

THE REAL ESTATE MARKET AND ITS INFLUENCING FACTORS FOR SUSTAINABLE REAL ESTATE DEVELOPMENT: A CASE OF LATVIA

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Abstract. The tendencies of the development of real estate market could affect the tendencies within the real estate development. The development of the real estate market could be influenced by the variety of factors, depending on the economic system of the country and other factors. The aim of the research is to analyse the tendencies in the Latvian real estate market, by paying particular attention to its influencing factors and sustainable real estate development. The literature review, comparative, historical, statistical analysis, observation and logical access methods have been used in the research. The research provides an interdisciplinary view on the topic. Particular attention is paid to the case of Latvia. The research can be used to promote the importance of sustainability and sustainable development using different forms, mostly economic and environmental ones. Changes within the economic dimension, including changes of real estate market prices, and other significant aspects of real estate development can influence the sustainability of the real estate market in general and may affect the financial results of market participants. Thus, the research can also be useful for real estate developers for a planned, balanced and financially successful entrepreneurship in the changing environment.

Keywords: *Civil engineering, international overview, planning, real estate development, real estate industry, real estate market, regulations, sustainability, sustainable construction, sustainable development.*

INTRODUCTION

Sustainable development of the real estate market is important for its balanced and stable development (Kauskale, 2018) and could be important for all market participants. Sustainable development of the real estate market includes economic, social, environmental and other dimensions (Kauskale, 2018). The better the social, economic and environmental parameters of the real estate market and its development, the more sustainable the market. Real estate market consists of many buildings that can be characterised by different structures, layouts, heating and water supply systems and other components.

Housing is one of the primary necessities for every human (Vanags, 2010), and it is important to know the tendencies within the real estate market and construction industry. These issues are also important for real estate developers for planning the entrepreneurial activities.

Under rapidly changing conditions of economic environment, the financial indicators and results of market participants are changing, and the industry and its sectors may face a number of challenges. For instance, in the period of 2008–2009 many entrepreneurs in Latvia faced a rapid and significant economic recession. This slowdown also significantly influenced the development of real estate market, the level of prices and the level of profitability. The research problem is that in different periods the market and market participants can face different challenges and market participants should be prepared for them. At the same time, the real estate market and the construction sector have a major social, economic and environmental role for the country (Kauskale, 2018).

In order to understand the current tendencies of the development of the real estate market, it is necessary to make an actual overview that can be useful for the understanding of the development of the real estate market in the context of sustainable development, as well as for market participants.

The aim of the research is to analyse the tendencies in the Latvian real estate market by paying particular attention to its influencing factors and sustainable real estate development.

Within the research, the following tasks have been set:

- To analyse the development tendencies of the real estate market and construction industry in Latvia;
- To investigate factors that influence sustainable development of real estate market and construction industry.

The following research questions have been formulated:

1. What are the main development tendencies of the Latvian real estate market in general and the Latvian enterprises in particular?
2. What challenges related to the constructed buildings can be faced by market participants from different points of view, including environmental aspects?

The present research is the end result of the scientific research through a bibliographic review prism. The research includes introduction, literature review, materials and methods, results, discussion and conclusion sections. It methodologically focuses on the factors related to the sustainable development of real estate market, by placing the economic emphasis on the investigation of the selected indicators. The literature review, comparative, historical, statistical analysis, observation and logical access methods have been used in the research. The scientific novelty of the research is the integrated approach to the analysis of the sustainable development of the real estate market and its actual analysis for the case of Latvia. The research covers interdisciplinary aspects, as well as the contemporary external and internal factors that influence the development of the real estate market, including also topical issues related to the real estate development.

It has been found that currently the real estate market in Latvia has growing tendencies, and the financial results of the real estate activities and construction industry in the period of 2013–2021 showed positive financial performance. The

certification of buildings in Latvia continues; therefore, the issues of sustainability and quality of buildings are still topical.

1. LITERATURE REVIEW

Real estate market assessment opportunities and issues related to the sustainable development of construction projects and construction industry have been previously analysed (Kauskale, 2018; Kauskale & Geipele, 2019; Geipele & Kauskale, 2013; Kauskale & Geipele, 2017; Tupenaite et al., 2017; Tupenaite et al., 2021; Kauskale et al., 2017a; Tupenaite et al., 2018; Kauskale et al., 2017b). Construction objects that are built for sale or rent later appear on the real estate market. The market is:

1. “A meeting together of people for the purpose of trade by private purchase and sale and usually not by auction” (Def. 1a);
2. “Specified category of potential buyers” (Def. 4a);
3. “The area of economic activity in which buyers and sellers come together and the forces of supply and demand affect prices” (Def. 4d) (Merriam-Webster Dictionary, 2021).

In the course of the analysis of economic processes in the real estate market, it is important to get familiar with the main principles of the economic system in the country. “An economic system is a means by which societies or governments organize and distribute available resources, services, and goods across a geographic region or country” (CFI Education Inc.). For instance, Ahlborn & Schweickert (2019) used an established macroeconomic cluster approach for the identification of economic systems in a worldwide sample of 115 developing and industrialized countries.

The mixed market economy system is of high importance nowadays:

1. “Most countries across the world operate in a mixed economy. There are elements of a market-based system that includes free markets, free trade and private enterprises, and there are also elements of public ownership, taxation, and regulation” (BoyceWire, 2022);
2. The mixed economic system is defined as “an economic system that combines the elements of a market economy and the elements of a planned economy” (CFI Education Inc., 2022b).

Previous studies showed that real estate market could be affected by PESTEL (political, economic, social, environmental, technological and legal) factors (Kauskale, 2018; Grizans, 2015). The construction sector is also indirectly influenced by these factors (Ahmadov, 2022).

According to Washington State University (Ahlborn & Schweickert, 2019), environmental factors in PESTEL are related to such parameters as “an increasing scarcity of raw materials, pollution targets, doing business as an ethical and sustainable company, and carbon footprint targets”.

For instance, the changes in laws and regulations and the changes in the external environment could influence the work and activities of the real estate developers.

As stated previously (Kauskale, 2018), definitions of “development” include also the following: “the process in which someone or something grows or changes and becomes more advanced (Def.1)”;

“the state of being developed (a project in development)” (Def.2);

“a tract of land that has been made available or usable: a developed tract of land; especially one with houses built on it” (Def.3) (Merriam-Webster Dictionary, 2021). Development of construction projects (real estate development) is highly connected to the development of the real estate market and tendencies within aggregate demand and aggregate supply for real estate in mixed market economies.

Factors affecting aggregate supply and aggregate demand on the real estate market, influencing real estate prices in Latvia, were identified previously: factors affecting demand included inhabitant income, current living conditions, level of education, life experience, future expectations of potential buyers, taxes (real estate tax, income tax, etc.), growth of gross domestic product (GDP) and other factors (Binovska et al., 2018). Factors affecting supply included the level of real estate prices, profitability of the industry, yield in the sector, capitalization rates, costs of construction materials, energy prices, design costs, construction technologies, taxes, level of wages in the sector, quantitative changes in labour, accessibility of land, land acquisition costs, increase or decrease in the income of market participants, future forecasts of market participants and other factors (Binovska et al., 2018).

These indicators could be important for Latvia, as the Latvian economy is a mixed market economy, and both market principles are significant – changes in aggregate supply and aggregate demand in the economy and real estate market, and regulations.

For instance, according to the research by Benli (2021), macroeconomic factors determined for the research were population, growth rate of GDP, and population rate of the countries. In the research by Klovienė (2012), the following economic factors were chosen for the analysis: economic constraints, competition, and technological advancement. For example, the research of Kaldaru & Parts (2008) included GDP per capita growth and broader notions of human development and sustainability; the authors (Kaldaru & Parts, 2008) also mentioned that, if the economic growth were the most important goal of society, social aspects of development could be considered less significant and remain on the background.

Possible changes in the real estate market and different economic interconnections were previously analysed by different scientists. For example, the relationships between property prices, sustainability levels and socio-economic indicators were investigated by Fuerst & Haddad (2020). According to Fabozzi & Xiao (2017), the interaction of the trading behaviour of market participants in the housing and rental markets could result in a boom and bust in both markets. Issues regarding the sustainability of real estate market of China and its general economy, including supply and demand issues, were analysed by Xie et al. (2011).

Changes within financial regulation and monetary policy are also significant for the market development and its participants. For example, according to the research by Zhang & Pan (2021), the monetary policy has a good effect on the real estate market in China in the low-speed growth period.

The analysis of real estate market and its influencing factors and regulations in the context of the sustainable development can be relevant for the development of the construction sector, including entrepreneurship within it, and including several construction activities within civil engineering, as sustainability technically and financially is also an important requirement for civil engineering infrastructures (Rackwitz et al., 2005).

For instance, civil engineering can be analysed from broader or more specific points of view. Civil engineering includes the planning, design, and building of roads, bridges, harbours, and public buildings (Collins Dictionary, 2021), and construction engineering management involves the application of scientific and technical knowledge to infrastructure construction projects (Burger, 2020).

Sustainable development of the real estate market and construction industry is also related to the issues of more efficient planning of resources, which is particularly important for the sustainable development in general and highlights the topicality of the research. Building material is any material that can be used for construction purposes, and it commonly includes wood, concrete, steel, cement, aggregates, clay, bricks, metal, and much more – currently engineers have learned to mix and match different materials to come up with higher quality hybrid structures (Pro Crew Software, 2021). Sustainability can also be defined as the wish to perform activities without depletion of resources or making any harmful effect on the environment (UN Documents, 2021), and in order to achieve the sustainability in the field of construction, the building and the built environment should have some important criteria, which can include an enhancement of biodiversity, support to the community, effective use of resources, reduction of pollution, creating healthy environment and process management (The Constructor, 2021).

Several components of socio-economic and environmental dimensions of sustainable development, which are globally important, are presented in Table 1.

Table 1. Socio-Economic and Environmental Aspects and Criteria of Sustainable Development according to Agenda 21 (developed by the authors based on Agenda 21, 1992 (UN Documents, 2021), as cited in Kauskale (2018))

Dimension	Criteria
Socio-economic	- International Cooperation to Accelerate Sustainable Development in Developing Countries and Related Domestic Policy Data
	- Combating Poverty
	- Changing Consumption Patterns
	- Demographic Dynamics and Sustainability
	- Protecting and Promoting Human Health
	- Promoting Sustainable Human Settlement Development
	- Integrating Environment and Development in Decision-Making Data

	- Conservation and Management of Resources for Development
	- Protection of the Atmosphere Data
	- Integrated Approach to the Planning and Management of Land Resource Data
	- Combating Deforestation
	- Managing Fragile Ecosystems: Combating Desertification and Drought
Environmental	- Promoting Sustainable Agriculture and Rural Development
(conservation	- Conservation of Biological Diversity
and management	- Environmentally Sound Management of Biotechnology
of resources for	- Environmentally Sound Management of Toxic Chemicals,
sustainable	Including Prevention of Illegal International Traffic in Toxic
development)	and Dangerous Products
	- Environmentally Sound Management of Hazardous Waste,
	Including Prevention of Illegal International Traffic in
	Hazardous Waste
	- Environmentally Sound Management of Solid Waste and
	Sewage-related Issues
	- Safe and Environmentally Sound Management of Radioactive
	Waste

For the past decades due to raising influence of climate change, overpopulation, deforestation, resource depletion, urbanization, pollution and other global issues, the concept of circular economy has gained popularity in scientific areas, as it can contribute to resolving the global issues (Zvirgzdins et al., 2019).

Interconnection between costs and quality is important both for the construction of buildings and civil engineering and these aspects can also affect the final decision for investment, development, tenders. Developers make decisions regarding investment, and investment tendencies in a country and especially in a region have a crucial role in the creation of the sustainable environment. According to Glickman (2014), a basic element for a functioning real estate market is a system that records property ownership, which should include a survey methodology along with a process for recording the title. Garcia-Teruel (2019) mentioned that several hazards had been detected that made investments in equity crowdfunding less secure. According to Al Refai et al. (2021), there is a linkage between real estate and stock markets in Qatar, and many effects between several indicators of development of economy and real estate market were observed in the long term. According to Muldoon-Smith & Greenhalgh (2019), the aim of legislation in the energy sector according to their research was to reduce fossil fuel consumption. However, the authors mention that the impact of energy policy on global real estate assets could differ (Muldoon-Smith & Greenhalgh, 2019).

The issues of green and sustainable buildings are also of great significance. The results of the research by Dell'Anna & Bottero (2021) confirmed that a green premium (which is an aspect of sustainable construction/sustainable real estate

development) existed – the impact of Green Mark as a green building certification system in Singapore applied to real estate had a positive influence on the prices of apartments. For instance, the findings of Hao et al. (2019) revealed four strategies to effectively promote the economic performance of construction waste reduction. Ten methodological steps in the Strategic Environmental Analysis are as follows (Dalal-Clayton & Sadler, 1999):

- Steps 1–4: Society – environment context analysis and impact assessment;
- Steps 5–6: Environmental problem analysis;
- Steps 7–8: Environmental opportunity analysis;
- Steps 9–10: Formulation of a sustainable development policy plan with action fields and follow-up strategy.

For instance, technological aspects of construction are mentioned in the handbook “Design, Construction and Management of Wooden Public Buildings” (Tupenaite et al., 2020). One of the significant aspects could be revealed as the quality of life, for example, in a building. Several aspects of the quality of life were analysed previously (Kauskale & Geipele, 2015a). Also, the circular economy can affect not only the environment of a particular country, but also can have a positive impact across borders with a direct influence on the quality of life and living environment of many people that, in turn, can directly link economies (Zvirgzdins et al., 2018).

For instance, the activities and sequence of actions when managing changes for real estate transaction entities could be the following (Lapigin & Lapigin, 2009):

1. Analysis of external factors;
2. Analysis of the internal situation in a company;
3. Development of solution programs of changes;
4. Choice of the most appropriate solution;
5. Implementation of necessary activities;
6. Control of the implementation process of activities;
7. Analysis of the achieved results.

One of the definitions of real estate management is “...the business of managing land and buildings, including activities such as keeping buildings in good condition and organizing the renting of property” (Cambridge Dictionary, 2021a), and risk planning could be referred to as one of the tasks within management. Property management, in turn, implies “...control, oversight, and operation of real estate, personal property, equipment, or other assets belonging to another” (Legal Dictionary, 2021). According to Schulte & Schäfers (2000), real estate management includes the following components:

1. General aspects:

Strategy related aspects

- Portfolio management;
- Corporate real estate management;
- Public real estate management;

Function-specific aspects

- Real estate analysis;

- Real estate appraisal;
- Real estate investments;
- Real estate finance;
- Real estate marketing;

Phase-oriented aspects

- Project development;
- Construction project management;
- Facilities management;

2. Interdisciplinary aspects which include areas of economics, law, spatial planning, architecture and engineering;

3. Institutional aspects which include real estate developers, real estate investors, construction companies, real estate financial institutions, real estate service providers, real estate users and other aspects;

4. Typological aspects which include commercial, residential, industrial, special real estate aspects. Industrial real estate is often considered to be commercial real estate.

Different risks can be faced in the external environment. Risk can be defined as a qualitative or quantitative measure or quantification of the potential for harm, loss or negative change of a condition in a physical or procedural system that combines the likelihood and severity of an event or scenario with a negative effect on the health, environment or property due to a hazard or procedural failure (Michalopoulos et al., 2008).

According to Karim et al. (2012), risk categories with related factors can be classified as follows:

- Construction (land acquisition, shortage of equipment, shortage of material, late deliveries of material, poor quality of workmanship, site safety, insolvency of subcontractors, inadequate planning, weather, insolvency of suppliers);
- Politics and contract provision (change in law and regulation, delay in project approval and permit, inconsistency in government politics, excessive contract variation, poor supervision, bureaucracy, compliance with governmental laws and regulations);
- Finance (delay in payments, cash flow difficulties, lack of financial resources);
- Design (improper design, change of scope);
- Environment (pollution, ecological damage, compliance with laws and regulations related to environmental issues).

Some of the incidental risks associated with poor project management performance are as follows:

- Unclear or unattainable project objectives;
- Poor scoping;
- Poor estimation;
- Budget based on incomplete data;

- Contractual problems;
- Insurance problems;
- Delays;
- Quality concerns;
- Insufficient time for testing (European Commission, 2021a).

Additionally, Hines (2011) mentions business risk, financial risk, liquidity risk, inflation risk, management risk, interest rate risk, legislative risk, environmental risk. Peiser & Frei (2005) mention acquisition risks, entitlement risks, site risks, financial risks, construction risks, market full lease-up risks, operating risks, ongoing lease-up risks and ongoing operating risks. Systemic risk, selective risk, credit risk, regional risk, industry risk, enterprise risk and innovation risk can also be important (Lapigin & Lapigin, 2009). Wofford & Clauretje (1992) consider the following risks to be significant: financial, illiquidity, required equity capital, depreciation of values, real estate cycles, management burden, government controls, legal complexity and lack of information and education. All the mentioned aspects prove that there is a variety of risks that can be faced by the entrepreneurs operating within the construction industry and real estate market. At the same time, according to Schäfer & Conzen (2016), power fields of the real estate management can be found on different levels (object, portfolio and investment), and can include different areas and activities, and the research and reporting should be done at all levels. For instance, reporting can be performed by the manager responsible for an activity or task at the enterprise.

The conceptual framework of the theoretical aspects includes the main assumptions of sustainability and its dimensions, socio-economic and environmental aspects and criteria of sustainable development according to the Agenda 21, interconnection between regulations and related results, system of the analysis of sustainable construction and related environment, the model of interconnection of sustainable development of the real estate market, construction and macroeconomic development, entrepreneurial aspects, selected economic indicators, possible risks, other questions.

The possible process of the investigation of the economic aspects of the development of the real estate market and the influencing environment can include macroeconomic analysis (for example, indicators of GDP, GDP per capita, GDP per employed person, employment, inflation, other indicators), regional analysis (for example, development of regions and districts, analysis of urban/rural differences, GDP per region, transactions within regions and other indicators), analysis of real estate market (for example, real estate prices and their changes, changes in aggregate supply and aggregate demand for real estate, including land, number of purchase and rent agreements and other indicators) and analysis of the development of the construction industry (for example, registration of buildings in the land register, other indicators). The opportunities of the analysis of the real estate market and construction industry can include the analysis of macro environment, its external and internal risks and general tendencies, analysis of industry – analysis of real estate activities and tendencies within the construction

industry, and analysis of companies – financial analysis of companies and analysis of influencing external and internal factors.

2. MATERIALS AND METHODS

The methodological framework of the research is based on the materials and methods that are presented in this part. Methodological aspects of the assessment of sustainable development of real estate market include different parameters that were investigated previously (Kauskale, 2018; Kauskale & Geipele, 2019; Tupenaite et al., 2017).

The model of interconnection between regulations and factors influencing sustainable development and sustainable construction is presented in Fig. 1.

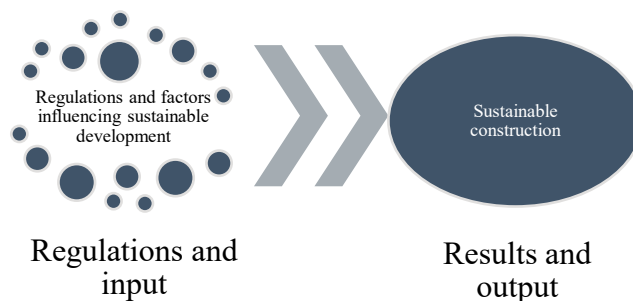


Fig. 1. The model of interconnection between regulations and factors influencing sustainable development and sustainable construction (developed by the authors).

Legal aspects are also closely related to planning. Planning of territorial development in general and planning of the development of the real estate market in particular can affect its sustainability. The system of the analysis of sustainable construction and the related environment at several levels is presented in Fig. 2.

Changes in the price level are of significance, as they can influence the profitability of entrepreneurs. Both tendencies and changes related to aggregate supply and aggregate demand for real estate units and the factors that are influencing the prices of real estate, as well as other factors are important for the analysis of sustainable development of the real estate market. From the perspective of aggregate supply and market value of real estate, the utility and scarcity are important (Appraisal Institute, 2008); and from the perspective of aggregate demand – desire and effective purchasing power are significant (Appraisal Institute, 2008). The House Price Index (HPI) is particularly important for this research as it measures price changes in the residential property market. The HPI “captures price changes of all kinds of residential properties purchased by households (flats, detached houses, terraced houses, etc.), both new and existing; only market prices are considered, self-build dwellings are therefore excluded; however, the land component of the residential property is included in index...” (European Commission, 2021b). Prices of real estate can be influenced by the demand for real estate from local and foreign buyers (local and foreign demand for real estate), but

in the research, especially in the practical part of it, such effects are investigated together.

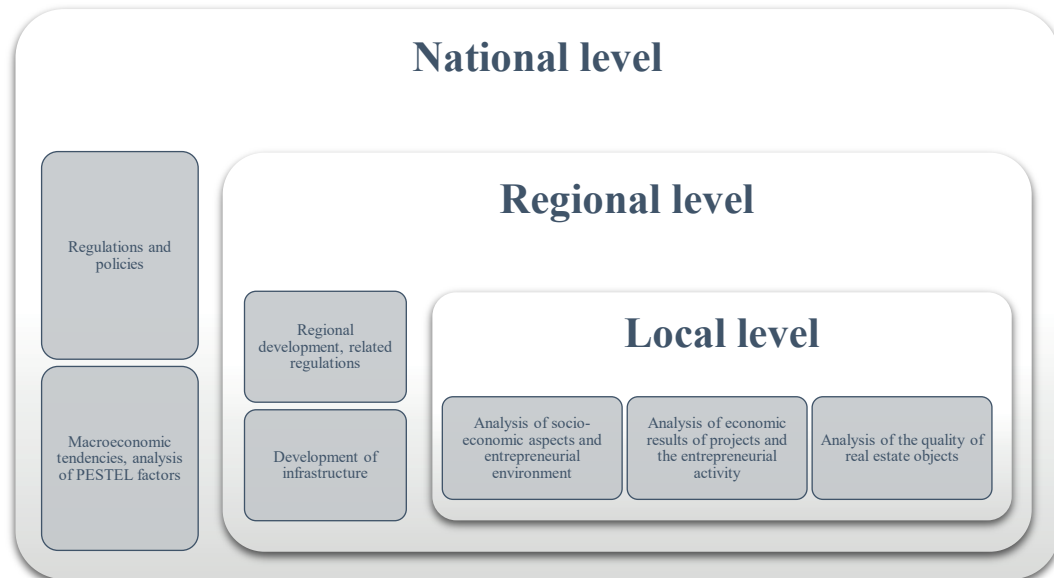


Fig. 2. The system of the analysis of the sustainable construction and the related environment (Source: developed by the authors based on (Kauskale, 2018)). Note: PESTEL – political, economic, social, technological, environmental, legal.

The concept of sustainable development of real estate market includes generalized criteria, indicators, definitions, models and influencing factors of sustainable development of real estate market (Kauskale, 2018). For example, the detailed direct-indirect action environment model includes competitors, customers, suppliers, stakeholders; social, economic, technological, political factors and international dimension (Kask, 2010).

Buildings are necessary for any entrepreneurship, and their quality affects numerous aspects. The use of ecological engineering approaches and application of improved environmental policies may mitigate some past impacts, and could potentially create new development projects with higher ecological benefits (Kaveckis, 2017). According to Kaveckis (2017), although different “green city” initiatives exist, the big number of them uses complex indices and could have a subjective judgment.

Aspects related to green buildings were investigated previously (Kauskale, 2018).

Sustainable use of resources becomes more important (Bran et al., 2021). To achieve good construction results also in the environmental sphere, quality monitoring is significant. Quality monitoring ensures that processes and systems are developed so that the deliverables are of superior or at least acceptable quality (Kubba, 2010a). According to Kubba (2010a), the term “green building” is relatively new and a precise definition can hardly be captured (Kubba, 2010a); green building strategies are mainly related to land use, building design, construction, and operation and in aggregate can help minimize or mitigate the

impact of the building on the environment (Kubba, 2010b). There are many options regarding green or sustainable buildings. Also, one of the tendencies in public buildings is the usage of timber (Kauskale & Geipele, 2015a). Currently, the main advantages of wood are the impact of use of wooden building elements on reducing climate change and sustainability. Traditional wooden building systems continue their existence today and they are being improved using new technologies (Viļuma, 2020). Also, prefabricated wooden buildings are part of contemporary architecture, and architecturally complex buildings that are up to eighteen-storey high can be built from wooden structures (Viļuma, 2020). The model of interconnection of sustainable development of the real estate market, construction and macroeconomic development is presented in Fig. 3.

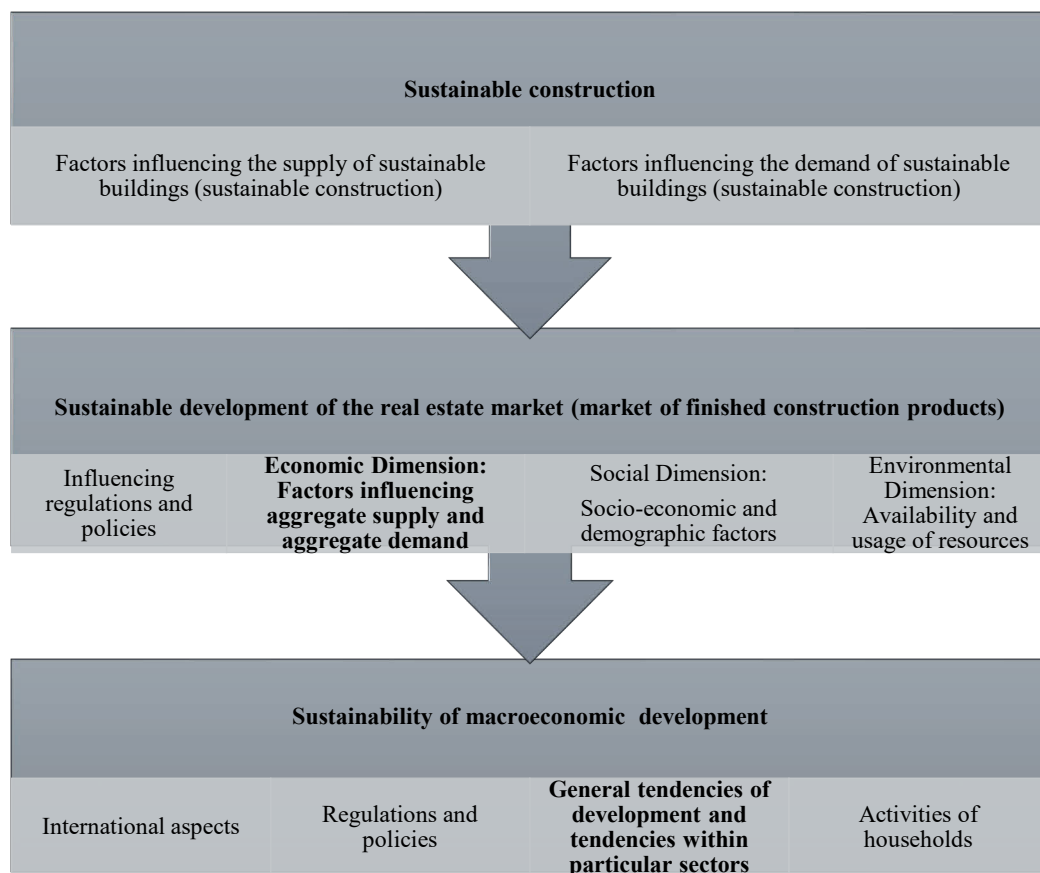


Fig. 3. The model of interconnection of sustainable development of the real estate market, construction and macroeconomic development (developed by the authors, based on (Kauskale, 2018)).

Fig. 3 shows the interconnection and role of sustainable development of the real estate market, construction and macroeconomics. In case there is a lack of sustainability at least at one level, it could influence the sustainability at other levels.

The conceptual framework of the practical research includes the following economic indicators:

- Macroeconomic indicators and their projections (from 2019 to 2023);
- House price index in the Baltic States (2010–2020);
- House price index in Latvia (2015Q1–2021Q3);
- Financial result after taxes for non-financial merchants (sectors: construction of buildings (F41), civil engineering (F42), specialized construction activities (F43) and real estate activities (L68)) in the particular sectors related to the research question by economic activity from 2010 to 2020, and from 2021Q1 to 2021Q3 (profit or loss);
- The number of building permits granted and expected space in the statistical regions and cities under state jurisdiction by quarter; two- and more dwelling building (2020Q4–2021Q3);
- Housing stock in statistical regions at the end of 2019 in Latvia – total area, and total area per permanent resident;
- The number of purchase agreements in Riga and Riga region (2015–2021).

The methodological framework describes the possible structure of the analysis in the complex manner and includes the real estate market influencing factors. The literature review, comparative, historical, statistical analysis, observation and logical access methods have been used in the research. Construction industry in Latvia consists of construction of buildings, civil engineering and specialized construction activities; real estate activities have a classification “L68”, construction – “F43” (Ltd. Lursoft IT, 2022). Additionally, indicators of financial analysis of the merchants also include the liquidity, profitability, and share of liabilities in the balance sheet (Central Statistical Bureau of Latvia, 2022). Liquidity is the fact of being available in the form of money, rather than investments or property, or of being able to be changed into money easily (Cambridge University Press, 2021). Both construction sector and sector of real estate activities are included in the methodological framework of the current research. The main emphasis in the research is made on the sustainable development of the real estate market, with particular attention in the practical part to its economic dimension, i.e. to the several factors influencing aggregate supply and aggregate demand of real estate units, which can be influenced by different regulations (see Figs. 1 and 2). Rent market can be a separate area of the research; however, a large number of objects can also be rented or leased out, so the conducted research indirectly is also related to this area.

In this part, more detailed analysis with more possible areas of analysis was presented. The practical part of the research analyses the development of the real estate market and construction sector in Latvia. The practical part of the research has mostly economic focus. General macroeconomic tendencies, regional development in relation to real estate, analysis of economic aspects within the industry were chosen for the practical analysis. Modifications in case of application of the proposed theoretical basis and, thus, of the approach according to a situation or a particular case are possible and can be necessary. In traditional or command economies, principles of the free-market economy can remain as a secondary factor, or can have just minimal influence or no influence at all. The methodological framework can differ by countries, depending on approaches to the economic regulations. For instance, according to the previous research (Vanags, 2010),

PESTEL factors can also be weighted and assessed, and the weight of the main factors can internationally differ. Publicly available information from the European Statistical Database Eurostat, Central Statistical Bureau of Latvia and the State Unified Computerized Land Register on the dates of completion of the research was used in the research. Practical analysis covers the data from 2010 and the latest periods.

3. RESULTS

National economy is “the economy of a nation”, or specifically: “the economy of a nation as a whole that is an economic unit and is usually held to have a unique existence greater than the sum of the individual units within it” (Merriam-Webster Dictionary, 2021). Analysis of the macroeconomic indicators can include the analysis of the following indicators: GDP, consumer price index, GNP (gross national product), employment rate, inflation, as well as indicators related to the international trade and other. Several projections revised in March 2022 for the development of Latvia’s Stability Program 2022–2025 are shown in Table 2.

Table 2. Projections Revised in March 2022 for the Development of Latvia’s Stability Program 2022–2025, data on the selected indicators (The Ministry of Finance of the Republic of Latvia, 2022)

Parameter / Year	2021	2022	2023	2024	2025
	Forecasts				
- GDP at constant prices (euro, mln, and growth, %)	27 904	2.1	2.5	3.3	3.4
-Consumer price index (year over year, %)	3.3	8.5	3.5	2.5	2.0
-Average monthly gross wage (euro and growth at current prices, %)	1277	6.0	5.7	5.3	5.0
-Employment (thsd, and growth rate, %)	864	1.3	0.4	0.0	0.0

According to Table 2, GDP at constant prices and the consumer price index are expected to grow. An increase in population, federal government expenditure, import rate, and export rate can lead to an increase in GDP, while the foreign direct investment, exchange rate and oil revenue can reduce GDP (Agu et al., 2022). The increase in macroeconomic indicators can positively affect the development of the real estate market until the housing is affordable. In 2022, the growth rates of import and export at constant prices in Latvia are forecasted to be negative (The Ministry of Finance of the Republic of Latvia, 2022), but, for instance, in 2024–2025 the forecasts show good growing tendencies. Change in the price level is one of the most important indicators for entrepreneurs and buyers of real estate. Change in the house price index 2010–2020 in Estonia, Latvia and Lithuania is shown in Fig. 4.

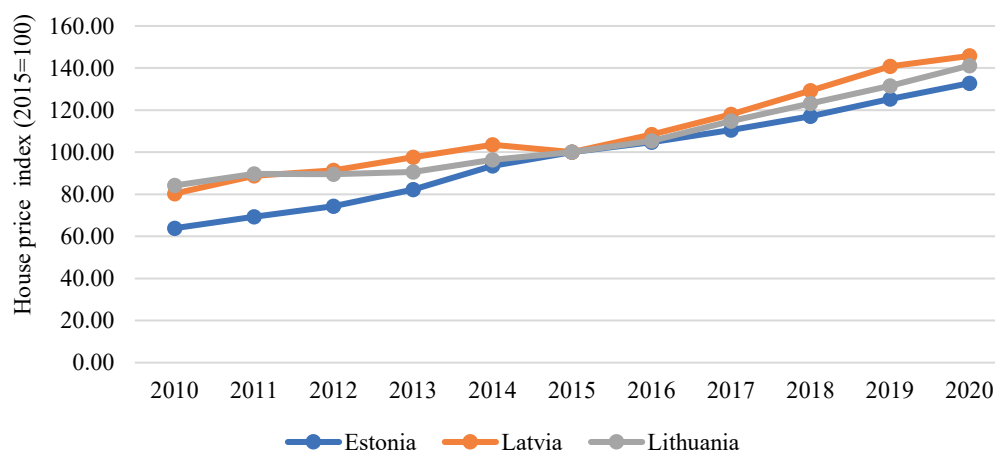


Fig. 4. House price index – annual data for 2010–2020 – annual average index–total, in Estonia, Latvia and Lithuania (2015 = 100) (developed by the authors based on European Statistics Database Eurostat).

According to Fig. 4, the house price index and house prices have also started to increase since 2010. Fig. 5 shows the house price index in Latvia in the period of 2015Q1–2021Q3.

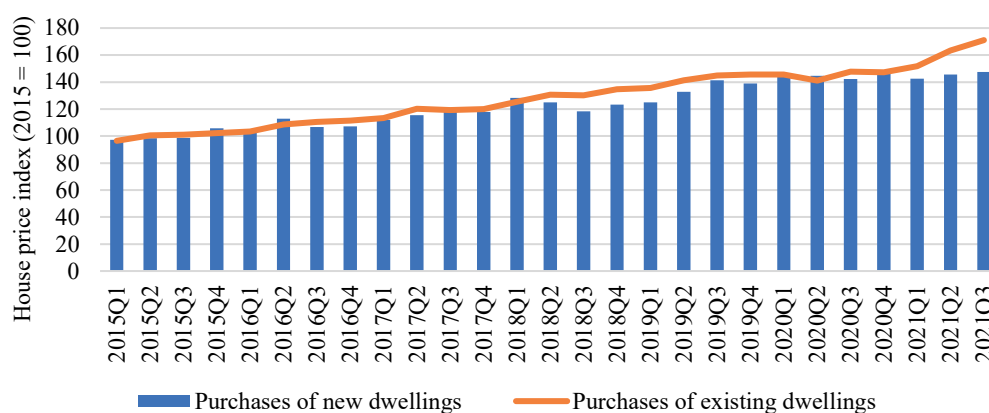


Fig. 5. House price index in the period of 2015Q1–2021Q3 in Latvia (2015 = 100), quarterly index (developed by the authors based on European Statistics Database Eurostat).

According to Fig. 5, the house price index (2015=100) for existing dwellings in 2021Q3 was higher than for new dwellings by 23.55 points. The real estate prices were growing in the research period. In 2021Q1–2021Q3 the house price index for new dwellings grew more than for the existing dwellings. According to Deloitte Touche Tohmatsu Limited (2022), as the effects of COVID-19 are felt around the world, real estate companies were impacted in different ways that largely depended on region and asset class.

For instance, the statistical indicators of the Latvian real estate market according to the Real Estate Appraisal Department of the State Land Service are

made of apartment transaction prices, transaction prices of individual residential houses, individual building land transaction prices, commercial land transaction prices, land transaction prices for construction companies, agricultural land transaction prices, forest land transaction prices, distribution of transactions according to the purpose of use of the real estate of the transaction object and distribution of transactions by the object of transaction and other indicators. At the same time, other risk that can be faced in the market is the real estate market overheating. Possible causes of a housing “bubble” can be the following (Emmons, 2019):

- Rapid growth of mortgage lending;
- Expectations of rapid house price gains;
- Rising construction costs.

On the one hand, rising construction costs can make the real estate units less affordable, but if these three parameters rapidly grow together at the same time, the risk of housing “bubble” can be very high. Financial results after taxes of non-financial merchants by economic activity (NACE Rev.2) in Latvia are shown in Fig. 6.

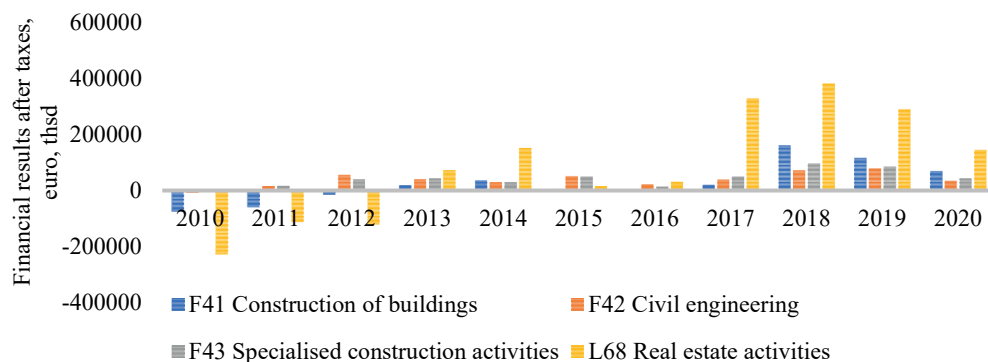


Fig. 6. Financial results after taxes of non-financial merchants by economic activity (NACE Rev.2) from 2010 to 2020 (profit or losses, euro, thsd) (developed by the authors based on European Statistics Database Eurostat).

The level of profit in real estate activities had a significant rise in the period of 2017–2020 in comparison with the period of 2010–2016. The sharply negative results in profit in the sector of real estate activities in numeric values were observed in 2010. Financial results after taxes of non-financial merchants by economic activity (NACE Rev.2) from 2021Q1 to 2021Q3 in Latvia are shown in Fig. 7.

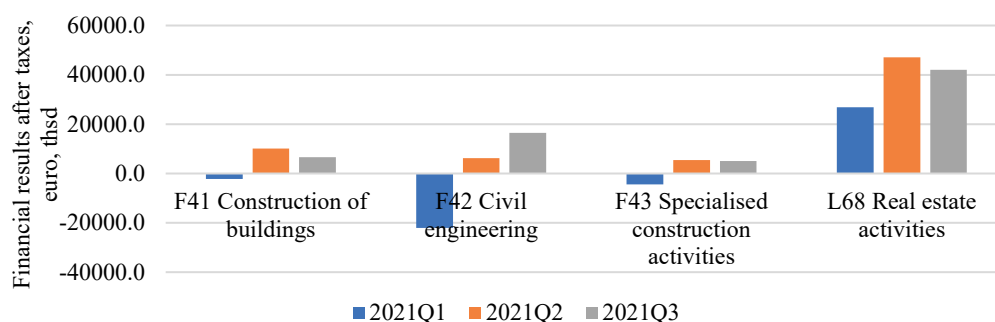


Fig. 7. Financial results after taxes of non-financial merchants by economic activity (NACE Rev.2) and time period from 2021Q1 to 2021Q3 in Latvia (profit or losses, euro, thsd) (developed by the authors based on European Statistics Database Eurostat).

In Fig. 7, negative indicators in civil engineering and some other activities are observed in the 2021Q1, which is specific for the industry. However, indicators are positive in general; the best financial results in terms of profit in the period of 2021Q1–2021Q3 were observed in the sector of real estate activities.

There was a small decrease in the level of the achieved profit in 2021Q3 in comparison with 2021Q2. Civil engineering activities had negative profit indicators in the first quarter of 2020 and 2021 (Central Statistical Bureau of Latvia, 2021). The budget balance of companies and households should be positive in general in the longer term, financial risks should be minimized. “Balance” (noun) is a physical equilibrium (Def.1a) (Merriam-Webster Dictionary, 2021); and a situation in which different elements are equal or in the correct proportions (Def.1) (Oxford Advanced Learner’s Dictionary, 2021). “Balance” (verb) means to arrange a system that relates to money so that the amount of money spent is not more than the amount received (Def.B2) (Cambridge Dictionary, 2021b). To achieve balanced development, regulations related to regional development should also be planned in advance and according to the situation. The number of building permits granted in statistical regions and cities under state jurisdiction by quarter for two- and more dwelling buildings in Latvia is shown in Fig. 8.

According to Fig. 8, the number of building permits granted for two- and more dwelling buildings in the period of 2020Q4–2021Q3 was high in Riga and Pierīga regions, followed by Kurzeme, Zemgale, Vidzeme and Latgale regions, where number of building permits granted was considerably lower. The historical data on the expected floor space in statistical regions and cities under state jurisdiction by quarter for two- and more dwelling buildings in Latvia are shown in Fig. 9.

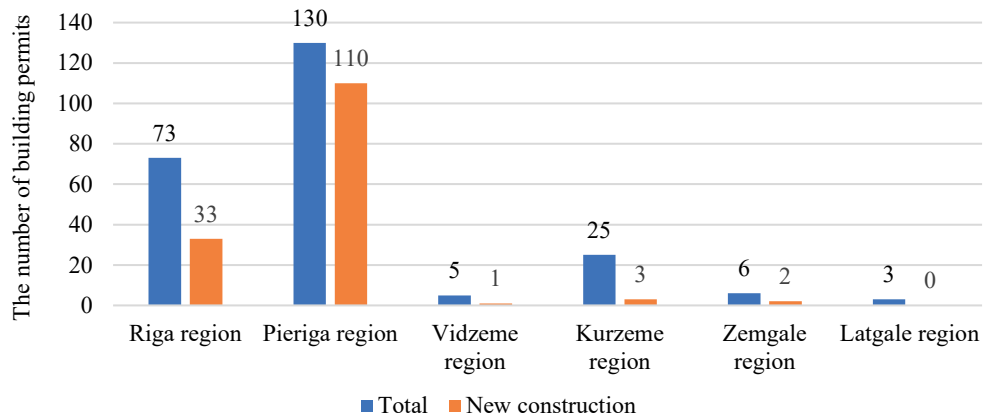


Fig. 8. The number of building permits granted in statistical regions and cities under state jurisdiction by quarter; two- and more dwelling buildings in the period of 2020Q4–2021Q3 (developed by the authors based on European Statistics Database Eurostat).

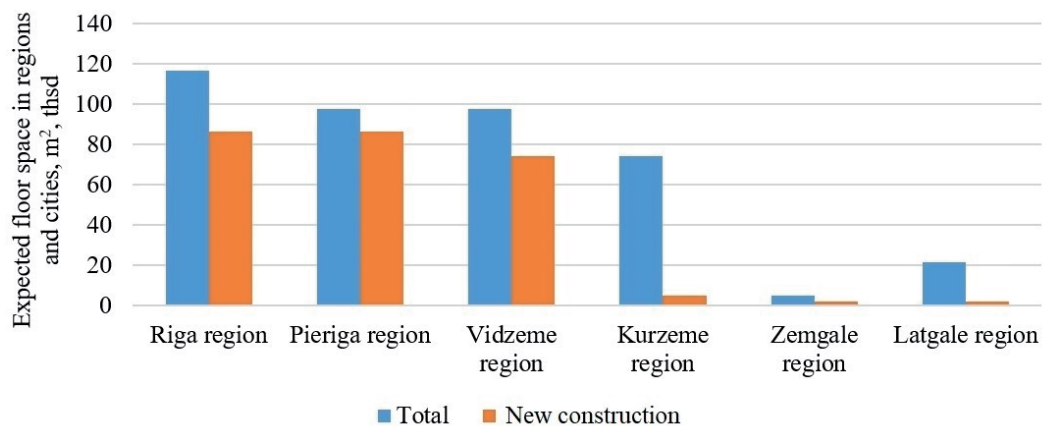


Fig. 9. Expected floor space in statistical regions and cities under state jurisdiction by quarter; two and more dwelling buildings in the period of 2020Q4–2021Q3, m², thsd (developed by the authors based on European Statistics Database Eurostat).

According to Fig. 9, the expected floor space in the period of 2020Q4–2021Q3 had the highest indicators in Riga, Pieriga, Vidzeme, and Kurzeme regions; the expected indicators in the period of 2020Q4–2021Q3 in Latgale and Zemgale regions had lower values in comparison with Riga, Pieriga, Vidzeme and Kurzeme regions, as the most active development of building construction was in the regions of Riga and Pieriga. Figures 8 and 9 show that Riga and Pieriga regions are expected to grow, which highlights the continuation of the process of urbanization, and this is an important aspect of territorial development. For instance, in emerging economies foreign direct investments have been recognised as a major influencing factor of urban development (Kim, 2020).

Planning and regulations have the importance for the development of construction industry. In 1983, the concept of spatial planning was defined as

follows: “Regional/spatial planning gives geographical expression to the economic, social, cultural and ecological policies of society” (Council of Europe, 1983), which is one of the important statements. For example, the German multi-level system of spatially relevant policies includes elements of spatial planning, regional policy, agricultural policy, environmental policy and transport policy (European Spatial Development Concept), federal (framework legislation and principles), state (for land issues, state development plan and programs), region (regional planning) and municipality (municipal development planning, land-use planning) levels (Blotevogel et al., 2014), which highlights the importance and interconnection between planning and other related fields and sectors. For instance, transport infrastructure, accessibility, and spillover effects on the Portuguese real estate market from 2000 to 2018 were analysed by Januário et al. (2021). Although the results yielded by the cross-regression model were not consistent across all twenty-three regions, they were showing both positive and negative effects of investments in road infrastructure on real estate values. Housing stock in statistical regions at the end of 2019 in Latvia is shown in Fig. 10.

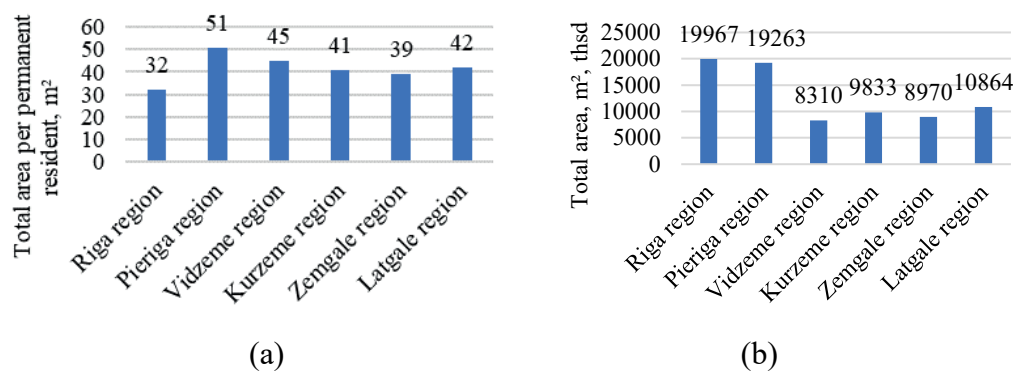


Fig. 10. Housing stock in statistical regions at the end of 2019, Latvia: a) Total area per permanent resident, m²; b) Total area, m², thsd (developed by the authors based on European Statistics Database Eurostat, 2022).

Housing stock in statistical regions as a total area per permanent resident (Fig. 10b) can also be considered a social characteristic. The highest indicators in the total area per permanent resident at the end of 2019 were observed in Riga region.

According to Kucharska-Stasiak (2004), the specific characteristics of the real estate market are derived from the property characteristics and can include *inter alia*:

- The local characteristics of property;
- Non-homogeneity of real estate market;
- Rareness of conclusions of transactions;
- Property value as it is vulnerable to changes occurring in the external surrounding environment;
- Speculative behaviours and other factors.

The number of purchase agreements (rareness of conclusion of transactions) in Riga (Riga City Vidzeme Suburb Court) and Riga District (Riga District Court) from 2015 to 2021 is shown in Fig. 11.

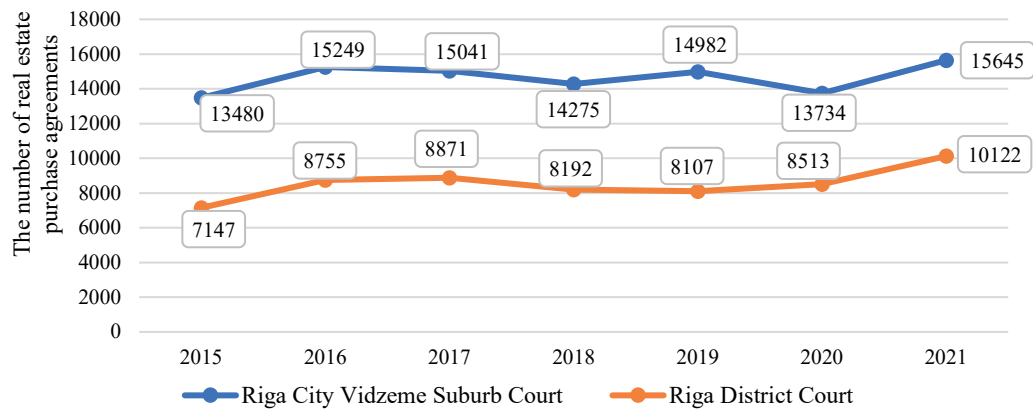


Fig. 11. The number of purchase agreements in Riga (Riga City Vidzeme Suburb Court) and Riga District (Riga District Court) from 2015 to 2021 (developed by the authors based on the State Unified Computerized Land Register). Note: Riga District = Pieriga.

According to Fig. 11, the real estate market continues its development, and it can positively affect the construction of buildings and demand for real estate.

As of 27 July 2022, there were 15 LEED (“Leadership in Energy and Environmental Design” building certification program; GBIG) buildings: three platinum certified, one platinum recertification, two gold certified, nine registered LEED buildings in Latvia; nine of them were registered or certified in 2019–2022, others – in 2016, as well as there were 47 BREEAM (“Building Research Establishment Environmental Assessment Method” building certification program) building certifications in Latvia (GBIG). At the same time, the number of total certified green buildings in Latvia rose from 9 in 2018 (Kauskale, 2018) to 62 in 2022 (GBIG). On 11 June 2018, there were seven BREEAM and two LEED certified buildings in Latvia (Kauskale, 2018).

In November 2013, the roof of one store collapsed in one micro-district of Riga (LSM.lv, 2022). The Construction Law was updated in Latvia in 2014, by introducing amendments to it (Construction Law, 2013). Previously, the main problems of the development of sustainable and green buildings in Latvia were the lack of information and financial resources (Kauskale, 2018). Total construction costs (that included remuneration of workers, maintenance and operational costs of machinery and equipment, and building materials) in the first half of 2021 in Latvia were growing (Central Statistical Bureau of Latvia, 2021), i.e., currently real estate developers could also face some financial challenges in this context. Sustainable Construction Council operates in Latvia. Also, there is a nomination of the most sustainable building in Latvia.

4. DISCUSSION

The following regulations can also be important for the development of the economy and its sectors from economic and environmental points of view – Latvia 2030 – Sustainable Development Strategy of Latvia (Cross-Sectoral Coordination Centre), National Development Plan of Latvia for 2021–2027 (Cross-Sectoral Coordination Centre, 2022a), Guidelines on National Industrial Policy (Ministry of Economics of the Republic of Latvia, 2022a), Latvia's National Energy and Climate Plan for 2021–2030 (Ministry of Economics of the Republic of Latvia, 2022b), the procedural order of construction governed by Cabinet Regulation No. 500 of 19 August 2014 “General Construction Regulations” (Ministry of Economics of the Republic of Latvia, 2022c).

Nowadays all aspects of sustainability of buildings, including economic aspects, are important. Sustainable development is inconceivable without a healthy real estate market (Tupenaite et al., 2017). At the same time, a housing project can be referred to as sustainable only when all the dimensions of sustainability (environmental, economic, and social) are included, and appropriate solutions in the project were found and implemented (Tupenaite et al., 2017).

Economic aspects, such as changes in real estate market prices and other aspects can influence the development of the real estate market and may affect market participants. Contemporary problems of real estate management can also affect the economic performance of the companies. According to the recent research (Tupenaite et al., 2021), the most significant indicator in the economic and technological dimension in real estate development was the cost of the project, followed by the duration of the project and the length of the installation of the structure; in the social dimension the most important was the fire resistance of the building, followed by the indoor microclimate, comfort, the location of the building, its accessibility (Tupenaite et al., 2021). The processes and costs occurring in the building upon completion of the building are also important as it is the longest period in the life cycle of building.

Regarding the ecological or environmental aspects, results of the previous research (Kauskale, 2018) have demonstrated both the advantages and the need for the green building construction activities. At the same time, they have shown difficulties that are related to these activities, as the large amount of information, knowledge, practical experience and financial resources are required at the beginning of the construction project. Regarding ecological dimension, the utilization of wooden waste materials has been recently analysed in the form of wood powders and wood fibres in cement mortars to re-generate the waste wood into value added construction materials (Ince et al., 2021), which also, for example, could contribute to the sustainable development through recycling of natural resources.

Regulations in general, as well as regulations regarding ecological (environmental) dimension, planning issues in different locations and areas can differ. For instance, a formal neighbourhood planning process is often focused at three planning levels (national, regional and local) (Kalinka et al., 2020). Also, tourism and other human activities can be dependent on coastal ecosystem services,

and can act at the technical and policy level in order to reach a compromise, which preserves natural resources in the long term (Drius et al., 2019). Growth of coastal economies can have an impact on a large number of industries, including food, tourism, healthcare, higher education and science sectors, and numerous examples have also shown the significance of cooperation among different sectors (Pudzis et al., 2019). The example of India demonstrates that the historical and institutional factors were significant in the development of informal settlements which, for example, according to the research, in Mumbai, resulted in high cost of living (Ren, 2012). Cost of living can include rent prices as well as other parameters (The Mayve Group, 2022). Investments in real estate market and construction industry can be one of the solutions for solving regional development problems (Kauskale & Geipele, 2014).

For example, according to the research “Institutional Quality and Human Capital Development in Africa” by Ouedraogo et al. (2022), from the political and legal points of view, government effectiveness, control of corruption and political stability were identified as one of the most important dimensions. According to Junttila & Vataja (2018), the inclusion of the uncertainty of the economic policy can help predict future real economic activity, and this can be relevant during normal times (rather than during the periods of crisis). For instance, based on transaction data, the regression discontinuity design was used to evaluate the housing purchase restriction policy in Langfang (Li et al., 2020). According to the research by Akbari & Krystyniak (2021), the government’s interventions in the real estate market spilled over to the stock market and mutual funds. The evidence of Poland regarding disequilibrium in the real estate market was analysed by Brzezicka et al. (2018), and the authors highlighted that it was important to think about this possible challenge in advance. For instance, for a detailed analysis of the market, such real estate market indicators as house price index for new and existing dwellings, number of real estate purchase agreements, number of registered buildings in the Land Register, number of registered rent activities, number of enhanced mortgages, non-financial investments in construction and real estate, number of commercial companies within the industry, deposit and credit rates in credit institutions, economic profitability in construction and real estate operations, gross rental yields and other indicators were analysed previously (Kauskale & Geipele, 2016) and these indicators could be of great significance for the entrepreneurship related to real estate.

CONCLUSIONS

Theoretical and practical aspects of sustainable development of real estate market and construction industry in Latvia and their influencing factors have been analysed in the research. The main influencing factors are the changes in real estate supply and demand which, in turn, can be influenced by a variety of factors. Changes in aggregate supply and aggregate demand of the real estate market can result in changes in real estate prices, and regulations influencing construction industry and real estate market could be of high importance in setting the direction of development of the construction industry towards sustainability. Both internal

and external factors can affect the aspects and dimensions of sustainable construction and development of the real estate market in general. Sustainable development of real estate market and construction industry can provide positive results for these sectors in economic and other dimensions.

The real estate market in Latvia has growing tendencies, and financial results of entrepreneurs in real estate activities and construction industry showed positive trends in the period of 2013–2021. At the same time, there is a relatively large difference in the development of the real estate market and construction industry among regions of Latvia. The certification of buildings in Latvia continues and shows growing tendencies; aspects of sustainability and quality of buildings are topical.

The research results can be used in the identification and promotion of sustainability mostly through economic form in mixed market economies, by using the analysis of the economic parameters and the economic results as the final result of processes in the real estate market. The methodological aspects can help explore the issue through economic, social, environmental and other dimensions. The future research direction can be related to a more detailed analysis of the development of real estate market and construction industry and to a more detailed analysis of the regulations affecting sustainable development and environmentally-friendly buildings in Latvia.

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