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ILLICIT TRADE AS A STRUCTURAL SEGMENT OF THE GLOBAL SHADOW ECONOMY: FROM INFRASTRUCTURAL ASYMMETRIES TO THE CRYPTO-FINANCIAL ARCHITECTURE

The purpose of the study is to conceptualize illicit trade as a structural segment of the global shadow economy rather than as a collection of isolated criminal incidents, and to substantiate the mechanism through which the infrastructural and institutional asymmetries of globalization, together with the emerging crypto-financial architecture, simultaneously facilitate both licit and illicit circulation.

The article demonstrates that illicit trade should not be interpreted as a set of individual customs, criminal, or administrative offenses but rather as an integral structural component of the contemporary global economy, whose functioning is determined by the configuration of international production, logistics, trade, and financial networks. It is argued that the expansion of the shadow economy in international trade is systemic and grounded in the intertwining of licit, illicit, and grey commodity flows that increasingly rely on the same transport, logistics, warehousing, customs, and financial infrastructure. The study shows that the architecture of globalization not only enables the unprecedented expansion of international trade but also creates favorable conditions for the scaling of illicit trade through the growing mobility of goods, fragmented jurisdictions, the proliferation of special economic regimes, and asymmetries in institutional oversight. It is further established that the financial servicing of illicit trade is undergoing a profound structural transformation, in

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which crypto-assets are becoming an increasingly important component alongside conventional payment channels, giving rise to an autonomous financial ecosystem with specialized mechanisms for conducting, converting, and concealing transactions. The findings demonstrate that the development of crypto-financial infrastructure does not replace the traditional financial system but operates in parallel with it, reinforcing the adaptability and resilience of transnational illicit trade networks.

The scientific novelty of the research lies in developing a theoretical interpretation of illicit trade as an economic adaptation by organized networks to the transformation of the global environment and in substantiating the crypto-financial architecture as a structural mechanism underpinning the expansion of the shadow economy in international trade. The study advances the proposition that the fusion of licit and illicit circulation constitutes a defining characteristic of the contemporary architecture of global trade and extends this argument to the financial dimension. The approach to distinguishing between the shadow economy and the illicit economy has been refined by applying the criteria of statistical visibility and illegality. The research further develops the proposition that illicit trade, capital movements, and the financial infrastructure of crypto-assets should be understood as interconnected elements of a unified service architecture sustaining the shadow economy.

Keywords: *international trade, shadow economy reduction, maritime trade, shadow economy, container transportation, critical transport and logistics infrastructure, arms trade, free economic zones, crypto-financial architecture, cryptocurrency settlements.*

JEL classification: *F13, F52, F55, G23, K42.*

НЕЗАКОННА ТОРГІВЛЯ ЯК СТРУКТУРНИЙ СЕГМЕНТ ГЛОБАЛЬНОЇ ТІНЬОВОЇ ЕКОНОМІКИ: ВІД ІНФРАСТРУКТУРНИХ АСИМЕТРІЙ ДО КРИПТОФІНАНСОВОЇ АРХІТЕКТУРИ

Мета дослідження полягає у концептуалізації незаконної торгівлі як структурного сегмента глобальної тіньової економіки, а не як сукупності ізольованих кримінальних епізодів, а також в обґрунтуванні механізму, за якого інфраструктурні та інституційні асиметрії глобалізації разом із криптофінансовою архітектурою, що формується, одночасно обслуговують легальний і тіньовий обіг. У статті доведено, що незаконна торгівля є не сукупністю окремих митних, кримінальних або адміністративних правопорушень, а самостійним структурним компонентом сучасної глобальної економіки, функціонування якого визначається особливостями міжнародних виробничо-логістичних, торговельних та фінансових мереж. Обґрунтовано, що тінізація міжнародної торгівлі має системний характер і ґрунтується на взаємопроникненні легальних, нелегальних і проміжних (сірих) товарних потоків, які дедалі частіше використовують спільну інфраструктуру транспортування, логістики, зберігання, митного оформлення та фінансового супроводу.

Показано, що сучасна архітектура глобалізації не лише забезпечує безпрецедентне розширення міжнародного товарообігу, а й одночасно створює сприятливе середовище для масштабування незаконної торгівлі завдяки високому рівню мобільності товарів, фрагментації юрисдикцій, поширенню спеціальних економічних режимів та нерівномірності інституційного контролю. Встановлено, що фінансове забезпечення незаконної торгівлі проходить етап глибокої структурної трансформації, у межах якої поряд із традиційними каналами дедалі більшого значення набувають криптоактиви, що формують автономну фінансову екосистему зі спеціалізованими механізмами проведення, конвертації та приховування транзакцій. Доведено, що розвиток криптофінансової інфраструктури не витісняє традиційні фінансові механізми, а функціонує паралельно з ними, забезпечуючи високий рівень адаптивності та стійкості транскордонних мереж незаконної торгівлі.

Наукова новизна одержаних результатів полягає у формуванні теоретичної інтерпретації незаконної торгівлі як економічної форми адаптації організованих мереж до трансформацій глобального середовища та в обґрунтуванні криптофінансової архітектури як структурного механізму тінізації міжнародної торгівлі. Запропоновано тезу про злитість легального і тіньового обігу як конститутивну характеристику сучасної архітектури світової торгівлі, поширену на фінансовий вимір. Удосконалено підхід до розмежування понять тіньової та незаконної економіки за критеріями облікової видимості і протиправності. Дістало подальшого розвитку положення про взаємопов'язаність незаконної торгівлі з рухом капіталів та фінансовою інфраструктурою криптоактивів як єдиною сервісною архітектурою тіньового обігу.

Ключові слова: *міжнародна торгівля, детінізація, морська торгівля, тіньова економіка, контейнерні перевезення, критична транспортно-логістична інфраструктура, торгівля зброєю, вільні економічні зони, крипто-фінансова архітектура, крипто-валютні розрахунки.*

Introduction. The growth of the shadow economy in foreign trade is among the processes of the modern world economy whose significance is systematically underestimated in the applied dimension of economic policy. The dominant approach has long regarded the illicit circulation of goods as a peripheral criminal phenomenon, subject to localization through customs and law-enforcement control. However, the empirical material accumulated over the past two decades shows that illicit trade has ceased to be a set of isolated criminal episodes and has become a stable segment of the global economy that functions according to its own economic logic. A special segment of the shadow economy in international economic relations is illicit trade, defined as the cross-border movement of goods withdrawn from legal circulation or of goods whose production, sale, or transportation violates established legal norms. Its specificity lies in the fact that it is not reduced only to the circulation of goods that are prohibited by their nature, but is organically integrated into legal trade flows. This issue is further compounded by the transformation of financial services for illicit circulation: payments that traditionally relied on cash and banking channels are increasingly shifting to cryptoassets, which constitute a parallel financial architecture for cross-border shadow exchange.

The study is relevant because it addresses the need for a theoretical explanation of the gap between the formal interpretation of illicit trade as a peripheral offense and its actual role as a structural element of the world economy, and for conceptualizing the financial dimension of this phenomenon. The empirical dimension of this process is of particular importance, since it is quantitative evidence that allows us to assess the real scale of shadow circulation, its integration into legal international trade and the transformation of its monetary servicing mechanisms.

Literature review. Methodological approaches to understanding the fragmentation of the world economy as an environment that changes the configuration of trade flows are laid down in the works of S. Aiyar and F. Ohnsorge [1], who examine the role of connector countries in the reconfiguration of global trade. The nature of trade fragmentation under different models of capitalism is revealed in the study by A. Piłat and A. Podsiad [2]. Conceptual approaches to understanding the shadow and illicit economy as complex transnational phenomena are substantiated in the works of M. Naím [3] and L. Shelley [4], who demonstrate that under the conditions of globalization, a full-fledged exchange has formed, in which legal, illegal, and intermediate goods can infinitely replace each other. The theoretical background for understanding the institutional prerequisites of liberalized trade is laid down in the work of R. Sally [5]. The nature of the reconfiguration of globalization, which is not reduced to deglobalization, but changes the routes of trade flows, is revealed in the studies of R. Baldwin [6] and S. Evenett [7], while the mechanisms of using economic interdependence for strategic purposes and forming vulnerabilities of global networks are conceptualized in the work of H. Farrell and A. Newman [8].

The interaction between trade openness and regulatory barriers is examined by S. Miroudot and H. Nordström [9], and the methodological principles for measuring regulatory rigidity are laid out in C. Brunel and A. Levinson [10]. The evolution of the geographical and spatial formation of the world's states in the context of globalization is revealed in the work of T. Yakhno [11]. The spatial dynamics of production networks in the context of deglobalization is studied in the work of H. W.-c. Yeung [12], who analyzes the transition from regional to global configurations and reverse trends.

Despite significant analytical achievements in these areas, existing research focuses mainly on individual dimensions of world trade fragmentation and geoeconomic competition and does not offer a holistic theoretical framework that integrates the infrastructural and financial dimensions of the shadow economy in international trade into a single structural process.

While existing studies provide valuable insights into world trade fragmentation, the institutionalization of regulatory policy, and the formation of geo-economic asymmetries, they still leave unexplained the structural nature of the expansion of the shadow economy in international trade as a single process that covers both commodity and financial dimensions. Research in this field addresses individual aspects of the phenomenon in isolation and does not reveal the logic by which infrastructural and institutional factors of globalization simultaneously serve both legal and shadow circulation, and by which the financial architecture of crypto-assets becomes an independent mechanism of shadow-economy expansion. The issue of the fusion of legal and illicit trade remains insufficiently studied: despite some mention of the interpenetration of these spheres, the literature lacks a substantiated explanation for why illicit trade is reproduced as a stable segment of the world economy rather than eliminated by control measures. This necessitates the formation of a coherent theoretical framework that interprets the growth of the shadow economy in international trade not as a technical problem of law enforcement, but as a structural characteristic of the modern architecture of the world economy, which is acquiring its own financial dimension.

The purpose of the article is to conceptualize illicit trade as a structural segment of the global shadow economy and to substantiate the mechanism by which the infrastructural and institutional asymmetries of globalization, together with the emerging crypto-financial architecture, simultaneously serve legal and shadow circulation, based on the analysis of quantitative data on the dynamics of illicit trade and the transformation of its financial servicing.

Research methods. To achieve the goal, the study used a combination of general scientific and special methods that provided a systematic consideration of the shadowing of international trade. Structural and logical analysis was used to substantiate the systemic nature of illicit trade and identify the mechanism by which infrastructural and financial factors of globalization serve shadow circulation. The method of conceptual differentiation was used to distinguish the concepts of shadow and illicit economy according to the criteria of accounting visibility and illegality. The comparative method was used to examine individual segments of illicit trade by their financial volume and degree of integration into legal flows, and to distinguish the functions of various elements of the crypto-financial architecture.

Quantitative analysis of empirical data was used to assess the scale of shadow trade based on container traffic indicators, the network of free economic zones, the value of counterfeit products, and the volume of illegal financial flows. The method of theoretical generalization was used to formulate the thesis about the merger of legal and shadow trade as a constitutive characteristic of the modern architecture of world trade, extended to the financial dimension. The tabular method was used to systematize the comparative characteristics of individual segments of illicit trade and the functions of elements of the crypto-financial architecture.

Main results of the research. Theoretical understanding of the growth of the shadow economy in international trade requires a preliminary distinction between two close, but not identical, concepts that are often used as synonyms. The concepts of “illicit economy” and “shadow economy” are defined by different criteria. The shadow economy is defined as activities outside the official register, encompassing both legal activities *(the “informal and gray segments”)* and prohibited activities *(the “black segment”)*. In contrast, the illicit economy is defined by the illegality of the activity itself and by its transnational organization, and is closest in content to the “black” segment of the shadow economy but does not completely coincide with it: it simultaneously covers part of the “gray area”, where regulatory violations become criminal in nature, and, in principle, partially goes beyond the shadow, merging with the legal economy, governance and politics. This distinction is fundamental for understanding that illicit trade is not limited to the circulation of inherently prohibited goods, but is organically integrated into legal trade flows, forming what researchers define as a full-fledged exchange in which legal, illegal, and intermediate (gray) goods can infinitely replace and combine each other [3], [4].

In practical terms, this means that the same cargo can contain illegal goods in one direction and legal goods in the opposite direction, and common supply chains and the same intermediaries serve both legal and illicit transactions. It is through this fusion that illicit trade blurs the classic division of economic activity into legal and illegal, confirming that the growth of the shadow economy in foreign trade is not a separate deviation, but a structural characteristic of modern international markets. The scale and cross-border nature of illicit trade are largely determined by the infrastructural and institutional factors of globalization, which simultaneously serve legal and shadow circulation. The rapid growth of containerized transport has led to a situation in which more than 90% of world trade is carried in containers, while only about 2% of cargo flows are subject to physical control [13].

The infrastructure of globalization creates an environment in which the volume of legal trade objectively exceeds the capacity for control, thereby creating space for the shadow movement of goods. An additional catalyst has been the expansion of the network of free economic zones, the number of which has increased from 176 in 1986 to over 3,500 by the end of the 2010s, with each such zone, according to OECD estimates, being accompanied by an increase in the value of counterfeit goods in the economy by approximately 5.9% [15]. The conditionality of control is also strengthened by the fact that fiscal and regulatory asymmetries *(high excise duties, excessive regulation, increased border regime)* create economic incentives for the shadow movement of goods, as a result of which illicit trade turns into a low-risk activity that receives relatively little attention from law enforcement agencies [13]. It is significant that the expansion of the network of free economic zones, according to S. Aiyar and F. Ohnsorge [1], turns individual jurisdictions into connector countries that mediate the reconfiguration of trade flows, while A. Piłat and A. Podsiad [2] link the intensity of shadow trade with differences in institutional models of capitalism.

Empirical data demonstrate the significant financial volume of individual areas of illicit trade and their close connection with other forms of shadow activity. Thus, the value of world exports of counterfeit and pirated goods is estimated at ~$461 billion, the global market for counterfeits, according to the International Chamber of Commerce, reaches ~$1.77 trillion, and the illicit trade in cigarettes (over 456 billion units each year) leads to a loss of about $40 billion in tax revenues on a global scale [13]. A comparative characteristic of the financial volumes of individual segments of illicit trade is given in Table 1.

Table 1

Financial volumes of individual segments of illicit trade and related shadow activity

Illicit Trade Segment	**Volume Estimate**	**Connection with the Legal Economy**
World exports of counterfeit and pirated goods	~$461 billion	Integration into legal supply chains
Global counterfeit market	~$1.77 trillion	Use of official distribution channels
Illicit cigarette trade	Over 456 billion units/year (~$40 billion in lost taxes)	Fiscal asymmetries as an incentive
Illicit financial flows (offshore holdings)	~10% of global GDP (offshore)	Integration with the financial sector
Money laundering by criminal actors	~2.7% of global GDP	Integration into the banking system

Source: compiled by the authors based on GI-TOC data [13].

The data presented in Table 1 indicate that the greatest threat to the fiscal stability of states arises not from the commodity segments as such, but from the financial segment of illicit circulation: offshore holdings equivalent to approximately 10% of global GDP and laundering flows of approximately 2.7% of global GDP directly erode the tax base and reduce the capacity of states to finance public expenditure. Among the commodity segments, the strongest fiscal effect is produced by the illicit cigarette trade, whose losses of approximately $40 billion per year take the form of forgone excise and value added tax revenues, whereas trade in counterfeit and pirated goods, despite its larger nominal volume, redistributes income primarily within private markets and affects budget revenues only indirectly, through the contraction of the legal tax base.

It is significant that illicit trade does not exist in isolation, but is intertwined with the movement of capital, the circulation of arms, and the movement of natural resources: the same networks and service structures that serve the smuggling of goods are involved in money laundering, the circulation of arms, and the sale of resources extracted in violation of the law [13]. The interconnectedness of illicit trade and capital flows is also evident in the fact that about 10% of global GDP may be held in offshore financial assets, and that money laundering by criminal entities accounts for approximately 2.7% of global GDP [13]. Such interconnectedness confirms the thesis that under the conditions of globalization, a stable architecture of functioning outside the legal economy has been formed, in which, in the event of an increase in risks or a decrease in the profitability of one product, organized entities quickly switch to another, relying on existing connections or attracting new intermediaries.

The arms trade occupies a distinct position within the structure of illicit trade, demonstrating the close intertwining of legal and illicit flows. According to available estimates, there are about one billion small arms in circulation worldwide, a significant portion of which enters illicit channels despite existing international treaties [13], [28]. It is significant that weapons legally manufactured and purchased in one jurisdiction are subsequently transferred into illicit circulation through the same transport and intermediary structures that serve other segments of the illicit trade, and some studies show that about 60% of weapons illegally sold in the hidden Internet segment originate in developed markets [13]. Zones of armed conflict and political instability function as a kind of bazaar for illicit arms trafficking, where previously restricted types of weapons enter cross-border circulation through looted warehouses and increased purchases under conditions of weakened control. This fact confirms that arms trafficking is not a separate segment but is built into a single service architecture of shadow circulation, within which a cargo can contain illegal goods in one direction and legal goods in the opposite direction.

The maritime dimension of illicit trade constitutes a separate channel, demonstrating the high adaptability of organized networks to the conditions of weak control in open waters. Container transport, which forms the basis of modern maritime trade, simultaneously creates an environment for the shadow movement of goods: the huge volume of cargo traffic and the physical control of only about 2% of containers make sea routes attractive for smuggling [13]. Organized networks exploit less-patrolled ocean waters to move prohibited goods, manipulating ship identification systems by replacing satellite data, thereby allowing ships to be temporarily removed from monitoring [29]. The maritime segment is closely linked to other areas of illicit trade: the same logistics operators and ports that serve legal container flows are also involved in moving counterfeit products, illegally mined resources, and other prohibited goods. This confirms that maritime trade is not an isolated phenomenon, but part of a single infrastructure in which legal and shadow trade use common supply channels.

A key direction of transformation in this architecture over the past decade has been a change in how financial services are used to facilitate illicit circulation. Digitalization has acted as a powerful catalyst for shadow circulation: the rapid growth of e-commerce, which occurred during the pandemic, significantly expanded the distribution channels of counterfeit products, and the transfer of a significant part of trade to the digital space has significantly reduced the transaction costs of illegal sellers, simplified access to end consumers and at the same time complicated the activities of law enforcement agencies [15]. This means that illicit trade is increasingly dependent on digital networks and functions on a global scale [27]. A logical continuation of this digitalization has been the transformation of the monetary servicing of illicit circulation, in which crypto-assets have shifted from an auxiliary payment instrument to an independent financial infrastructure for cross-border shadow exchange [20].

The crypto-financial architecture of illicit trade is layered and mirrors the structure of the legal financial system. It is based on a set of functionally distinct elements: cryptocurrency exchanges that provide conversion between fiat funds and cryptoassets; stablecoins pegged to fiat currencies that eliminate the problem of volatility and serve as a stable settlement instrument; over-the-counter brokers that mediate large transactions outside public platforms; mixers and cross-chain bridges that provide depersonalization and movement of funds between different blockchains [20], [24]. The scale of this segment is illustrated by estimates that inflows to illicit crypto addresses in 2025 reached about $154 billion, with illegal activity accounting for less than 1% of the total volume of crypto transactions, and the volume of funds stolen through fraudulent schemes is estimated at about $17 billion [17], [20]. The fundamental characteristic of this architecture is that stablecoins have become the predominant payment instrument in illicit circulation and, according to estimates by the Financial Action Task Force [19], form the majority of the illegal volume of crypto transactions, as they combine the speed and cross-border nature of crypto assets with the stability of fiat currencies, removing the main obstacle to the use of cryptocurrencies in commercial transactions [20]. This reproduces in a financial dimension the same logic of convergence that characterizes commodity circulation: the same crypto-asset infrastructure that serves legal cross-border payments and investments simultaneously serves shadow circulation, and the distinction between these flows is becoming increasingly arbitrary; in particular, transnational money laundering networks increasingly link illicit circulation to the demand for foreign currency and criminal supply chains [26].

The formation of crypto-financial architecture confirms the thesis of the convergence of legal and illegal financial infrastructure: the development of a regulated crypto-asset market simultaneously creates an opaque segment that can serve shadow circulation, thereby structurally blurring the boundary between legal and illegal use of this infrastructure [20]. An indicative measure of this convergence is the fusion of shadow circulation with the activities of sanctioned entities: in 2025, receipts to addresses of sanctioned entities increased by approximately 694% [22], and individual states are developing parallel settlement mechanisms, in particular through stablecoins tied to national currencies, one of which processed transactions worth about $93 billion in less than a year [25]. This convergence is consistent with a broader pattern in which organized networks quickly master new technological capabilities before state bodies have time to form appropriate control mechanisms [20]. The reconfiguration of production networks in the context of deglobalization, explored by H. W.-c. Yeung [12], and the transformation of the geospatial formation of states, revealed by T. Yakhno [11], create additional structural imbalances that illicit trade uses to scale operations, while the crypto-financial architecture provides these operations with a cross-border payment instrument that operates outside the traditional banking system.

The regulatory response to this convergence demonstrates partial rather than systemic effectiveness. The FATF standards for virtual assets, which extend the travel rule to transfers of crypto-assets and, following the targeted report on stablecoins and unhosted wallets, concentrate supervisory attention on the segment that dominates illicit on-chain settlement, have produced measurable institutional progress: by mid-2026 the share of surveyed jurisdictions that had adopted travel rule legislation reached 83%, compared with 73% a year earlier [30]. At the same time, the same assessment records that the adoption of legislation is not matched by supervisory and enforcement practice, and that the misuse of stablecoins by illicit actors has continued to increase [30]. In the European Union, Regulation (EU) 2023/1114 (MiCA) closed the transitional regime on 1 July 2026 and restricted the provision of crypto-asset services to authorized entities, while non-compliant stablecoins were delisted by major trading platforms, and the number of fully authorized providers across the EU and the EEA remained substantially lower than the number of firms previously registered under national regimes [31], [32]. The structural effect of these measures is therefore twofold. On the one hand, they narrow the regulated perimeter and raise the cost of using licensed infrastructure for illicit settlement. On the other hand, they displace part of the flows towards unhosted wallets, offshore service providers, and jurisdictions with weaker supervision, which corresponds to the logic described above, in which control measures reconfigure rather than eliminate illicit circulation. This confirms that countering the crypto-financial architecture of the shadow economy depends less on the formal harmonization of standards than on the symmetry of their practical enforcement across jurisdictions.

The generalization of the above empirical evidence allows us to formulate the study's central thesis: the fusion of legal and shadow circulation, a constitutive characteristic of the modern architecture of world trade, is extended to the financial dimension. Illicit trade operates according to the logic of exploiting structural imbalances in the international economy: any crisis generates deficits, administrative restrictions, sharp price increases, and information uncertainty, and these factors become the economic basis for the scaling of illicit trade operations. In other words, illicit trade is a kind of shadow response to market imbalances: if formal producers and logistics operators cannot quickly meet demand, criminal networks quickly occupy the corresponding niche, and their monetary services increasingly rely on crypto-assets. This capacity for adaptation often outpaces the speed of institutional responses by state authorities, consistent with findings on the structural nature of fragmentation in the world economy [16] and the relationship between shadow circulation and capital flows [21].

Regulatory asymmetries between jurisdictions exploited by illicit trade are closely linked to broader processes of geo-economic rivalry and decoupling that reconfigure international trade and financial flows [14], as well as to the logic of containment and regulatory-institutional rivalry of the leading centers of the world economy [18]. Taking these processes into account is of practical importance for developing national economic development strategies in a fragmented international environment [23]. The growth of the shadow economy in international trade thus appears not as a peripheral criminal phenomenon, but as a systemic element of the modern architecture of the world economy, which functions according to its own economic logic, takes advantage of the openness of international markets, exploits regulatory asymmetries between jurisdictions, promptly responds to any structural changes in international trade, and relies on the financial infrastructure of cryptoassets, parallel to the traditional banking system.

Conclusion. The research shows that illicit trade has ceased to be a set of isolated criminal episodes and has become a structural segment of the global shadow economy, operating according to its own economic logic and acquiring a distinct financial dimension. The distinction between the concepts of shadow and illicit economy, based on the criteria of accounting visibility and illegality, made it possible to establish that illicit trade is substantively closest to the black segment of the shadow economy but also partially extends beyond it, merging with the legal economy, governance, and politics. Empirical analysis confirmed that the scale and cross-border nature of illicit trade are determined by the infrastructural and institutional factors of globalization, which simultaneously serve legal and shadow circulation: the intensive growth of container transportation and the expansion of the network of free economic zones have formed an environment in which the volume of legal circulation objectively exceeds the capabilities of customs and law enforcement control, and this opens up space for the shadow movement of goods.

The thesis of the fusion of legal and shadow circulation substantiated in the study allows us to interpret the interconnection of illicit trade with the movement of capital and the financial infrastructure of crypto-assets not as a set of separate segments, but as a single service architecture, within which the same networks, intermediaries, and payment instruments serve both legal and illicit transactions. The analysis of the crypto-financial architecture has shown that its layered nature, within which stablecoins perform the function of a stable settlement instrument, and exchanges, over-the-counter brokers, mixers and cross-chain bridges ensure the conversion and depersonalization of funds, recreates a structure parallel to the legal financial system and structurally blurs the line between legal and illegal use of this infrastructure, which gives grounds to consider this segment as an independent mechanism of shadow-economy expansion. A comparison of the financial volumes of individual areas of illicit trade, in particular the circulation of counterfeit products, counterfeits, and illicit trade in excisable goods, shows that the shadow trade has reached a scale commensurate with individual sectors of the legal economy.

The proposed theoretical framework allows us to rethink a number of phenomena *(regulatory asymmetries, digitalization of sales channels, the merger of legal and illegal supply chains, the convergence of legal and illegal financial infrastructure)* as interconnected manifestations of a single structural process of shadow-economy expansion in international trade. For economies that are not among the leading architects of the global economy, understanding the structural nature of illicit trade and its crypto-financial dimension is a prerequisite for developing realistic strategies to protect national markets from shadow trade and for building institutional capacity to counter criminal networks. Further research within the established framework involves a quantitative assessment of individual regional segments of illicit trade, an in-depth analysis of the mechanisms of operation of the crypto-financial architecture of shadow circulation, and a study of the structural consequences of the expansion of the shadow economy in international trade for the economic security of states.

Declaration on the use of artificial intelligence. The authors declare that generative artificial intelligence tools (Grammarly Generative AI) were used exclusively for linguistic editing, stylistic refinement, and technical structuring of the text in accordance with the journal's formatting requirements. The conceptual framework, theoretical argumentation, empirical analysis, and conclusions presented in the article constitute the authors' own intellectual contribution and were not generated by artificial intelligence. The authors bear full responsibility for the scientific validity, accuracy, and integrity of the content.

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