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THE IMPACT OF PROPERTY TAX CHANGES IN SUPPORT OF SUSTAINABLE TAX REVENUE IN GREECE

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ABSTRACT

Aim: This paper aims to provide an overview of the existing legal framework of property tax in Greece and the relevant tax trends of the examined period from 1974–2018. **Methods:** The legal framework for the property tax is analyzed. From a methodological point of view, the focus is on the historical period between 1974 (the end of the dictatorship) and 2018, and limiting the analysis to 2018, excluding events such as the 2019 elections, the exit from the debt market, and the COVID-19 period. **Results:** Concerning property taxes, it was observed that during the financial crisis and onwards, property tax revenue increased to meet the quantitative targets of the adjustment program. This was achieved by the rationalization of property tax bases and the introduction of uniform real estate property tax (ENFIA). Moreover, the composition of property taxes was shifting over time, giving more weight to the recurrent tax of immovable properties compared to what was the case in the past, where the taxes were mainly transaction-based. **Conclusions:** To sum up, the review of property tax revenues is beneficial because it consists of a critical and sustainable source of revenue, whereas a valid quantification of tax measures should be implemented to provide the public with a useful exogenous tax tool using a narrative approach. Therefore, the establishment of a stable tax policy framework for immovable property provides sustainable tax revenue. Thus, further rationalization of property taxation, market-based valuation, and tax base broadening will also contribute to a fairer and more efficient tax system.

Key words: Greek tax legislation, tax policy, tax reforms

JEL codes: E62, E63

INTRODUCTION

This paper explores the evolution of property tax in Greece and provides critical insights regarding the implemented policies. It provides the existing legal framework of property income tax in Greece and the tax trends of the examined period. This framework is rather crucial in providing analysis to ensure sustainable property tax revenue and narrative analysis of legislated tax acts. It is crucial to mention that a newly developed method for measuring the macroeconomic impact of tax

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changes was the narrative approach[1]. This method is based on the legislative record to identify tax shocks and estimate their macroeconomic effects. This approach has been extensively used to estimate the impact of monetary policy in Romer and Romer [1989, 2004], government spending in Ramey and Shapiro [1998] and Ramey [2011], and for fiscal consolidations in Guajardo et al. [2014]. To begin with, Romer and Romer [2010] investigated the impact of tax changes on economic activity by using the narrative approach to identify the size, timing, and principal motivation for all major post-war tax policy actions. Therefore, their analysis facilitates the separation between legislated changes attributed to economic activity and those taken for exogenous reasons. They applied an autoregressive distributed lag model of output growth with their tax shock series as the independent variable and found that tax changes can have a significant impact on exogenous tax increase at 1% of gross domestic product (GDP), lowering GDP by nearly 3% in the medium term. Also, Favero and Giavazzi [2009] estimate tax multipliers by implementing the time series in U.S. tax changes as constructed by Romer and Romer differently, including output, government spending and revenues, inflation, and the nominal interest rate. On the other hand, Favero and Giavazzi [2010, 2012] reconcile evidence from tax shocks in fiscal VAR and shocks identified via the narrative method. In an application of the narrative approach to the United Kingdom, Cloyne [2013] finds results very similar to the original work for the USA – increasing taxes by 1% of GDP depresses GDP by 2.5% over three years. A focus on discretionary changes in taxes and government spending is made in a report by DeVries et al. [2011]. Also, Perotti [2012] argues that from a theoretical point of view, the discretionary component of taxation should be allowed to have different effects than the automatic response of tax revenues to macroeconomic variables. Alesina et al. [2018] highlighted that the main advantage of using the narrative approach is the distinguishing process between different shifts in fiscal policy as well as between anticipated and unanticipated components of fiscal policy shocks, which is important to prevent the biases in the estimation of fiscal multipliers. Guajardo et al. [2014] investigate the short-term effects of fiscal consolidation on economic activity in OECD economies by identifying changes in fiscal policy motivated by a desire to reduce the budget deficit and not by responding to prospective economic conditions. Furthermore, Mertens and Ravn [2013] estimated the dynamic effects of changes in taxes in the USA by developing a new narrative account of federal tax liability changes on personal and corporate income. They showed that a 1% cut in the average personal income tax rate increases real GDP per capita by 1.4% in the first quarter and by up to 1.8% after three quarters. Likewise, the same decline in the average corporate income tax rate has increased real GDP per capita by 0.4% in the first quarter and by 0.6% after one year. Also, Cloyne [2013] provided new estimates of the macroeconomic effects of tax changes using a new narrative dataset for the United Kingdom using the Romer and Romer narrative strategy and found that a 1% cut in taxes increases GDP by 0.6% on impact and 2.5% over three years. Guajardo et al. [2014] investigate the short-term effects of fiscal consolidation on economic activity in OECD economies by examining the contemporaneous historical narrative records. Moreover, Romer and Romer [2014] used the interwar period in the USA to investigate the incentive effects of marginal income tax rates. Also, Mertens and Ravn [2014] use narrative measures as proxies for structural shocks to total tax revenues in SVAR and estimate tax multipliers. Nughen et al. [2016] find that income tax shocks have large short-run effects on GDP, private consumption, and investment. Gunter et al. [2017] estimate the effect of worldwide value-added tax changes on out-

[1] Typically, the narrative approach has estimated larger multipliers. Favero and Giavazzi [2012], and Perotti [2012] thoughtfully discuss and compare the two approaches. For country-specific narrative tax datasets see: Romer and Romer [2010], Hayo and Uhl [2011], Cloyne [2013], Pereira and Wemans [2015], Loate et al. [2021]. For cross-country fiscal activity issues see: DeVries et al. [2011], Alesina et al. [2015, 2017], Gunter et al. [2019], and also for identification problems in the narrative approach and VAR see Leeper [1997].

put following the narrative approach. Kato et al. [2018] use the narrative approach to identify tax changes unrelated to current economic conditions and estimate the effects of these changes on macroeconomic variables during and outside of the zero-lower bound periods in Japan.

Dabla-Norris and Lima [2018] build a new narrative dataset of tax changes to analyze macroeconomics during fiscal consolidation years and analyze the macroeconomic impact of tax changes, distinguishing between rate and base changes and further between changes in personal, corporate, and value-added tax. Hebous and Zimmermann [2018] found that narrative tax measures are weakly correlated with cyclically adjusted tax revenues for the USA and the UK, while Cloyne et al. [2018] apply a narrative study to examine the impact of fiscal policy on economic activity in the UK and find that tax changes have a sizable effect on GDP with multipliers around 0.5 on impact and exceeding 2 within two years. Nguyen et al. [2021] estimate the macroeconomic effects of exogenous changes in income and consumption taxes by using narrative tax shocks for tax liability changes in the UK. Wielen [2020] exaines the macroeconomic effects of anticipated and unanticipated tax changes in the European Union between 2000 and 2016 and provides narrative panel estimates of output and employment multipliers for tax changes.

AIM AND METHOD

This paper aims to analyze and present the legal framework of property tax in Greece. In this context, at first, the analysis was restricted from 1974 to 2018, excluding recent developments such as the 2019 elections, the exit from enhanced fiscal surveillance, and the COVID-19 period. Primary sources were the national tax legislation and data concerning Greek taxation trends. It is crucial to mention that mapping and legal documentation are important, not only because they are a constructive way to illustrate tax changes, but also because the innovative approach to combining contemporaneous macroeconomic policy sources provides policymakers with useful tools.

THE LEGAL FRAMEWORK OF PROPERTY TAX IN GREECE

Inheritance, donations and parental provisions

An inheritance tax is a direct tax and is classified as a tax that has the object of transferring the value of an asset. The main establishment in the imposition of inheritance tax was Law 1641/1919, which was one of the basic tax legislations, and Legislative Decree 118/1973. This law was subsequently amended by a series of provisions, which were finally codified in a single text, Law 2961/2001 as amended. The value of the assets transferred due to the above provisions is real estate assets, whose market value is based on comparative data and the market value of similar assets. From 1982, the system of objective determination of the taxable value of real estate properties began to be gradually applied, instead of the system of comparative data. In the areas where the objective system for determining the value of the real estate has not been applied, the value is based on a mixed system based on Law 1249/1982. Furthermore, other transferred assets are receivables, securities and other financial assets, furniture, ownership, and benefits, but do not include jewelry, collections of works of art, coins, and stamps, the value of which is determined by Law 3091/2002. According to inheritance law, inheritance tax is imposed on the net inheritance portion and certain settled debts that legally exist at the time of death[2]. In inheritance tax, a full exemption is provided to avoid double taxation. The state is exempt from tax, whereas acquisitions due to donation or inheritance are subject to independent taxation if the beneficiaries are legal entities under public law and non-profit legal entities that pursue their purposes. The above cases are subject to a tax, which is calculated independently at a rate of 0.5% after deducting a tax-free amount of 1,000 EUR per year for monetary donations. Donations of money or other movable assets are exempt from the donation tax, provided that these donations are organized nationwide for proven philanthropic purposes. Furthermore, property

[2] Certain and settled debts, which legally exist at the time of death (tax debts, hospitalizations fees, inheritance costs, and expenses, debts from credit cards, loans, household accounts, etc.).

acquisitions due to a donation from the state, provided that their tax exemption is regulated by international agreements, are exempt from tax. According to Law 1078/1980 as amended, a first-time exemption of up to 200,000 EUR in the case of acquiring a first residence will remain in the ownership of the heir for at least five years. In principle, the same provisions apply to lifetime gifts and donations as with inheritance tax. For the calculation of the tax, the beneficiaries of the acquisition, depending on their kinship with the heir, are classified into three categories, for each of which there are special tax-free limits and special tax rates[3]. The tax is calculated with the same tax scales for the rest of the property (except money) that is acquired due to donation or parental benefit, which remains after the deductions and exemptions. Also, by Law 4093/2012, winnings from a lottery and gambling games are taxed at a flat rate of 10%, and profits are subject to tax per lottery ticket after deducting a tax-free amount of 100 EUR, at a rate of 10%, 15% or 20%. In gambling conducted with game sessions, profits are subject to tax per game session after deducting a tax-free amount of 100 EUR at a rate of 15% or 20%.

Property taxes

The possession of real estate assets remained tax-free until 1975, when a regular tax on the possession of real estate was passed for the first time by Law 11/1975. However, this tax did not work satisfactorily in practice, mainly due to the unsuccessful treatment of the problem of real estate valuation and narrow tax bases. The weaknesses of Law 11/1975 were attempted to be covered by the amendments made by Law 231/1975 and Law 542/1977, while it was finally repealed by Law 1078/1980. The tax liability for real estate was re-introduced with the provisions of Law 1249/1982 which were abolished by Law 2065/1992. However, with Law 2459/1997, a tax on the possession of large real estate was abolished with the enactment of Law 3634/2008, which introduced the unified property tax (ENFIA). With Law 3808/2009, an extraordinary contribution was imposed on the large real estate of individuals. The unified property tax was abolished with Law 3842/2010 and was replaced again by the real estate tax.

From 2014 and for each subsequent year, a single property tax by virtue of Law 4223/2013 was imposed. According to the provisions of Law 4223/2013, from the year 2014 and for each subsequent year a new unified real estate tax (ENFIA) has been introduced[4]. This tax is equal to the sum of the principal tax and additional tax on the total actual value of the property. The law, among others, defines the scope, object, and subject of taxation, the cases of exemption, and the way of determining the main tax, which is based on geographical location, area, the age, floors, and the number of facades of the building and the provisions of Article 41 of Law 1249/1982. The supplementary tax is imposed on exceeding the value of 250,000 EUR with a scale of progressive rates according to the provisions of Article 5 of Law 4223/2013. The supplementary tax on legal entities is at a tax rate of 5.5‰. The supplementary tax for owner-occupied business properties is 1‰. The supplementary tax on non-profit legal entities is 3.5‰ in assets other than those that are owner-occupied. It is also known that the Greek State, the Hellenic Republic Asset Development Fund, public property companies, and legal entities under private law – including general government entities possessing owner-occupied properties for the fulfillment of their needs – are exempt from tax. If the property is used as an embassy or is used by legal entities under public law or private law exclusively for the fulfillment of educational, cultural, religious, or charitable purposes, they are also exempt from tax. Since 2010, a single property tax[5] has been imposed on real estate property located

[3] Category A includes, among others, spouses, children, grandchildren, and parents. Category B includes, among others, children, brothers, and sisters. Category C includes any other relative or their relative or exotic. Donation of money is 10%, 20%, and 40% per category.

[4] Also called ENFIA. See Articles 1 to 8, 13, 59. Tax objects are property rights of bare or full ownership, usufruct on buildings and other kinds of assets.

[5] Law 3634/2008, Law 3697/2008, Law 3746/2009, Law 3756/2009, Law 3763/2009, Law 3775/2009, Law 3808/2009 and Law 3842/2010 for abolishment.

in Greece that belongs to individuals and legal entities. The tax rates were 1‰ for indviduals, 6‰ for legal entities, and 3‰ for non-profit legal entities. Also, a rate of 1‰ is applied to owner-occupied properties, leased assets, and real estate investment properties. The single property tax has been abolished since 2010, but it is still valid for real estate tax cases, for which the tax liability was incurred before its abolition. Also, exemptions have been applicable to both individuals and legal entities.

Since 2010, real estate tax (RET) has been imposed on real estate property located in Greece that belongs to individuals and legal entities. A new tax regime was introduced to combat tax evasion, and among the many changes that were enacted, Law 3842/2010 provided for the abolition of several tax exemptions that were in force. The RET has been abolished since 2014, but it is still valid for real estate tax cases, for which the tax liability was incurred before its abolition. Also, exemptions have been applicable to both individuals and legal entities. As far as the tax rates for legal entities are concerned, the tax rates are 0.6% for profit-seeking legal entities, 0.3% for non-profit legal entities that serve educational and religious purposes, and 0.1% for owner-occupied properties and assets of real estate investment companies and mutual funds. For 2010, 2011, and 2012, a rate of 0.033% was imposed on properties used by hotel companies for their own purposes. Moreover, the tax imposed on individuals is based on a progressive scale with a tax-free threshold of 200,000 EUR[6]. Also, an extraordinary special fee for electrified structured surfaces[7] is imposed for overriding reasons of national interest, resulting in the immediate reduction of the budget deficit. A special tax on real estate[8] was imposed to create disincentives and tackle tax evasion, which is usually observed in assets belonging to offshore companies and other legal entities. The tax rate for 2003–2009 was 3%, and the rate from 2010 onwards was 15%.

PROPERTY TAX REVENUE TRENDS

This section provides an analysis of property tax revenue. As shown in Figure 1, property tax revenue was stagnant and inefficient until 1997. More specifically, from 1997 onwards, a tax was imposed on large real estate (FMAP) located in Greece. After calculating tax-free limits, the balance was subject to scaled tax for individuals and at a fixed rate of 0.7% or 0.35% for legal entities. The main reason was unreliable value determination with the absence of a national land registry despite the introduction of Law 1249/1982. As has already been mentioned, Law 1249/1982 was a major cornerstone in property taxation, which was amended afterward to meet valuation requirements. In the same context, another major issue that made value determination inefficient was the value of assets that did not represent actual market prices. Tax exemptions and narrow bases eventually did not contribute to tax revenue capacity. It is also known that Greece imposed different taxes on property[9]. Also, Law 3453/2003 regulated real estate transfer tax, and transfers subject to automatic surplus tax were not subject to real estate transfer tax. Various laws of the period regulated the adjustment of the value of land and buildings and the extension of the application of VAT in real estate after 1 January 2006. Moreover, in 2008, a new tax, called ETAK, replaced the narrow-based FMAP, expanding the property tax base to include residential and commercial properties and land but maintaining

[6] For 2010, 2011, and 2012, the tax rate of 2% was applied to any value exceeding 5 million EUR.

[7] Article 53 Law 4021/2011 as amended.

[8] See: Law 3091/2002, Law 3842/2010, Law 3091/2002. For exemption, see: Circular Pol. No. 1093/2010, Circular Pol. No 1114/2011, Circular Pol. No 1112/2011), and also for matters concerning the state of affairs from 2017, see: the Circular Pol. No 1056/2017, Circular Pol. No. 1081/2018 and Decision A. 1193/2019.

[9] A property tax on large property, a capital gains tax, a transfer tax, a transaction duty, a surtax on rental income from land and buildings, a revaluation surplus tax, a special tax, and a local property tax. Streamlining the above taxes, broadening tax bases, market-based valuations, the land registry, and the unification of tax rates so as to create a more efficient property tax. Extension of VAT to newly built structures also lowered transfer taxes.

the deductible and tax-free amount scheme. The tax rate was at a rate of 1‰ for individuals, 6‰ for legal entities, and 3‰ for non-profits. Special cases such as own business assets and assets of REICs were taxed at a rate of 1‰. From 2011 onwards, a sustainable increase in property tax revenue was observed mainly due to the broadening of tax bases and the abolishment of exemptions. Also, Law 4152/2013 imposed an extraordinary special real estate tax fee on the electrified structured real estate surfaces (EETIDE). Another issue was the fact that for 2010, 2011, and 2012, for a taxable value of property greater than 5 million EUR, a tax rate was set at 2% for the value over 5 million EUR. This tax was collected through electricity bills and significantly increased tax revenues in attempts to align property value with market value and the establishment of ENFIA.

As can be seen from Figure 1, the composition of property taxes is shifting over time, giving more weight to the recurrent tax of immovable properties (especially in 2011 and onwards) compared to what was the case in the past, where the taxes were mainly transaction-based or due to inheritances. Therefore, the establishment of a stable tax policy framework for immovable property provides sustainable tax revenue.

The evolution of property tax revenues can be seen in Figure 2. While in the 1970s, it evolved

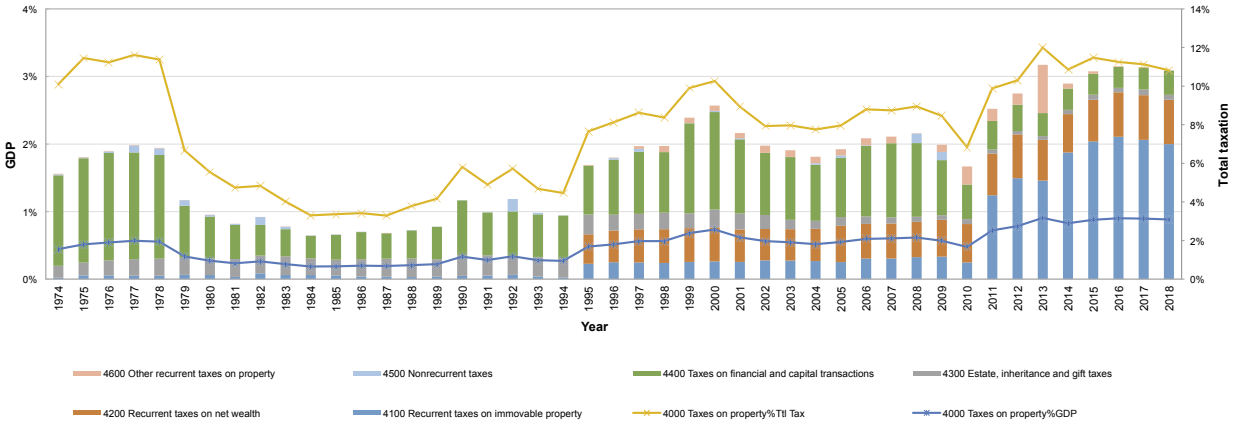

Fig. 1. Composition and historical evolution of property tax revenue

Source: OECD database.

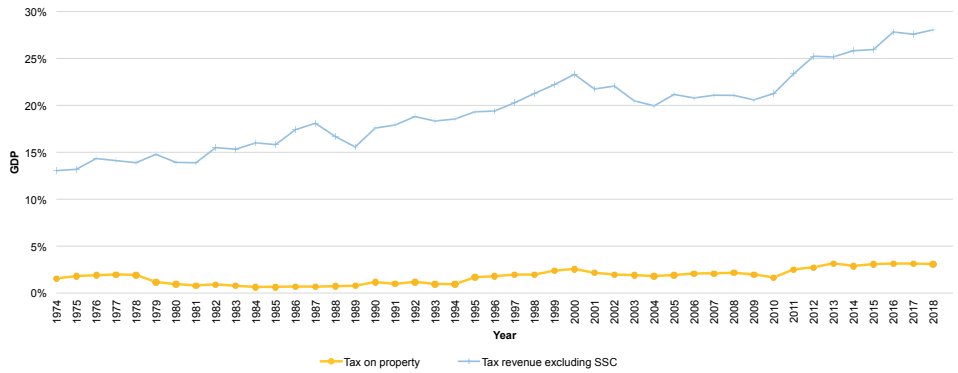

Fig. 2. Property tax revenue trends compared to total tax revenue

Source: OECD database.

satisfactorily, in the 1980s, there was a sharp decline, which shows that tax revenues from this category stagnated.

Starting from 1990 and due to legislative changes and preparations for the Olympic Games, an upward trend was observed, which then stabilized at a satisfactory level in the 2000s. Since 2010, a growing trend has been observed that continues to this day and shapes new frameworks.

CONCLUSIONS

This article focuses on the property tax framework that was in force in Greece from 1974 to 2018. The analysis suggests that property taxes are positively correlated with fixed asset investments [Asimakopoulos 2024b]. Furthermore, regarding property taxes, it can be concluded that during the financial crisis and afterward, property tax revenues increased to meet the quantitative targets of the adjustment programs and were positively correlated with debt. Moreover, the rationalization of property tax bases and the introduction of ENFIA also contributed to this. In this way, further rationalization of property taxation, market-based valuation and broadening of the tax base will also contribute to a fairer and more efficient tax system. Furthermore, it is limited up to 2018, excluding recent events such as the 2019 elections, exit from enhanced fiscal surveillance, and COVID-19. Another interesting aspect is that the Greek database of tax measures on property taxes will be a useful tool for policymakers to conduct further research and quantification, mainly in the context of tax shocks. Since tax measures were not tracked by specific quantifications, it is not possible to construct a reliable narrative measure regarding projected revenues and quantitative impact. Moreover, the tax system has undergone many changes and the period is quite long, so it is best to focus on periods of fiscal consolidation or different macroeconomic frameworks. Therefore, in achieving by applying a reliable exogenous tax shock the tax measures should be quantified in terms of GDP to provide the appropriate impact. Considering the conclusions, propositions can be formulated towards changing tax policy to contribute to fiscal consolidation and revenue-enhancing. The major fiscal consolidation required in Greece cannot be achieved only through the reduction of public expenditure, but also imposes an increase in tax revenues while insisting on growth-friendly tax reforms. These can be made by an increase in tax bases and measures to combat tax evasion. Overall, it can be concluded that Greece should implement and insist on applying broad tax bases, effective taxation, collection procedures, and audit techniques, rationalize its government spending across the business cycle, and establish better proactive debt management. By doing this, it is rather conceivable that it may avoid not only ineffective policies but also policies harmful to growth, economic recovery and debt sustainability. However, it should be emphasized that the effects and effectiveness of the above conclusions also depend on the individual characteristics of the Greek economy, such as tax efficiency and effective administration. It is also clearly shown that Greece in recent years has adopted a tax-enhancing revenue strategy with government spending rationalizations. In recent years, there has been a focus on increasing tax rates and broadening tax bases to meet the quantitative requirements of fiscal packages rather than on welfare reasons to increase public prosperity and social benefits. However, the adopted policy had a detrimental effect on investment, employment, and growth. To sum up, the review of property tax revenues is beneficial because it consists of a critical and sustainable source of revenue whereas a valid quantification of tax measures should be implemented to provide the public with a useful exogenous tax tool using a narrative approach.

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STRESZCZENIE

Cel: Celem artykułu jest przedstawienie przeglądu obowiązujących ram prawnych dotyczących podatku od nieruchomości w Grecji oraz odpowiednich tendencji podatkowych w latach 1974–2018. **Metody:** Analizie poddano ramy prawne podatku od nieruchomości. Z metodologicznego punktu widzenia skupiono się na okresie historycznym między 1974 roku (koniec dyktatury) a 2018 roku i ograniczono analizę do 2018 roku, co umożliwiło wykluczenie takich wydarzeń, jak: wybory w 2019 roku, wyjście na rynek długu i okres pandemii COVID-19. **Wyniki:** Zaobserwowano, że w trakcie kryzysu finansowego i w jego następstwie dochody z podatku od nieruchomości wzrosły, co miało umożliwić osiągnięcie ilościowych celów programów dostosowawczych. Zrealizowano to poprzez racjonalizację podstaw podatku od nieruchomości i wprowadzenie jednolitego podatku od nieruchomości (ENFIA). Ponadto zakres podatków od nieruchomości zmieniał się w czasie, co nadało większą wagę podatkowi okresowemu od nieruchomości w porównaniu z sytuacją w przeszłości, gdy podatki były głównie oparte na transakcjach. **Wnioski:** Podsumowując, przegląd dochodów z podatku od nieruchomości jest bardzo przydatny, ponieważ stanowi on krytyczne i zrównoważone źródło dochodów w kontekście wdrażania prawidłowej kwantyfikacji miary podatkowej. Z tego powodu ustanowienie stabilnych ram polityki podatkowej dla nieruchomości zapewnia zrównoważone dochody podatkowe. W związku z tym dalsza racjonalizacja opodatkowania nieruchomości, wycena oparta na rynku i poszerzenie bazy podatkowej także przyczyniają się do bardziej sprawiedliwego i wydajnego systemu podatkowego.

Słowa kluczowe: greckie prawo podatkowe, polityka podatkowa, reformy podatkowe

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THE DEVELOPMENT OF ONLINE MARKETING IN ALBANIA IN 2019–2023

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ABSTRACT

Aim: In recent years, social media has become a very popular tool for companies that want to advertise their products and services and attract the right number of customers. This article aims to indicate how social media and digital marketing in Albania influence consumer behavior using marketing techniques. **Method:** To achieve the aim desk research and survey research were used. The information required to address the study questions was gathered via a semi-structured online questionnaire with nine questions, most of which were single-choice. Young and middle-aged Albanians were sampled in October 2023 using a purposeful random method. The questions included in the questionnaire allowed us to indicate, how users react to advertisements on different social media platforms and to the content found on these networks. **Results:** According to the findings, social media influences digital marketing, with Instagram being the primary platform for online product purchases. Older individuals use websites less for online shopping (even because they need to use a foreign language). In contrast, younger or middle-aged people use social media more for marketing or purchasing. While its use is not yet a habit for many people, it is a noticeable trend. Also, the visual part of an advertisement increases the chances of spending money on the product that is being advertised. **Conclusions:** During 2019–2024, online marketing in Albania has become more important and this trend would be increasing in future. It adds to company revenue and influences economic development on a larger scale. However, certain limitations prevent making definitive recommendations for the future, as the number of responses was restricted to just 50; this study acts as a guide for additional related research in the coming years.

Key words: consumer, digital marketing, social media, promotion

JEL codes: M31, M37

INTRODUCTION

During and after the pandemic, people in Albania began using social media more frequently than usual to find health-related information and even to create amusing movies that they could share with others. Therefore, social media is used to obtain the most recent information, interact with individuals across the globe, and purchase goods and clothing without ever leaving the house. This paper aims to comprehend how social media affects consumer behavior, how they respond to information on social media, and how they respond to various business pages – that is, how they are promoted on various

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social media platforms. The primary study question is the impact of social media on consumers' decisions to purchase various goods online.

LITERATURE REVIEW

The value of marketing extends to society in general. It has helped to introduce new or improved products that make life easier or more prosperous for people. Successful marketing helps build demand for products and services, which, in turn, creates jobs [Kotler and Keller 2016]. Most of us spend more time buying and consuming than working or sleeping. We consume products such as cars and fuel, services such as haircuts and house repairs, and entertainment such as television and concerts. Given the time and energy, we devote to consuming, we should strive to be good at it. Knowledge of consumer behavior can be used to enhance our ability to consume wisely [Hawkins et al. 2004]. Marketing is a social and managerial process through which individuals and groups benefit from what they need and want through the creation, offering, and exchange of products that are valuable to others [Kotler and Keller 2016].

The present context of the digitalized business era reshapes marketing promotional strategies, and social media plays a pivotal role in this [Dissanayake et al. 2019]. Digital marketing, or online marketing, is one of the most common concepts of this century and is part of marketing products and services using digital technology, mobile phones, social media, display advertising, and other digital channels. Digital marketing began in the 1990s, but it developed much more during 2000–2010 because the spread of new technology devices increased the role of the media and digital advertising. Digital marketing has enabled removing geographical, ethnic, and religious barriers that were once only an illusion to achieve this type of interaction [Kotler and Keller 2016].

Consumer behavior primarily focuses on consumer learning processes from internal phenomena such as motivation, ritual phenomena, moods, personality, lifestyles, and attitudes as well as from external factors – such as marketer endorsements and group behavior considering family, associative, and aspirational group influences. It also examines different demographic indicators, including social class, religion, household influences, and cultural attributes [Shareef et al. 2016].

The effect of the Internet on public relations is the single most significant subject of current conversation in the public relations industry. As the world of communications changes beyond recognition, those seeking to communicate must revise and revolutionize their approach. Public relations and the social web explore communications change and look at what this means for communicators working across industries, from entertainment to politics [Brown 2009].

It has been noticed that during the last few years, people have been using digital media a lot, which is why firms must also use digital marketing techniques to reach target markets [Ryan 2020]. In 2020, Internet users were 4.9 billion, or 69% of the world population. Also, online marketing has become essential for promoting products and services due to increased competition and changes in customer demand. Firms invest in digital marketing to get closer to customers, and it has also been reported that 60 billion USD has been spent in recent years [Ryan 2020].

Digital marketing allows businesses to increase the number of customers due to its availability at a distance. Today, this kind of modern marketing has ample space, and enterprises have more accessible possibilities to expand, as customers are more comfortable shopping online and see online marketing as safer than traditional marketing [Ryan 2020].

The increasing focus on customer experience arises because customers now interact with firms through multiple touch points across various channels and media, resulting in longer, complex customer journeys. Firms face accelerating fragmentation of media and channels, and omnichannel management has made this the new norm. Moreover, customer interactions through social media create significant challenges and opportunities for firms [Lemon and Verhoef 2016].

Due to its dynamic and emergent nature, the effectiveness of social media as a marketing communication channel has presented many challenges for marketers. It is different from traditional marketing channels. Many organizations are investing in their social media

presence because they appreciate the need to engage in social media conversations to build their consumer brand [Siriwardana 2020].

Weinberg [2009] refers to social media marketing as an enabling process for individuals to promote their products or services through social media and enter a larger community than traditional channels offer. Nowadays, globalization changes not only the process of commercialization and marketing but also the way people behave and communicate with each other. Their pace of life is getting faster and faster; people want to deal with more and more things as quickly as possible and often simultaneously. In addition, the COVID-19 pandemic has accelerated the implementation of the hybrid work model in many sectors – not only in business but also, for example, state administration and education [Pomianek and Muça 2024]. Social media is becoming more and more popular all around the world, offering social and marketing possibilities to consumers. At the same time, businesses use social media to promote and sell their products, converting the platform into marketing instruments [Pomianek and Muça 2025]. Contemporary entrepreneurs, being aware that a lack of trust among customers resulting from a lack of digital trust may cost money and lead to the collapse of a company, try to assure customers of the security of data stored in their databases. Moreover, the globalization process is making customers more and more dependent on digital technology. The COVID-19 pandemic caused a sudden revolution in education at all levels and in the professional work of many people. Therefore, digital trust concerns many areas of life: social contacts, work, finance, entertainment, health, travel, administration, etc. [Pomianek and Muça 2023]. Social media represents a new sophisticated and uncontrollable element influencing consumer behavior. They have also dramatically changed how businesses and consumers communicate [Pjero and Kerçini 2015].

Social media is becoming an essential intermediary for interaction between governments, governments and citizens, and governmental agencies and businesses due to the unique characteristics of social media: openness, participation, and sharing. However, despite rapid adoption, a growing concern and skepticism regarding the use of social media exists in the public sector [Khan et al. 2014].

Social media is a 'place' where people with common interests gather to exchange ideas, meaning traders can listen and respond to the community, receive feedback, and promote products or services. Although social media marketing is a developing concept, the basic idea of marketing remains the same, which is to be liked by consumers, which has been aimed at since the design of the product/service and to maintain a stable relationship with the group or expand it with time [Weinberg 2009].

Social media is a relatively new player in the online labor market, with an increasingly important role among the younger generation [Karacsony et al. 2020].

Along with the popularity of social network sites, social commerce, such as Facebook, has rapidly become a promising platform for online advertising and business activities [Chen et al. 2019].

Consumers started to use the Internet and web tools more today thanks to the rapid development of technology and communication channels. The most important one of these tools is social media. Consumers access information they need about goods and services to be primarily purchased using social media. It is clear that today, especially the popular social networks of social media elements such as Facebook and Twitter, have been great consumer markets [Hayta 2013].

Undoubtedly, changes in the consumptive patterns of media have led companies to shift their focus from products to people and information delivery to information exchange [Shen and Bissell 2013].

Facebook advertising has a nominal positive influence on behavioral attitudes among Millennials, which is in congruence with the communications of the pyramid effect model established through traditional advertising research [Duffett 2015].

Motivations differentially drive social media goal pursuit, and users with different primary social media goals differ in perceptions of well-being [Hoffman and Novak 2012].

Specifically, consistent with past online impulse buying research, website quality manifests as an environmental cue that directly influences the likelihood that a consumer will experience an urge to buy impulsively. Further, highly impulsive consumers can be positively and negatively influenced by varying degrees of website quality [Wells et al. 2011].

AIMS AND METHOD

This paper aims to comprehend how social media affects consumer behavior, how they respond to information on social media, and how they react to various business pages – that is, how they are promoted on various social media platforms. A questionnaire was used as part of the research approach for this investigation. The information required to address the study questions was gathered via a semi-structured online questionnaire with ten questions, most of which were single-choice. Young and middle-aged individuals were sampled in October 2023 using a purposeful random method. Explaining how social media affects consumer behavior and what factors influence customers' decisions to make purchases online was the goal of the questionnaire that was employed. Because Google Forms was used to conduct the poll electronically, respondents' anonymity was ensured. A total of 50 responses were gathered. Considering this, the following research questions were developed:

1. Does social media influence Albania's usage of level of digital marketing?
2. How advanced or underdeveloped is Albania in terms of using the Internet for commerce and advertising?
3. Are younger individuals using social media at a higher or lower rate than older individuals?
4. Do consumers react to social media in the same way?
5. Is social networking occasionally tedious and exhausting?
6. Is shopping online a trend or a habit?
7. What are the most important aspects of online purchasing?
8. Does consumers' decisions to make an online purchase depend on social media advertising?
9. What causes the increased use of social media?
10. Do people have any preferences for the social networking site that they use most frequently to shop online?

RESULTS AND ANALYSES

The study's primary goal is to determine how social media affects customer behavior and whether they use digital marketing, particularly during and after the pandemic. This survey was completed by 50 customers of various ages and educational backgrounds. Some of the interviewees' demographic and personal traits are displayed in Table 1.

Table 1. Features of the population

Variable	Value	Number	Share [%]
Gender	male	20	34
	female	30	66
Age [years]	18–25	20	54
	26–33	10	23
	34–41	10	16
	42–50	5	7

Source: authors' estimation.

Based on the information in Table 1, most respondents were female, with a slight difference in representation compared to males. When we examine the age demographics of the respondents, we find that most fall within the range of 18–41 years old. In addition, we analyzed the outcomes generated by each question asked to the interviewees to better understand the factors that impact their personal decisions when purchasing goods and services, influenced by the information or advertisements they encounter on the social media platforms they frequently use.

Only 16% of respondents spent less than 30 minutes on social media each day, indicating a lack of interest in social media. Even less (10%) of the respondents used social media for 30 minutes to an hour. People who were active on social media for over three hours amounted to 18%, while the largest group of interviewees were online for one hour to three hours, making up 56%.

The pandemic has affected how much time people spend on social media, and with this increase in usage, online shopping has also become more common (Fig. 1).

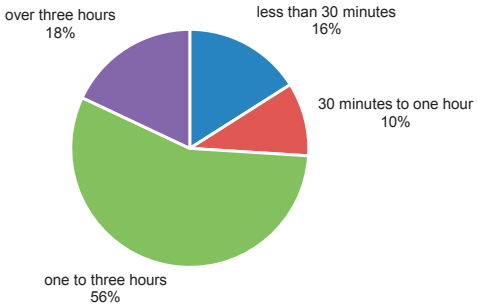

Fig. 1. The intensity of social media use during the day
Source: authors' estimation.

Exactly 40% of the interviewees used Instagram, whereas 24% preferred Facebook (Fig. 2). Although most users use WhatsApp for communication and the advertising is less blatant, only 10% of respondents use it to buy goods and services, making it less popular than other social media platforms. This conclusion interacts with some of the results mentioned in the literature review [Pomianek and Muça 2025].

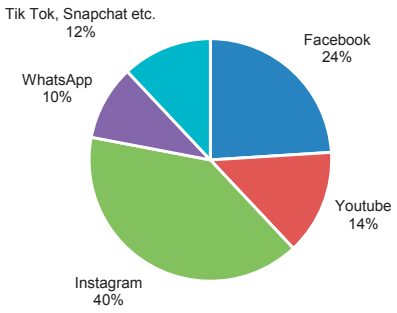

Fig. 2. Most used social networks.
Source: authors' estimation.

The next question asked whether lengthy content in a social media advertisement irritated the respondent. Lengthy content bothered 64% of interviewees, 10% were unconcerned, and 26% were neutral. It implies that social media advertising ought to be succinct and unobtrusive (Fig. 3).

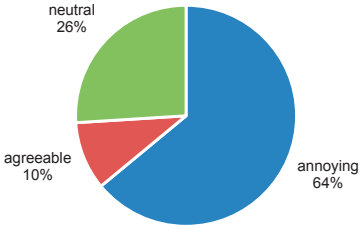

Fig. 3. Attitudes towards lengthy content on social media
Source: authors' estimation.

As many as 62% believed that images are the most viewed part of a social media advertisement. Videos were more engaging and entertaining than blogs and lengthy posts (Fig. 4).

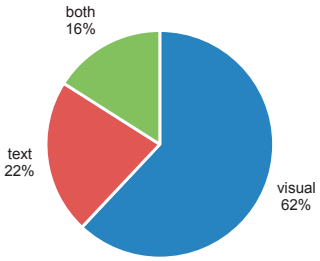

Fig. 4. The most eye-catching part of social media advertising
Source: authors' estimation.

Most respondents (46%) purchased online once or twice a year, while another third (34%) did so monthly. Therefore, people have become more accustomed to social media and the online shopping it offers as the years pass (Fig. 5).

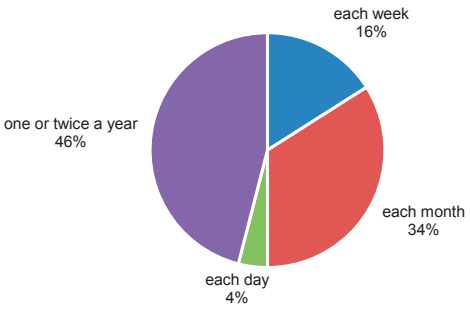

Fig. 5. Frequency of shopping online
Source: authors' estimation.

Therefore, social media has significantly impacted consumer behavior in recent years. Specifically, consumers who answered were influenced by the distribution of influencer posts about their prior experiences with products and services (36%), followed by comments and forums on various websites (18%) when deciding whether to place an order. Their brand knowledge (16%) was given less weight than the information gleaned from friends' and family members' experiences, remarks, and information (30%) (Fig. 6).

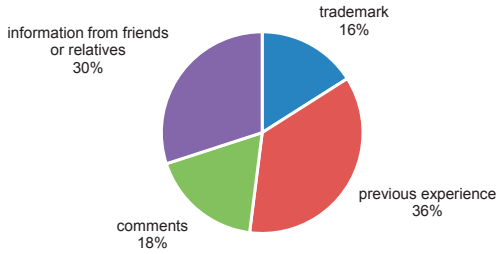

Fig. 6. The most important factor influencing the decision to purchase a product on social media
Source: authors' estimation.

Online shopping is still relatively new in Albania, where 60% of the respondents tried it occasionally, 34% did it more frequently, and 6% had never done it after only seeing an advertisement on social media (Fig. 7).

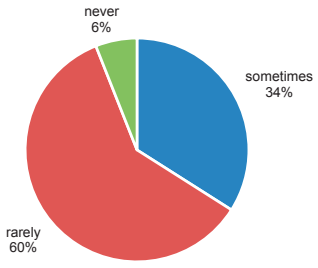

Fig. 7. Frequency of making an online purchase because of social media advertising
Source: authors' estimation.

People interviewed used social media for various reasons, but the most popular ones were related to goods and services: buying (24%) or learning about them (20%). Other reasons are meeting new people, establishing a social network (24%), finding a job (20%), as mentioned in the literature review part [Karacson et al. 2020], and promoting goods and services (12%). It mainly occurs in companies of all sizes. Therefore, everyone uses social media at different times to find the information they need, and many people use it for all the purposes mentioned earlier (Fig. 8).

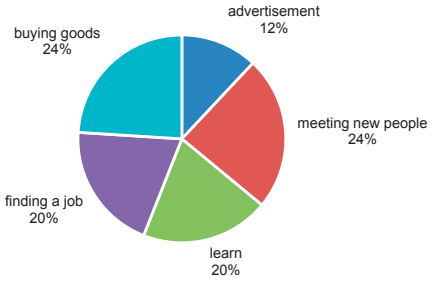

Fig. 8. The purpose of using social media
Source: authors' estimation.

Most of the purchases happened from posts made by friends, influencers, or businesses' pages on social networks such as Instagram (52%) and Facebook (16%). Also, other media, such as YouTube or Twitter, influenced the purchase of products by different visitors (Fig. 9).

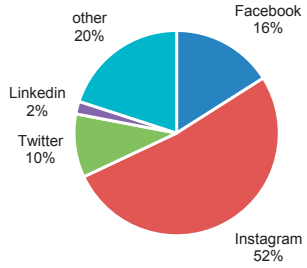

Fig. 9. The social media platform with the biggest impact on online shopping
Source: authors' estimation.

In Albania, in the last five years, the role of online marketing has increased significantly, as shown by the results of the questionnaire presented above.

CONCLUSIONS

This study aimed to understand the relationship between social media usage among some consumers in Albania and its influence on the decision to make online purchases. Because of this, we created a questionnaire based on a few questions we thought were crucial. Even with a small sample size, we could still draw some inferences. Based on the number of respondents, it was evident that young individuals were more likely to use social media, with a higher proportion of respondents between 18 and 41. We posed a few research queries. According to the findings, social media influences digital marketing, with Instagram being the primary platform for online product purchases.

Another research question compared Albania's Internet use for marketing purposes to those of other nations. According to the results, most of the respondents now make monthly purchases online. It can translate into increased dependability on social media, not just for social reasons. The age distribution of social media users is another intriguing subject. Although there is no specific question about it in the survey, we may infer from earlier research that both younger and older people utilize social media nowadays, albeit for different reasons. While older people in Albania may mostly use Facebook or WhatsApp, younger ones are more accustomed to using all social media platforms.

Older individuals use websites less for online shopping (because they need to learn, how to use them or use a foreign language). In contrast, younger or middle-aged people use social media more for marketing or purchasing. Elderly people began using social media more after the pandemic.

The other research questions we posed are about how familiar customers are with online shopping and what factors affect their propensity to purchase online. Throughout the questionnaire, this topic was answered, and it became clear that while internet use is not yet a habit, it is a trend. Also, the visual part of an advertisement increases the chances of spending money on the product that is being advertised.

The prior online purchasing experiences of friends or family members also play a role in making an online purchase. Their recommendations raise the likelihood that digital marketing will be used as a new shopping tool.

Over the past five years, Instagram has become increasingly popular in Albania, not just for social media but also for finding information about online stores and companies.

In Albania, many companies mainly utilize social media to advertise their goods. Even the final question we asked the interviewees made this outcome abundantly evident.

Social media facilitates the development of new connections, the strengthening of existing ones, and the discovery of social support during trying times. Nowadays, most of us utilize social media to stay in touch with our loved ones. Social media significantly impacts our everyday lives. Connecting with your ideal clients is simple. Digital marketing has advanced significantly in Albania over the past ten years, particularly in the last five years. People today use internet marketing differently depending on their culture.

Due to advancements in technology, digital marketing is increasingly surpassing traditional marketing. Even in Albania, marketing assists companies, particularly online ones, in showcasing their products and services, drawing in customers, and boosting sales. It adds to company revenue and influences economic development on a larger scale. However, certain limitations prevent making definitive recommendations for the future, as the number of responses was restricted to just fifty; this study acts as a guide for additional related research in the coming years.

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ROZWÓJ MARKETINGU ONLINE W ALBANII W LATACH 2019–2023

STRESZCZENIE

Cel: W ostatnich latach media społecznościowe stały się bardzo popularnym narzędziem dla przedsiębiorstw, które chcą reklamować swoje produkty i usługi oraz przyciągać odpowiednią liczbę klientów. Celem tego artykułu jest wskazanie, w jaki sposób media społecznościowe i marketing cyfrowy w Albanii wpływają na zachowania konsumentów za pomocą technik marketingowych. **Metoda:** Aby osiągnąć cel, autorzy wykorzystali badania desk research i badania ankietowe. Informacje wymagane do odpowiedzi na pytania badaw-

cze zebrano za pomocą częściowo strukturyzowanego kwestionariusza online z dziewięcioma pytaniami, z których większość była jednokrotnego wyboru. Respondenci to Albańczycy, młodzi i w średnim wieku, wybrani w październiku 2023 roku przy użyciu metody doboru celowo-przypadkowego. Pytania zawarte w kwestionariuszu pozwoliły na wskazanie, jak użytkownicy reagują na reklamy na różnych platformach mediów społecznościowych i na treści znajdowane w tych sieciach. **Wyniki:** Z badań wynika, że media społecznościowe wpływają na marketing cyfrowy, a Instagram jest główną platformą do zakupów produktów online. Osoby starsze rzadziej korzystają ze strony internetowej do zakupów online (może dlatego, że muszą używać języka obcego). Z kolei osoby młodsze lub w średnim wieku częściej korzystają z mediów społecznościowych do marketingu lub zakupów, chociaż korzystanie z nich nie jest jeszcze nawykiem dla wielu osób, to trend jest zauważalny. Ponadto wizualna część reklamy zwiększa szanse na wydanie pieniędzy na reklamowany produkt. **Wnioski:** W latach 2019–2024 marketing internetowy w Albanii stał się ważniejszy, a ten trend będzie nasilać się w przyszłości. Trent ten powoduje zwiększenie przychodów firmy i wpływa na rozwój gospodarczy na większą skalę. Jednak pewne ograniczenia uniemożliwiają formułowanie ostatecznych rekomendacji na przyszłość, ponieważ liczba odpowiedzi została ograniczona do zaledwie 50. Badanie opisane w artykule stanowi przyczynek dla kolejnych badań powiązanych w nadchodzących latach.

Słowa kluczowe: konsument, marketing cyfrowy, media społecznościowe, promocja

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ALTERNATIVE AGRICULTURE ADDED VALUE CHAINS APPLYING UNMANNED AERIAL VEHICLES

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ABSTRACT

Aim: All-out hostilities in Ukraine have led to systemic changes in local agri-food chains that constitute a part of the global agri-food system. Damage or destruction of land and water logistics infrastructure and the near-total unavailability of air transportation negatively impacts food security within the country and on global markets. The purpose of this article is to define the economic essence and features of shaping alternative models of agri-food chains based on the concept of added value for all stakeholders in the environment of value-oriented management at the micro level in the contemporary economic paradigm. **Methods**: The research methodology is based on the application of the chain approach as a method of scientific knowledge combined with literature review and deductive reasoning. **Results:** The results of the study indicate the importance of finding and applying alternative means of logistics, as well as ways that will reduce the agri-food chain from the farm to the consumer's table, lower transportation costs, and increase the effectiveness of communication with the end consumer, improve consumer satisfaction, and shorten food delivery time. **Conclusions**: Emerging agri-food supply chains using unmanned aerial vehicles (UAVs) will create a new public catering market segment in the agri-food retail sector and will provide companies with robust competitive advantages throughout the years to come.

Key words: added value, agri-food chain, logistics, service innovation, transformation processes, supply chains, sustainable agriculture

JEL codes: L81, M11, O310, Q110

INTRODUCTION

Amidst today's rapidly evolving technological landscape, the deployment of innovative solutions is becoming increasingly essential for providing a resilient economic model. This is specifically evident in Ukraine, where the ongoing hostilities have severely disrupted conventional logistical frameworks. There has been a drastic shift toward exploring alternative logistical strategies and methods in response to the disruptions. These new approaches serve a crucial role in maintaining the supply of agri-food products to local and global markets despite the widespread damages and constraints caused by the war. Recent

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research highlights the urgent need for transformative changes in the global agri-food system to address pressing issues such as sustainability and waste reduction [Agnusdei and Coluccia 2022]. The agri-food sector has been profoundly impacted by shortages of resources, food loss, and inefficiencies across the entire supply chain. The emphasis is growing on adopting innovative technologies and unconventional logistical solutions to tackle the challenges effectively. These advancements require the comprehensive digitalization of the agri-food business ecosystem, which involves integrating advanced technologies and optimizing logistical processes to improve efficiency and sustainability [Mann et al. 2022]. However, despite the increasing recognition of the critical role digital transformation plays in the agri-food sector, the actual technological integration within the value chain remains relatively low [Parra-Lopez et al. 2021]. The current war period has further accelerated changes in agri-food chains, prompting stakeholders and market participants to consider the prospects of these systems. It is crucial to study and develop new models that are economically viable for agri-food producers and can lay the basis for long-term sustainability strategies.

Such models should not only support the swift recovery of the economy but also drive innovation and generate additional value. This value extends beyond merely meeting consumer needs, encompassing broader benefits for stakeholders across local communities, national markets, and international partners. By prioritizing these elements, the agri-food sector can better address the current crisis, harness technological advancements, and pave the way for a more resilient and sustainable future.

The latest transformations of agri-food chains during the war, along with stakeholders and the market expectations and possible prospects of their further reshaping once the war ends, highlight the need to study and develop models that can be economically feasible for agri-food producers. These models should form the foundation for long-term sustainability strategies and innovative development. They aim to help the economy recover quickly and give impetus to the generation of added value for consumers of agri-food products and for stakeholders at all levels – local communities, national markets, and international partners.

LITERATURE REVIEW

In the context of sustainable development and value-oriented enterprise management, the concept of added value is widely recognized in management theory. In the modern globalized economy, added value is a multifaceted indicator that evolves in response to the increasing complexity of socioeconomic relations, aligning with modern interpretations of the concepts. Contemporary economic science offers various models of added value aimed at managing and enhancing enterprise value. These models include tools for managing the enterprise at the strategic level – economic value added (EVA), market value added (MVA), cash flow return on investment (CFROI), cash value added (CVA), shareholder value added (SVA), and stakeholder value added (STVA) [Stewart 1991].

It is worth noting that today's scientists have distilled no single approach to the concept of added value, which underscores the importance of this research. Practically, added value is interpreted in various ways, reflecting the value an enterprise creates for all its stakeholders. It is commonly agreed that added value has an economic nature, being generated through labor and production, recorded as the enterprise's gross income, and serving as the basis for calculating value-added tax. Furthermore, added value, created as value for consumers and through interaction with them, can also be perceived and accounted for as intellectual property.

Modern processes of creating and managing added value are closely tied to the value generated by manufacturers for consumers and their direct interactions. This approach aligns with the STVA model, which emphasizes that the creation of new value should benefit not only the enterprise's owners (stakeholders) but all its stakeholders (beneficiaries). Entities involved in the economic relationships surrounding added value include various market participants and economic relations, ranging from enterprises and organizations that generate added value, to the state (through fiscal control bodies) and consumers. The connection between theoretical models, practical applications of added value, and market stakeholders is illustrated in Figure 1.

Within the framework of the chain approach as a method of scientific inquiry, various concepts and

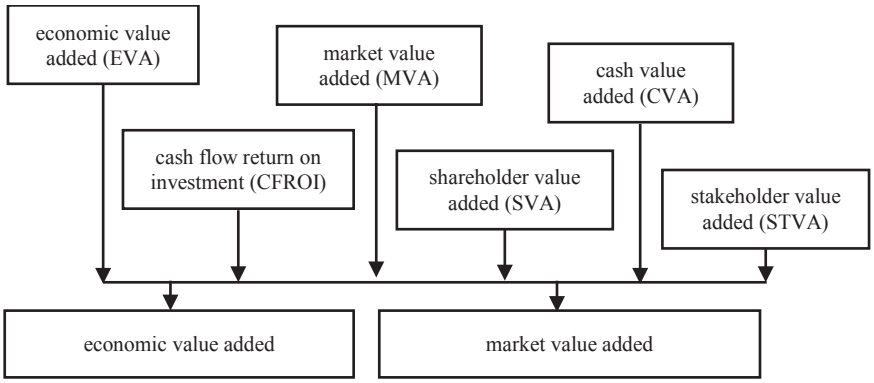

Fig. 1. Connection between contemporary concepts of added value
Source: own study based on Stewart [1991], Varchenko [2019], Maievska [2024].

approaches reflect the network of business processes and market operators involved in creating value-added products and services, their distribution, and the provision of 'feedback'. Globalization, free trade, and outsourcing have amplified the importance of the supply chain management (SCM) concept, originally developed in the 1980s. This concept continues to evolve from traditional chain management to supply chain network management, where the logistics chain is seen as a collaboration among agri-food market participants. Their goal is to efficiently transfer the flow of materials between logistics systems or deliver them directly to the end consumer [Dubovyk et al. 2018]. From a business scale perspective, the local food supply chain encompasses all processes involved in moving local food from farm to consumer. These include marketing, distribution, aggregation, processing, packaging, procurement, preparation, resource recovery, and waste disposal [Tarni et al. 2021]. This concept is defined as a short, socially driven supply chain that is geographically limited. The marketing trend promoting the consumption of local food products has spurred the recent growth of such chains, which became particularly evident during the COVID-19 pandemic. According to the FAO [2014], the agri-food chain consists of agricultural producers and organizations that, in a coordinated manner, create added value by producing specific agricultural products, processing them into food products, and selling them to the end consumer. This process ensures profitability at each marketing stage, creates benefits for society, and avoids the permanent depletion of natural resources. Market participants unite to increase productivity and ensure the fair distribution of benefits [Gereffi and Fernandez-Stark 2016].

A comprehensive approach to the formation and distribution of added cost and value helps create sustainable competitive advantages in the face of rapid changes in the external environments, ensuring long-term development. The relevance of value chain research is driven by the dynamics of uncertainty in the environment in which market participants operate. Effective management of decisions that address modern challenges requires a solid toolkit for adapting contemporary methods and approaches to managing production resources, communication, and logistics flows.

AIM AND METHODS

This article aims to outline the key principles and foundations of the emergence and development of local agri-food chains within the global agri-food system. It focuses on the concept of added value for all stakeholders, considering sustainable development in the context of war and the post-war recovery of Ukraine's economy. The objectives of this research include generalizing the development trends and transformations of local agri-food chains in a military context, assessing the potential for creating added value in Ukraine's agri-food chains, and justifying the prospects for forming innovative models of added value management in these chains.

The research methodology used in this research is based on the chain approach, which has become a key framework in the scientific analysis of business processes. This approach, as outlined by various scholars, involves examining and integrating interconnected processes within a system, providing a comprehensive understanding of how individual components contribute to the system's overall functionality and efficiency [Porter 1995]. In the context of agri-food enterprises, the chain approach has been crucial for identifying and analyzing both traditional and innovative supply chain models. Additionally, a literature review and deductive analysis have been applied. The primary focus of this analysis is to model and evaluate local traditional and alternative agri-food chains by integrating innovative technologies and unconventional logistics solutions. The deductive analysis follows the framework outlined by Lambert and Cooper [2000]. The first step in the deductive analysis is establishing a framework for analyzing agri-food chains based on the chain approach. This involves identifying key components of traditional supply chains and evaluating how innovative technologies and non-standard logistics solutions can be integrated. Using this framework, models of local traditional and alternative agri-food chains are developed to assess how these changes impact overall efficiency, sustainability, and value creation within the supply chain. The analysis then focuses on evaluating the formation of added value as perceived by all participants and stakeholders. This includes examining how the incorporation of innovative technologies and non-standard logistics solutions contributes to increased efficiency, reduced waste, and enhanced stakeholder satisfaction. The scientific novelty of this research lies in its approach to modeling agri-food chains by integrating innovative technologies and unconventional logistics solutions. By focusing on value creation for all participants, the study provides a comprehensive understanding of how these elements enhance the effectiveness and sustainability of agri-food systems.

RESULTS AND DISCUSSION

Rapid technological progress in the agri-food sector has led to the widespread deployment of innovative solutions, enabling the creation of new products and services and their integration into supply chains or the establishment of new market niches. Amid the ongoing hostilities in Ukraine, which have caused significant infrastructure damage and skyrocketed logistics costs, finding alternative solutions is crucial for ensuring the sustainable development of the agri-food industry. One such solution is the use of unmanned aerial vehicles (drones), which are increasingly employed in the sector for tasks such as plant protection, crop assessment, and problem area identification. The use of drones in the agri-food retail segment represents an innovative solution that could significantly impact the structure of local agri-food.

The area of food delivery to the consumer's door gained extreme popularity during the COVID-19 pandemic [Dallas et al. 2021]. Currently, individual safety measures for delivering are an important factor affecting the choice of food delivery. That made some service delivery services introduce a contactless delivery mode for the safety of buyers and couriers. In this mode, couriers leave orders at the door, if practical.

The manufacture and sale of food products by drone-delivery services are a good alternative to delivery by traditional means of transport, not only from the point of view of fuel costs but also the costs of human labor and safety measures.

Among the segments of the target audience that use food delivery, the following segments of consumers of drone delivery services can be distinguished, including:

- fresh vegetables, fruit, berries, and green goods producers (Chain 1 in Fig. 2),
- craft food producers (Chain 1 in Fig. 2),
- producers' associations such as cooperatives and clusters (Chain 2 in Fig. 2),
- conventional stores, online shops, and marketplaces (Chain 3 in Fig. 2),
- direct sale food processing producers (Chain 4 in Fig. 2),
- cafés, restaurants, and fast-food restaurants that offer ready-to-eat food delivery services (Chain 5 in Fig. 2).

Conventional approaches to forming local agri-food chains and alternative agri-food supply chains are shown in Figure 2.

In the conventional approach to managing the agri-food chain, economic value added is created in short chains, with VAT serving as a new indicator of this

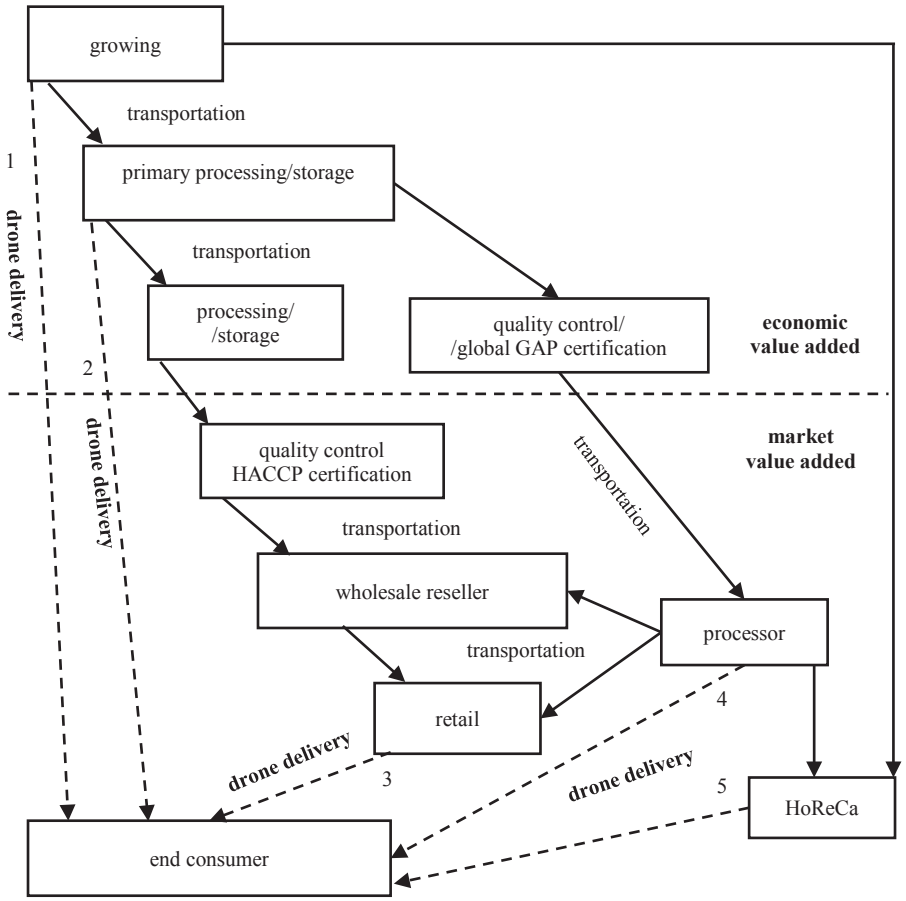

Fig. 2. Alternative agri-food supply chains involving UAVs
Source: own study based on publicly available data.

value. Market value added, on the other hand, is generated in longer, more complex chains. Unlike economic value added, which is reflected in accounting and financial reports, market value added is more difficult to measure. Added value can also be perceived and accounted for in the form of intellectual property, such as trademarks, patents, and franchises. Additionally, it can be expressed in terms of service quality [Galchynska et al. 2023]. Market value added is also formed from selling products in premium market segments that can become the market for UAV-based services.

Service companies can act as entities providing UAV delivery services, while agri-food companies are responsible for delivering products to consumers and are interested in evolving their delivery models and technologies. Compared to traditional wheeled delivery, UAV product delivery offers several advantages, including speed, accuracy, and safety. However, alongside the creation of a new market niche, drone delivery also presents certain disadvantages. The prospects of developing local agri-food chains using UAV technology are analyzed in a SWOT matrix, as shown in Figure 3.

Despite certain technical difficulties, UAV delivery has a few undeniable advantages over the traditional delivery approach. Drone delivery creates added value for both internal and external stakeholders of the agri-food chain, as depicted in Figure 4.

Modern trends indicate that added value is formed through the interaction between agricultural producers and internal and external stakeholders. For external stakeholders, this value may include additional services, loyalty programs, and new transportation methods (e.g., UAV delivery). For internal stakeholders, value can come from employee involvement in improving

	Strengths	Weaknesses
Internal	• cost-effectiveness of UAV maintenance • primary delivery costs reduced • speed, accuracy and high delivery time expectancy • surprisingly impressed consumers	• time and money-consuming pilot preparation • huge UAV fleet investments • special software required for logistics management
	Opportunities	**Threats**
External	• delivery-to-consumer cost reduced • independence from petroleum prices • air pollution reduced • significant increase in delivery quality	• law unlatching the market requirements while applying UAVs for commercial services • the necessity to procure parts abroad, giving rise to foreign exchange fluctuations exposure • time spent by consumers to get used to innovative tech

Fig. 3. SWOT analysis of agri-food supply chains involving UAV technology
Source: own study based on Gürel and Tat [1965].

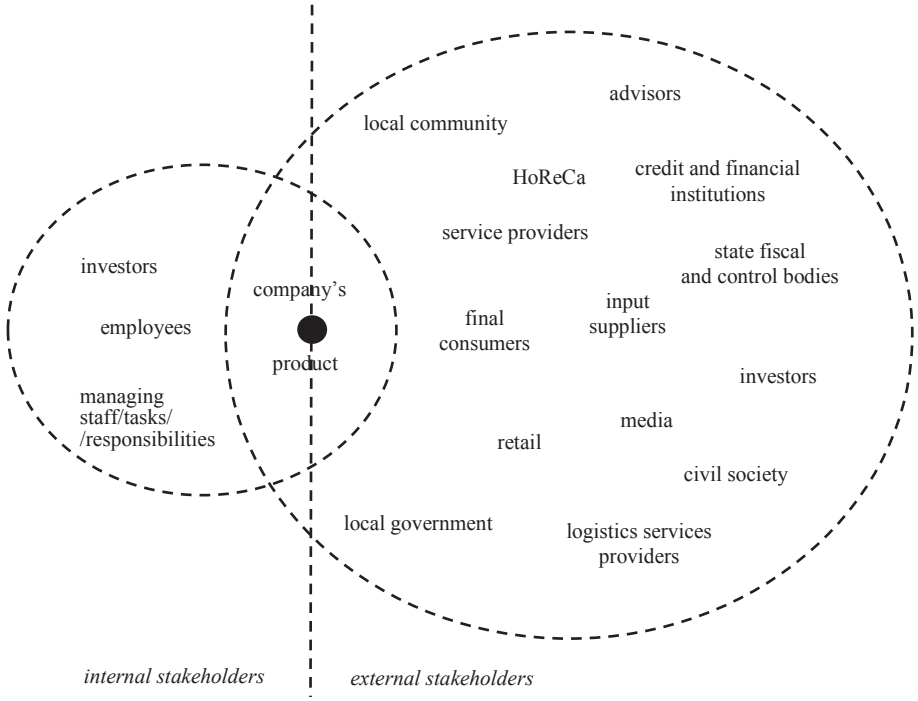

Fig. 4. Stakeholder-oriented approach to creating added value in the agri-food chain involving UAV technology
Source: own study based on Kvasha and Vakulenko [2023], Riquelme-Medina et al. [2023], Svitovyi et al. [2023].

business processes, decision-making, and delegation, as well as corporate social responsibility programs. For investors, added value can stem from the prestige of the enterprises, as innovations in logistics help reduce the environmental impact. The dynamics of added value creation and the evolving relationships between enterprises and their stakeholders in the agricultural market highlight the need for further research, especially considering the radical transformations driven by security factors at both the micro (person-to-person) and macro (regional, state) levels.

Transformation processes and features of added value management in local agri-food chains in an environment of complete uncertainty and threats require further study and streamlining. This includes the development of effective economic models allowing agri-food producers to develop sustainable strategies in the face of warfare, as well as the post-war economy.

CONCLUSIONS

The use of UAVs as a tool for food delivery to consumers will create a new market segment of consumer goods delivery services and introduce a new service standard. For companies that will provide this service or other companies that will use their services, UAVs will create sustainable competitive advantages. Like any innovative solution, this hypothesis requires further research and practical verification. The above-mentioned scientific approaches to added value management for all stakeholders of an agricultural enterprise are the basis for differentiating the directions of promising scientific research and further increasing knowledge in this area. In this context, it is important to form a research network and formulate new approaches to studying the problem of managing added value for stakeholders at all stages of the agri-food chain. The processes of agri-food chain digitization and agri-food service transformation require further study and knowledge systematization.

The next step to be performed in the verification of the models should involve validating the models and refining them based on feedback from empirical data and stakeholder input. This iterative process ensures that the models are practically applicable and aligned with the theoretical insights gained from the literature review.

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ALTERNATYWNE ŁAŃCUCHY WARTOŚCI DODANEJ W ROLNICTWIE Z WYKORZYSTANIEM BEZZAŁOGOWYCH STATKÓW POWIETRZNYCH

STRESZCZENIE

Cel: Działania wojenne na Ukrainie pociągnęły za sobą systemowe zmiany w lokalnych łańcuchach rolno-spożywczych, które stanowią część globalnego systemu rolno-spożywczego. Uszkodzenie lub zniszczenie infrastruktury logistycznej lądowej i wodnej oraz praktycznie niedostępny transport lotniczy negatywnie wpływają na bezpieczeństwo żywnościowe w kraju i na rynkach globalnych. Celem artykułu jest zdefiniowanie istoty ekonomicznej i cech kształtowania alternatywnych modeli łańcuchów rolno-spożywczych opartych na koncepcji wartości dodanej w rozumieniu wartości dla wszystkich interesariuszy w środowisku zarządzania zorientowanego na wartość na poziomie mikro we współczesnym paradygmacie ekonomicznym. **Metody:** Metodologia badań oparta jest na zastosowaniu podejścia łańcuchowego jako metody poznania naukowego połączonego z przeglądem literatury oraz rozumowaniem dedukcyjnym. **Wyniki:** Wyniki badania wskazują na znaczenie znalezienia i zastosowania alternatywnych środków logistycznych, a także sposobów, które skrócą łańcuch rolno-spożywczy od gospodarstwa do stołu konsumenta, obniżą koszty transportu i zwiększą skuteczność komunikacji z konsumentem końcowym, poprawią zadowolenie konsumenta i skrócą czas dostawy żywności. **Wnioski:** Powstające łańcuchy dostaw produktów rolno-spożywczych, wykorzystujące bezzałogowe statki powietrzne (BSP), stworzą nowy segment rynku gastronomicznego – sektor handlu detalicznego produktami rolno-spożywczymi – i zapewnią firmom solidną przewagę konkurencyjną w nadchodzących latach.

Słowa kluczowe: wartość dodana, łańcuch rolno-spożywczy, logistyka, innowacyjność usług, procesy transformacyjne, łańcuchy dostaw, rolnictwo zrównoważone

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SEEDS OF PARTICIPATION AND COMMUNITY INFLUENCE: UNVEILING THE FACTORS SHAPING SMALL-SCALE FARMERS IN ZANZIBAR'S VEGETABLE FARMING

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ABSTRACT

Aim: This study examines the factors that influence small-scale farmers' participation in vegetable farming in Zanzibar, Tanzania. It addresses a research gap by specifically investigating the effects of community influence and technology adoption – areas that have not been thoroughly explored in prior studies. **Methods:** Utilizing a quantitative research approach with a cross-sectional design, the study involved a sample of 149 randomly selected small-scale vegetable farmers from the Dimani and Kombeni wards. Data were collected through structured questionnaires, and both descriptive analysis and a probit model were employed for data analysis. **Results:** The findings indicate that factors such as gender, education level, community influence, land access, credit access, availability of farm inputs, and technology adoption significantly affect participation in vegetable farming among small-scale farmers. **Conclusions:** The findings highlight that participation in vegetable farming among small-scale farmers is significantly influenced by various factors, including gender, education level, community influence, land access, credit access, availability of farm inputs, and technology adoption. These factors collectively underscore the need for targeted interventions that address socio-economic disparities, enhance access to resources, and promote the adoption of modern agricultural technologies to improve small-scale farmers' participation in vegetable farming. The study further recommends fostering gender inclusivity, investing in education and training programs, strengthening community networks, ensuring secure land rights, improving access to credit and farm inputs, and encouraging the adoption of modern agricultural technologies.

Key words: participation, vegetable farming, small-scale farmers, Zanzibar

JEL codes: Q12, D1, D7, D91

INTRODUCTION

Participation in vegetable farming among small-scale farmers plays a significant role in poverty reduction globally, including in Africa, as it improves consumer well-being and opens new market opportunities [FAO 2022, Hoang and Kamugisha 2023]. In Tanzania, participation in vegetable farming enhances farmers' incomes, boosts nutrition and food security, and reduces dependence on imported fruits and vegetables [Mwadzingeni et al. 2021, Tanzania Growth Trust 2023]. Various policies and strategies

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have been implemented to strengthen the vegetable farming sector, such as expanding extension services to promote elite crop varieties [Ochieng et al. 2022] and encouraging the adoption of improved agricultural practices [Muthoni et al. 2023]. Additionally, the introduction of new technologies, credit facilities, and measures to increase labor productivity align with the Zanzibar Vision 2020 initiative. However, small-scale farmers continue to face significant post-harvest losses, which can account for up to 60% of total production [Muthoni et al. 2023]. Inadequate storage and handling infrastructure further aggravate these challenges, with only 16,470.2 acres (16.7%) dedicated to fruit and vegetable cultivation, resulting in a total production of 64,819.8 tons (16.5%) of these crops [Office of the Chief Government Statistician Zanzibar 2021]. To enhance participation in vegetable farming, it is essential to understand the key drivers that affect small-scale farmers in Zanzibar, Tanzania. Several studies [Degefa et al. 2022, Devi et al. 2022, Tritsch et al. 2022, Abdulla 2023, Muhamad Raizal and Mohammad Azam 2023, Panga and Lyaro 2023, Warid 2023] have examined socio-economic factors, such as household education, frequency of extension contact, credit access, and irrigation, in relation to participation in vegetable farming. However, these studies have often overlooked the roles of community influence and technology adoption. Therefore, this study aims to investigate the factors influencing small-scale farmers' participation in vegetable farming in Zanzibar while addressing the gaps left by previous research. The study tests the hypothesis that there is a significant relationship between socio-economic factors and small-scale farmers' participation in vegetable farming, drawing on theoretical insights from the theory of planned behavior and the diffusion of innovation theory. Specifically, the study tested the following hypotheses: H1a: There is a positive relationship between the age of the farmer and participation in vegetable farming, all else being equal; H1b: there is a positive relationship between household size and participation in vegetable farming, all else being equal; H1c: There is a positive relationship between farming experience and participation in vegetable farming, all else being equal; and H1d: Farmers with credit access participate more in vegetable farming than farmers without credit access, all else being equal. Also, the study hypothesizes that H1e: Farmers who have access to farm inputs participate more in vegetable farming than farmers who have no access to farm inputs, all else being equal; H1f: Farmers who have market access participate more in vegetable farming than farmers who have no market access, all else being equal; H1g: Farmers who adopt modern technology participate more in vegetable farming than farmers who do not adopt modern technology, all else being equal; H1h: Farmers who have access to land participate more in vegetable farming than farmers who have no access to land, all else being equal; and H1i: Males participate more in vegetable farming compared to females, all else being equal. Furthermore, H1j: Farmers who are influenced by the community participate more in vegetable farming than those who are not influenced by the community, all else being equal; H1k: Farmers who have formal education participate more in vegetable farming than farmers who have no formal education, all else being equal. Finally, the study tests the hypotheses that H1l: Farmers with positive attitudes toward vegetable farming participate more in vegetable farming than farmers with negative attitudes towards vegetable farming, all else being equal, and H1m: Farmers who perceive the benefits of using improved seed participate more in vegetable farming than those who do not have this perception of vegetable farming, all else being equal.

LITERATURE REVIEW

The study draws on and merges theoretical insights from the theory of planned behavior (TPB) and the diffusion of innovations theory (DIT). The TPB, developed by Icek Ajzen in 1985, and the DIT, introduced by Everett Rogers in 1962, provide valuable frameworks for understanding small-scale farmers' participation in vegetable farming. The TPB explains behavior by linking beliefs to actions through attitudes, subjective norms, and perceived behavioral control, making it relevant for analyzing socio-economic, psychological, and personal factors such as age, education, gender, household size, market access, and community influence. It emphasizes how attitudes and social norms shape participation in vegetable farming but faces criticism for neglecting emotions and unconscious behaviors.

On the other hand, the DIT explores how new ideas, behaviors, and technologies spread within populations over time, classifying adopters into innovators, early adopters, early majority, late majority, and laggards. This theory highlights the role of technology adoption, community influence, and market access in farming participation. However, it struggles to measure diffusion precisely and lacks emphasis on individual adaptation decisions. Together, these theories provide comprehensive insights into the factors influencing small-scale farmers' participation in vegetable farming while addressing both behavioral and innovation dynamics.

The studies reviewed reveal diverse socio-economic and structural factors influencing vegetable and crop farming decisions, production, and participation across different regions. Despite their varying contexts, these studies collectively underscore the significant influence of community influence and technology adoption on participation. Ndegwa [2016] emphasizes the positive influence of age, education, household size, and off-farm income on pumpkin production, highlighting the role of socio-economic factors in determining crop-specific productivity. Similarly, Muhamad Raizal and Mohammad Azam [2023] find that resources like land, labor, capital, and government policies significantly shape vegetable production, particularly during external shocks like the COVID-19 pandemic. This aligns with findings by Kuruppu et al. [2021] and Degefa et al. [2022], where resource access, market connectivity, and experience are pivotal for productivity and crop selection decisions.

Several studies, such as Okon and Idiongo [2016] and Abdulla [2023], demonstrate how education, access to credit, and membership in organizations positively influence participation in farming activities, while factors like age and distance from markets negatively affect it. These findings underline the need for targeted interventions to reduce structural barriers and enhance accessibility for marginalized groups, particularly women and youth, as highlighted by Mundo [2019] and Devi et al. [2022]. Moreover, studies like Sani [2018] and Subedi et al. [2023] indicate that the adoption of modern farming techniques, subsidies, and record-keeping practices can significantly enhance farming participation. However, challenges such as loan accessibility, poor infrastructure, and inadequate institutional support, as noted by Ochilo et al. [2019] and Hussen and Geleta [2021], remain persistent barriers.

While these studies provide valuable insights, several limitations emerge. The use of cross-sectional data and varying sample sizes limits the generalizability of findings across regions. Additionally, many studies lack longitudinal data to capture dynamic changes in farming practices over time. Methodologically, over-reliance on structured questionnaires and regression models may oversimplify complex socio-economic interactions. Thus, our study covers this gap by merging theoretical insights from the TPB and the DIT while accounting for the influence of community and technology adoption on participation in vegetable farming.

MATERIAL AND METHODS

The study adopted a cross-sectional research design and was carried out in the Dimani and Kombeni wards of Zanzibar. These wards were chosen due to their favorable climatic conditions for vegetable farming, high concentrations of small-scale farmers, and suitable land for cultivation [Office of the Chief Government Statistician Zanzibar 2021]. As noted by Mundo [2019], vegetable farming serves as a significant source of income for small-scale farmers in these areas. A simple random sampling technique was applied to select a sample of 149 small-scale vegetable farmers, determined using Yamane's formula [2004]. The total population of vegetable farmers in the two wards is estimated at 1,285, with 500 in Dimani and 758 in Kombeni [Office of the Chief Government Statistician Zanzibar 2021]. The formula used, following Yamane [2004], is written as:

$$n = \frac{z^2 \cdot P \cdot q \cdot N}{\left[e^2 \cdot (N-1) + z^2 \cdot P \cdot q\right]}$$

where:

n – sample size in the two selected wards,
z – z-score (e.g., 1.96 for a 95-percent confidence level),
P – population proportion (expressed as a decimal) that possesses a certain characteristic,
q – complementary probability to P ($q = 1 - P$),
N – total population size in two selected wards,
e – margin of error (expressed as a decimal, e.g., 0.05).

The total population in the two selected wards [Dimani and Kombeni] was 11,506. The margin of error was estimated at the five-percent confidence level, and the sample size was calculated as follows:

$$n = \frac{1.96^2 \cdot 0.11 \cdot 0.89 \cdot 11{,}506}{\left[0.05^2 \cdot (11{,}506 - 1) + 1.96^2 \cdot 0.11 \cdot 0.89\right]}$$

$$n = \frac{4{,}327.32}{29.14},\ n = 148.5,\ n \approx 149$$

The data were collected using a structured questionnaire and descriptively analyzed using an independent T-test and a probit regression model.

ECONOMETRIC MODEL SPECIFICATION

The probit model, introduced by Joseph Fischer in 1944, is a regression model designed for analyzing binary or dichotomous dependent variables, where the outcomes are coded as either 1 or 0 [Becker and Waldman 1987]. Estimated using maximum likelihood estimation (MLE), the probit model offers several advantages, including its ability to estimate probabilities, robustness to outliers, and suitability for handling correlated independent variables. It assumes a normally distributed error term and employs a probit link function, making it particularly valuable within the generalized linear model framework. In this study, the probit model was chosen due to the binary nature of the dependent variable, indicating whether a farmer participates in vegetable farming (1) or does not (0). Its widespread application in social sciences and economics, as evidenced by studies like Joshi and Piya [2021] and Hussen and Geleta [2021], underscores its relevance for analyzing binary outcomes. The general specification of the probit model is as follows:

$$D_i^* = \theta' Z_i + U_i \quad (1)$$

$$D_i = \begin{cases} 1 \text{ if } D_i^* > 0 \\ 0 \text{ otherwise} \end{cases} \quad (2)$$

D – observed dummy variable that indicates whether a farmer participates in vegetable farming and subscript i indicates the farmer,

Z – vector of explanatory variables that affect the decision to participate in vegetable farming,

D^* – latent variable that indicates the decision to participate in vegetable farming,

θ – vector of unknown parameters,

$u \sim N(0, 1)$ – disturbance term.

The explanatory variables included gender, age, household size, educational level, farming experience, access to credit, adoption of technology, community influence, market access, land access, access to farm inputs, attitude towards vegetable farming, and perceived use of improved seed. The selected explanatory variables (characteristics and factors) were specifically chosen to examine farmers' responses based on insights drawn from the theoretical framework (TPB and DIT) and a review of literature of similar studies and also on local situations.

RESULTS AND DISCUSSION

Descriptive results on the types of vegetable farming used by small-scale farmers

The results indicate that small-scale vegetable farmers are primarily interested in various farming systems, including subsistence farming, traditional farming, mixed farming, greenhouse farming, organic farming, and market farming. The distribution of farming practices among these farmers reveals that subsistence and traditional farming are the most adopted methods, reflecting a focus on meeting household food needs rather than market-oriented production.

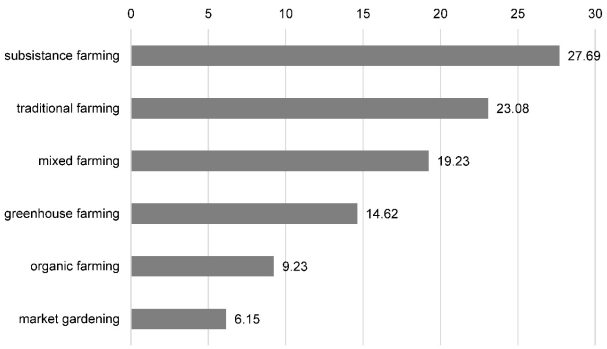

Fig. 1. Vegetable farming types practiced by small-scale farmers
Source: authors' research results.

Mixed farming serves as a transitional approach, combining crop and livestock production to enhance resilience and diversification. However, the low adoption of modern practices such as greenhouse and organic farming suggests barriers like high costs, limited technical knowledge, and inadequate support systems. Similarly, the minimal participation in market farming indicates challenges in accessing markets, infrastructure, and value chains. These trends highlight the need for targeted interventions to promote modern, sustainable, and market-oriented farming practices, such as providing training, improving access to credit, strengthening market linkages, and addressing systemic barriers to adoption.

DESCRIPTIVE RESULTS ON SOCIAL-ECONOMIC FACTORS INFLUENCING PARTICIPATION IN VEGETABLE FARMING

Table 1 shows the findings for mean and proportion comparisons between small-scale farmers who participate in vegetable farming and those who do not participate in vegetable farming. Small-scale farmers who participate in vegetable farming access land in proportion more compared to small-scale farmers who do not participate in vegetable farming at the ten-percent level, with a p-value of 0.0686. In proportion, small-scale farmers who participate in vegetable farming have more access to credit compared to those who do not participate in vegetable farming at the ten-percent level. Small-scale farmers who participate in vegetable farming have more chance of access to farm inputs in proportion compared to small-scale farmers who do not participate in vegetable farming at the five-percent level. In proportion, small--scale farmers who participate in vegetable farming have more chance of having access to the market compared to those who do not participate in vegetable farming at the one-percent level, with a p-value of 0.0083. A larger proportion of participants in vegetable farming have positive attitudes toward vegetable farming compared to non--participant small-scale farmers who have negative attitudes toward vegetable farming at the one-percent level, with a p-value of 0.004.

Table 1. Descriptive findings on factors affecting participation in vegetable farming among small-scale farmers

Variable	All	Participant	Non-participant	$P > \|T\|$
Age	49.14	48.973	50.235	0.652
Gender	0.49	0.513	0.352	0.220
Household size	6.87	6.823	7.176	0.536
Farming experience	15.69	15.814	14.882	0.701
Education level	0.18	0.194	0.117	0.449
Community influence	0.42	0.433	0.294	0.280
Land access	0.89	0.911	0.764	0.069
Credit access	0.55	0.584	0.352	0.074
Access to farm inputs	0.83	0.858	0.647	0.030
Technology adoption	0.63	0.646	0.529	0.356
Marketing access	0.78	0.814	0.529	0.008
Attitude towards vegetable farming	0.90	0.929	0.705	0.004
Perceived use of improved seed	0.36	0.380	0.235	0.248
Observation	130	113	17	×

Notes: $p < 0.10$, $p < 0.05$ and $p < 0.01$ explains $P > |T|$.

$P|T|$ refers to the p-value associated with the t-statistic for testing whether the means of two independent groups are significantly different, P – the p-value, $|T|$ – t-statistic for testing whether the means of two independent groups are significantly different.

Source: authors' research results.

The findings suggest that participation in vegetable farming significantly improves small-scale farmers' access to essential resources and opportunities. Farmers engaged in vegetable farming are more likely to access land, credit, and farm inputs, indicating the importance of these factors in supporting vegetable production. Furthermore, participants demonstrate better market access and a more positive attitude toward vegetable farming, highlighting the potential of vegetable farming to enhance economic opportunities and foster a favorable perception of agricultural activities. These insights underline the need for policies that promote access to resources, market linkages, and attitude transformation to encourage broader participation in vegetable farming.

Results and discussion on the factors affecting participation in vegetable farming among small-scale farmers

The findings of this study revealed socio-economic factors influencing participation in vegetable farming among small-scale farmers in Table 2. The study revealed that the overall model is significant at the one-percent level (*prob.* > Chi² = 0.0000), indicating a strong model fit and accuracy. Seven factors were identified as significant predictors: gender, education level, community influence, land access, credit access, access to farm inputs, and technology adoption, all with p-values not exceeding 0.05. Gender was found to be positively and significantly associated with participation in vegetable farming at the 1% level. Specifically, being male increased the likelihood of participating in vegetable farming by 11.8 percentage points (pp) compared to being female, *ceteris paribus*. This suggests that men are more likely to engage in vegetable farming, potentially due to their traditional role as financial providers in households, while women are more likely to be involved in domestic tasks, limiting their farming activities. This gender-based division of labor highlights the importance of promoting gender inclusivity in agricultural sustainability, as supported by Abdulla [2023], and aligns with theoretical expectations. However, the study did not explore the specific roles of men and women in farming activities such as weeding, processing, and marketing.

Education level was another significant factor at the one-percent level, with educated individuals being 12.5 pp more likely to participate in vegetable farming, *ceteris paribus*. This positive association reflects the importance of education in adopting modern agricultural techniques, using improved inputs, and managing farming activities effectively. Educated farmers are more likely to embrace innovation, which enhances productivity and profitability. This finding contrasts with Kiberiti [2022], who found that education negatively influenced rural youth participation in farming. The discrepancy could be due to differences in the scope of the studies, where this study focuses on small-scale vegetable farmers.

Community influence was revealed to be positive and significant at the five-percent level. This means individuals influenced by their community were 7.7 pp more likely to engage in vegetable farming, *ceteris paribus*. Community-based motivation, such as support from family members and peer groups, appears to encourage participation in farming. This aligns with Newman et al. [2024], who showed that community pressure influences agricultural engagement. However, the study did not delve into the social norms driving community influence in vegetable farming. Land access was a crucial determinant at the one-percent level, with farmers who had access to land being 18.2 pp more likely to participate in vegetable farming, *ceteris paribus*. Secure land access allows farmers to plan long-term, invest in farming practices, and achieve better yields. Many farmers obtained land through inheritance, borrowing, or renting, highlighting the critical role of land security in fostering agricultural participation. The results are consistent with previous studies by Darkey et al. [2014] and Juma [2017], which noted the importance of land access in promoting participation in urban vegetable production.

The study found a positive and significant influence of access to credit on participation in vegetable farming at the five-percent level. Credit access was similarly important, with farmers who had access to credit being 7.6 pp more likely to engage in vegetable farming, *ceteris paribus*. Access to credit allows farmers to purchase improved inputs and adopt modern technologies,

thus boosting productivity. Most farmers in this study relied on informal credit sources such as friends, relatives, VICOBA, and SACCOs rather than formal institutions. This mirrors findings by Abdulla [2023] and theoretical expectations. Access to farm inputs was revealed to have a significant positive influence at the five-percent level, with farmers who had access to inputs being 20.1 pp more likely to participate in vegetable farming, *ceteris paribus*. The use of improved seeds, fertilizers, and agrochemicals enhances productivity and competitiveness in the market. This aligns with Kiberiti [2022], who found that the availability of inputs motivated youth to engage in farming. However, the affordability of these inputs was not addressed in the study.

Finally, technology adoption has been found to positively and significantly influence participation in vegetable farming at the five-percent level. Adopters of modern technology are 9 pp more likely to engage in vegetable farming, *ceteris paribus*. Irrigation systems usage, planting machines, and power tillers enabled farmers to increase efficiency and yields (Table 2). This is consistent with findings by Asfaw et al. [2012] and Ochieng et al. [2022] and theoretical expectations. However, the study did not examine the different levels of technology adoption among farmers.

The study highlights significant socio-economic factors influencing participation in vegetable farming; however, it has notable weaknesses. First, it does not explore the specific roles of men and women in farming activities like weeding, processing, and marketing, limiting insights into gender-based labor contributions. Second, while education was found to positively influence participation, the study lacks a comparison of how varying education levels affect participation in vegetable farming. Third, the influence of community norms on farming activities was not deeply analyzed, leaving a gap in understanding the motivations behind community-driven participation. Fourth, although land access is emphasized, the study does not address issues like land tenure security. Fifth, credit access was noted as a key factor, but the study overlooked the challenges farmers face in accessing formal credit sources. Last, while technology adoption was significant, the study failed to differentiate between levels of adoption or examine barriers like cost and accessibility, which could further illuminate participation dynamics in vegetable farming.

Table 2. Results of the probit model on socio-economic factors influencing participation in vegetable farming among small-scale farmers

Variable	Coef.	*SE*	*P* > |*Z*|	*ME*
Age	−0.023	0.021	0.284	−0.002
Gender	1.007	0.331	0.002	0.118
Household size	−0.090	0.068	0.187	−0.010
Farming experience	0.011	0.026	0.662	0.001
Education level	2.426	0.615	0.000	0.125
Community influence	0.744	0.370	0.045	0.077
Land access	0.950	0.482	0.049	0.182
Credit access	0.636	0.323	0.049	0.076
Access to farm inputs	1.066	0.461	0.021	0.201
Technology adoption	0.689	0.321	0.032	0.090
Market access	0.685	0.397	0.085	0.103
Attitude toward vegetable farming	0.174	0.529	0.742	0.021
Perceived use of improved seed	0.717	0.379	0.059	0.070
Goodness of fit test				
Number of observations = 130; LR Chi^2 (13) = 43.04; *prob.* > Chi^2 = 0.0000				
Pseudo R^2 = 0.3093; *y* = *Pr* = 0.94476805; *hatsq* (*P* > |*z*|) = 0.556				

Note: $p < 0.10$, $p < 0.05$ and $p < 0.01$ explains $P > |z|$.
Coef. – coefficient, *SE* – standard error, *P* – probability of the observed value of a z-score in a standard normal distribution, it indicates the significance of the explanatory variable on participation, |*Z*| – z-score in a standard normal distribution, *ME* – marginal effect, *prob.* – probability, *y* – participation, *Pr* – participation, *hatsq.* – square of the estimated linear predictor or fitted value (Chi^2), where *hat* indicates the estimated value.

Source: authors' research results.

CONCLUSIONS AND POLICY IMPLICATIONS

This study concludes that multiple factors positively and significantly influence participation in vegetable farming, including gender, education level, community influence, land access, credit access, access to farm inputs, and technology adoption.

Gender dynamics play a crucial role, highlighting the need for policies that promote gender inclusivity in agriculture. Initiatives should focus on providing women with targeted support, including access to training and resources, to ensure their full participation and contribution to the agricultural sector. Addressing gender disparities not only enhances overall participation rates but also leverages the untapped potential of female farmers in driving agricultural productivity. Education emerges as another pivotal factor influencing participation. Policy efforts should prioritize investing in agricultural education and training programs tailored to small-scale farmers. By equipping farmers with the necessary skills and knowledge in modern farming techniques and sustainable practices, educational initiatives can empower them to enhance their productivity and efficiency. This, in turn, fosters a conducive environment for increased engagement in vegetable farming activities.

Community influence is highlighted as a significant motivator for farmers to engage in vegetable farming. Strengthening community networks and support systems can facilitate knowledge-sharing and peer learning among farmers. Policies should encourage the formation of farmer groups and cooperatives, promoting collaborative efforts in accessing resources, sharing best practices, and collectively addressing challenges. Building robust community engagement mechanisms ensures sustainable support and solidarity among farmers, contributing to higher participation rates. Secure land access emerges as a critical policy area. Reforms in land tenure policies can provide small-scale farmers with secure land tenure, either through land grants or simplified leasing arrangements. Securing land rights enhances farmers' confidence to invest in long-term agricultural activities such as vegetable farming, thereby promoting stability and sustainability in agricultural production.

Efforts to improve credit access are essential to overcoming financial barriers faced by small-scale farmers. Policy interventions should focus on expanding financial services tailored to farmers' needs, such as microfinance and low-interest loans. Enhancing financial literacy programs and facilitating access to credit enables farmers to invest in essential inputs like seeds, fertilizers, and technologies, which are crucial for boosting their participation and productivity in vegetable farming. Access to agricultural inputs, including seeds, fertilizers, and pesticides, is identified as a determinant factor influencing participation. Policies aimed at ensuring affordable and timely access to quality inputs through subsidies, bulk purchasing schemes, and private-sector partnerships can significantly enhance farmers' ability to improve crop yields and quality. Facilitating access to inputs promotes sustainable farming practices and reinforces small-scale farmers' engagement in vegetable farming.

Promoting the adoption of modern agricultural technologies is crucial for enhancing productivity and efficiency in vegetable farming. Policies should incentivize the adoption of technologies such as irrigation systems, mechanized tools, and improved seeds through training programs, subsidies, and demonstration projects. By embracing technological advancements, farmers can optimize their farming practices, increase yields, and improve their competitiveness in the market.

Limitations of the study and future research directions

The study has not examined the long-term relationship between socio-economic drivers and participation in vegetable farming. Conducting longitudinal studies that follow small-scale farmers over an extended period can provide valuable insights into the long-term dynamics of vegetable farming participation. By tracking changes in farmer's behaviors, preferences, and social-economic factors, researchers can better understand the evolving patterns of vegetable farming participation and practice. The study has not captured all the external factors and contextual influences that influence vegetable farming participation. Socio-cultural, technological, and regulatory factors can vary over time and may influence consumer behaviors. It is important to recognize that the study's findings may be limited to the specific context of Zanzibar and may not account for broader societal changes or emerging trends. Future studies could incorporate a more comprehensive examination of these external factors and their impact on vegetable farming participation. Also, to increase the external validity of the study

findings, the study can be conducted beyond Zanzibar. Future research could benefit from incorporating mixed methods approaches and longitudinal designs to provide deeper, more holistic insights. Furthermore, policy implications must address not only resource access but also structural inequities to foster inclusive agricultural development.

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ZACHĘTY DO UCZESTNICTWA I WPŁYW SPOŁECZNOŚCI: ODKRYWANIE CZYNNIKÓW KSZTAŁTUJĄCYCH DROBNYCH ROLNIKÓW W UPRAWIE WARZYW NA ZANZIBARZE

STRESZCZENIE

Cel: Głównym celem badania było określenie czynników wpływających na udział drobnych rolników w uprawie warzyw w Zanzibarze w Tanzanii. Dzięki temu wypełniono lukę badawczą poprzez szczegółowe zbadanie wpływu społeczności i przyjęcia technologii – obszarów, które nie zostały dokładnie wcześniej zbadane. **Metody:** Do zbadania próby 149 losowo wybranych drobnych rolników uprawiających warzywa z okręgów Dimani i Kombeni wykorzystano ilościowe podejście badawcze z projektem przekrojowym. Dane zebrano za pomocą ustrukturyzowanych kwestionariuszy, a do analizy danych zastosowano analizę opisową i model probitowy. **Wyniki:** Czynniki, takie jak: płeć, poziom wykształcenia, wpływ społeczności, dostęp do ziemi, dostęp do kredytów, dostępność środków produkcji rolnej i przyjęcie technologii, znacząco wpływają na udział drobnych rolników w uprawie warzyw. **Wnioski:** Udział drobnych rolników w uprawie warzyw jest znacząco zależny od różnych czynników, m.in.: płci, poziomu wykształcenia, wpływu społeczności, dostępu do ziemi, dostępu do kredytów, dostępności środków produkcji rolnej i przyjęcia technologii. Czynniki te łącznie podkreślają potrzebę ukierunkowanych interwencji, które rozwiążą nierówności społeczno-ekonomiczne, poprawią dostęp do zasobów i będą promować przyjmowanie nowoczesnych technologii rolniczych w celu zwiększenia udziału drobnych rolników w uprawie warzyw. Badanie zaleca ponadto wspieranie inkluzywności płci, inwestowanie w programy edukacyjne i szkoleniowe, wzmacnianie sieci społecznościowych, zapewnienie bezpiecznych praw do ziemi, poprawę dostępu do kredytów i środków produkcji rolnej oraz zachęcanie do przyjmowania nowoczesnych technologii rolniczych.

Słowa kluczowe: uczestnictwo, uprawa warzyw, drobne gospodarstwa rolne, Zanzibar

CONTENTS
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