UNDERSTANDING NON-OBSERVED ECONOMY IN THE DIGITAL SPHERE: THE CASE OF ALBANIAN CONSUMERS

Ina Zela[1]
[1]Mediterranean University of Albania, Tirana
Faculty of Economics,
inashehu@umsh.edu.al

Abstract
The rapid development of activities in the digital sphere has brought about a new form of non-observed economy within this space, known as the "digital shadow economy." This study explores Albanian consumers' perceptions and attitudes toward this phenomenon, which combines elements of unobserved economy with digital transactions. Despite the widespread use of e-commerce and online services is increasing, there is a lack of scientific studies addressing how consumers contribute to the spread or prevention of the digital shadow economy. To fill this gap, a structured questionnaire was conducted with 70 Albanian consumers, assessing their understanding, perceptions, and behavior regarding unregistered transactions in the digital environment. The study identifies the main characteristics of this phenomenon such as anonymity, lack of control mechanisms, etc. as well as the channels through which it operates, including online platforms, virtual currencies, and electronic services. Furthermore, the results emphasize consumers' awareness of the need for a stronger legal framework and supervisory measures to limit participation in unregistered transactions. This study contributes to the literature of non-observed economy in the digital age and offers policy recommendations for more effective regulation in developing economies.

Key words: *non-observed digital economy, e-commerce, digital transactions*

EKONOMIA E PAVROJTUAR NË SFERËN DIGJITALE: RASTI I KONSUMATORËVE SHQIPTARË

Abstrakt
Zhvillimi i shpejtë i aktiviteteve në sferën digjitale ka sjellë një formë të re të ekonomisë së pavrojtuar brenda këtij mjedisi, e njohur si "ekonomia hije

digjitale". Ky studim shqyrton perceptimet dhe qëndrimet e konsumatorëve shqiptarë ndaj këtij fenomeni, i cili ndërthur elemente të ekonomisë së pavëzhguar me transaksionet digjitale. Megjithëse përdorimi i tregtisë elektronike dhe i shërbimeve online është në rritje, mungojnë studimet shkencore që trajtojnë mënyrën se si konsumatorët kontribuojnë në përhapjen ose parandalimin e ekonomisë hije digjitale. Për të plotësuar këtë boshllëk, u zhvillua një pyetësor i strukturuar me 70 konsumatorë shqiptarë, i cili vlerësoi njohuritë, perceptimet dhe sjelljen e tyre ndaj transaksioneve të paregjistruara në mjedisin digjital. Studimi identifikon karakteristikat kryesore të këtij fenomeni, si anonimiteti, mungesa e mekanizmave të kontrollit, etj., si dhe kanalet përmes të cilave ai funksionon, përfshirë platformat online, monedhat virtuale dhe shërbimet elektronike. Për më tepër, rezultatet theksojnë ndërgjegjësimin e konsumatorëve për nevojën e një kuadri ligjor dhe masash mbikëqyrëse më të forta për të kufizuar pjesëmarrjen në transaksione të paregjistruara. Studimi kontribuon në literaturën mbi ekonominë e pavrojtuar në epokën digjitale dhe ofron rekomandime për një rregullim më efektiv në ekonomitë në zhvillim.

Fjalët kyçe: *ekonomi digjitale e pavrojtuar, tregtia elektronike, transaksionet digjitale*

Introduction

Factors such as digitalization and globalization have mitigated barriers which have a worldwide impact on the trends of economic development. The way and the intensity with which technology and Internet are being used today have influenced the exponential growth of enterprises that promote their activities online as well as of consumers who are engaged in "digital consumption". The increase in opportunities to interact in the digital environment has simultaneously created paths to develop not only the "digital economy" but also the "digital shadow economy" (Coca and Nistor, 2021).

In addition to the crucial role that plays in the "digital shadow economy", the high number of unregistered enterprises, which offer products and services at low prices without issuing tax receipts, which hide their income from the authorities, etc; the role of consumers as primary drivers of demand for such products and services should not be underestimated (Ohrimenco, Borta, and Tetiana, 2019). Therefore, in the recent decade, the "digital shadow economy" has attracted

considerable attention among researchers and policymakers worldwide. However, to the best of our knowledge, no similar research has been conducted in Albania. Thus, consumer behavior towards the "digital shadow economy" phenomenon, meaning: conceptualization, characteristics, and transmission channels of its spread, remains insufficiently explored from an integrated perspective. The study of consumer behavior concerning this phenomenon would not only enrich the scientific literature but would also contribute new data to improve existing estimates and find ways to prevent it.

Hence, the purpose of this study is to examine and analyze the perception of Albanian consumers on the concept and characteristics of the "digital shadow economy", investigate the channels through which goods and services are traded online and measure prevention methods.

To accomplish the aim of this study, attention is directed towards the following goals: 1) performing a comprehensive examination of the current theoretical principles, characteristics, and mechanisms associated with “the digital shadow economy” 2) choosing and describing the research methodology; 3) conducting a survey and gathering relevant data. 4) undertaking the processing and analysis of the findings derived from the empirical research conducted on the attitudes of Albanian consumers towards the "digital shadow economy”.

The opening section of the paper is devoted to the literature review, which highlights previous related studies. The review establishes the theoretical foundation and outlines the main research methodologies. It creates a logical bridge to the third section, which focuses on data presentation and methodological approach. The fourth section presents and discusses the empirical findings. The final section draws together the theoretical insights and empirical evidence to formulate conclusions, limitations, and suggest directions for future research.

Literature Review

The concept of “digital shadow economy” derives from the concept of the “shadow economy”. The “shadow economy” includes all legally produced goods and services that are intentionally concealed from the

attention of public authorities. The hidden nature of economic activities generally aims to avoid tax obligations, such as income taxes or value added taxes, as well as social security contributions. It also serves to bypass legal standards that has to do with labour, safety, welfare regulations such as: wages, working hours, employment conditions, etc. In addition, such activities are also often hidden to escape the administrative burden linked with business registration or formal labor arrangements (European Commission, 2005; Schneider et al., 2018).

Starting from the general definition of the “shadow economy” it can be understood that the term “digital shadow economy” refers to similar activities mentioned above which are carried out in the digital environment. The academic literature offers a variety of definitions and explanations for this concept but there isn’t still a single and universal definition accepted by everyone. The lack of clarity, both nationally and internationally, regarding this phenomenon, makes it difficult to study and prevent the performing enterprises in the digital sphere (Bossler and Holt, 2012). Furthermore, the rapid progress of technology makes “digital shadow economy” difficult to monitor (Holz et al., 2012).

With reference to Moore et al. (2009), “digital shadow economy” refers to hidden profit driven online trading. Smith (2015) argues that this occurrence is closely connected to the concept of cybercrime, which refers to illicit activities carried out over the Internet with the intention of unlawfully acquiring money, assets, or resources from individuals remotely. The term "digital shadow economy" encompasses profit-oriented, unregistered transactions conducted online, primarily involving trade and service provision. However, it is important to note that activities driven by profit, such as e-fraud, digital piracy, and cybercrime, should be considered as separate criminal acts and not included within the definition of the digital shadow economy.

According to Velachos et al. (2011) and others authors, the primary harm caused by the digital shadow economy is the deprivation of officially registered enterprises of potential profits and potential customers, as well as lost state budget revenue. Consumers’

participation in informal online markets is strongly influenced by price differentials, convenience, perceived low probability of detection, and limited awareness of legal consequences. The concept of the "digital shadow economy" also extends to the role of consumers as active participants who engage in informal digital consumption practices, such as accessing or reproducing protected digital content without proper authorization (e.g. unauthorized downloading, digital piracy copying of a specific piece of protected content) (Castro et al. 2009). In this context, consumer behavior becomes an integral component of the digital shadow economy, as individual users contribute to the demand for unregistered digital goods and services. According to the findings reported by Vlachos et al. (2011), most cases of e-fraud arise in the context of online purchasing, where users are primarily motivated by the opportunity to obtain goods such as: luxury clothing, electronic devices, and entertainment products at significantly reduced prices.

Furthermore, the scientific literature has increasingly focused on identifying the channels through which goods and services circulate within the digital shadow economy. Studies highlight the importance of online marketplaces, peer-to-peer platforms, social media networks, and encrypted communication channels as primary distribution methods. The digital shadow economy is thus a complex, evolving ecosystem shaped by technological innovation, consumer demand, and regulatory gaps, making its monitoring and regulation a persistent challenge for policymakers and law enforcement agencies.

Data and Methodology

The primary aim of this paper is to provide the most accurate definition of the concept of the "digital shadow economy" from the perspective of Albanian consumers, as well as to identify the key characteristics and channels that significantly contribute to the development of this phenomenon. Furthermore, in order to further enrich this study, the ways in which this phenomenon can be prevented have also been identified, considering that it is relatively new in the Albanian context.

For the purpose of achieving the objective of this scientific paper, a structured questionnaire was designed and administered to Albanian consumers, structured into five sections: (i) the first section collects demographic data on the participants; (ii) the second section addresses various definitions related to the concept of the "digital shadow economy"; (iii) the third section highlights the characteristics of this phenomenon; (iv) the fourth section focuses on the main distribution channels of the digital shadow economy; and (v) the final section is designed to identify preventive measures. This survey is based on the studies by Gaspareniene, Remeikiene and Navickas (2016) and Remeikiene, Gaspareniene and Schneider (2018).

The sample of this study consists of primary data and comprises 70 respondents. The respondents evaluate the proposed concepts, features, channels and means of prevention using Likert scale, ranging from 1 - "strongly disagree" to 5 - "strongly agree". The mean value plays a key role in the interpretation of the Likert-scale responses. The online survey was carried out during the period of September - October 2025 and followed the principles of "snowball" data collection method, which involves asking initial known respondents to recommend other potential participants, who in turn suggest additional respondents (Vershinina and Rodionova, 2011; Gaspareniene, Remeikiene and Navickas, 2016). Hence, the method is also known as chain-referral sampling and is applied with the aim of expanding the available sample size. All the respondents have in common the fact that they have made at least one purchase of good/services in digital space.

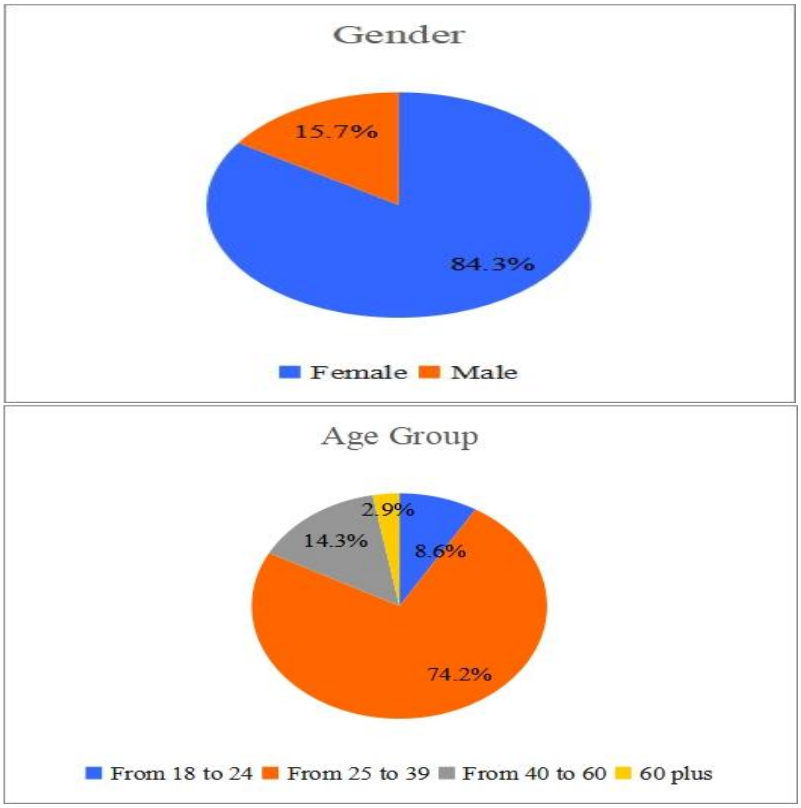
The survey was administered using self-completion method by the respondents independently. Like any other method, this approach has its advantages and disadvantages. Among advantages we can mention: (i) low implementation cost, (ii) minimal infrastructure, (iii) the preservation of respondent anonymity. However, this method includes some disadvantages, like: (i) the lack of interpretation of the question by the interviewer and therefore the correct understanding from the respondent, (ii) the accuracy of the

information collected, (iii) the possibility of incomplete responses in cases where not all the questions are obligatory.

Analysis and Interpretation of Results

The findings from the first section of the survey, based on the respondents' answers, reveal the following demographic characteristics. As illustrated in Figure 1, by gender, the majority of the respondents are female, who account for 84.3% of the total, while males represent 15.7% of the sample size. With regard to age distribution, 74.2% of the respondents belong to the age group from 25 to 39 years old. Furthermore, the age group from 40 to 60 comprises 14.3% of the sample, while 8.6% of the respondents are aged between 18 to 24 years. The rest of the participants are over 60 years of age.

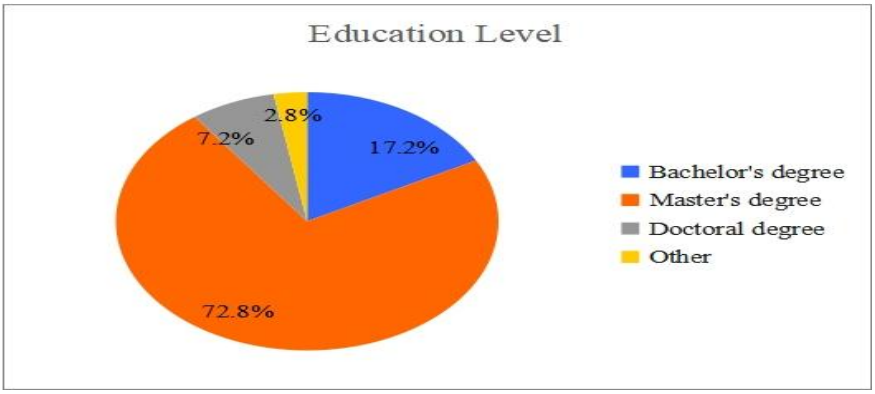
Figure 1. *Demographic characteristics of respondents, Gender and Age*



Source: *Authors' own compilation*

As shown in Figure 2, the majority of the respondents, which comprise 72.8% of the total sample, hold a master's degree. A further 17.2% of the respondents have completed a bachelor's degree, while 7.2% hold a doctorate degree. The remaining 2.8% have other forms of educational background.

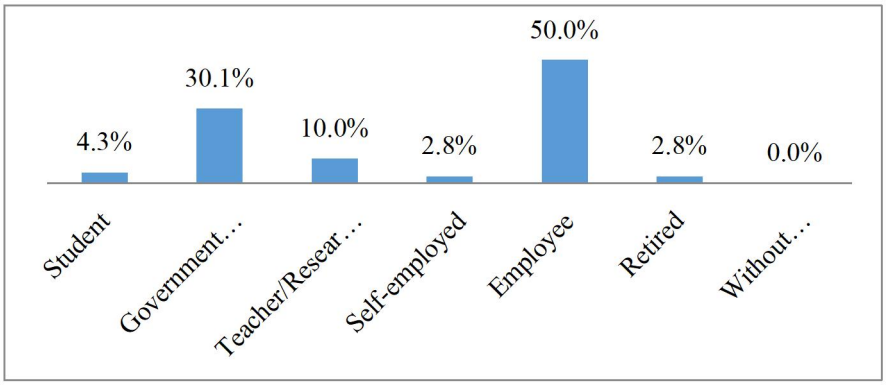
Figure 2. *Demographic characteristics of respondents, Education level*



Source: *Authors' own compilation*

As illustrated in Figure 3, most respondents identified themselves as employees. The second largest group, accounting for 30.1%, consists of government officials and public sector employees.

Figure 3. *Demographic characteristics of respondents, Occupation (in %)*



Source: *Authors' own compilation*

Teachers and researchers make up 10% of the sample, students represent 4.3%, and self-employed individuals account for 2.8%. An additional 2.8% of respondents are retired. Notably, none of the participants reported being unemployed.

In the second part of the questionnaire, several definitions of the "digital shadow economy" were presented to the target population who evaluated them using Likert scale. Table 1 provides the results of mean ranks of Albanian consumers' perception of the definitions of "digital shadow economy". If the proposed definitions have a mean value score above 3 points, it is considered that the respondents agree and accept them. On the other hand, if the proposed definition has a mean value below 2.9 points suggests a weak level of agreement.

Albanian consumers evaluate the first proposed definition with a mean rank of 3.8 points, which received the highest level of acceptance. The definition describing the digital shadow economy as "*online trade conducted without tax payments to the state, excluding purely criminal activities such as drug trafficking and prostitution."* ranked second with a mean score of 3.67 followed by the third definition, differing with only with 0.07 points in mean value. Albanian consumers evaluate the definition that refers to "digital shadow economy" as "*global criminal networks operating through closed online forums and facilitating cybercrimes such as bank fraud, payment card crimes, identity theft, and other digital intrusions"* with a mean rank equal to 2.97 points. This is the lowest received score in Table 1, still not below the rejection threshold. This means that Albanian consumers are less inclined to associate the digital shadow economy primarily with organized cybercrime activities.

Table 1. *Mean ranks for the concept of "digital shadow economy"*

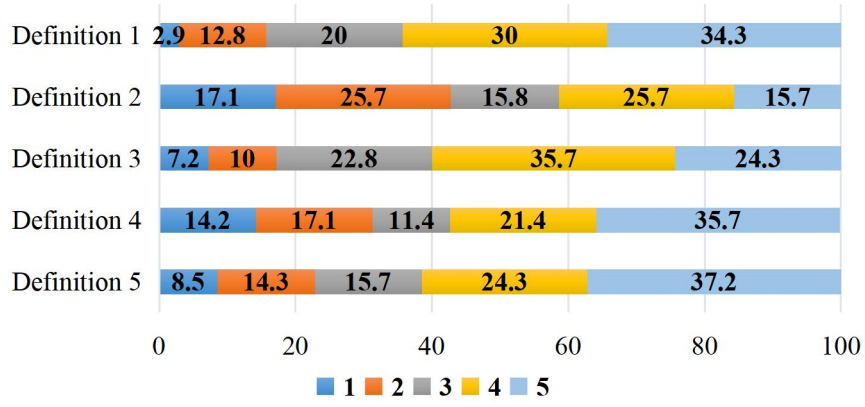
Definition	**PART 2. The Concept of Digital Shadow Economy**	**Mean Ranks**
Definition 1	The digital shadow economy includes illegal, profit-oriented online trade or service activities that may occur on a repeated or non-repeated basis, with or without changes in IP addresses or computer networks	3.8
Definition 2	The digital shadow economy consists of global criminal networks operating through closed online	2.9

	forums and facilitating cybercrimes such as bank fraud, payment card crimes, identity theft, and other digital intrusions.	
Definition 3	It refers to the unregistered and profit-driven remote provision of goods or services that competes unfairly with officially registered entities offering similar products or services.	3.6
Definition 4	The digital shadow economy involves illegal online operations that generate undeclared financial flows and divert revenue from legally operating traders and service providers.	3.4
Definition 5	The digital shadow economy denotes online trade conducted without tax payments to the state, excluding purely criminal activities such as drug trafficking and prostitution.	3.6

Source: *Authors' own compilation/ definitions by Remeikiene, Gaspareniene and Schneider (2018)*

The data presented in Figure 4 show in details the percentage of responses in Likert scale for each definition. For example, the first definition was ranked mostly with (5) by the respondents, (34.3%) which means that they find it important and strongly agree with it. The highest level of disagreement was found out in the second definition, etc.

Figure 4. *Distribution of responses for definitions, in (%)*



Source: *Authors' own compilation*

The Cronbach Alpha coefficient for "Part 2. The Concept of Digital Shadow Economy" is estimated to be 0.82 which indicates a very good level of internal consistency. The Kendall's coefficient of concordance for this part results W=0.089. The range of this coefficient varies from 0 to 1, where values close to 0 indicate low agreement among respondents' and values close to 1 indicate strong consensus of respondents' opinions. We can conclude that the opinions of the respondents are incompatible but since the p-value is 0.0001 ($p<0.05$), the data can be treated as reliable.

The third section of the questionnaire develops the key features of "digital shadow economy" and the obtained results are summarized in the Table 2. Among the listed features, "*lack of effective regulatory and control mechanisms",* with a mean rank equal to 3.9 points, is the one that mostly reflects the opinion of respondents regarding the features of this phenomenon. It is followed by the second feature related to "*difficulties in defining geographical location and anonymity"*. All the presented features have mean ranks higher than 3.5 points and don't vary in a significant way. Albanian consumers' find all the presented features comparatively acceptable.

Table 2. *Mean ranks for the features of "digital shadow economy"*

Feature	**PART 3. The Features of Digital Shadow Economy**	**Mean Ranks**
Feature 1	Geographical location is difficult to identify, while participant anonymity remains high.	3.8
Feature 2	Illegal operations are carried out at high speed and exclusively within the electronic environment.	3.7
Feature 3	Lack of effective regulatory and control mechanisms.	3.9
Feature 4	Participants and intermediaries possess advanced IT competencies and strong English language skills.	3.5
Feature 5	The communication, promotion, and distribution of goods and services occur entirely in digital space, without any physical interaction.	3.7

Source: *Authors' own compilation*

The Cronbach Alpha coefficient for "Part 3. The Features of Digital Shadow Economy" is estimated to be 0.77 which indicates an acceptable level of internal consistency even though it is lower compared to the section above.

Table 3 provides information about the results of mean ranks regarding the fourth part of the questionnaire which is related to the channels of "digital shadow economy". The presented channels strongly reflect the perception of respondents with mean ranks over 3.4 points. The channels proposing that "digital shadow economy" is developed mostly in "*online shops with e-payment systems" and "payments in bitcoins and other cryptographic currencies"* are listed first with a mean rank of 3.6 points.

Table 3. *Mean ranks for the channels of "digital shadow economy"*

Channel	**PART 4. The Channels of Digital Shadow Economy**	**Mean Ranks**
Channel 1	Online shops with electronic payment systems	3.6
Channel 2	Online gambling platforms (e-games, poker, casino, bingo portals)	3.5
Channel 3	Electronic services (e.g., online advertising services)	3.5
Channel 4	Online broadcasting and streaming platforms	3.4
Channel 5	Payments conducted through Bitcoin and other cryptocurrencies	3.6

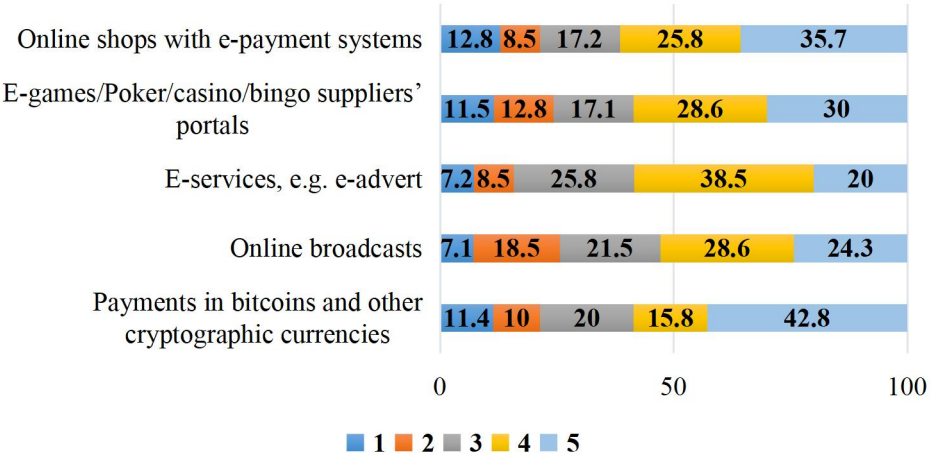
Source: *Authors' own compilation*

Data presented in Figure 5 shows in details the composition of responses for each suggested channel. The range of means rank (3.4-3.6) indicates a high level of homogeneity in respondents' evaluations. The small differences reflects a strong consensus between respondents' regarding the importance of all channels implying that no single channel dominates in a significant way. Nevertheless, a relatively high share of respondents assigned the highest score (5) to the channels "Online shops with e-payment systems" (35.7%) and "Payments conducted through Bitcoin and other cryptocurrencies" (42.8%), indicating that these channels are perceived as particularly

important within the overall, largely balanced, structure of the "digital shadow economy". This pattern suggests that various channels contribute to this phenomenon and that policymakers should consider all channels when designing strategies or interventions in the economy, rather than focusing on a single pathway.

The Cronbach Alpha coefficient for "Part 4. The Channels of Digital Shadow Economy" is estimated to be 0.82 which indicates a very good level of internal consistency.

Figure 5. *Distribution of responses for channels, in (%)*



Source: *Authors' own compilation*

Table 4 provides information about the results of mean ranks regarding the final section of the questionnaire, which focuses on measures for preventing "digital shadow economy". The findings indicate that Albanian consumers have the opinion that all the measures of "digital shadow economy" prevention are relevant and directly associated with the concept of the digital shadow economy. According to Albanian consumers, the two most effective and equally important measures of "digital shadow economy" prevention are "*A strengthened legal framework with stricter criminal and administrative liability and higher fines for both parties involved in illegal digital transactions*" and "*Wider availability of protection*

software, alongside enhanced monitoring and control." (mean ranks equal to 4.0 in both cases). The respondents emphasize that availability of information on illegal e-space activities (mean rank = 3.6) and the knowledge on which digital activities are considered as illegal ones (mean rank = 3.5) are necessary to combat the phenomenon of "digital shadow economy". Beyond the survey results, additional preventive measures of "digital shadow economy" can be related with promoting good governance by increasing detection on taxes and taxation measures. The recommended mechanism is to improve and simplify tax compliance, automating administrative processes, and closely monitoring electronic payments, etc. Furthermore, the findings are consistent with the study of Remeikienė, R., et al (2022) which reports that there is a negative correlation between human development and size of shadow economy meaning that improvements in human development are a significant factor in reducing shadow economy.

Table 4. *Mean ranks for the measures of "digital shadow economy" prevention*

PART 5. The Measures of Digital Shadow Economy Prevention	**Mean Ranks**
A strengthened legal framework with stricter criminal and administrative liability and higher fines for both parties involved in illegal digital transactions	4.0
Wider availability of protection software, alongside enhanced monitoring and control.	4.0
Transparent, publicly accessible information on illegal activities in digital spaces.	3.6
Official definition of digital shadow activities as illegal practices.	3.5
Lower and more competitive prices in legal markets to reduce incentives for illegality.	3.3

Source: *Authors' own compilation*

The Cronbach Alpha coefficient for "Part 5. The Measures of Digital Shadow Economy Prevention is estimated to be 0.81 which indicates a very good level of internal consistency among survey items. The Kendall's coefficient of concordance for this part results W=0.096 but the p-value equal to 0.0000 refers to statistically significant answers.

At the end, the Cronbach Alpha coefficient for the overall survey is 0.90, indicating that the internal consistency of this survey is "Excellent". The weak compatibility of opinions of the respondents presented in each session of the survey can be explained with the different background/ formation of the target population which likely influenced evaluations.

Conclusions

The findings of this study indicate that Albanian consumers primarily perceive the "digital shadow economy" as a form of the traditional shadow economy manifested through illegal, profit-driven online trade and service provision. Respondents associate this phenomenon mainly with unregistered digital transactions that may occur both on a repeated and non-repeated basis, with or without changes in IP addresses or computer networks. This confirms that consumers tend to conceptualize the digital shadow economy predominantly as an issue of fiscal evasion and unfair competition, rather than as a purely cybercriminal activity.

Furthermore, Albanian consumers believe that the main driver of the "digital shadow economy" is *lack of effective regulatory and control mechanisms*, followed by the fact that it is *difficult to define the geographical location of the place from which the illegal activity takes place.* Thus, *anonymity* significantly facilitates the phenomenon of the "digital shadow economy". These results highlight that institutional weaknesses and technological barriers to monitoring play a crucial role in the expansion of the digital shadow economy.

From the point of view of Albanian consumers, the "digital shadow economy" is mostly developed via channels such as *"online shops with electronic payment systems*" and "*payments conducted via cryptocurrencies such as Bitcoin*". Albanian consumers' find channels such as *E-games portals and E-services* comparatively acceptable. This confirms the multidimensional nature of the phenomenon and suggests that it is not confined to a single digital platform or transaction model.

Lastly, Albanian consumers believe that well-developed legal framework, increased fines and more severe actions for both parties

of an illegal digital transaction as well as the availability of appropriate protection software are the perfect means to combat the phenomenon of digital shadow economy.

This study provides a picture of Albanian consumers' perception towards digital shadow economy and to the best of knowledge, there is no similar research for the case of Albania. Yet, it has its limitations. The sample size is 70 respondents; the online survey was carried out during a short period of time (September – October 2025) and descriptive statistics is used to interpret the results. Future research should focus on expanding the sample size, incorporating longitudinal data, and applying inferential and econometric methods to examine causal relationships. In addition, future studies may further explore the drivers, institutional determinants, and macroeconomic effects of the digital shadow economy, as well as conduct comparative analyses with other transition and developing economies. Such research would provide a deeper and more comprehensive understanding of this rapidly evolving phenomenon.

References

1. Bossler, A.M. and Holt, T.J., 2012. Patrol officers' perceived role in responding to cybercrime. Policing: an international journal of police strategies & management.
2. Castro, D., Bennett, R. and Andes, S., 2009. Steal these policies: strategies for reducing digital piracy. *The Information Technology & Innovation Foundation*, *12*.
3. Coca, D.A. and Nistor, A., 2021. Digital Shadow Economy–Literature. World, 2021.
4. European Commission., 2005. Feasibility study of a direct survey of undeclared work in Europe".
5. Gaspareniene, L., Remeikiene, R. and Navickas, V., 2016. The concept of digital shadow economy: consumer's attitude. *Procedia Economics and Finance*, *39*, pp.502-509.
6. Holz, T., Engelberth, M. and Freiling, F., 2012, September. Learning more about the underground economy: A case-study of key loggers and drop zones. In *European Symposium on Research in Computer Security* (pp. 1-18). Springer, Berlin, Heidelberg.
7. INSTAT, 2022. Shqipëria në shifra. pp 61
8. Moore, T., Clayton, R. and Anderson, R., 2009. The economics of online crime. *Journal of Economic Perspectives, 23(3),* pp.3-20.

9. Ohrimenco, S., Borta, G. and Tetiana, B., 2019, October. Shadow of digital economics. In 2019 *IEEE International Scientific-Practical Conference Problems of Infocommunications, Science and Technology (PIC S&T)* (pp. 776-780). IEEE.
10. Remeikiene, R., Gaspareniene, L. and Schneider, F.G., 2018. The definition of digital shadow economy. *Technological and Economic Development of Economy*, *24*(2), pp.696-717.
11. Remeikienė, R., Gasparėnienė, L., Bayar, Y., Ginevičius, R., & Ragaišytė, I. M. (2022). ICT development and shadow economy: Empirical evidence from the EU transition economies. *Economic Research-Ekonomska Istraživanja, 35(1),* pp.762-777.
12. Schneider, F., & Medina, L. 2020. Shadow economies around the world: What did we learn over the last 20 years? IMF Working Paper WP/18/17
13. Smith, G.S., 2015. Management models for international cybercrime. *Journal of Financial Crime*.
14. Vershinina, N. and Rodionova, Y., 2011. Methodological issues in studying hidden populations operating in informal economy. *International Journal of Sociology and Social Policy*.
15. Vlachos, V., Minou, M., Assimakopouos, V. and Toska, A., 2011. The landscape of cybercrime in Greece. *Information Management & Computer Security*.