out staking, how should I manage the income for personal income tax purposes?	16.883	3	0.0007
	16. Have you declared your investments in cryptocurrencies during the last tax year when you have made any of the transactions described above?	11.236	3	0.0105

Table A2. *Cont.*

Variable	Grouping Variable	H de Kruskal-Wallis	gl	Sig. Asin.
16. Have you declared your investments in cryptocurrencies during the last tax year when you have made any of the transactions described above?	2.1. Age coded in intervals	6.679	3	0.0829
	8. Have you carried out any transaction with cryptocurrencies (purchase, sale, swap...) to date?	30.494	4	0.0000039
	9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	18.228	5	0.0027
	10. Are you aware of the tax obligations associated with cryptocurrencies in Spain?	17.833	4	0.0013
	11. As an investor in cryptocurrencies during this financial year, which of the following tax obligations must you comply with in relation to personal income tax (PERSONAL INCOME TAX)?	9.035	3	0.0288
	12. If, as an investor in cryptocurrencies, I have made a sale of cryptocurrencies during this financial year, what tax obligations do I have to comply with regard to personal income tax?	9.741	3	0.021
	15. What are the tax obligations I must comply with as an individual if I have acquired and held cryptocurrencies in my digital wallet during the current financial year in relation to wealth tax (IP)?	10.178	3	0.017
	17. Do you think that the taxation of cryptocurrencies in Spain is clear and easy to understand?	10.823	2	0.0045
	19. Do you think that tax regulation favors or discourages investment in cryptocurrencies in Spain?	7.190	3	0.0661
18. Have you had any negative experiences related to the taxation of cryptocurrencies?	1. Gender:	6.872	2	0.0322
20. Do you think the AEAT should provide more information and resources on taxation and taxation of cryptocurrencies and other digital assets?	1. Gender:	4.626	2	0.0990
	9. My knowledge of how cryptocurrencies work is from 0 (not at all) to 5 (very much):	17.442	5	0.0037
	10. Are you aware of the tax obligations associated with cryptocurrencies in Spain?	12.346	4	0.0150
	13. If, as a natural person, in this financial year, I have exchanged cryptocurrencies for other currencies, for personal income tax purposes I must...	6.353	3	0.0956
	14. If as an investor in cryptocurrencies, in this financial year, I have carried out staking, how should I manage the income for personal income tax purposes?	6.858	3	0.077

Source: Own elaboration through data obtained via the survey and SPSS.

Notes

1. While, for income tax purposes, the purchase and holding of cryptocurrency do not entail any obligation, according to RD 249/2023, it is stated that it will not be mandatory to report via form 721 on cryptocurrencies abroad if the total balance of all cryptocurrencies as of 31 December (quantifying their value in euros) does not exceed EUR 50,000.
2. Binding Consultation DGT V2616-22, dated 23 December 2022. "Information on the obligation to declare the possession of cryptocurrency without having been sold".
3. Binding Consultation DGT V0808-2018, dated 22 March 2018. "The inquirer buys and sells different virtual currencies, such as 'bitcoin', 'litecoin', and 'ripple'".
4. Binding Consultation DGT V2520-22, dated 7 September 2022. "Taxation of gains obtained in virtual currency exchange operations".
5. Binding Consultation DGT V1766-22, dated 27 July 2022. "Taxation of rewards obtained in crypto-assets through 'staking'".

[6] Binding Consultation DGT V2289-18, dated 3 August 2018. "Taxation in the Wealth Tax. Holding in an electronic account of cryptocurrencies called 'iota'".

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