

UDC 339.9 (477)

JEL: B41, R40

ASSESSMENT OF COMPLIANCE TO THE MARKET ENVIRONMENT OF THE INSTITUTIONAL ECONOMIC MECHANISM OF MARITIME TRANSPORT OPERATION**Andrey Grimalyk***

Odessa National University of Economics,
Odessa, Ukraine
ORCID: 0000-0002-8323-9193

Sergiy Salenko

Institute of Market Problems and Economic and Ecological Researches of the National Academy of Sciences of Ukraine,
Odessa, Ukraine
ORCID: 0009-0003-1729-8675

Nadezhda Tsvetkova

Tsenov Academy of Economics, Svishtov, Bulgaria
ORCID: 0009-0001-0939-4902

Viktor Koval

Izmail State University of Humanities,
Izmail, Ukraine
ORCID: 0000-0003-2562-4373

*Corresponding author:

E-mail: andreigrim01@gmail.com

Received: 29/05/2023**Accepted:** 07/09/2023

DOI:10.31520/2616-7107/2023.7.3-4

© Economics. Ecology. Socium, 2023
CC BY-NC 4.0 license

Introduction. When analyzing the dynamics of the current situation, it is important to consider the institutional cycle, which is clearly manifested in the long-term economic development of maritime transport and international trade. Owing to the institutional nature of this cycle, an institutional-economic mechanism that is adequate for one of its phases may be inadequate for another historical phase. Therefore, for an objective assessment of the compliance of the institutional-economic mechanism of maritime transport in general economic situations, full consideration of the specific historical stage of the institutional cycle is of fundamental importance.

Aim and tasks. This study aims to combine the neo-institutional approach with a fundamental analysis of the processes of globalization and localization to develop a scientific basis for an objective assessment of the compliance of the institutional-economic mechanism of sea transport with the economic situation.

Results. The methodology of the transactional approach was used to examine informational influence on the economic choice of subjects in the maritime transportation market through an organized search for alternative options for market operations. The application of macro-marketing in the field of maritime transport made it possible to determine the possibility of reducing the level of information costs of economic entities in this field by 35–40% and the overall level of transaction costs by 2-3% and significantly increasing the profits of companies.

Conclusions. The assessment of the compliance of the institutional and economic mechanism of sea transport in general economic situations is related to both the neo-institutional version of the transactional analysis and the theory and practice of macro-marketing, in accordance with the new historical conditions associated with the crisis of globalization and the tendency to localize production. Application of the transactional approach to the informational influence on the economic choice of subjects of the maritime transport market testified that not so much market prices for transport services in themselves can become a tool for indirect control through prices, but information about them as a basis for optimizing the functioning of the entire economic system of maritime transport due to the relative reduction of uncertainty.

Keywords: maritime transport, institutional cycle, economic mechanism, transactional approach, macro-marketing.

1. Introduction.

In the current global economic climate, there is a growing tendency to strengthen elements of uncertainty, among which the global process of “green transition,” designed to drastically reduce emissions into the atmosphere, occupies the most important place.

This global process, which begins in the world economy, is particularly important in maritime transport. The global transition of maritime transport to “green technologies” has become a powerful factor in the sharp increase in the uncertainty of investments in the construction of new ships and the corresponding economic consequences associated with this, associated with sharp fluctuations in freight prices in recent years on the Baltic (London) and Shanghai sea exchanges. Under the conditions of such increased elements of uncertainty and chaos, the question of compliance of the former institutional-economic mechanism of maritime transport with the new market situation arises. A reasoned answer to this question objectively involves the use of fundamentally new scientific approaches to consider the institutional mechanism of maritime transport functioning, since the former methodological approaches to such economic analysis are characterized by a significant underestimation of the uncertainty factor, which makes them irrelevant to new market conditions.

2. Literature review.

The fundamental study of the maritime economy (Stopford, 2019), devoted to forecasting and various dangers, stands out as the key to the topic of the institutional and economic mechanisms of maritime transport.

Talley (2017) explores the problems of port operations. Much attention has also been paid to the maritime supply chain and port congestion management (Ma, 2022), focusing on four main aspects and functions: demand, supply, the financial market, and various maritime strategies (Grammenos, 2020).

Karakitsos’s (2021) study (link) deals with the mathematical aspects of economics and contains key formulas relevant to the maritime transport sector.

Breskin (2020) analyzes maritime transport and ancillary industries from an international perspective. It reviews the shipping operations, maritime transport, industry standards, and regulations governing the industry. Simultaneously, it should be noted that scientific approaches to the consideration of institutional and economic mechanisms of sea transport are strongly influenced by the neoclassical mainstream with its methodology of frank anti-historicism. As a result, such an approach is predominant in the analysis of the economic development of maritime transport, in which all events are considered simply as a chain of historical accidents. In recent years, new research results have opened up wide opportunities for fundamentally new methodological approaches to assess the compliance of the institutional and economic mechanisms of sea transport in general economic situations. First, it concerns the scientific disclosure of the cyclical processes of globalization and the localization of production (Koval, 2022; Zveryakov, 2022), which generally coincides with the institutional cycle and allows a better understanding of the historical models of the economic development of maritime shipping. The most fundamental objective basis for the analysis of the general economic situation is the historical dialectic of globalization and localization, as revealed in modern scientific literature.

As for the institutional-economic mechanism of maritime transport and its correspondence or non-compliance with the general economic situation, the scientific study of these problems is largely based on the modern literature on neo-institutional theory. The neo-institutional direction of modern economic thought, in contrast to neoclassical research, is characterized by a kind of historicism that makes it relevant for the study of cyclical changes in the institutional and economic mechanisms of maritime transport functioning. Therefore, combining neo-institutional analysis with the idea of the institutional cycle as a scientific basis for the study of historical regularities in the institutional development of maritime transport is problematic.

3. Methods.

Research methods are largely based on transactional analysis, which is inherent in the neo-institutional direction of modern economic thought. Transactional analysis is based on the fact that the full price of a good or service for a business entity is not limited to the normal market price.

It also includes transaction costs, that is, the costs required for purchase and sale transactions. These include, first of all, information costs, i.e. costs of collecting and processing information necessary for making a decision on a certain operation. In addition, transaction costs include measurement, negotiation, protection, and property rights determination costs, as well as the so-called costs of opportunistic behavior associated with deception.

The general formula for calculating transaction costs:

$$TC = IC + QMC + NC + CSPP + COB \quad (1)$$

where, TC is transaction costs; IC is information costs; QMC is quality measurement costs; NC is the cost of conducting negotiations; and COB is the cost of opportunistic behavior.

Neo-institutionalism strives to find ways to reduce specific transaction costs by improving market institutions and the corresponding improvement in the work of the economic mechanism. This approach is used in this study as a methodological basis for the analysis of the institutional and economic mechanisms of maritime transport and its correspondence to the general economic situation. In addition, the article uses methods of other directions of modern economic thought, such as, for example, the non-Austrian school.

4. Results.

4.1. Maritime transport in the era of turbulence.

Historically high and unstable freight rates, congestion, closed ports and new needs in shipping after COVID-19 and the war in Ukraine are generally considered in the literature as specific forms of manifestation that global turbulence in the field of maritime transport acquires.

With ships carrying more than 80% of global trade, higher transport costs and worsening maritime traffic lead to higher inflation, food shortages, and supply chain disruptions, which in turn become significant drivers of global instability. For example, higher grain prices and wholesale freight rates in early 2022 contributed to a 1.2% increase in consumer food prices. Container ships spent 13.7% more time in ports in 2021 than in 2020, exacerbating delays and shortages. Simultaneously, over the last year, the total greenhouse gas emissions from the world fleet increased by 4.7% (UNCTAD, 2022a).

Regarding the outlook for maritime transport, UNCTAD reviews as World Output Growth, 1991–2023; UNCTAD Trade and Development Report (UNCTAD, 2022a, 2022b) stress that, as the current supply chain crisis eases in the future, freight rates decline, and port productivity improves, the long-term development of the sector should not be overlooked. For example, one such problem is that faced with uncertainty, shipowners postponed some new orders for the construction of new vessels, and the average age of the global container fleet increased from 10.3 to 13.7 years. One of the conclusions is related to the need for a clear decarbonization program in maritime transport to reduce uncertainty in the industry.

UNCTAD reviews show that maritime trade started to recover in 2021 but faced new complex challenges in 2022 due to risks and uncertainties. After a 3.8% decline in 2020 due to COVID-19, international maritime trade recovered in 2021 with a forecast growth of 3.2% and total shipments of 11 billion metric tons (Fig. 1). This was slightly below pre-Covid-19 levels as trade continued to be constrained by the lingering pandemic and unprecedented challenges in global logistics. This growth occurred primarily because of the increased demand for container transportation. Gas and bulk supplies also increased, while crude oil supplies decreased. In 2022, the growth of maritime trade will decrease to 1.4 percent, and for the period 2023–2027, UNCTAD predicts an average growth of 2.1 percent per year, which is lower than the average indicator of the previous three decades, which is equal to 3.3 percent.

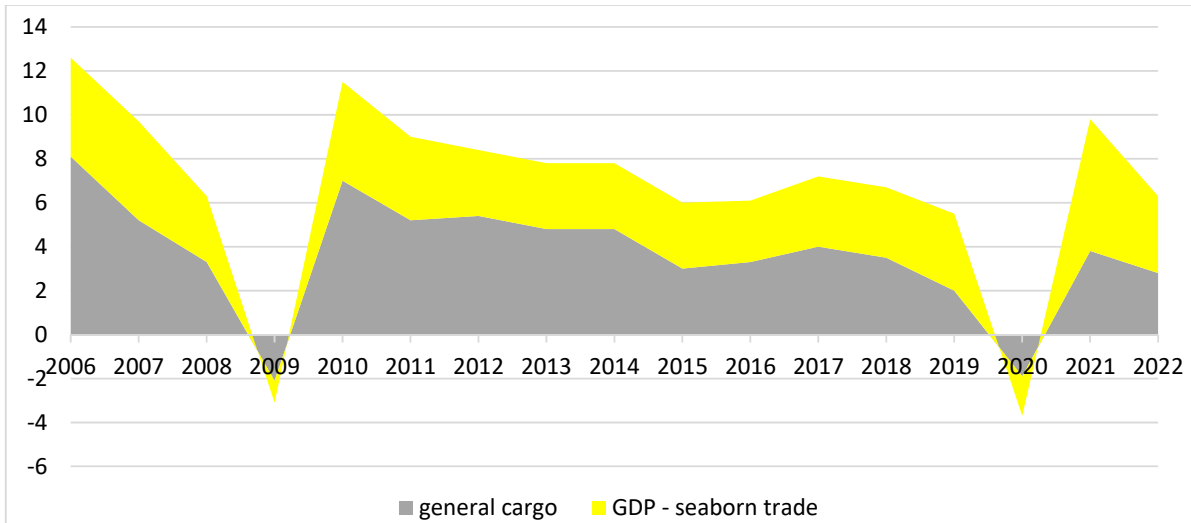


Fig. 1. International maritime trade and global gross product (GDP).

Source: based on UNCTAD (2022a; 2022b).

For many years, container shipping has been the fastest-growing segment, growing at a modest 1.2% in 2022, and only marginal growth of 1.9% is expected in 2023 (Review of Maritime Transport, 2022). The projected slowdown is the result not only of restrictions caused by the pandemic, but also of strong macroeconomic headwinds combined with a weakening Chinese economy. One such negative macroeconomic factor is, for example, that consumers spend less money on consumption when faced with rising inflation and cost of living, and shipping is also affected. All these problems create additional difficulties for global supply chains and logistics, and above all, maritime trade.

The demand for ton-kilometers is also growing because African countries are forced to buy grain from distant places. The most important problem in the recovery of maritime trade is the low growth rate of merchant fleets. In 2021, the global commercial fleet grew by less than three percent, the second lowest rate since 2005. LNG carriers have seen the fastest growth, driven by global gas demand, followed by containers and bulk carriers. According to the number of ships, the current average age is 21.9 years, and the carrying capacity is 11.5 years. Bulk carriers remain the youngest vessels, with an average age of 11.1 years, followed by container ships (13.7 years) and oil tankers (19.7 years) (Fig. 2).

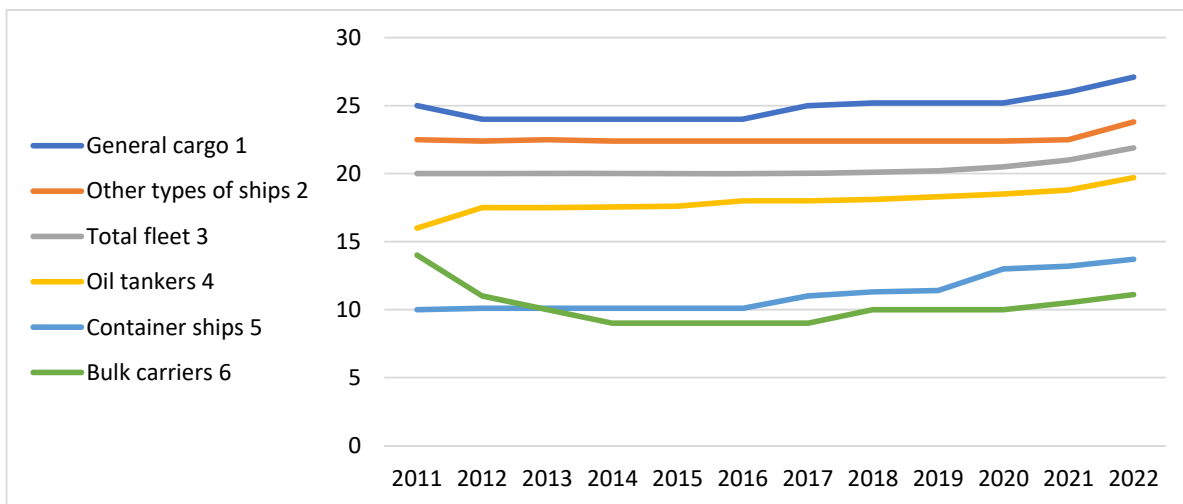


Fig. 2. The average value of the commercial fleet, weighted by the number of vessels, unit.

Source: based on UNCTAD (2022a; 2022b).

The average age of ships is increasing, in part because, especially in the bulk sector, shipowners are uncertain about future technological developments and the most economical fuels, as well as changes in regulations and carbon prices. Therefore, in order to benefit from the current high freight and charter rates, they have kept their older vessels in operation. In 2020, ship traffic in gross tons decreased, but in 2021 it increased by 5.2%. However, shipbuilding volumes remained below the level of 2014–2017.

In 2021, a shortage of shipping capacity and prolonged disruptions caused by COVID-19, combined with a recovery in trade volumes, and pushed container rates to record highs. By mid-2021, rates had peaked at four times the pre-pandemic level. Container carriers also faced additional costs but were able to generate record profits.

Spot container rates also increased on other routes, including developing regions. For example, in 2019, on the route from China to South America (Santos), rates per TEU were around \$2,000, but by December 2020 they were \$6,543, and by December 2021, they had reached \$10,196 (Review of Maritime Transport, 2022). During the same period, from December 2020 to December 2021, TEU rates on the route from Shanghai to South Africa (Durban) increased from \$2,521 to \$6,450, and on the route from Shanghai to West Africa (Lagos) increased from \$2,521 to \$7,452 (Review of Maritime Transport, 2022).

In 2022, the importance of the problems caused by the pandemic gradually decreased. Capacity constraints were easing, spot rates were falling (but still above pre-pandemic levels), and volumes were not growing as fast. Less congestion at ports helps eliminate logistical congestion and supply chain crises.

However, the conditions of sea trade and logistics remain unstable and may deteriorate, depending on the state of the world economy. This is evidenced by the divergent trajectories of freight rates that have high volatility and uncertainty.

At the beginning of 2022, container rates remained high and volatile, although they began to decline in the second quarter. Future rates will depend on several factors acting alone or in combination, suggesting greater

volatility and a general downward trend in some segments. These include increased demand uncertainty, port congestion, potential new supply chain disruptions, and the effects of the war in Ukraine, including rising fuel prices.

By the beginning of 2022, freight rates on some routes had already started to decline, and in the middle of the year, a sharp decline began. In the four weeks from August to September, the decline was double-digit. By the third week of September, the Shanghai Container Shipping Index had fallen by nearly 60%. However, these rates were more than double the pre-pandemic average.

Further reductions in container shipping rates can be expected as merchandise trade normalizes and new ships enter the market. However, freight rates and their volatility increasingly depend on environmental regulations. IMO (2023) measures on the existing Ship Energy Efficiency Index (EEXI) and Carbon Intensity Index (CII) for all ship types enter into force. This will likely reduce cargo capacity, as they allow lower cruise speeds to save fuel, and it will require some ships to be upgraded or overhauled.

For bulk cargo, rates have fallen through September 2022 as road congestion has eased and economic growth in China has slowed. Future demand will depend on the ongoing pandemic and its impact on supply chains, the global economic downturn, and commodity price volatility, whereas supply will depend on fleet growth. Bulk freight rates are also rising due to the war in Ukraine as well as the higher operating costs associated with the transition to new environmental regulations. Regarding the use of oil tankers, freight rates will be expected to increase due to a potential increase in oil demand, as well as the redistribution of global oil flows due to the war in Ukraine.

4.2. Institutional cycle and its impact on maritime shipping.

As already noted in the introduction, the most important methodological problem in the economic analysis of maritime shipping is related to the dominance of the neoclassical "mainstream" in economic science, which categorically rejects the principle of historicism in economics.

As already noted in the introduction, the most important methodological problem in the economic analysis of maritime shipping is related to the dominance of the neoclassical "mainstream" in economic science, which categorically rejects the principle of historicism in economics. As a result, the analysis of the historical patterns of economic development is beyond the scope of science. Economic development appears to be a chaotic course of events that cannot be rationally understood. At the same time, it is not taken into account that, in fact, the economic development of sea trade actually consists of a number of successive institutional cycles, during which periods of the predominance of the tendency to "globalization" alternate with no less long historical epochs of the predominance of the tendency to "localization" of production. Ignoring this specific institutional regularity prevents an objective scientific assessment of the conformity of modern institutional and economic mechanism of maritime transport in general economic situations.

If such an underestimation of the internal regularities of the historical process is methodologically determined by the dominance of the neoclassical "mainstream" in modern economic science, which completely rejects the principle of historicism in the analysis of the economy, then, on the other hand, such a predominance of neoliberalism and neoclassicism itself is only a manifestation of a certain phase of this institutional cycle, and precisely the phases of neoliberal globalization. However, ongoing processes indicate that this phase is near its end. If this scenario is implemented, international trade will face a new institutional cycle of alternating globalization and the localization of production (Filipishyna et al., 2020). However, the insufficient development of the problems of the institutional cycle in world literature hinders scientific understanding of this historical regularity in the development of maritime shipping.

First of all, it should be noted that the institutional cycle does not coincide with the usual industrial cycle and the so-called "Kondratiev cycles", covering a period of 7–12 years (Powell and Paul, 2012). The institutional cycle can be traced back to much longer historical periods than the Kondratieff cycles.

This cyclic sequence spans several centuries when mercantilism dominated the institutional organization of international trade, suggesting a policy of trade protectionism that is, protecting the domestic market from foreign goods while maximizing exports. The era of mercantilism was the first phase of the institutional cycle of consecutive alternating periods of "localization", which requires active institutional regulation, and "globalization", associated with neoliberal regulation of maritime trade. However, this was only the beginning of the first institutional cycle, the second phase of which was the free-trade era of the 19th century, which replaced mercantilism. In the 20th century, a second institutional cycle began. The first half of the 20th century was characterized by an active protectionist policy in industrialized states. The second phase of this cycle began in the second half of the 20th century, when the neoliberal trend towards globalization became dominant again, reaching its peak at the end of the century. Everything happened again, despite the completely new historical conditions. According to the period of "localization" and active institutional regulation of international trade in the first half of the 20th century, followed by a period of relatively free international trade and neoliberal globalization (Zuker, 2018),

However, in the 21st century, under liberal globalization, historical trends began to appear, which led to a crisis in this process. In the first decades of the 20th century, new phenomena were discovered in the development of the world economy, associated with the growing tendency to localize production. The specified structural changes in the world economy are evidence of the beginning of a new institutional cycle, one of the signs of which is the reorientation of many countries to the saturation of the domestic market (Huang, 2018; Naughton, 2019; Rogoff & Yang, 2021). Shifts toward the localization of production on the scale of the world economy began after the crisis of 2008–2009 and accelerated during the pandemic. Rising commodity prices and supply side inflation also create conditions for the development of economic strategies focused on domestic demand, and are aimed at creating increasingly long chains of added value in the national economy.

The literature notes that the longer the chain of cooperative ties, the more value added is produced in the national economy. A retrospective analysis of the development of the world economy over the last half century shows that globalization and localization occurred in waves. Therefore, the period 1970-1990 is defined as the final stage of post-war local development. Its characteristic features were high rates of accumulation (25-30%), a large share of domestic consumption (55-65%) and a relatively small volume of international trade (17-18%).

From 1990 to 2010, the process of globalization was characterized by the growth of international trade and the decrease of investments in developed countries, as well as their growth in capital-importing countries (Faux, 2017). However, after the crisis of 2008-2009, a new trend towards the localization of production in individual countries began. China, and then the USA (Rojecki, 2016; Faux, 2017; Holmes, 2017), initiated this turn, and the pandemic only accelerated this process.

Transactional approach to assessing the compliance of the institutional and economic mechanism of sea transport with the general economic situation.

As evidenced above, the cyclical evolution of international trade is the basis of the cyclical development of maritime transport. Therefore, the most fundamental historical regularities of the development of maritime transport are connected with the cyclical alternation of periods of dominance of two opposite trends: the trend towards globalization and the trend towards localization of production. The most important feature of this cyclical process in the first decades of the 21st century is that after the global economic crisis of 2008-2009, the tendency to localize production prevails, which is the basis for the sharp increase in volatility of the sea transportation market.

Therefore, today there is a question about the full growth of the compliance of the institutional and economic mechanism of sea transport with the general economic situation in new historical conditions, characterized by the tendency to localize production and increasing volatility in the market of sea transportation.

This institutional and economic mechanism was formed in conditions where the institutional tendency towards the deployment of the process of neoliberal globalization and, accordingly, towards the neoliberal deregulation of international trade and maritime transport was predominant. In the process of forming this institutional and economic mechanism, the main bet was placed on the natural forces of the free market and, above all, on market competition, which spontaneously prompted business entities to make the right choice for counterparties. A free market was supposed to help trading and shipping companies find each other and agree on the best way for them to consider the interests of all stakeholders and reach a consensus. It must be said that such optimistic ideas did not do without an objective historical basis in the conditions of a relatively smooth change in the conjuncture, which is characteristic of the period of neoliberal globalization when the volatility in the maritime services markets was relatively low.

However, everything changed after the global economic crisis of 2008-2009, which marked the beginning of the globalization crisis and the predominance of the trend towards the localization of production, which was mentioned in the previous paragraphs. Developed countries were looking for a way out of this crisis through a sharp increase in state regulation of the economy. This circumstance was the first sign of a transition to a new phase of the institutional cycle, or perhaps a transition to a new institutional cycle, which, historically, always begins with a period of active state regulation of the economy.

The trend towards localization of production, which was mentioned in the previous paragraph, began to unfold. This had a negative impact on international trade and maritime shipping, sharply increasing the volatility of the maritime transport services market. However, the institutional and economic mechanism of maritime transport remains essentially as spontaneous as it was in the previous era of neoliberal globalization. In full accordance with neoliberal recommendations, it has reduced itself to a market mechanism that operates spontaneously with the help of flexible market prices.

In the era of neoliberal globalization, such an approach was fully justified, since the relatively calm environment promoted stable market interaction among business entities and there was no need for special institutional support for this market. However, in recent years, it has become obvious that this neoliberal economic mechanism does not correspond to the new historical period of institutional development of the world market and maritime transport, which began after the global economic crisis of 2008–2009 and is associated with a sharp increase in uncertainty.

Uncertainty is precisely a factor that threatens the balance of the economic system. Therefore, it is not surprising that uncertainty is widely represented in various areas of modern economic thought (Lucas, 1981, 1987). However, with the neoclassical theory, this situation is somewhat more complicated. On the one hand, neoclassicism strives in every way to demonstrate its activity in solving the problem of uncertainty (Akerlof, 1984). However, this huge neoclassical literature leaves a strong impression that we are faced with a conscious substitution of concepts here, since immeasurable uncertainty is imperceptibly replaced by measurable risk. This distinction between risk and uncertainty is most consistently made by Knight (2006).

Knight (2006) showed that true, immeasurable uncertainty plays a crucial role in economics, measurable risk is rare, and the probability of different outcomes is usually unknown to the economic subject. This fundamental work caused wide resonance (Keynes, 2004; Keynes, 2018) and has retained its influence on this day, but its ideas were not continued within the framework of the neoclassical direction and remain the "mainstream" of modern economic thought. Therefore, it determines the general direction of practical measures of economic policy (Linder and Sensat, 2018), which, in particular, affects the number and volume of maritime transport operations. It follows that a more complete account of the uncertainty factor can become the scientific basis for the development of completely different practical recommendations for economic policies.

Currently, the understanding of uncertainty as a measure of information is firmly established and is generally accepted in science. Simultaneously, uncertainty is considered a situation in which there is a complete or partial lack of information about the probability of future events. In other words, uncertainty refers to a lack of information. Unlike uncertainty, risk is measured, in principle, by the distribution of probabilities between different outcomes. In this case, the economic choice problem is solved through a simple comparison of mathematical expectations.

This refers to measurable risk, with which neoclassicism replaces immeasurable uncertainty by assuming knowledge of probabilities. However, what if the probability is unknown?

At the same time, such a market system as, for example, the freight transportation market needs to be fed with information capable of making competition more effective, especially in conditions of increased uncertainty, which is characteristic of the current phase of the institutional cycle, not to mention the destabilizing effect on the conjuncture of such exogenous "upheavals" as war and pandemic, which are additional powerful catalysts of increased uncertainty.

Therefore, the question naturally arises about the institutional forms of this information support and, most importantly, about the institutional choice between centralized and decentralized forms of information support for the shipping market. A relatively calm conjuncture of neoliberal flourishing globalization may well correspond to the institutional form of decentralized information provision in the market, in which each trading and shipping company, at its own peril and risk, engages in marketing in search of the most profitable counterparty in the cargo transportation market.

In contrast, the unstable general economic situation during the globalization crisis and the transition to localization of production generate such volatility in the freight market, which complicates decentralized marketing and, accordingly, increases transaction costs.

However, for an objective assessment of the compliance of the economic mechanism of the functioning of maritime transport with the general economic situation, not only the dynamics of stock indices are important, but also the degree of dispersion and deviation of over-the-counter contract prices from the currency level for each relatively homogeneous type and direction of transportation.

From the point of view of the theory of competition, the presence of a significant spread in contract prices indicates that the established institutional and economic mechanism of the functioning of maritime transport is not capable of ensuring sufficiently effective competition in the freight transportation market, which would provide a single price for homogeneous maritime transport services.

Economic theory teaches that the main criterion for the perfection and efficiency of competition is a single price for all sellers and buyers of a given service. However, in practice, there are usually many real factors that violate this ideal principle of a single price, and the most important of them is usually the factor of uncertainty, which, even with modern information technologies, prevents sellers and buyers from finding each other in the market and making the best deal for both parties.

Therefore, the degree of these price discrepancies can serve, albeit indirectly, as a fairly accurate quantitative indicator of the conformity or non-conformity of the institutional-economic mechanism. The functioning of sea transport meets the objective requirements of the general economic situation. The degree of this correspondence is manifested in the efficiency of market competition, that is, in its approximation to the ideal model of perfect competition, in which all sellers sell homogeneous goods and services at the same price.

Thus, there is a possibility of a transactional approach to assessing the compliance of the institutional and economic mechanism of maritime transport functioning with the general economic situation based on the quantitative measurement of the deviation of contract prices per ton or mile from the currency level.

At the same time, the regular functioning, first of all, of the Baltic Sea Exchange eliminates the need to determine the weighted average level of contract prices as a basis for comparisons since regular quotations of the Baltic Exchange can serve as such a natural basis.

To carry out such a comparison, it is necessary, first of all, to record the deviation of the contract price t/km from the level of exchange in percentages for this category and the direction of transportation for each freight contract and weigh it. Weighting means multiplying this deviation by the share of this agreement in the total cost of transportation for this type of direction, followed by division by 100%. Such weighting is necessary to determine the weighted percentage of the deviation of contract prices from the level of currencies for each type and direction of transportation.

In the same way, on the basis of weighted average deviations for different types of transportation, the weighted average percentage of the total deviation of contract prices from the currency level is determined, which (of course, provided that there is sufficient qualitative homogeneity of transportation within each given category) can be considered a market criterion for the effectiveness of competition, quantitatively demonstrating the degree of compliance or inconsistencies of the institutional and economic mechanism of maritime transport functioning with the general economic situation.

This transactional approach to assessing compliance is based on modern competition theory, which differs from orthodox theory primarily in its methodology of disequilibrium analysis. Unlike neoclassicism, it does not proceed from equilibrium but, on the contrary, from disequilibrium, that is, from a suboptimal state of the economic system, which market competition is designed to bring closer to a state of equilibrium (that is, to an optimal state for it). According to this non-equilibrium methodology, the institutional mechanism for the functioning of maritime transport is considered an economic system, whose degree is far from the optimal state of equilibrium because it is measured by the effectiveness of competition.

The theory of competition proceeds from the fact that free competition drives the economic mechanism of the market and therefore determines the efficiency of its functioning. The neoclassical construction of perfect competition is based on several methodological premises, one of which is the assumption of full rationality in the economy of subjects (Samuelson, 1971). Full rationality presupposes that economic subjects possess full knowledge (McKenna and Diane, 2007). Second, full rationality assumes that an economic entity can instantly perform complex mathematical operations to find equilibrium, that is, the optimal variant of its economic behavior for the given situation (Kanth, 2017).

Thus, the most important methodological problem of the neoclassical "mainstream" is that the model of perfect competition explicitly or implicitly assumes the full rationality of economic subjects, which means the actual absence of true uncertainty (Goodfriend and King, 2005). Only measurable risk is assumed, the cost of which can be included in the total cost. With the help of insurance, risk can be managed rationally, similar to other elements of costs. However, there is no room for real, immeasurable uncertainty, despite the fact that this uncertainty largely determines the deviation of the actual state of the market system from the ideal model of perfect competition. It follows that if the maritime transport system is far from equilibrium, the market competition that drives it is far from perfect. Therefore, new institutional forms of maritime transport information support are needed to reduce the level of uncertainty in this system.

One of the characteristic signs of imbalance is a relatively low level of awareness among business entities, which manifests in the dispersion of market prices and their deviations from the average or currency level. Simultaneously, real economic subjects, who are by no means fully rational, may not be aware of alternative opportunities for profitable deals that exist in the market. A suboptimal choice of transaction opportunities can be considered as a special category of transaction costs.

True, the neo-institutional direction that develops the theory of transaction costs usually does not distinguish such a category, but in principle refers to information costs since the choice of a loss-making option is usually associated with ignorance of more profitable alternative options. As a result, the best transaction opportunities disappear and the economic system is far from optimal.

However, the transactional approach makes it possible not only to assess the effectiveness of market competition but also to indicate some directions for its improvement in the most general terms. However, neo-institutional theory usually focuses on the elements of transaction costs related to the protection and concretization of property rights, as these elements most obviously depend on the level of development of institutions (Kerstin and Roy, 2012). A mature institutional system provides better protection and specification of property rights than a less-developed one, where property rights are less protected. By contrast, a developed institutional system saves business entities from high costs for the protection and specification of property rights, as this function is almost completely taken over by the state, and as a result, the level of specific transaction costs decreases (Royston and Oliver, 2008).

The institutional system can have a lowering effect on the level of transaction costs not only because of the costs of protecting and concretizing property rights, but also because of information costs if it provides economic agents with reliable information about the optimal alternatives for conducting transactions. Ukraine can choose to increase the level of compliance of the economic mechanism of maritime transport functioning with the general situation by changing the institutional form of this mechanism based on the transition from decentralized micromarketing to organized macromarketing. Marketing costs, which refer primarily to the informational component of transaction costs, are the most important element of a modern company's transaction costs. Therefore, the possibility of saving on informational elements of transaction costs can become, for example, no less important factor in attracting vessels under the Ukrainian flag than tax benefits and the maritime registry.

Unfortunately, currently Ukraine does not have sufficient material assets in the field of maritime transport (in total, 219 vessels belong to the state and private residents of Ukraine, mostly relatively small and quite old, but not all of them fly under the Ukrainian flag), but it has sufficient intellectual potential for information support for maritime transport and its optimization (Eshchenko, 2019). Thus, macro-marketing may turn out to be one of those new institutional elements of the economic mechanism of maritime transport functioning that is lacking in the spontaneous mechanism that has developed under the conditions of neoliberal globalization. The inclusion of this new institutional element in the economic mechanism of shipping will allow it to be better adapted to those cyclical changes of the general economic environment that began after the global economic crisis of 2008–2009 and are associated with the tendency to localize production, signalling the beginning of a new institutional cycle.

4. Conclusions.

The scientific basis for assessing the conformity of the institutional and economic mechanism of maritime transport to the general economic situation is related not only to the neo-institutional variant of transactional analysis but also to the modern theory of competition, which is based on an unbalanced methodology for the analysis of economic systems operating under real conditions, that is immeasurable uncertainty. The neo-Austrian concept of market prices is the most convenient, compact, and effective carrier of market information, which is necessary and sufficient for system optimization. In this case, the institutional and economic mechanism of sea transport should also be attributed to the theoretical foundations of solving this applied scientific problem. The scientific basis of the analysis of the institutional and economic mechanism of the functioning of maritime transport and ways of its improvement should also include the theory and practice of macro-marketing by the new historical conditions associated with the crisis of globalization and the tendency to localize production.

Although macromarketing has long been actively used by many countries worldwide, this specific form of its application in the field of maritime transport, its scientific justification, and applied developments can become an essential element of the scientific novelty of this research program. As there is no evidence of any precedent for the use of macro-marketing in maritime transport by other countries, macro-marketing can reduce the level of information costs of economic entities in the field of maritime transport by 35–40% and the overall level of transaction costs by 2–3%. At the same time, it should be fully considered that each percent reduction in transaction costs means a percent reduction in total costs and, accordingly, a percent increase in the firm's profit.

No less innovative is the methodology of the transactional approach to the information impact on the economic choice of subjects in the maritime transport market through an organized search for alternative options for market operations. First, its novelty lies in the fact that not so many market prices for transport services in themselves can become a tool for indirect control through prices, but information about them as a basis for optimizing the functioning of the entire economic system of maritime transport due to a relative reduction in the uncertainty contained in it and, accordingly, the approach of the system to the state of equilibrium.

This method of indirect influence on the behavior of market subjects, in contrast to the methods of indicative planning, tax, and credit regulation, involves measures not of a credit and financial nature but primarily of an informational nature related to the search for alternative options for market operations, which may turn out to be more profitable than those already known to business entities.

Thus far, only the contours of a scientifically based methodology for the objective assessment of the compliance of the institutional and economic mechanisms of maritime transport with the general economic situation have been outlined. Therefore, the provisions of this article require further scientific development in several directions, both theoretically and practically.

REFERENCES

- Akerlof, G.A. (1984). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 3, 488–500.
- Breskin, I. (2020). *The Business of Shipping*. Cornell Maritime Press.
- Eshchenko, P. (2019). Information economy: A chance to build a new model of social development or an illusion of a chance? *Economy of Ukraine*, 2, 3–21. <https://doi.org/10.15407/economyukr.2019.02.003>
- Faux, J. (2017). U.S. Trade Policy – Time To Start Over. *Economy of Ukraine*, 5-6, 4-15.
- Filipishyna, L., Hryshyna, L., Zhuvahina, I., Ponedilchuk, T., & Paska, I. (2020). Model scenarios of sustainable development strategy in the formulation of mechanisms for enterprise support resources. *Intellectual Economics*, 14(1), 31-44.
- Goodfriend, M., & King, R. G. (2005). The incredible Volcker disinflation. *Journal of Monetary Economics*, 52(5), 981–1015. <https://doi.org/10.1016/j.jmoneco.2005.07.001>
- Grammenos, C. (2020). *The Handbook of Maritime Economics and Business*. Routledge.
- Holmes, K. (2017). *Rebound Getting America Back to Great*. Rowman & Littlefield.
- Huang, Q. (2018). *China's Industrialization Process*. Springer Singapore.
- IMO. (2023). EEXI and CII - ship carbon intensity and rating system. <https://www.imo.org>
- Kanth, R. (2017). *Against Economics. Rethinking Political Economy*. Aldershot :Ashgate.
- Karakitsos, E. (2021). *Maritime Economics: A Macroeconomic Approach*. Palgrave Macmillan.
- Kerstin, S., & Roy S. (2012) *Institutional Theory in Organization Studies*. London: SAGE.
- Keynes, J.M. (2004). *A Treatise on Probability*. Dover.
- Keynes, J.M. (2018). *The General Theory of Employment, Interest and Money*. Palgrave MacMillan.
- Knight, F.H. (2006). *Risk, Uncertainty and Profit*. Dover Publications Inc.
- Koval, V., Kaminskyi, O., Brednyova, V., & Kosharska, L. (2022). Digital Ecosystem Model of Labour Resources Management in Economic Militarism. *Revista Gestion de las Personas y Tecnologia*, 15(45), 21. <https://doi.org/10.35588/gpt.v14i45.5902>
- Linder, M., & Sensat, Jr.J. (2018). *.Anti-Samuelson. Basic Ideological Concepts. Crises and Keynesianism. The World Market*, Urizen Books.
- Lucas, R.E. (1981). Methods and Problems in Business Cycle Theory. In R. Lucas, *Studies in Business Cycle Theory*. Cambridge, MA: The M.I.T. Press, 271– 296.
- Lucas, R.E. (1987). *Models of Business Cycle*. Oxford: Basil Blackwell.
- Ma, S. (2022). *Economics of Maritime Business*. Routledge Maritime Masters.
- McKenna, E. & Diane, Z.I. (2007). *Neoclassical Synthesis (Bastard Keynesianism)*. Cheltenham: Routledge.
- Naughton, B. (2019). *The Chinese Economy: Transitions and Growth*. IMT.
- Powell, W. & Paul, J. (2012). *The New Institutionalism in Organizational Analysis*. University of Chicago Press.
- Rogoff, K., & Yang, Y. (2021). Has china's housing production peaked? *China & World Economy*, 29(1), 1–31. <https://doi.org/10.1111/cwe.12360>
- Rojecki, A. (2016). Trumpism and the American politics of insecurity. *The Washington Quarterly*, 39(4), 65–81. <https://doi.org/10.1080/0163660x.2016.1262124>
- Royston, G. & Oliver, C. (2008). *The SAGE Handbook of Organizational Institutionalism*. SAGE.
- Samuelson, P. A. (1971). Understanding the Marxian notion of exploitation: a summary of the so-called transformation problem between Marxian values and competitive prices. *Journal of Economic Literature*, 9(2), 399-431.
- Stopford, M. (2019). *Maritime Economics*. (3th. ed.). Routledge.

- Talley, W. (2017). *Port Economics*. Routledge Maritime Masters.
- UNCTAD. (2022a). *Trade and Development Report 2022*. <https://unctad.org/tdr2022>
- UNCTAD. (2022b). *Review of Maritime Transport*. <https://unctad.org/publication/review-maritime-transport-2022>
- Zucker, G. (2018). *Institutional Patterns and Organizations: Culture and Environment*. MA: Ballinger.
- Zveryakov, M. (2022). Formation of the economic development model in new historical realities. *Economy of Ukraine*, 8, 3–19. <https://doi.org/10.15407/economyukr.2022.08.003>