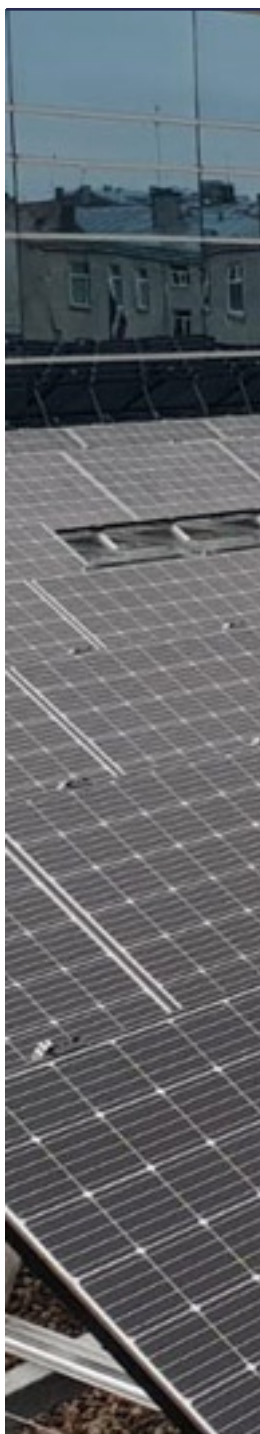


OĻEGS
KRASNOPJOROVS

**READY FOR THE NEXT 820?
LOOKING FOR THE KEYS TO PARADISE OF RIGA CITY**

DISCUSSION PAPER

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Ready for the next 820?

Looking for the keys to paradise of Riga city

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December 4, 2022

Abstract

Improving urban quality of life is now increasingly at the top of the political agenda of modern cities. However, right policy treatment requires a thorough analysis and correct diagnosis. This paper is designed as such a diagnostic tool in the hands of urban policy makers aimed to drive the urban structural reform agenda in Riga – the regional centre of the Baltics. We provide a systematic assessment of the quality of life in Riga city both over time and in the contexts of Latvia, the Baltics and Europe, as well as link it with a comparative economic development, demographic trends, the availability of housing and dynamics of local tax revenue receipts. We find that although the quality of life in Riga tends to improve over time, in many areas progress appears to be slower than in the neighbouring capital cities - Vilnius and Tallinn. While Riga performs rather well in terms of economic growth and environmental quality compared to other European cities, we identify a large room for improvement in the areas of social trust, the quality of urban governance and how pleasant a city is to live. By running the principal component analysis on the most recent wave of Eurobarometer survey and applying the data envelopment analysis to build the European urban quality of life frontier, we conclude that Riga has a great potential to improve the urban quality of life even with its current population size and the GDP per capita level. The paper highlights how the quality of life, economic prosperity, the availability of housing, size of city budget and population growth are all closely linked in an urban context, making all these variables mutually dependent.

Keywords: urban quality of life, urban life satisfaction, safety, trust, environment, transport, infrastructure, governance, population growth, housing, municipal budget, economic growth.

JEL codes: O18, R11, R23, R5.

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1 Introduction

Riga, the capital of Latvia, is the oldest city among the three Baltic capital cities, which recently turned 820. It has historically been the metropolis of the Baltics in terms of both economic activity and population. Occupying only 0.4% of Latvia's land area, it is the most populous city within a radius of 400 kilometres. Together with Pierīga (region around Riga), it accounts for more than half of Latvia's population and employment, producing two-thirds of Latvia's gross domestic product (GDP). Riga region is an engine of Latvian economic development, which is particularly reflected in higher income and wage levels, faster economic growth and a lower unemployment rate. Being a strong magnet for people willing to find a high-paid job or pursue higher education, Riga region has also been an important destination of internal migration (including circular migration).

How successful has the socio-economic development of Riga region (i.e. Riga and Pierīga) been since the beginning of the century? What makes Riga different from Tallinn, Vilnius and other European cities of similar size in terms of income, safety, environment, health, infrastructure and urban governance? Residents of which city are happier trust to each other more? Do Riga residents enjoy the highest possible quality of life in the region, is the city rapidly chasing the peers or, on the contrary, are there any indicators showing that Riga has gradually “gone off the track”?

To paraphrase Nobel Prize winning economist Robert Lucas ([Lucas, 1988](#)): “What makes people in some other cities richer and happier than in Riga, and can Riga catch up with the region peers? If yes, what exactly needs to be done? If not, due to which inherited characteristics of Riga is it not possible?” Given the share of Riga in the Latvian economy, the significance of these questions cannot be overstated. Strong socio-economic development of Riga is a precondition for ensuring further convergence of living standards in Latvia towards the European Union (EU) peers. On the contrary, if Riga is gradually going off the track, given the size of Riga in the Latvian economy, it would make Latvia lag behind its EU neighbours.

It might seem that the answer to Robert Lucas's fundamental questions is simple: “investment, education, technology”. However, this neoclassical growth formula only decomposes the economic growth process into three components; it does not point to the fundamental factors of urban development. Fundamental drivers of economic growth are those that enable some cities to invest in education, infrastructure and technology. Furthermore, economic growth is just one element of the urban development, with the latter being a much broader concept reflecting urban quality of life.

Urban quality of life studies differ substantially in their thematical scope and geographical dimension. Some studies focus on the quality of life in a particular city. For instance, [Senlier et al. \(2009\)](#) compare the life satisfaction in Kocaeli – one of the most important industrial cities of Turkey – with ten other European cities of similar size. Other studies focus on comparing the quality of life between cities or municipalities within national boundaries. For instance, [Goerlich and Reig \(2021\)](#) rank 73 Spanish cities, while [Loschiavo \(2021\)](#) studies the quality of life in 452 Italian cities. Many studies rely on the international dimension. For instance, [Weziak-Białowolska \(2016\)](#) studies factors related to quality of life satisfaction in 79 European cities. Some studies focus on a particular dimension of the quality of life. For instance, [Giannico et al. \(2021\)](#) study the relation between the prevalence of green spaces collected via satellite data and the quality of life in 51 European cities. [Brani and Linhartová \(2012\)](#) study exposure to air pollution in 39 Czech cities, while [Mariotti et al. \(2021\)](#) study public transport perceptions of old people in two Italian cities – Milan and Genoa.

Big cities usually display a better economic performance and their citizens enjoy superior general living conditions ([Goerlich and Reig, 2021](#)). Particularly, big cities offer better jobs as well as a higher income and wider consumption opportunities ([Loschiavo, 2021](#)). Big cities provide major economic benefits such as labour specialization, agglomeration economies, economies of scale, invention and creativity ([Okulicz-Kozaryn and Valente, 2019](#)). Capital cities are powerful motors for competitiveness, employment and innovation, forming a base of the nation’s image abroad, its cultural identity and attractiveness ([Piper, 2015](#)). Indeed, culture is a constitutive part of local identity and life quality ([Montalto et al., 2019](#)), while most of Europe’s cultural heritage is found in cities ([Van Puyenbroeck et al., 2021](#)).

However, better quality of life in big cities should not be taken for granted. A place with the highest income or consumption does not necessarily has the highest livability and subjective well-being ([Okulicz-Kozaryn and Valente, 2019](#)). People’s tendency to move to places with a higher quality of life leads to larger populations in more desirable places, which can reduce the quality of life ([Moeinaddini et al., 2020](#)). While some net increasing returns clearly exist up to a certain city size, negative externalities may dominate beyond that size ([Camagni et al., 2013](#)). Population growth and density are often associated with negative externalities such as pollution, poverty and social exclusion ([Keshavarzi et al., 2021](#)). Residents of big cities usually experience higher living costs, congestion, longer commute times, work pressure, more competitive environment and more stress, which might lead to a lower willingness among people to cooperate and support each other. This may even result in a negative relationship between

the city size and happiness ([Loschiavo, 2021](#)).

In Europe, there is a negative association between living in a capital city and happiness, even taking into account observable control variables ([Piper, 2015](#)). That is why authentic and unique environments, healthy lifestyles and other non-economic dimensions of everyday life (such as community engagement, a culture of collaboration and participation as well as social proximity) are among the advantages attracting highly skilled and creative people to small communities rather than to the large urban centres ([Selada et al., 2013](#)). Smaller European cities score higher in both objective and subjective well-being. Furthermore, cities in which subjective life satisfaction exceeds the objective livability are all relatively small cities like Stockholm, Glasgow and Belfast, while cities where people are less satisfied than might be expected are all big cities like Brussels, Paris and Lisbon ([Okulicz-Kozaryn and Valente, 2019](#)). On a global scale, while huge city agglomerations (such as New York, London or Tokyo) are leading the rankings made to establish the peculiarities of cities' economic development, cities with smaller population and territory (such as Vienna, Melbourne or Zurich) often lead according to the population's life comfort and the state of the environment, reflecting a more convenient life rhythm of people, better organization of urban space and less pollution ([Niemets et al., 2021](#)). Indeed, the higher the income level, the less wealth matters for well-being. While quality of life satisfaction often rises with income (at least until a certain level), income and well-being are “two very different concepts” ([Goerlich and Reig, 2021](#)).

There is no universal definition of what is the urban quality of life, given its multidimensional and interdisciplinary nature. In the literature, urban quality of life is closely linked to the terms “sustainable city”, “smart city” or “urban development”, but none of them have universal definition either. While incorporating both objective and subjective well-being measures, urban quality of life could be generally defined as a combination of people's experiences within the space they live in with their perceptions and feelings ([Senlier et al., 2009](#)).

Being very much connected to the perceptions, feelings, and subjective values of people, standard quality of life indicators usually include wealth and employment, housing and environment, physical and mental health, education and recreation, crime and safety, as well as social belonging ([Nevado-Peña et al., 2019](#)). [Moeinaddini et al. \(2020\)](#) argue that five most important factors of urban life satisfaction across European cities are feeling safe in the city, satisfaction with health care services, satisfaction with the state of streets and buildings in the neighborhood, satisfaction with public transport in the city and the availability of retail shops. [Mouratidis \(2020\)](#) argues that, in general, urban environment can affect subjective well-being

through housing satisfaction, neighborhood satisfaction and commute satisfaction. [Camagni et al. \(2013\)](#) show that city amenities are among the key factors that determine a city-specific “optimal” city size achieved when marginal location costs equal marginal location benefits. [Hybel and Mulalic \(2022\)](#) show how in a general equilibrium model setup the quality of life index measures household willingness to pay for local amenities. [Okulicz-Kozaryn and Valente \(2019\)](#) find a strong correlation between objective livability and subjective life satisfaction across European cities. Generally, objective livability rises from the East to the West, while subjective life satisfaction rises from the South to the North. Particularly, the northwestern part of Europe or, more specifically Germany, the Netherlands, the UK and Scandinavia, constitute a large cluster of cities with high levels of happiness. [Weziak-Białowolska \(2016\)](#) reports that satisfaction with the quality of life in European cities is closely related to personal characteristics such as age, health, gender, the educational level, the length of residence in a city, as well as to the financial situation of a household and employment status. [Mouratidis \(2020\)](#) outlines that different quality of life elements are closely tied to each other. For instance, an individual’s health is likely to contribute to satisfaction with all other life domains, but the creation of constraints and limiting life opportunities particularly can decrease satisfaction with a job or neighbourhood.

A sustainable city should not only aim to attract new people but also to encourage the current residents to stay ([Weziak-Białowolska, 2016](#)). That is why improving the quality of life for the city’s existing residents is the most suitable and sustainable strategy even for European shrinking cities – those with a considerable population decline over a long period ([Hospers, 2014](#)). Indeed, economic growth alone cannot preclude cities from shrinking, as clearly apparent from the examples of Lodz (Poland) or Ostrava (Czech Republic). A lot more than economic recovery or job creation and investment is required to stimulate urban population regrowth – a significant increase of population in cities after a long phase of decline. The creation of more attractive living conditions such as environmental upgrading, the improvement of transport infrastructure, renovation of housing and enhancing social cohesion are recognized among the key factors of urban regrowth ([Haase et al., 2021](#)).

There are several quality of life rankings at city level, each of them containing dozens of indicators, often grouped into different categories and using different aggregation techniques (see, for instance, [Kaklauskas et al. 2018](#)). The ranking assessment of the cities helps to uncover particular urbanization processes in the city and compare its pace of development with other cities, as well as to identify positive and negative transformation trends ([Niemets et al., 2021](#)). Not surprisingly, different categories and even rankings exhibit at least moderate positive cor-

relation with one another. For instance, European cities identified to have the best quality of life in the Eurobarometer survey are broadly similar to the cities listed at the top of Numbeo quality of life survey for the European region. The quality of life is found to be positively related both to conventional prosperity measures such as GDP per capita ([Akande et al., 2019](#)) and, for instance, to technology adoption measures such as ICT use ([Nevado-Peña et al., 2019](#)).

As appears from the above, academic literature has a long tradition in studying economic prosperity and the quality of life at regional and city level. This paper contributes to the evidence by focusing on Riga – the regional centre of the Baltics. It is the first systematic review of Riga city development in terms of economic prosperity, demography and the quality of life compared to Tallinn, Vilnius and other European cities, employing various methods and data sources. Still, this paper provides a broad picture rather than an exhaustive assessment of each quality of life variable.

The remainder of the study is structured as follows. After reviewing the data and methods, it assesses economic prosperity, demographic and fiscal developments, as well as various quality of life dimensions in Riga city in the contexts of Latvia, the Baltics and Europe. The paper also discusses several interlinkages between the different urban quality of life dimensions in the European context.

This paper benefits from the public comments of the current and former Riga City Council officials. These comments, made to the pieces of this study presented earlier (either recorded by the media or provided by invitation exclusively for this research project), aim to shed light on the possible reasons why the quality of life in Riga lags behind the neighbouring European capital cities, and therefore are integral parts of this paper.

2 Data and Methods

There is a plenty of hard and soft data sources reflecting urban quality of life. Given that urban quality of life is very much connected to the perceptions, feelings and subjective values of people, the respective literature mostly relies on the soft (i.e. survey) data. Special surveys designed to measure how satisfied the residents of particular cities are with the various aspects of the quality of life are rich data sets, which complement the available hard data on livability such as GDP per capita, recorded crime rates or concentrations of particulate matters in the air.

Both hard and soft urban quality of life data sources have their merits and drawbacks.

On the one hand, for instance, concentration of particulate matters in the air could be highly affected by the location of monitoring stations and weather effects, which decreases reliability of comparison both across countries and time periods. Also, data on concentration of different air pollutants (i.e. PM 2.5 or PM 10 maximum or average concentrations; sulfur dioxide and nitrogen dioxide concentrations) are difficult to aggregate in a single variable which would reflect an overall air quality, not even mentioning an overall environmental quality in a city which consists of several pollution types (also noise, water, garbage, nightlights, etc.).

On the other hand, survey data reflect a subjective perception of the respondents compared to an imagined ideal situation. Residents of different cities tend to have different understanding of the latter. Moreover, the level of people's needs and therefore also the requested quality of life may change over time. For instance, respondents' satisfaction may decline even if improvement in a particular quality of life area is slower than expected. Indeed, raising prosperity might bring a parallel rise in aspirations, leaving life satisfaction at the previous level (Goerlich and Reig, 2021). Moreover, measures of subjective well-being might be biased with past experiences or external events. One of such events is a Covid-19 outbreak – a limited access to cultural, education or sport facilities or other limitations on everyday activities might make people's views more critical.

While we recognize that any list of urban quality of life measures could be viewed as far from exhaustive, it is a combination of several hard and soft data sources that is likely to give the most precise urban quality of life measure of a particular area.

Therefore, apart from the hard data, this paper employs data from several surveys: the European Commission Perception Survey on the Quality of Life in European Cities (hereinafter – Eurobarometer), Numbeo global electronic survey on the quality of life in cities, SKDS¹ survey

¹The research centre SKDS is a well-known Latvian private and independent company (established in 1996) which conducts public opinion research.

on the public evaluation of different Riga City Council activities, as well as the Central Statistical Bureau of Latvia (CSB) survey on the quality of life in eight large Latvian cities.

The most recent wave of the Eurobarometer survey was conducted in 2019 and covers 83 European cities (see Table A1). These cities were selected for the survey by national governments and tend to be the more populous cities in each country. In each city 700 respondents were surveyed; the structure of respondents by age and gender is in line with the structure of general population in a given city. Respondents rated different areas of the quality of life in their city, including safety and trust, infrastructure and governance, the environment and economic conditions. Each quality of life area included several questions. Each respondent was asked whether they are satisfied with the respective quality of life area or whether they agree with the respective statements. The answers were pre-defined mostly using a 5-point Likert scale (very satisfied; rather satisfied; rather unsatisfied; not at all satisfied; do not know/no answer). Eurostat provides the percentage of respondents in each category as separate variables. We follow a conventional literature (for instance, Okulicz-Kozaryn and Valente 2019) to create one variable per every question in a given city. The respective variable ranges between a theoretical 0 when everybody is strongly unsatisfied to 100 when everybody is strongly satisfied ².

Some caveats should be born in mind when recalculating people’s ordinal responses recorded in a 5-point Likert scale into a single numerical variable representing a balance of replies. Such recalculation intrinsically assumes that there is the same difference between each point of the Likert scale, i.e. the difference in opinion between “rather dissatisfied” and “very dissatisfied” is similar as between “rather satisfied” and “very satisfied”, which might not be the case. Alternatively, one might reflect respondents’ satisfaction with the share of “very satisfied” or “very satisfied and rather satisfied” respondents. This solution is not without drawbacks either. Particularly, it would drop a large amount of relevant information from the survey dataset, i.e. ignoring whether other respondents are strongly unsatisfied, rather unsatisfied or unwilling to answer the question. The results presented in this paper are robust to such changes in methodology.

Numbeo estimates overall quality of life using an empirical formula that takes into account eight different indices (purchasing power index, pollution index, house price to income ratio, cost of living index, safety index, health care index, traffic commute time index and climate

²To create one variable for every question, the share of strongly satisfied respondents is multiplied by 100 (theoretical maximum), the share of rather satisfied respondents is multiplied by 75, the share of respondents with no answer is multiplied by 50 (neutral), the share of rather unsatisfied respondents is multiplied by 25, the share of strongly unsatisfied respondents is multiplied by 0 (theoretical minimum). For scaling details of particular quality of life variables, see footnotes below tables A3–A11.

index), with even more granular data available within some of these indices. Numbeo runs a continuous survey of internet users summarized biannually. Each biannual release consists of replies recorded over the last 36 months. The sample of cities can vary from one to another biannual release, which makes it harder to compare results between cities over time. Although self-selection of respondents means that the structure of respondents by age and gender might not correspond to the general population of a city, and technically it is possible to participate in the Numbeo survey without residing in the respective city, a mechanism is employed by Numbeo to drop out irrelevant answers (outliers). While each respondent rates different quality of life areas in a 5-point Likert scale, Numbeo reports only the aggregate value of a particular area on a 0–100 point scale (the transformation is similar to the one described above).

The SKDS survey provides public assessment of different Riga City Council activities and is regularly published on the Riga City Council website. The SKDS survey runs quarterly as from 2011, with some questions available even as from 1997. Each quarter, the sample consists of several hundred respondents, which allows SKDS to disentangle public perceptions by gender, age group, education level, language spoken at home, citizenship, employment status, income quartile and even a particular city district. Results of the SKDS survey are weighted and therefore are representative of Riga population. SKDS respondents express their views in a 5-point Likert scale. SKDS transforms the balance of replies into satisfaction index – a variable which runs from –100 to +100, where the former represents strong dissatisfaction with a particular area, while the latter represents strong satisfaction. For comparison purposes with Eurobarometer and Numbeo surveys, we recalculate this variable into 0–100 point scale.

In 2017, the CSB ran a survey on the quality of life in eight big Latvian cities excluding Riga³. The questionnaire of the CSB (2017) survey is similar to that of Eurobarometer survey. Thus, most of the time, the quality of life in eight Latvian cities in 2017 could be directly compared to the quality of life in Riga in 2015 or 2019⁴.

What all these four surveys (see Table 1) have in common is the universal coverage of the main quality of life dimensions like satisfaction with cleanliness, air pollution, safety, public transport, health care services, cultural life, etc. However, the wording of questions in different surveys often varies. Particularly, the SKDS survey emphasizes satisfaction with Riga City

³In 2022, the CSB runs a second wave of the survey measuring the quality of life in eight big Latvian cities, excluding Riga. However, the results of the CSB 2022 survey are not yet available; their release is planned in 2023.

⁴This comparison is not without limitations. As perceived quality of life tends to change over time, a bias may arise when comparing the score of the different cities for the different years. However, this bias is likely to be small, if any. The SKDS regular survey reveals that the satisfaction of Riga residents with different activities of the Riga City Council has not changed significantly between 2015 and 2019.

Council activities in the respective area, which may bias answers towards political preferences of respondents.

Table 1: Data sources on the quality of life perceptions in cities

	Results are weighted	Micro data available	Periodicity	Self-selection of respondents	Geographical scope
Eurobarometer	Yes	Yes	Irregular	No	Europe
Numbeo	No	No	Continuous	Yes	Global
SKDS	Yes	No	Quarterly	No	Riga
CSB	Yes	Yes	Irregular	No	Other Latvian cities

Source: author’s elaboration.

In a world displaying a plethora of information, composite social and economic indicators have become extremely popular as a way to aggregate different dimensions in a single index, dimensions that would otherwise be difficult or impossible to compare (Goerlich and Reig, 2021). Different studies employ various weighting schemes to arrive at the composite quality of life indicators. Subjective weighting procedures involve either imposing arbitral weights to different quality of life indicators or quantify these weights through experts’ opinion. A reasonable alternative to avoid subjective weighting is the application of the principal components analysis (PCA) to the quality of life indicators, thus determining weights endogenously. This could be viewed as a compensatory approach of aggregation, where strengths displayed in some particular indicators can compensate for the weaknesses revealed by other indicators. Such a composite indicator is recognised to be a useful tool to consider all European cities in a global perspective, both distinguishing the high performing cities from the rest of group and identifying in which cities intervention is most needed to increase the quality of life (Morais and Camanho, 2011).

The application of PCA to the Eurobarometer survey data allows to decrease dimensionality of this large dataset without a notable information loss. We obtain one numerical variable per each area of the quality of life per city (which represents the first principal component of PCA), and also a composite indicator of the quality of life in a given city, which is then rescaled to a 0–100 point scale for representation purposes.

The use of PCA is justified by the value of Kaiser-Meyer-Olkin (KMO) criterion. KMO represents a degree to which each observed variable is predicted by other variables in a dataset. In our composite quality of life indicator the overall KMO equals 0.88, reflecting adequate sampling, while for each variable in a correlation matrix it never falls below 0.70. In turn, the focus on the first principal component is justified by the fact that it is the first principal component that explains the largest part of the variance of any quality of life area. See Table

[A2](#) for proportion of the variance explained by each principal component and Tables [A3–A12](#) for the values of KMO criterion and factor loadings of the first principal component.

Afterwards, we connect composite quality of life index with GDP per capita data via the data envelopment analysis (DEA) technique to construct an urban quality of life frontier. DEA is a non-parametric linear programming method to measure the efficiency of decision-making units. We employ GDP per capita as an input⁵ and the composite quality of life index as an output to reflect an output-oriented technical efficiency of European cities (i.e. the extent to which the quality of life in a particular city could be improved given the current income level and the performance of the peer cities). The ability of cities to transform wealth (measured by GDP) into the quality of life is also one of the ways to assess the performance of city management ([Morais and Camanho, 2011](#)). In this setup, an urban quality of life frontier consists of “fully efficient” cities – the ones that have managed to achieve the best quality of life score given the available resources.

⁵We admit that public spending per capita (purchasing power parity adjusted) in a given city might be an even better input measure. However, the respective data are not available for European cities. GDP per capita (used as an input measure in this paper) may be viewed as a proxy of public spending per capita, representing a taxable income base.

3 Urban Safety and Trust

Feeling safe is one of the basic human needs and therefore it is also one of the crucial elements of an urban quality of life. Crime and fear of crime are recognized as major challenges to sustainable cities, with devastating impact on individuals, society and the economy. At individual level, fear of crime means anxiety, stress, insecurity, incompatibility, alienation and even psychological disorders. At interpersonal level, it damages human interaction, social peace and shared sense of trust within a community, as well as restricts access to social and cultural activities. For instance, fear of crime has a considerable impact on the daily lives by decreasing the usage of urban open spaces (such as public parks, squares, plazas, streets) or changing routes between working, shopping and dwelling places ([Tandogan and Ilhan, 2016](#)).

Crime is damaging the economy not only because a deteriorating city image prevents the inflows of highly skilled workers and investment. Economic activity is usually based on social contacts and legal contracts. On the one hand, fear of crime and distrust can reduce social contacts, which in turn may hinder employment and income. On the other hand, high unemployment and low incomes only increase crime.

On a global scale, European cities enjoy low level of crime (compared to, for instance, South American cities). However, every level of crime above zero has its costs. Across European cities, both victimization and feeling of safety are important determinants of subjective well-being ([Krulichová, 2021](#)). Fear of crime is not uncommon in many European cities, especially for the elderly, women and minorities; and anyone who considers themselves to be physically disadvantaged against potential attackers or believe that they are particularly vulnerable to being victims of crime ([Breetzke and Pearson, 2014](#)). [Piper \(2015\)](#) finds that the fear of being a crime victim tends to be an even more important factor affecting an individual's happiness in European cities than actually being a crime victim. This could reflect a situation when individuals can adapt to past unpleasant experience but cannot adapt to fears.

At technical level, crime occurs where there is a convergence in space and time of motivated offenders, suitable targets and the absence of capable guardians. However, at fundamental level, crime reflects social polarization combined with the loss of social cohesion or collective efficacy. It should be mentioned that fear of crime often does not correlate perfectly with the actual crime incidence. In transition countries, fear of the state has quickly been transformed into fear of crime; also corruption, lack of trust in society and low confidence in police makes people feel unsafe. For instance, Central and Eastern European cities often top the rank of fear of crime even if victimization levels are similar to Western European cities ([Ceccato and Lukyte, 2011](#)).

Crime incidence is usually related to high unemployment and income inequality. Moreover, Akçomak and ter Weel (2012) outline an important role of social capital in crime prevention. Individuals who have had a direct experience of crime usually exhibit more fear, as well as those with a greater exposure to crime in the media. Regarding neighborhood characteristics, fear of crime is positively related to physical and social incivilities (drunk in public, noise, trash and litter, graffiti) and also to local ethnic diversity, high residential instability, large youth populations and a low socio-economic status. Individuals residing in high crime neighborhoods report higher levels of fear, while crime occurring in neighbouring communities may have little or no effect on feelings of safety (Breetzke and Pearson, 2014).

Compared to Tallinn and Vilnius, people in Riga are more likely to be victims of crime, feel more threatened in the city and have less trust in each other. One in five respondents in Riga complains about money or property stolen from them or a household member within the past year, which is one and a half times more than in Vilnius and twice as many as in Tallinn.⁶ Not surprisingly, only slightly more than half of the respondents in Riga agree with the statement that most people in their neighbourhood can be trusted, compared to 80% in Tallinn and 70% in Vilnius (see Figure 1).

In 24 out of the 25 criteria related to crime experience, perceived safety in the city and trust to people around, both Eurobarometer and Numbeo surveys rank Riga third out of three Baltic capital cities (see Table 2).

On the European scale, Riga is located in the lowest quartile according to almost all perceived safety and trust indicators (see Figure 2). Values of several indicators are considerably lower than the European average, particularly regarding the confidence in the local police force (4th lowest score among 83 European cities – just after Athens, Sofia and Skopje), as well as trust to people living in your neighbourhood (3rd lowest score – after Bucharest and Athens)⁷.

On a global scale, the differences in crime between the Baltic capital cities may not seem large. All three cities exhibit a safety index value between 60 to 80, which corresponds to a *low* level of crime as classified by Numbeo. However, Tallinn is close to a *very low* crime threshold (80), while Riga is close to the *moderate* crime threshold (60). Thus, even if the current crime rates in Riga seem low either historically or on a global scale, it does not mean that they cannot

⁶Note that self-reported crime experience might not always correspond to police registers; for instance, because part of offences might not be reported or recorded. However, these survey results are broadly in line with the Eurostat data on recorded offences showing that Latvia has more intentional homicides per capita than any other EU country, while also exhibiting higher levels of theft than Lithuania and Estonia.

⁷The only variable in which Riga reports a performance close to the European average is the possibility to receive a non-material help from others; however, this variable has quite low variation across the majority of European cities.

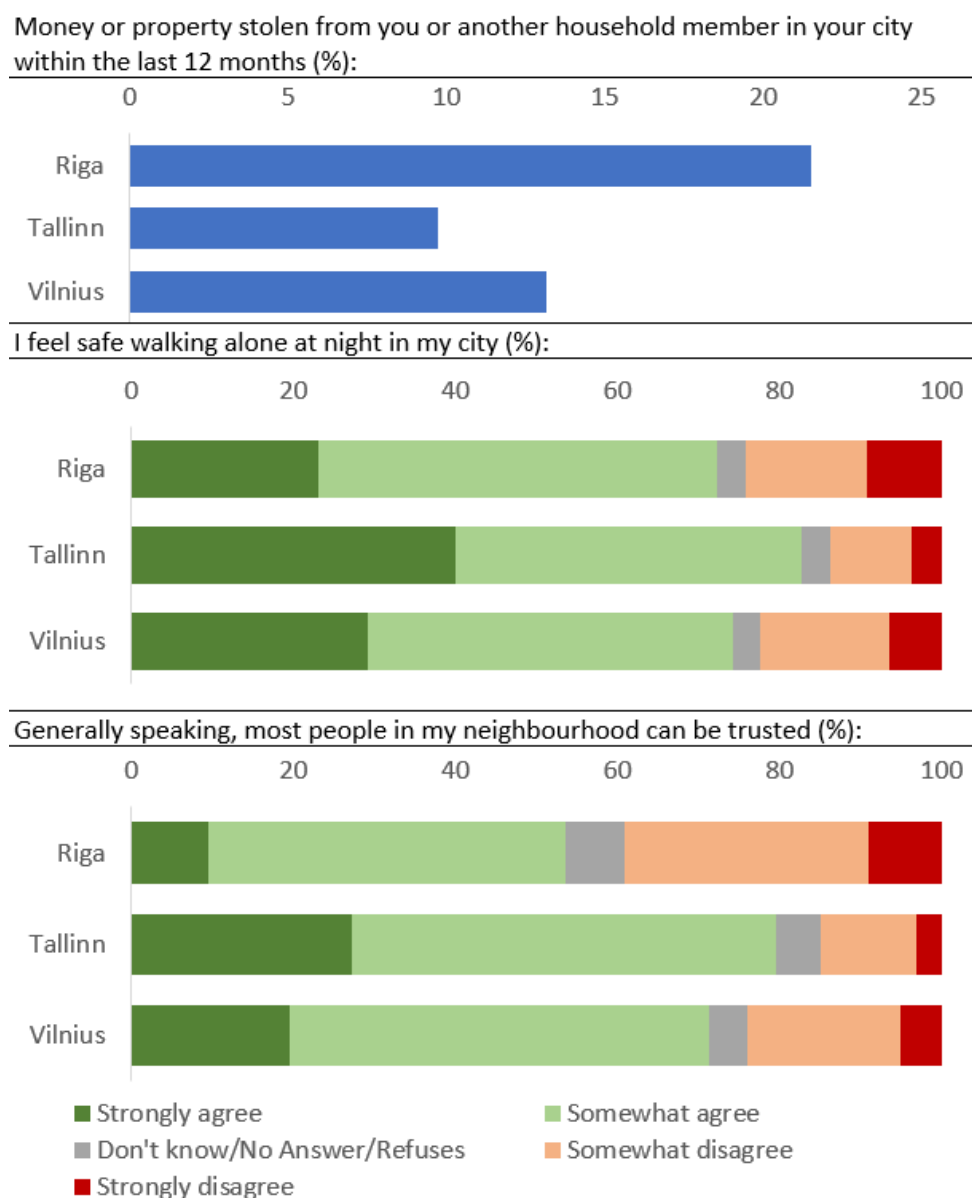


Figure 1: Crime experience, safety perceptions and trust in Riga, Tallinn and Vilnius (in 2019)

Note. The number of respondents is 700 in each city; the structure of respondents corresponds to the gender and age structure of city population.

Source: Eurobarometer survey data.

and should not be reduced further.

Despite the fact that safety perceptions and trust tend to be rigid over time, Vilnius has managed to reduce the crime rate steadily over the recent years. For instance, a few years ago Riga and Vilnius were perceived as similarly safe cities, but over the years Vilnius managed to markedly raise safety perceptions and now it is much closer to Tallinn than Riga in this regard. Although trust tends to improve over time in Riga, Vilnius has managed to achieve more consistent improvements (see Figure 3).

Thanks to a significant improvement in the physical security in the first decades after the restoration of Latvia's independence, people in Riga now feel much safer than during the 1990s.

Table 2: Crime, safety and trust perceptions in Riga, Tallinn and Vilnius (index; scale 0-100; in 2019)

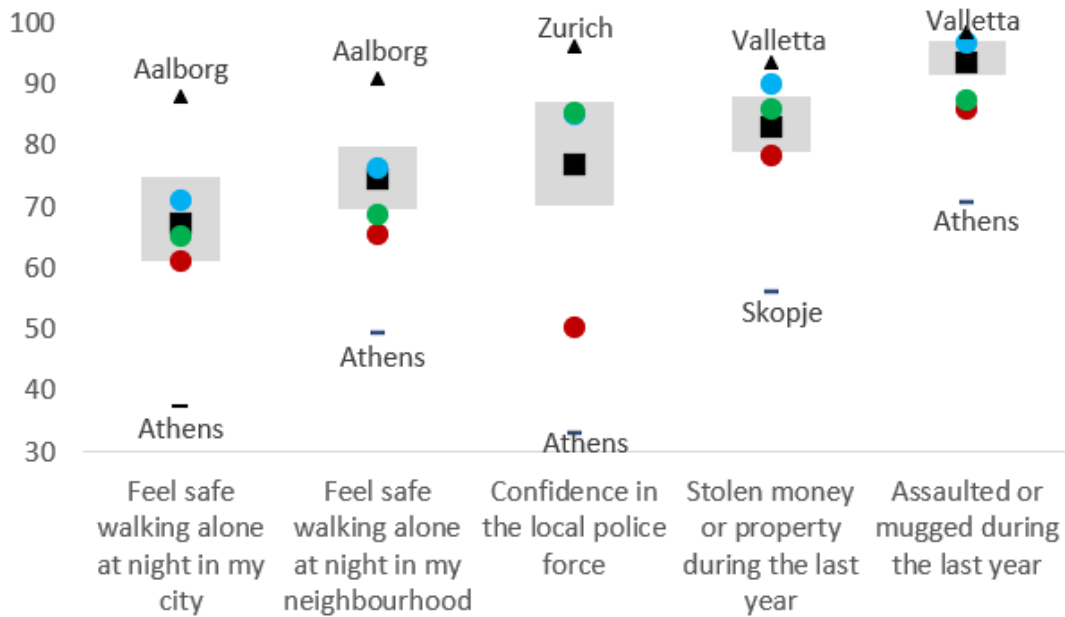
	Riga	Tallinn	Vilnius
European Commission survey (in 2019):			
Feel safe walking alone at night in my city	61.2	71.2	65.5
Feel safe walking alone at night in my neighbourhood	65.5	76.3	68.6
Confidence in the local police force	50.3	85.0	85.5
Stolen money or property during the last year	78.5	90.2	86.1
Assaulted or mugged during the last year	86.0	96.8	87.5
Public transport is safe	73.6	77.9	77.5
Most people in my city can be trusted	47.2	58.0	63.1
Most people in my neighbourhood can be trusted	53.8	72.2	65.5
Could receive material help from people you know	66.9	77.6	79.4
Could receive non-material help from people you know	89.4	91.3	88.4
Numbeo survey (at the beginning of 2022):			
Level of crime	62.1	79.4	74.1
Crime increasing in the past 3 years	53.2	64.4	68.5
Worries home broken and things stolen	64.6	81.4	76.8
Worries being mugged or robbed	67.4	81.3	74.4
Worries car stolen	69.1	83.7	81.0
Worries things from car stolen	53.6	68.9	68.3
Worries attacked	62.1	78.5	70.7
Worries being insulted	66.6	79.3	78.7
Worries physical attack due to skin color, ethnicity etc.	77.1	80.3	80.4
Problem people using or dealing drugs	59.0	64.7	70.7
Problem property crimes such as vandalism and theft	53.3	70.2	62.6
Problem violent crimes - assault and armed robbery	74.9	85.4	78.5
Problem corruption and bribery	32.6	70.9	48.0
Safety walking alone during daylight	82.3	90.7	90.6
Safety walking alone during night	55.4	69.5	64.2

Notes. The balance of replies to each question was recalculated on a 0–100 point scale, where 0 is the worst possible value and 100 is the best possible value. The colour reflects the place of a particular city among the Baltic capital cities: green: 1st place (best); yellow: 2nd place; red: 3rd place (worst). European Commission survey (2019): number of respondents is 700 in each city. Numbeo survey (2022): number of respondents – 298 in Riga, 226 in Tallinn, 241 in Vilnius.

Sources: European Commission and Numbeo survey data, author's calculations.

However, over the most recent ten years safety perceptions changed little (see Figure 4). It should also be noted that satisfaction with public order and safety differs significantly in different population groups and Riga city districts. According to the most recent SKDS survey, satisfaction with public order and safety is lower for respondents with lower incomes and education levels, people of pre-retirement age, as well as for the Russian-speaking community. Geographically, lower satisfaction with public order and safety is recorded in Latgale and Kurzeme districts of Riga city, which might at least partly represent segregation of people with different levels of income and ethnic origin in different city districts. This highlights the fact that some city areas and population groups may experience considerable costs of crime even if a city as a whole

a) Safety:



b) Trust:

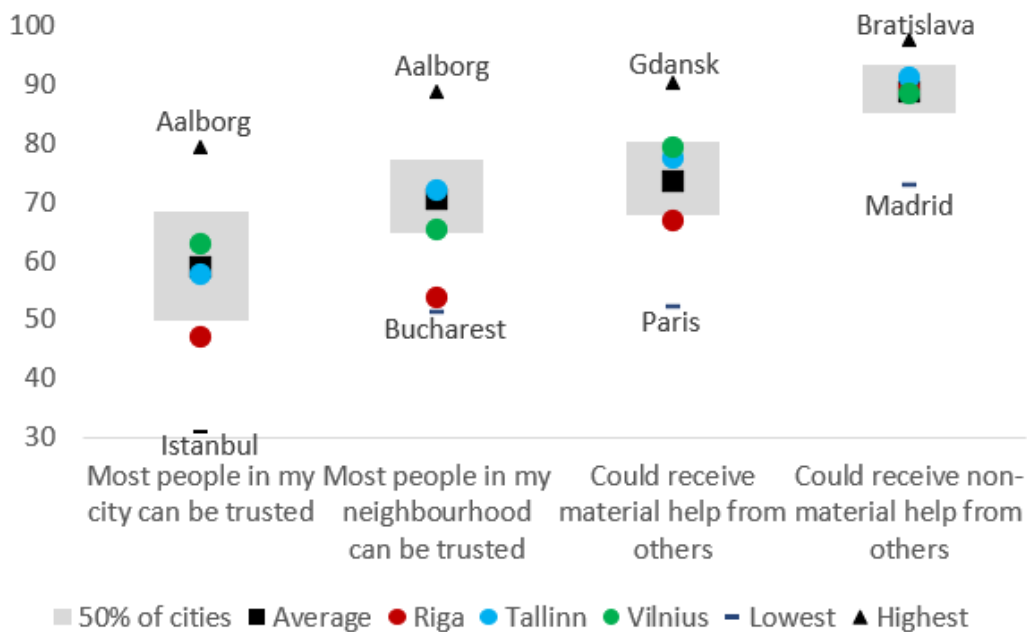


Figure 2: Safety and trust in Riga, Tallinn and Vilnius compared to other European cities (0–100 points scale; in 2019).

Notes. The balance of replies was recalculated to a 0–100 point scale where 0 is the worst possible score (feel unsafe, not confident in police, has crime experience, feel distrust, could not receive help from others); 100 – the best possible score. See Table A1 for the list of 83 cities included in the Eurobarometer survey in 2019. See footnotes to Tables A3 and A4 for score calculation formulas.

Sources: Eurobarometer survey data, author's calculations.

exhibits a low level of crime (on a global scale).

The Eurobarometer survey confirms that the more often people face crime, the more vulnerable they feel, which in turn prevents them from trusting other people. Note that Riga residents

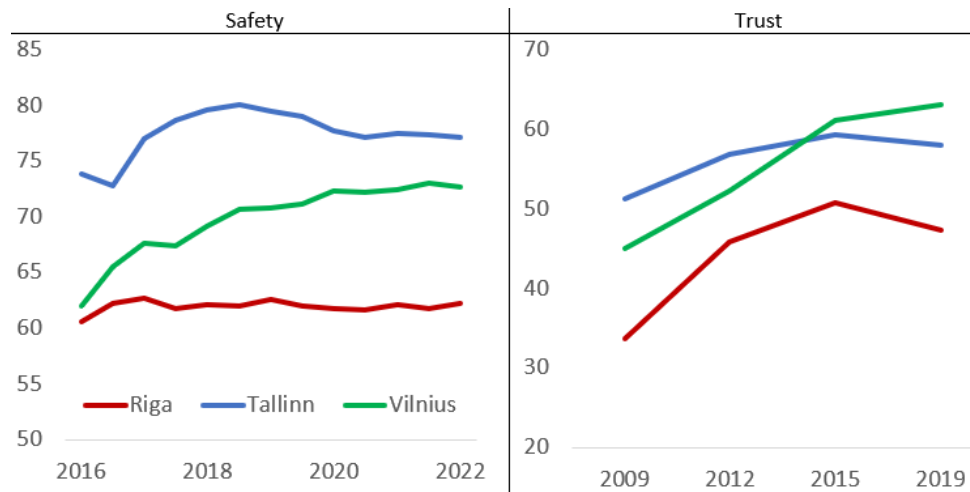


Figure 3: Safety perceptions and trust over time in Riga, Tallinn and Vilnius (index; 0–100 point scale).

Notes. The safety index reflects the crime rate in a given city and is calculated as $100 - \text{Numbeo crime index}$. The safety index above 80 represents very low crime, 60–80 low crime, 40–60 moderate crime, 20–40 high crime, while below 20 – very high crime. The trust index represents the balance of replies to the following question in the Eurobarometer survey: “Generally speaking, most people in my city can be trusted”, where 100 represents strong agreement, but 0 – strong disagreement.

Sources: Eurobarometer and Numbeo survey data, author’s calculations.



Figure 4: Satisfaction of Riga inhabitants with Riga Council activities in ensuring public order and safety in the city (0–100 point scale; over 1997–2022).

Notes. The following question has been asked: “How do you assess the work of the Riga City Council in the performance of the functions specified in the Law “On Local Governments”: ensuring public order and safety in the territory of Riga (municipal police work)?”. The balance of replies was recalculated on a 0–100 point scale, where “0” reflects strong dissatisfaction and “100” – strong satisfaction. The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the Hodrick-Prescott filtered trend of the SKDS survey data ($\lambda = 10$). In some quarters (including due to Covid constraints) the survey was not conducted; the relevant data were interpolated.

Sources: SKDS survey data, author’s calculations.

feel more threatened than would be objectively justified by the current crime levels (in Figure 5, Riga’s observation is substantially below the trend line), which might reflect comparatively low confidence in police force or an imprint from much higher level of crime during the 1990s.

In general, according to the perceived safety and trust to the surrounding people, Riga is located close to the Southern European cities like Rome, Marseille, Istanbul, Belgrade, Skopje and Bucharest (see PCA results in Figures [A1](#) and [A2](#)). In this cluster of cities, safety and trust is greater than in Athens or Sofia, but lags behind Central European cities, not to mention the cities of Northern Europe. The fact that Riga is considered by its inhabitants as one of the most unsafe capital cities in the European Union and also less safe than could be justified by the actual crime experience in the city, points to a large room for improvements in the respective area.

The fight against crime requires a broad set of measures, which go far beyond the traditional scope of the Ministry of the Interior. For instance, a wider installation of video cameras, an increase in salaries of police officers, as well as modernisation of prisons and police stations are all necessary actions, which, however, may prove insufficient given that interior agencies deal with the consequences of social polarization and intolerance rather than the causes.

In breaking a vicious circle of crime and poverty, non-governmental organizations that communicate directly, for example, with young people being on the threshold between legality and abuse, play an important role. Also, a full sense of safety is inconceivable without solving the problems of homelessness, drug and gambling addiction, as well as large purposeful investments for the improvement of the city's disadvantaged areas. Macroeconomic policies aimed at raising incomes and reducing unemployment and income inequality could also play a role in reducing crime.

Note that the origins of the vicious circle of crime and poverty can be traced to very unusual places such as schools. If the education quality in some schools is low enough ([Krasnopjorovs, 2019](#)) to deny using education as a social elevator, graduating from such a school would mean lower human capital, lower productivity and thus lower income. Low income levels combined with high income inequality, a sense of injustice and envy of more successful peers create a cocktail which is likely to encourage conflicts with the law. In addition, the study environment in many Latvian schools fuels intolerance and mistrust. For instance, Latvia ranks first among EU countries regarding the prevalence of student bullying ([OECD, 2019](#)) – aggressive, purposeful and regular persecution of particular classmates. Thus, it may turn out that preventing crime by investing in education (including by raising the prestige of the teaching profession and teachers' wages) could be cheaper than dealing with consequences of a vicious circle of crime, unsafety and distrust.

The fact that various measures to break a vicious circle of crime, unsafety and distrust should

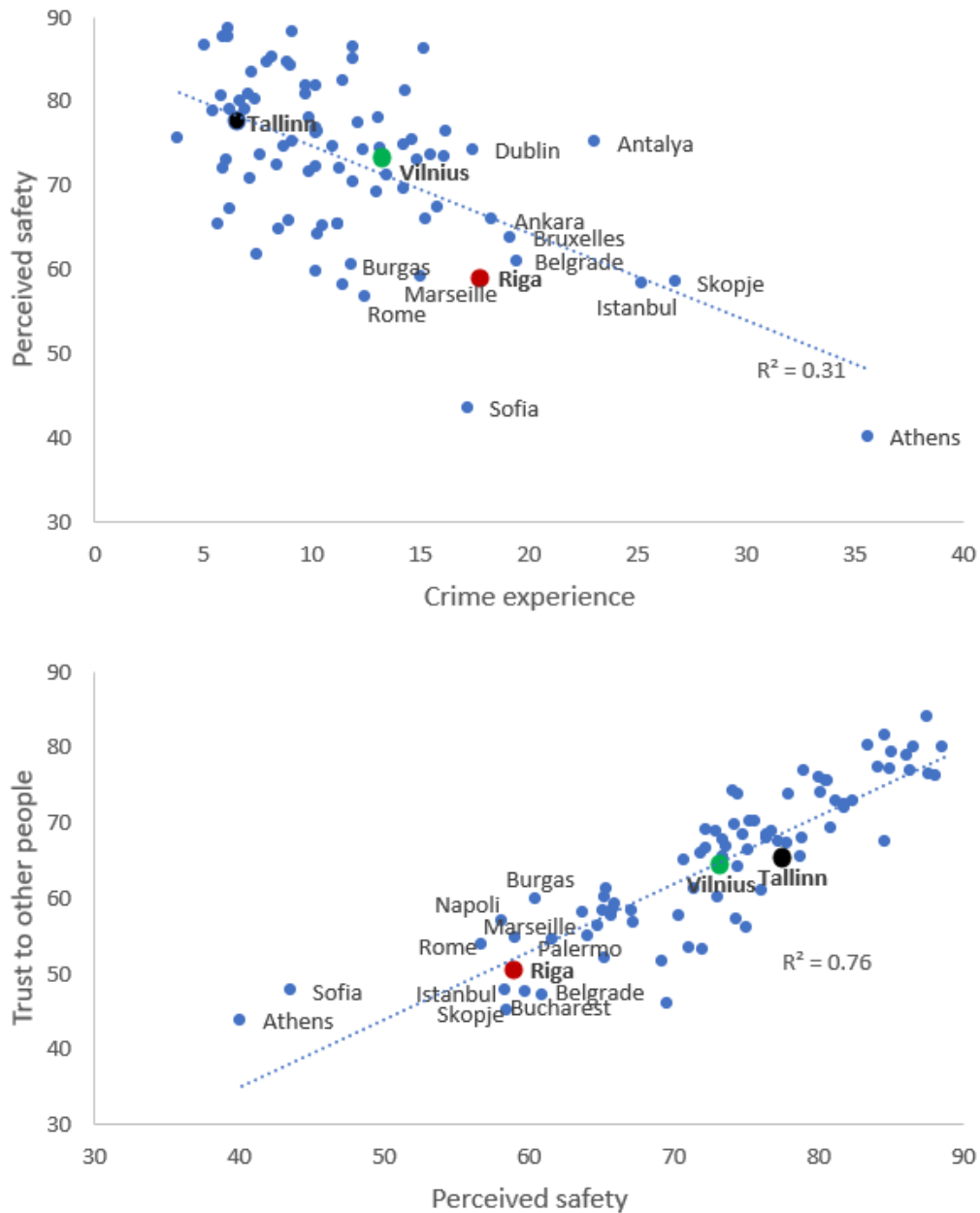


Figure 5: Crime experience, safety perceptions and trust in 83 European cities (in 2019).

Notes. Crime experience: the share of respondents who experienced a theft or assault during the last 12 months (average of two questions). Perceived safety: average of the following three questions (balance of replies; 0–100 point scale): I feel safe walking alone at night in my city, I feel safe walking alone at night in my neighbourhood, I have confidence in the local police force. Trust to other people: the average of the following two questions (balance of replies; 0–100 point scale): Generally speaking, most people in my city can be trusted; Generally speaking, most people in my neighbourhood can be trusted.

Sources: European Commission survey data, author's calculations.

be taken at national level does not undermine the role of a city in this regard. For instance, note that in almost all cities, trust to the people living in the neighbourhood is greater than to the people living in a city. However, in Riga, this difference is rather small – trust to the people living in a respondent's neighbourhood is only by 6.6 points higher than trust to the people living in a city (compared to 11.4 points on average in 83 European cities surveyed by the Eurobarometer in 2019 and 15.4 points on average in eight Latvian large cities surveyed by

the CSB in 2017). This reflects a rather low sense of belonging to a particular local community in Riga. Thus, promotion of neighbourhood associations could be one of the measures at the city level to address the low level of trust between Riga residents.

The CSB survey points to considerable differences in safety perceptions and social trust among Latvian cities. The highest perceived safety and trust are recorded in the cities of Valmiera and Jurmala respectively. The former city (Valmiera) is known for its rapid, industry-based economic growth, which is reflected in a very low unemployment rate and comparatively high wage level. The latter city (Jurmala) is a resort city located close to Riga and serves as a “bedroom” for many rich people. Compared to other Latvian large cities, Riga exhibits mediocre levels of safety and trust (see Figure 6).

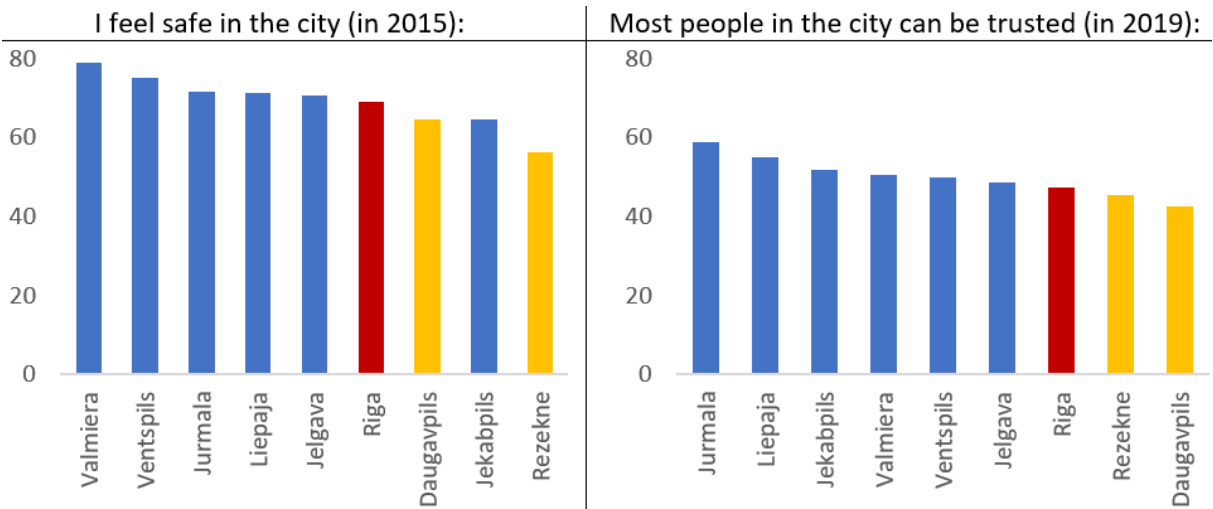


Figure 6: Perceived safety and trust across Latvian big cities (index; 0–100 point scale)

Note. The balance of replies to each question was recalculated to a 0–100 point scale, where 0 is “strongly disagree”, while 100 – “strongly agree”.
 Sources: author’s calculations, based on the CSB 2017 survey on eight big Latvian cities and Eurobarometer 2015/2019 survey on Riga.

In turn, two cities which are the most insecure and alienated cities in Latvia – Rezekne and Daugavpils – are located in Latgale region. This picture is just one reflection of Latgale’s low social capital, manifesting also in low elections turnout, as well as relatively low income and high unemployment. In this vicious circle, it is impossible to establish the cause and effect, rather, all these indicators are closely interlinked. It is obvious that feeling physical insecurity and distrust between people are factors reducing the quality of life, which can contribute to the exodus of the population (particularly evident in Latgale region). The differences in perceived safety and trust between Latvian cities perhaps are too great to hope that the cities lagging behind could ever achieve a good stance relying only on the improvement at country level.

4 Urban environment

Rich cities are usually less polluted than the poor ones – this is unlikely to be a coincidence. The urban environment is an important element of the quality of life, affecting health, life expectancy and overall life satisfaction. Longer healthy life expectancy tends to raise labour productivity and, thus, income. Higher incomes, in turn, mean higher tax revenues for the city budget, providing an opportunity to further improve the urban environment. Globally, the most polluted cities are located in India, which are also poor. Environmental pollution is likely to be one of the causes and consequences of this poverty. In turn, the cities of Northern Europe are both clean and rich. This anecdotal evidence is in line with the Environmental Kuznets Curve hypothesis, suggesting that after a certain income threshold more economic growth goes hand in hand with better environment. Wealth allows for environmental cleanliness, but a clean environment promotes wealth.

Enjoying with the highest possible quality of life in a sustainable environment can markedly improve happiness and health ([López-Ruiz et al., 2019](#)). Indeed, several studies have documented a link between environmental quality and health outcomes. Two most important environmental problems in European cities as documented in the academic literature are air and noise pollution.

Air pollution is negatively related with life satisfaction, health and life expectancy. For instance, [Ferreira et al. \(2013\)](#) point to a robust negative relation between air pollution (measured by sulfur dioxide concentrations) and self-reported life satisfaction in European countries. [Jorgenson et al. \(2021\)](#) reveal that in a global cross-country setup this relation is stronger for countries with higher income inequality, which might intensify a segregation of lower-income groups in areas with high air pollution. [Brani and Linhartová \(2012\)](#) present an evidence from the Czech Republic that residents of large cities are exposed to high levels of traffic-related air pollution. [Rodriguez-Alvarez \(2021\)](#) documents a negative relation between air pollution and life satisfaction for a sample of European countries, pointing out that especially particulate matters with a diameter of less than 2.5 microns are detrimental to the life expectancy. Due to its small size, PM_{2.5} can remain in the air for a long time and enter the bloodstream after inhalation. [Khomenko et al. \(2021\)](#) claim that air pollution in European cities above the upper thresholds set by the World Health Organization (WHO) is responsible for more than 50 thousand premature deaths annually. The highest mortality burden due to air pollution was recorded in Northern Italy, Poland and the Czech Republic, while the lowest – in Northern Europe, with Riga showing relatively high nitrogen dioxide (traffic) emissions compared to other cities in the region.

There is also a well-established negative link between noise pollution and health outcomes. The main source of noise pollution in European big cities is road traffic, followed by rail and air traffic, recreational activities and industry. The majority of European city residents are exposed daily to ambient noise levels above 55 dB – exceeding this threshold is recognized to be undesirable (Lawrence, 2013). Veber et al. (2022) document a considerable negative health effects of noise pollution, particularly from road traffic, in two Estonian cities, Tallinn and Tartu. They recognize transport noise as being an important factor contributing to cardiovascular diseases (hypertension, myocardial infarction and stroke), mental disorders, diabetes, obesity, breast cancer and adverse birth outcomes. Overall, noise pollution in European cities can cause around 12 thousand premature deaths per year. European Environment Agency data confirm that the biggest source of noise in Riga is road transport which exposes 526 thousand people to noise pollution (5 out of 6 city residents; moreover, 38 thousand people in Riga are exposed to railway noise and 13 thousand – to industrial noise).

A detrimental impact of air and noise pollution is not always fully recognized. Moreover, this recognition is likely to differ substantially across European cities, and might correlate with the stage of economic development. For instance, Chiarini et al. (2021) show that many people living in Central and Eastern European countries have a high tolerance towards urban air pollution even if it is high as measured by the hard data. Such an adaptation towards high air pollution may reflect a situation when in the first phase of the Environmental Kuznets Curve (low income) growth-driven pollution is not perceived as harmful. Note that this is in line with López-Ruiz et al. (2019) showing that the environmental dimension (compared to the economic and social dimensions) is still unappreciated by many European citizens. For instance, in Riga and Vilnius people’s satisfaction with air quality is higher than might be expected given the level of PM_{2.5} concentrations in the air. Riga and Vilnius, having PM_{2.5} air concentrations similar to that of Paris, Brussels or Rome, enjoy relatively higher people’s satisfaction with air quality (see Figure A11). The World Air Quality Report reveals that cities from Central and Eastern Europe represent a vast majority of the most polluted places in Europe. Apart from private car transport congestions, this could be attributed to the insufficient use of renewables in the energy sector and combustion of solid fuels in the household sector (Karpinska and Śmiech, 2020).

Green spaces in a city can reduce air and noise pollution, and are found to significantly improve physical and mental health, as well as the overall life satisfaction. In addition, green areas improve air quality in the city and protect it from the heat in summer. Proximity and accessibility to green spaces have proved to reduce the likelihood of obesity, cardiovascular

diseases and overall all-cause mortality. Also, citizens who have access to green spaces are less likely to develop depression or anxiety and more likely to increase social interaction and cohesion (Giannico et al., 2021). In a study covering 51 European cities, Giannico et al. (2021) show that the overall quality of life perceived by citizens is positively correlated with urban greenness collected via satellite data. Note that even small increases in greenness can substantially improve the life of lower-income individuals in cities. Barboza et al. (2021) estimate how many mortalities could be prevented in European cities by complying with the WHO recommendation to have green spaces (of at least 0.5 hectares) within a 300-metre linear distance of residences. Riga was identified among five European capital cities (together with Athens, Brussels, Budapest and Copenhagen) showing the highest mortality burdens due to the lack of green spaces.

The Eurobarometer survey reveals that although the majority of Riga residents are rather satisfied with the quality of urban environment, there is a non-negligible share of unsatisfied respondents. The share of unsatisfied Riga residents varies from 13% concerning green spaces to 30% regarding air quality (see Figure 7).

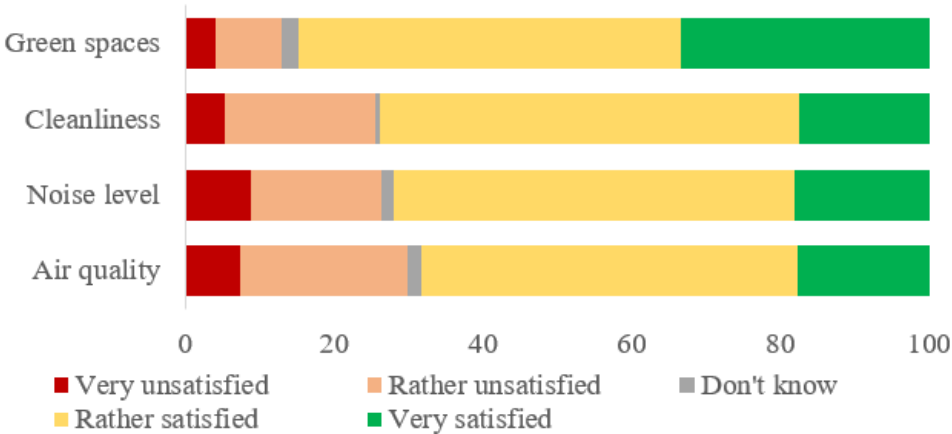


Figure 7: Satisfaction of Riga residents with the quality of urban environment (%; in 2019)

Source: Eurobarometer survey data.

The quality of urban environment in Riga is somewhat better than in the majority of European cities (see Figure A3 for PCA results). Within 83 European cities surveyed, Eurobarometer places Riga in the second quartile regarding satisfaction of residents with air quality, the noise level, green areas and cleanliness (see Figure 8).

However, satisfaction with the environmental quality in Riga is slightly lower than in Tallinn and Vilnius. Residents of Riga are less satisfied with, among other things, air quality, drinking water quality, waste disposal and the general cleanliness of the city (see Table 3).

One striking fact about the perceived environmental quality in Riga is the lack of progress over time. Ten years ago the quality of the environment in Riga was perceived as the best among

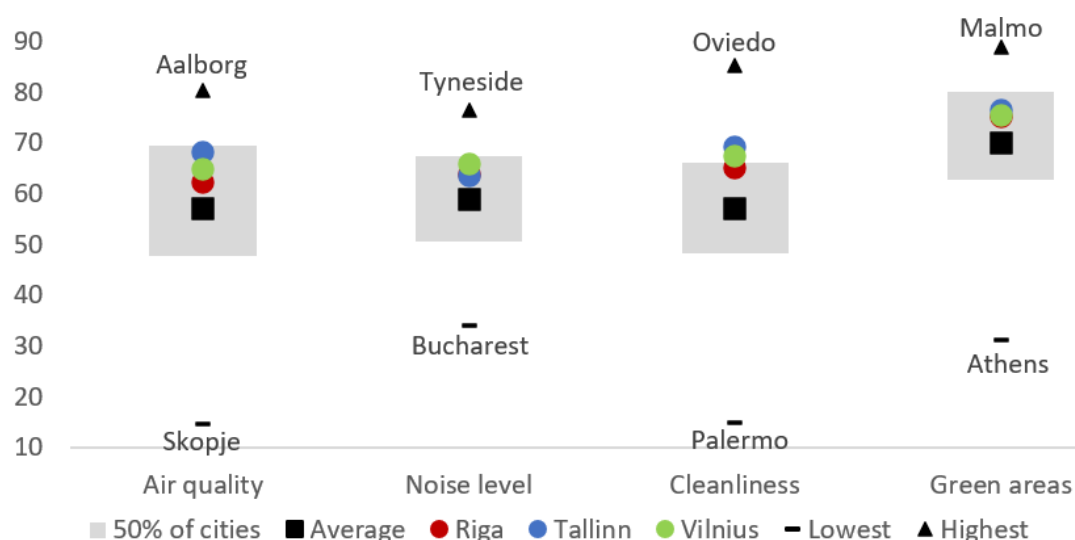


Figure 8: Perceived quality of urban environment in Riga, Tallinn and Vilnius compared to other European cities (0–100 point scale; in 2019)

Notes. The balance of replies was recalculated to a 0–100 point scale where 0 means very unsatisfied, 100 – very satisfied. See Table A1 for the list of 83 cities included in the Eurobarometer survey in 2019. See the footnote to Table A5 for score calculation formulas.

Sources: Eurobarometer survey data, author's calculations.

Table 3: Environment and pollution perceptions in Riga, Tallinn and Vilnius (balance of replies; 0–100 point scale)

	Riga	Tallinn	Vilnius
European Commission survey (2019):			
Satisfaction with air quality	62.2	68.2	64.9
Satisfaction with noise level	63.7	63.5	65.7
Satisfaction with cleanliness	65.1	69.2	67.4
Satisfaction with green spaces	75.3	76.5	75.6
Numbeo survey (2022):			
Air pollution	62.6	82.0	76.3
Drinking water pollution and inaccessibility	74.0	86.7	90.9
Satisfied with garbage disposal	64.6	74.7	65.5
Clean and tidy	68.0	74.8	81.0
Noise and light pollution	58.1	62.4	71.0
Water pollution	68.4	82.1	79.2
Satisfied with green spaces and parks	85.7	75.3	89.2

Notes. The colour reflects the place of a particular city among the Baltic capital cities: green: 1st place (best); yellow: 2nd place; red: 3rd place (worst). Eurobarometer survey (2019): the number of respondents is 700 in each city. Numbeo survey (2022): number of respondents – 126 in Riga, 103 in Tallinn, 95 in Vilnius.

Sources: Eurobarometer and Numbeo survey data, author's calculations.

the Baltic capital cities. Since then, Tallinn and Vilnius have made significant progress, while environmental improvements in Riga have been only modest (see Figure 9).

Moreover, SKDS survey data show a downward satisfaction trend among Riga residents regarding the quality of urban environment (cleanliness, waste management and green areas) over the last three years. For instance, Riga residents are currently as satisfied with landscaping

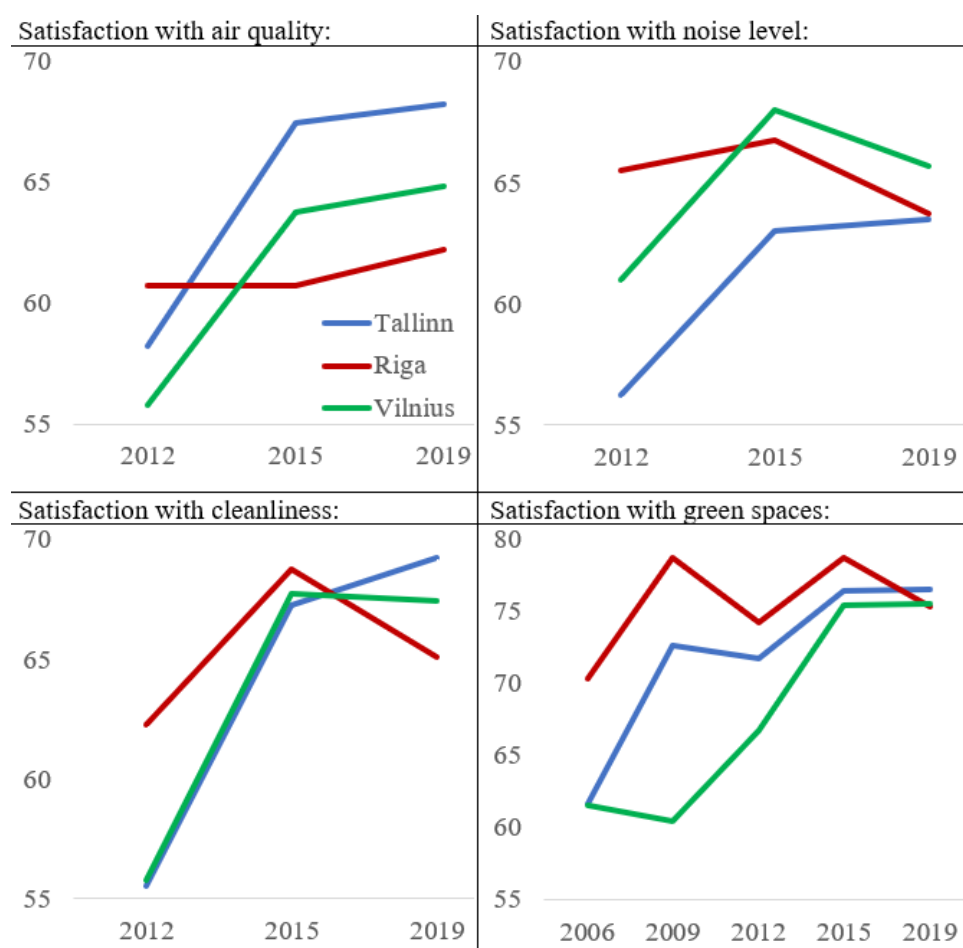


Figure 9: Environmental quality changes in Riga, Tallinn and Vilnius (0 – 100 point scale)

Note. The balance of replies to each question was recalculated on a 0–100 point scale, where 0 – very dissatisfied, 100 – very satisfied.

Sources: Eurobarometer survey data, author's calculations.

and cleanliness of the city as they were 20 years ago. Satisfaction with waste disposal, on the other hand, is now lower than ever since regular surveys began in 1997. Also, the satisfaction of Riga residents with the green areas in the city deteriorated recently; currently it is similar to the level recorded about ten years ago (see Figure 10). The latter finding particularly causes concerns given that unsatisfied demand for city cleanliness, waste disposal and green areas is likely to reflect deficiencies at city (rather than country) level. This is further confirmed by a large variation in cleanliness satisfaction across large Latvian cities. Note that in Riga cleanliness satisfaction is the lowest among large Latvian cities as evidenced in Figure 11.

A recent slowdown in satisfaction with waste management may be partly attributed to growing payments for removal of household waste. However, growing expenses are not likely to be the only reason behind a downward satisfaction trend, as satisfaction with landscaping and cleanliness decreased at the same time. Also, the Covid-19 pandemic is unlikely to be the major factor of lower satisfaction since perceived cleanliness started to decline even before the

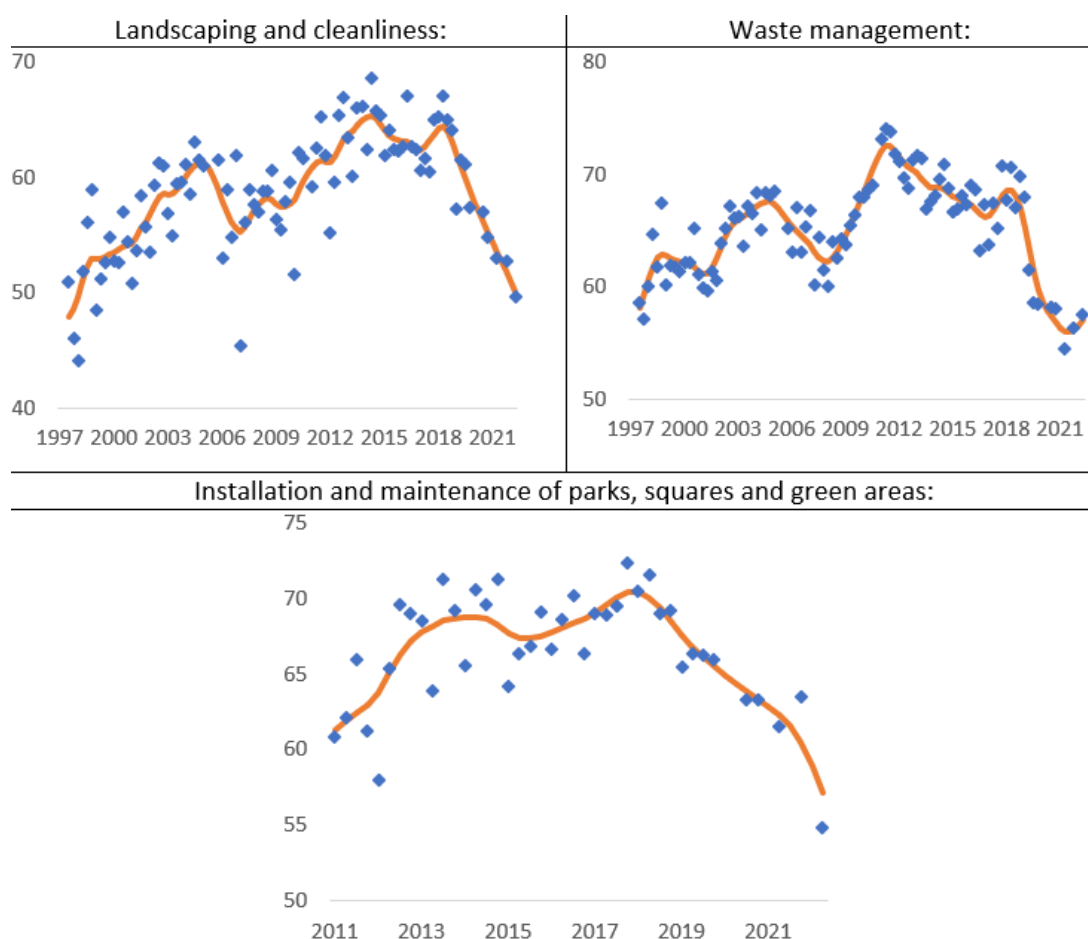


Figure 10: Satisfaction of Riga residents with the cleanliness of the city, green areas and waste removal (0–100 point scale; over 1997–2022)

Notes. The balance of replies is recalculated on a 0–100 point scale, where “0” is completely unsatisfied, “100” is completely satisfied. The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the trend filtered by the Hodrick-Prescott filter ($\lambda = 10$). In some quarters (including due to Covid-19 restrictions) the survey was not conducted; the relevant data were interpolated.

Sources: SKDS survey data, author’s calculations.

outbreak of the virus.

According to the latest SKDS survey, cleanliness in Riga is most critically assessed by the residents of Ziemeļi district, as well as by middle-aged (35–63 years old) and low-income respondents; in turn, the most satisfied are young people, retirees and residents of Vidzeme district of the city. This is in line with an observation that the residents of Vidzeme district are the most satisfied also with the removal of household waste. This reflects considerable environmental quality perception differences even between people living in the same city.

In turn, a comparison of the environmental quality in Riga with other Latvian large cities provides three important insights.

First, the level of environment satisfaction differs substantially within the country. Among Latvian large cities, the highest satisfaction with air quality is recorded in Jurmala (a sea resort located in Pierīga region in the vicinity of Riga), while the lowest air quality was recorded in

Ventspils (which is likely to reflect the impact of a large sea port there; see Figure 11). The difference in air quality between Jurmala and Ventspils is notable even at European level. While air quality in Ventspils is well below the European average, Jurmala enjoys one of the highest air quality standards among the European cities surveyed.

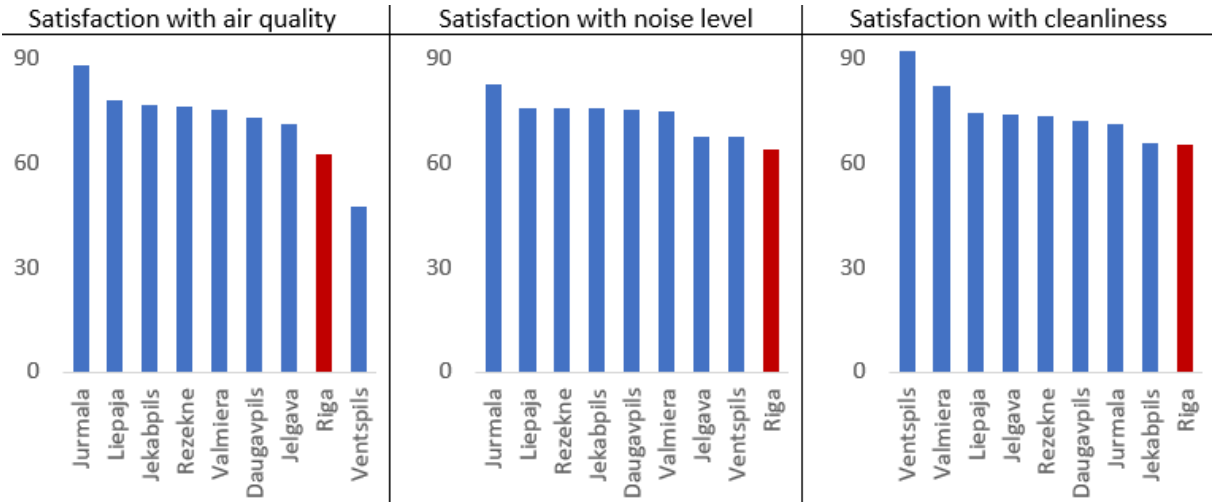


Figure 11: Perceived quality of the environment in Latvian large cities (index; 0–100 point scale)

Note. The balance of replies to each question was recalculated to a 0–100 point scale, where 0 is “strongly dissatisfied”, while 100 – “strongly satisfied”.
 Sources: CSB (2017) survey on eight big Latvian cities and Eurobarometer (2019) survey on Riga; author’s calculations.

Second, a relative position of the respective city could vary substantially subject to the different measures of environmental quality. For instance, despite the fact that Ventspils has the lowest air quality among Latvian large cities, it is recognised to be the cleanest city, with the latter reflecting a relatively high income level (inter alia, representing an impact of a large sea port) and high inflows of EU funds in per capita terms.

Third, capital cities tend to lag behind in terms of environmental quality. Residents of Riga are the most critical of the noise level and the cleanliness of the city (and are almost as critical of air quality as residents of Ventspils). On the one hand, this might reflect a detrimental impact of the city size on the environmental quality. On the other hand, it might also represent higher needs of residents; cities with higher income may demand higher environmental standards.

The adoption of a human-centred environment is a crucial property of a sustainable city. It means seeking ways of maximizing energy and resource efficiency, creating a zero-waste production system, supporting renewable energy production and use, promoting carbon neutralization and minimizing environmental pollution. Also, a sustainable city reduces transport needs and encourages walking and cycling, ensures efficient and sustainable transport, supports ecosystems and green areas (Niemets et al., 2021).

5 Urban transport

Transportation infrastructure impacts the spatial organisation of economic activity between urban areas and the sorting of households across neighbourhoods. Moreover, it facilitates interaction within cities, enabling workers to combine living in high quality residential areas with working at the most productive places (Hybel and Mulalic, 2022). Limiting possibilities to expand traffic capacity in big cities gives rise to traffic congestion and thus contributes to the air pollution and noise.

Most of air and noise pollution in big European cities, including Riga, comes from private car transport. Therefore, the promotion of public transport, walking and cycling is recognized as a key to overcome multiple urban health and environmental challenges such as congestion, traffic injuries, air pollution, greenhouse emissions and noise. A strategy to promote the use of public transport should include enhancement of high quality, reliable and affordable public transport services, as well as the curtailment of private motorized vehicles in high density city areas (Gascon et al., 2020). Ensuring high-quality public transport services would make their current users more loyal and would attract new users (de Oña et al., 2021).

Surveys often recognize private car transport as the most preferable commuting way. Car travel is seen to offer greater privacy, protection, autonomy, freedom and control than public transport. Cars are also powerful expressions of personal identity, status and maturity. Car travel is often experienced as more flexible, convenient, predictable and more comfortable than public transport (Woods and Masthoff, 2017). However, big cities may attenuate the usual benefits of car travel. In this case, public transport may be seen as more environmentally friendly and healthy, less stressful, more relaxing, cheaper, more sociable and less polluting than car driving (Woods and Masthoff, 2017). Gascon et al. (2020) report that residents of European cities valuing lower travel costs and shorter travel times, use public transport relatively more often. Although public transport is used more frequently in high-density areas, by females, highly educated people, students and those not working, access to a car or a bike usually reduces public transport use.

Several studies show that public transport satisfaction arises from accessibility measures like on-time performance, reliability, frequency and travel speed, as well as from comfort, cleanliness, safety and staff behaviour (Ingvardson and Nielsen, 2019). Young respondents and students might be less satisfied with the quality of public transport services, even despite more frequent use of public transport. Given that travel habits formed in early life can shape travel behaviour throughout life, public transport services should take into account the specific needs of young

travellers to ensure a high level of satisfaction among them (Ingvardson and Nielsen, 2019). In turn, Mariotti et al. (2021) highlight the importance of public transport for the elderly. For old people, higher satisfaction with public transport services reduces the probability of giving up their usual activities, and therefore is one of the keys to active ageing.

A survey of private vehicle users in five European big cities – Berlin, Lisbon, London, Madrid and Rome – show that the most important factors for selecting a transport mode are frequency, punctuality, intermodality (usage of more than one mode of public transport), costs and cleanliness; other significant factors being service hours, proximity, speed, temperature and safety (de Oña et al., 2021).

Indeed, in European cities, where residents are more satisfied with public transport services, private transport is rarely used for regular travel to work or school (see Figure 12).

Satisfaction of Riga residents with public transport services is somewhat lower than in the majority of European cities (see Figure A4 for PCA results). While it is considerably better than in Southern European cities (like Rome, Naples and Palermo), there is also a significant room for improvement towards the public transportation systems of Copenhagen or Zurich (see Figure 13). Such improvement, however, is not likely to be a low hanging fruit. Better public transport services would also mean higher public transport costs (taken either by passengers or the city budget). But even the current public transport costs are binding on many passengers. For instance, one third of respondents in Riga strongly disagreed with the statement that public transport in a city is affordable, which is the highest number among 83 European cities surveyed by the Eurobarometer in 2019. While compared to the residents of Tallinn and Vilnius, the residents of Riga rate public transport also as less safe and less frequent, it is the perceived affordability of public transport that shows the most significant difference between the Baltic capital cities (see Table 4).

It was a significant increase in the price of travel tickets that sharply reduced the satisfaction of Riga residents with public transport at the beginning of 2015 (see Figure 14). Since then, satisfaction with public transport services has recovered only partially.⁸ This does not necessarily mean that free public transport in Riga would definitely gain more recognition from Riga residents. For instance, free public transport might be perceived as less safe. Besides, there might be a negative effect on the regularity and timeliness of public transport, as the provider of a free service could be less motivated to take care of its quality.

⁸Note that the ticket price in Riga (2 euro for a single ticket and slightly above 1 euro in the case of bulk purchase) is lower than in many other European cities; moreover, some population groups have discounts or can ride for free.

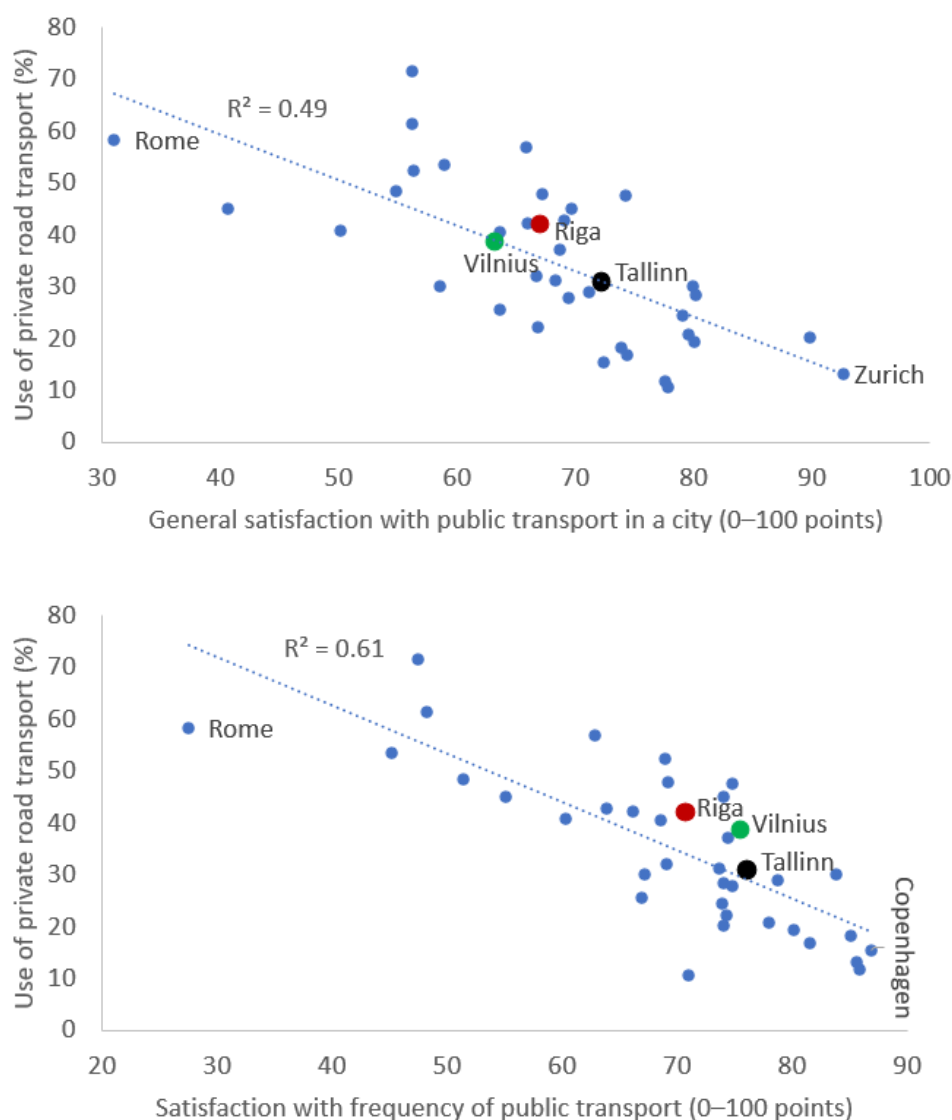


Figure 12: Quality assessment of the public transport system and the use of private road transport in European cities

Notes. General satisfaction with public transport (Eurobarometer). The balance of replies was recalculated to a 0-100 point scale, where “0” denotes very unsatisfied, “100” – very satisfied.

Satisfaction with frequency of public transport (Eurobarometer). The balance of replies was recalculated to a 0-100 point scale, where “0” denotes strong disagreement with the statement that public transport comes often, “100” – strong agreement.

The use of private road transport (Numbeo) – the share of respondents that rely primarily on a car or motorcycle to go to work or school. Numbeo data corresponds to the beginning of 2022 and reflects replies filled in within the last 36 months. In turn, the EC survey was conducted in 2019.

Sample – the European cities included in the Eurobarometer 2019 survey, with at least 50 respondents in the Numbeo Survey (38 cities in total).

Sources: Eurobarometer and Numbeo survey data, author’s calculations.

During the Covid-19 pandemic, the satisfaction of Riga residents with public transport decreased again, which could reflect a decrease in its frequency. In addition, Riga residents aware of epidemiological safety risks might have become more critical of the need to travel on congested routes.

Riga residents are less likely to rely on public transport than residents of Tallinn and Vilnius

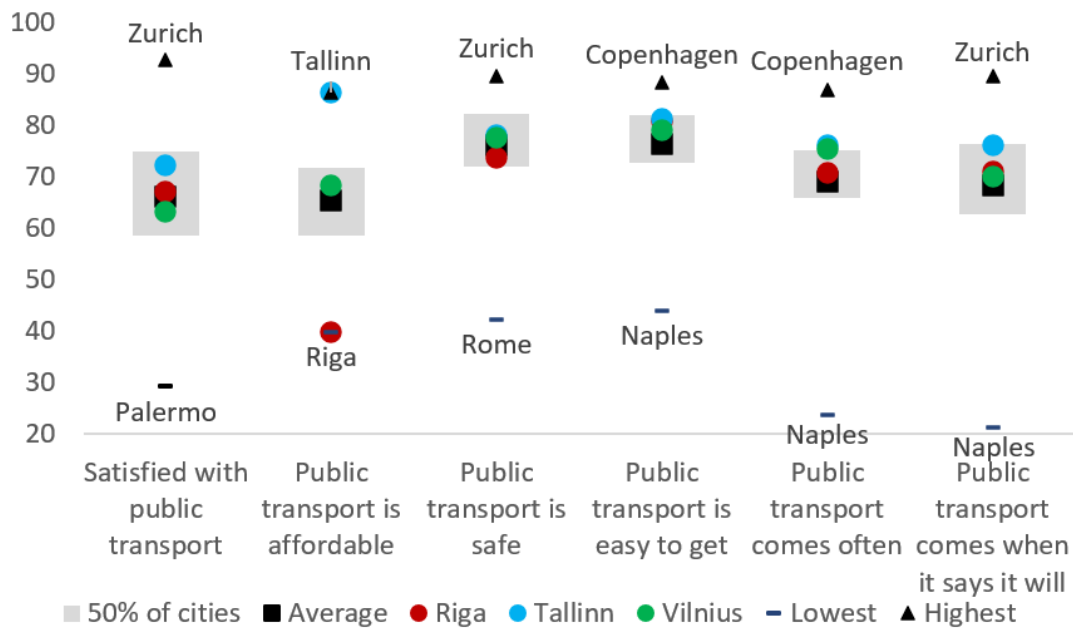


Figure 13: Perceived quality of public transport in Riga, Tallinn and Vilnius compared to other European cities (0–100 point scale; in 2019)

Sources: Eurobarometer survey data, author's calculations.

Table 4: Public transport quality perceptions in Riga, Tallinn and Vilnius (balance of replies; 0–100 point scale)

	Riga	Tallinn	Vilnius
European Commission survey (2019):			
Satisfied with public transport	67.0	72.2	63.1
Public transport is affordable	39.8	86.3	68.2
Public transport is safe	73.6	77.9	77.5
Public transport is easy to get	80.8	81.2	79.0
Public transport is frequent (comes often)	70.7	76.1	75.5
Public transport is reliable (comes when it says it will)	71.0	76.0	70.0

Notes. The colour reflects the place of a particular city among Baltic capital cities: green: 1st place (best); yellow: 2nd place; red: 3rd place (worst). The total number of respondents is 2100 (700 in each city).

Sources: Eurobarometer survey data, author's calculations.

(see Figure A12). This means more frequent use of private road transport, leading to inefficient traffic and higher carbon dioxide emissions per trip (see Figure A13). In both indicators, Riga is right in the middle between the most efficient transport systems in Europe (Vienna and Basel) and the least efficient (Rome), while Tallinn and Vilnius are significantly closer to Vienna and Basel than to Rome.

It should also be noted that a gradual improvement of the existing urban public transport system is not without limits. At present, it is almost twice faster to travel to the centre of Riga from its “sleeping districts” like Jugla, Dreilini or Plavnieki by private car than by public transport. The only mode of public transport that would allow to travel faster than a private car

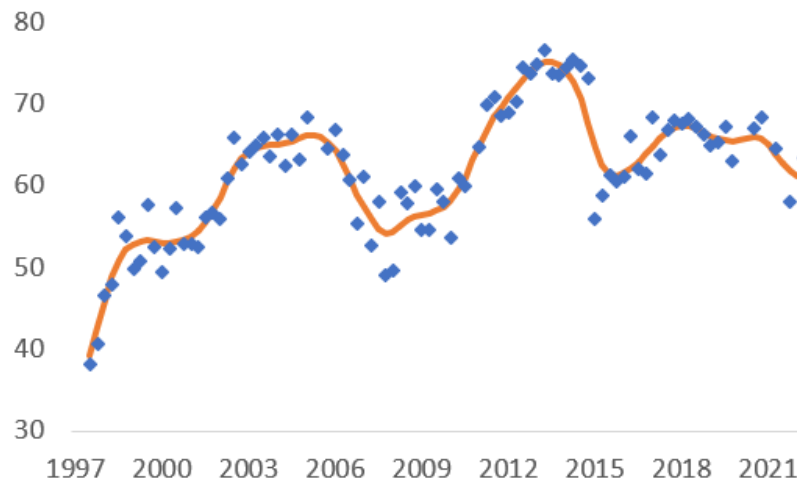


Figure 14: Satisfaction of Riga residents with the provision of public transport services (0–100 point scale; over 1997–2022)

Notes. The balance of replies was recalculated on a 0–100 point scale, with “0” reflecting complete dissatisfaction, “100” – complete satisfaction. The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the Hodrik-Prescott filtered trend of the SKDS survey data ($\lambda = 10$). In some quarters (including due to Covid constraints) the survey was not conducted; the relevant data were interpolated.

Sources: SKDS survey data, author’s calculations.

is rail. This implies the need to increase the role of rail transport when moving both between different districts of Riga and between Riga and Pieriga. Trains should run more frequently and train stations should become multimodal hubs that are tightly integrated into the bus, trolleybus and/or tram traffic system, with the possibility of leaving a private car or bike at the train station easily and safely. This can also significantly reduce the flow of private car traffic of non-Riga residents in the city.

The need to use transport in everyday life could also be caused by inefficient urban zoning – with few jobs available in the city’s sleeping districts and a limited availability of municipal services there. Transport congestion in the city centre can be also reduced by expanding the possibilities to move by public transport from one district of Riga to another without crossing the city centre.

[Woods and Masthoff \(2017\)](#) emphasize an important role of cycling in the reduction of urban car use. In a survey they ran in three European big cities – Barcelona, Helsinki and Milan – cycling was found to give much more satisfaction than both car driving and public transport. Particularly, cycling was seen by respondents as significantly less stressful, better value for money, more productive, healthy and convenient, and with a lower environmental impact than both car driving and public transport. The authors conclude that efforts to reduce urban car use should focus on increasing cycling (particularly – taking measures to raise a safety of cycling in a city), and for longer distances – encouraging multimodal journeys switching both from and to

cycling. [Mueller et al. \(2018\)](#) confirm that the expansion of cycling networks in European cities is likely to decrease premature mortality; thus, providing both health and economic benefits.

The development of cycling infrastructure in Riga is still in its infancy. The bicycle network in Riga is half the length of that in Vilnius and four times shorter than in Tallinn (see [Figure A14](#)) despite the larger population. It should also be noted that in all three Baltic capital cities the bicycle network is one order of magnitude smaller than in Amsterdam, Helsinki or Oslo.

During the Covid-19 pandemic, congestion in European cities was reduced, especially in the morning rush hours (see [Figure A15](#)). However, the total traffic flow changed little – it became more evenly distributed during the day, partly shifting to weekends. The pandemic made public transport less attractive due to inability to keep a physical distance from other passengers. Therefore, private road transport was used more often. Although several cities promoted the use of bicycles and scooters by creating new cycle lanes and transforming central areas into low-emission areas (including New York, Paris and London), this proved insufficient in most cases to prevent traffic congestion from returning.

With the reduction of epidemiological constraints and the return to on-site work, but without changing the mode of transport, congestion on city streets can even exceed the pre-pandemic levels. For example, TomTom data reveal that even taking into account the widespread use of telework, in December 2021 the traffic on working days in Riga exceeded the corresponding level reached two years ago.

International experience shows that the construction of new highways or bridges does not reduce congestion, but only creates more space for it. Therefore, many European cities undertake measures to allocate less (rather than more) space to private road transport. These include further improvements to public transport and cycling infrastructure, as well as an increase in restrictions on the private car use such as creating low-emission areas in the city centre. The latter measures should, however, ensure a trade-off between the environmental and economic interests as rich societies tend to value good environment more than poor societies.

6 Urban demography

People tend to migrate from places that are bad to live to places which are good to live. Also, the better the living conditions, the longer people live and the healthier they are. Thus, urban population growth in cities with high standards of the quality of life is a natural process.

Today, cities compete with each other for investment and human capital, both regionally and globally. The quality of life in the city is one of the main instruments in this competitive struggle (Morais and Camanho, 2011). An attractive, diverse and tolerant urban environment raises international profile and brings highly qualified people to the city. They, in turn, set up new businesses and attract representative offices of large corporations, promoting the city's economic development (Morais, 2013). Riga will never become New York; and it should not as smaller cities tend to be the best for living and *are able* to attract highly qualified and creative people from megapole centres. But there are many cosy cities in Europe to live in; to attract highly qualified and creative people to work and live in Riga, the city should offer a better quality of life than elsewhere.

The number of Riga residents over the last 30 years has decreased by a third, from 900 to approximately 600 thousand (see Figure 15). Although part of them has moved to Pieriga, the population is also declining in Riga region as a whole (i.e. in Riga and Pieriga). In contrast, the population of Tallinn and Vilnius has resumed growth in recent years. First, the number of births in Tallinn and Vilnius has exceeded the number of deaths, while in Riga the mortality rate is still higher than the birth rate. Second, in Riga, unlike Tallinn and Vilnius, fewer people enter the city than leave it.

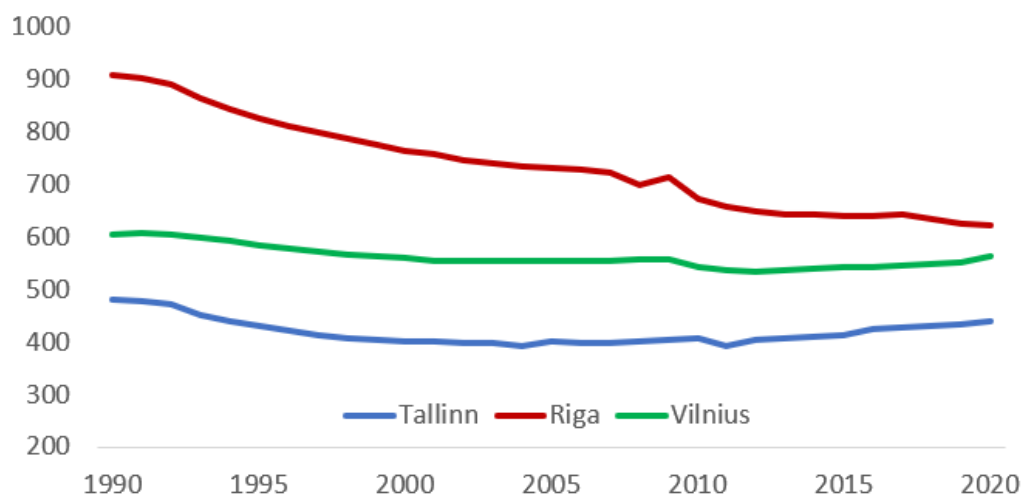


Figure 15: Population in Riga, Tallinn and Vilnius (thousands of people; over 1990–2020)

Source: Eurostat data.

In Riga, 14 out of every thousand people die every year, which is by a third more than in Vilnius or Tallinn (see Figure 16). Higher mortality in Riga could be partly attributed to the different population age structure – the population of Riga is a few years older, with a larger share of the elderly population. For instance, there is slightly more women in the age group of 70–74 years in Riga than women in the age group of 25–29 years (see Figure A18). In addition, the health status of Riga residents is worse than that of their peers in Tallinn and Vilnius. One out of eight Riga residents considers their health to be poor or very poor, which is twice as high as in Tallinn or Vilnius (see Figure 17).

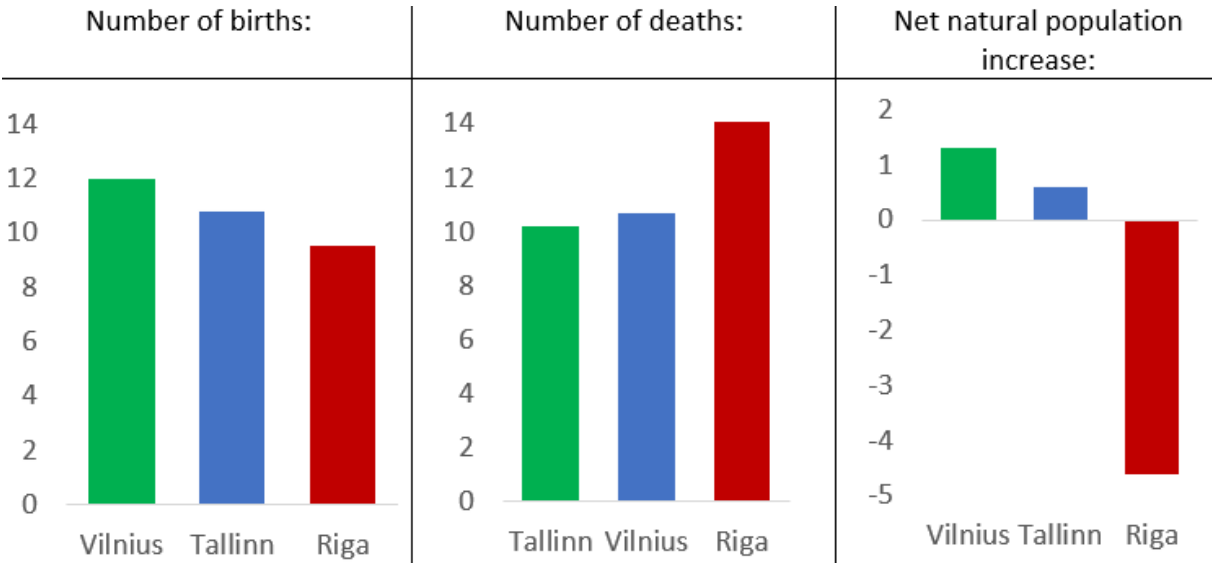


Figure 16: Number of births and deaths in Riga, Tallinn and Vilnius (per thousand population; annual average over 2018–2020)

Sources: Eurostat data, author’s calculations.

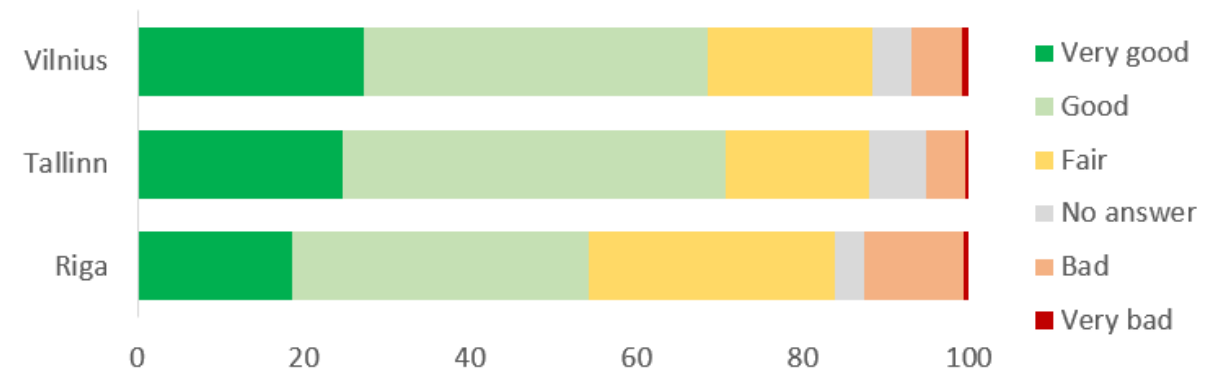


Figure 17: Self-assessed health status among the population of Riga, Tallinn and Vilnius (in 2019)

Notes. The number of respondents is 700 in each city. The structure of respondents corresponds to the gender and age structure of the city’s population.
Source: European Commission survey data.

There are several factors why the health status of Riga residents is worse than that of

residents in Tallinn and Vilnius. One of them is an unhealthy lifestyle – Latvians smoke more than Estonians and Lithuanians, eat less fruit and vegetables and have more overweight people. The health of Riga residents might also be negatively affected by higher environmental pollution caused by private road transport or less trust in surrounding people. Moreover, one should recall the importance of the health care system quality. Across Baltic capital cities, residents of Riga are the most critical of the health care system, particularly of the cost of health care services, as well as to the accuracy of medical equipment and reporting (see Table 5). This, however, is likely to reflect mainly the situation at country level. Cities do not normally have major tools to raise the quality of health care well beyond the country average.

Table 5: Health care service quality perceptions (balance of replies; 0–100 point scale)

	Riga	Tallinn	Vilnius
European Commission survey (2019):			
Satisfaction with health care services, doctors and hospitals	45.7	55.5	56.9
Numbeo survey (2022):			
Skill and competency of medical staff	66.8	72.6	72.8
Speed in completing examination and reports	59.8	67.3	73.1
Equipment for modern diagnosis and treatment	70.6	85.5	83.2
Accuracy and completeness in filling out reports	62.9	75.7	72.6
Friendliness and courtesy of the staff	60.3	63.5	66.0
Satisfaction with waiting in medical institutions	42.5	45.7	55.4
Satisfaction with cost	55.0	79.1	76.3
Convenience of location	78.5	79.8	80.4

Notes. The balance of replies to each question was recalculated on a 0–100 point scale, where 0 is the worst possible value and 100 is the best possible value. The colour reflects the place of a particular city among the Baltic capital cities: green: 1st place (best); yellow: 2nd place; red: 3rd place (worst). Eurobarometer survey (2019): the number of respondents is 700 in each city. Numbeo survey (2022): number of respondents – 101 in Riga, 117 in Tallinn, 79 in Vilnius.

Sources: Eurobarometer and Numbeo survey data, author's calculations.

Note also that satisfaction with health care services in Riga is comparatively low even if compared with the satisfaction of other infrastructure pillars like education or culture facilities (Figure A17).

Although in recent years Riga residents have become more satisfied with health care services, the level of satisfaction is similar to that observed ten years ago. In the most recent SKDS surveys, 5–8% of respondents named health care issues among the three primary problems to be solved in the city. Respondents most often pointed to long waiting lists for and high prices of health care services as main issues. The quality of health care services was assessed most critically by low-income respondents, as well as those who have used health services recently.

Also, satisfaction with the promotion of a healthy lifestyle and sports activities in Riga is similar to the level recorded ten years ago. Note, however, that the decline in satisfaction during

the most recent years may reflect the closure of sports centres and the cancellation of some sports events as part of the measures to mitigate Covid-19 transmission (see Figure 18).

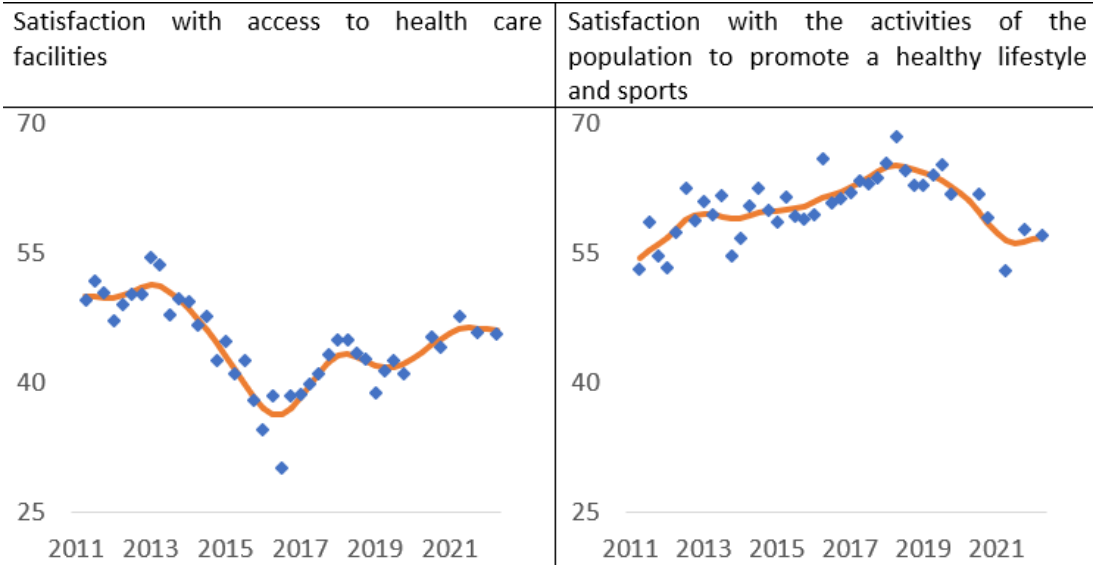


Figure 18: Satisfaction of Riga residents with the availability of health care institutions and promotion of a healthy lifestyle in the city (0–100 point scale; over 2011–2022)

Notes. The balance of replies was recalculated on a 0–100 point scale, with “0” reflecting complete dissatisfaction, “100” – complete satisfaction. The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the Hodrik-Prescott filtered trend of the SKDS survey data (lambda = 10). In some quarters (including due to Covid constraints), the survey was not conducted; the relevant data were interpolated.
Sources: SKDS survey data, author’s calculations.

It should be noted that worse health assessment of people living in Riga is not an artefact of a particular Eurobarometer survey. It corresponds well to the EU-SILC annual survey data, which confirms that health self-assessment in Latvia is somewhat lower than in Estonia and Lithuania (the Baltic countries have one of the lowest health assessment scores among EU countries). A similar picture appears from the cross-country comparison of life expectancy or age-specific mortality rates.

The Eurobarometer survey confirms the fact that the health status tends to worsen with age. However, even after controlling for the age structure of the population, people living in Tallinn and Vilnius have somewhat better health self-assessment than people living in Riga (see Figure A16).⁹

In turn, the difference in the birth rate between Vilnius and Riga reflects a pure “city” (rather than a country) effect as birth rate in Latvia during the most recent years was even slightly higher than in Lithuania. Technically, Riga lags behind Vilnius in terms of birth rate (see Figure 16)

⁹Two things are worth mentioning in this respect. First, there is a statistically significant gap in the health status of working-age people between Tallinn and Riga. A better health status in Tallinn might be one of the factors contributing to relatively high employment and labour productivity in this city. Second, the fact that young people (under 25 years of age) in Vilnius assess their health significantly better than in Riga and Tallinn may reflect very recent improvements in the quality of life in Vilnius, which transmitted into a health status of young people there.

since there are less 20–39-year aged women in Riga in the population age structure (see Figure A18). Thus, it could be said that the birth rate in Riga and Vilnius would be similar if the two cities had the same population age structure. But why does the age structure differ so much? Because many young residents of Riga tend to migrate to Pieriga.

One of the fundamental factors behind migration of young people from Riga to Pieriga is that they do not perceive Riga as a good place to live¹⁰. The population share believing Riga is not a good place to live for young families with children is twice as high as in Tallinn and four times bigger than in Vilnius (see Figure 19). The result is a shortage of young people in the city’s age structure, which also means a low birth rate. In the neighbourhood of Riga, the age structure of the population is younger than in the city itself, whereas the opposite is true for Vilnius, which enjoys a younger population than the neighbourhood area (see Figure A19).

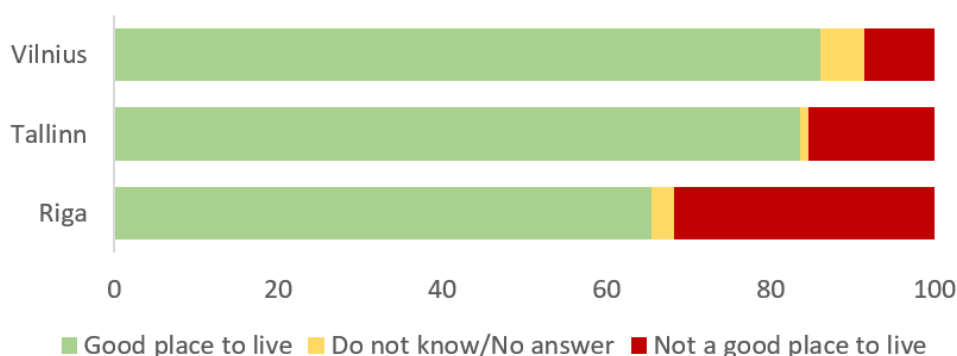


Figure 19: Perceptions of Riga, Tallinn and Vilnius residents about whether the city is a good place to live for young families with children (%; in 2019)

Notes. The number of respondents is 700 in each city; the structure of respondents corresponds to the gender and age structure of city population.
Source: European Commission survey data.

What does “a good place to live for young families with children” really mean? This is a subjective issue which may not be reduced only to the availability of kindergartens or schools – according to satisfaction with educational institutions Riga does not lag behind Vilnius. A good place to live for young families with children is likely to be a much broader concept, including income and employment opportunities, access to housing and infrastructure, green spaces, urban safety, access to health care and a many other factors.

Riga is the only Baltic capital city that sees more people leave than arrive (see Figure 20). The outflow of Riga residents (including young families) to Pieriga could be attributed to a lower quality of life in the city, for example, more air and noise pollution from private road transport,

¹⁰Note that although on the European scale Riga is located in the lowest quartile regarding whether a city is a good place to live for every population group considered (see Figures A6 and A20), other population groups (i.e. the elderly) are less mobile compared to youth, and thus are less likely to change a place of residence if they are dissatisfied with the quality of life.

less access to green areas, less affordable housing or less safety in the city. In addition, the income level in Riga is a quarter lower than in Tallinn and Vilnius, which means a wider income gap between Riga and more developed EU countries, as well as intensifying emigration driven by economic motives.

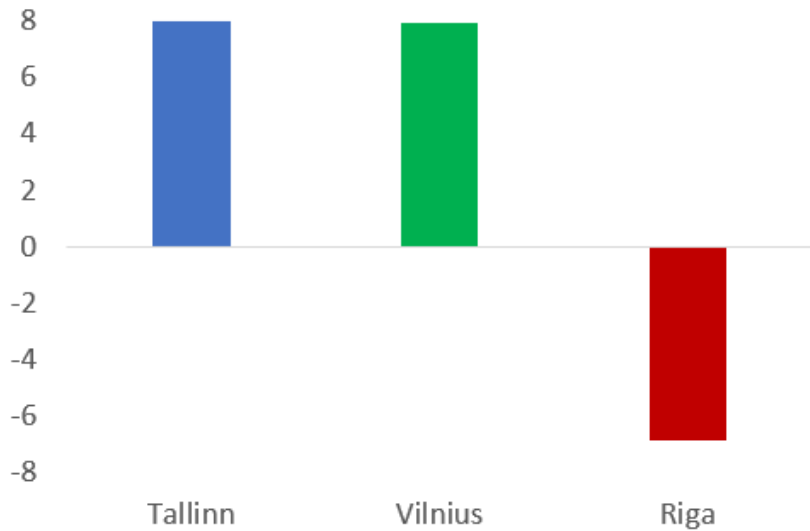


Figure 20: Annual net migration in Riga, Tallinn and Vilnius (per thousand population; annual average over 2017–2019)

Sources: Eurostat data, author’s calculations.

It seems that Riga has less to offer its visitors. For instance, Riga residents themselves are systematically less satisfied with the quality of infrastructure (see Figure A5) such as cultural objects and public spaces, and it is systematically more difficult to find a good job in Riga than in Tallinn or Vilnius (see Figure 21).

One third of respondents in Riga does not agree that the entry of foreigners into the city is beneficial, while in Vilnius and Tallinn, on average, only every tenth respondent of the city thinks so. Less than half of Riga residents think that the city is a good place for immigrants from other countries to live, while in Tallinn and Vilnius 60% and 73% think so. In addition, most respondents in Riga believe that foreigners are not integrated into society (see Figure A21).

If the current population trend continues, Vilnius could overtake Riga in terms of population already in 2025. Ensuring a higher quality of life in Riga is a key for urban regrowth. Although cities may try to reverse depopulation the trend employing particular policies such as massive advertisement campaigns to attract investors to the city or additional childbirth benefits, the efficiency of these policies might be questioned. Children tend to go elsewhere in search of a better life as they grow up. Also, investors will never stop looking for the next city, which will offer them even more favourable conditions for business (and a tax-free zone at the extreme).

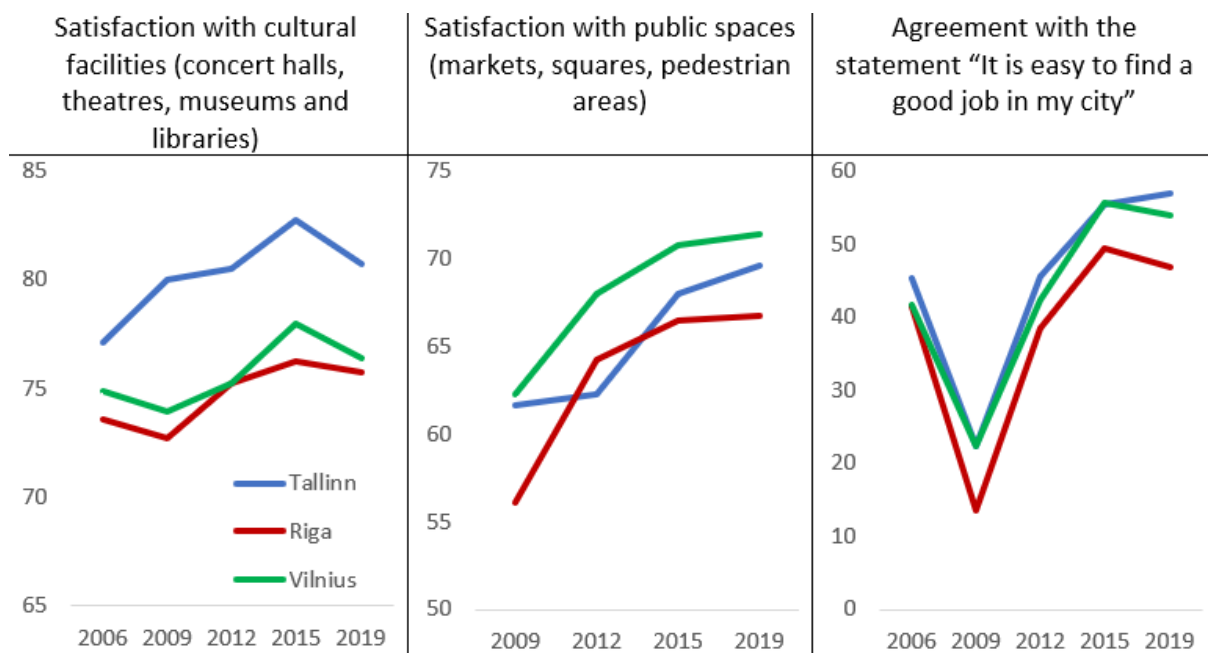


Figure 21: Satisfaction with cultural facilities, public spaces and job finding opportunities in Riga, Tallinn and Vilnius

Note. The balance of replies was recalculated on a 0–100 point scale, where 0 – very dissatisfied/strongly disagree, while 100 – very satisfied/strongly agree.

Sources: Eurostat data, author's calculations.

And it turns out that the money that would have been most useful to invest in improving the quality of life for the current city residents (Hospers, 2014) is spent to make-up of the city's facade without addressing the fundamental reasons of urban shrinkage.

7 Urban governance

The quality of governance is often closely linked with the prosperity of nations, regions and cities. Although urban governance is heavily influenced by national conditions, there are significant quality of governance variations in Europe at sub-national level, which are likely to have links with regional and urban prosperity (Stead, 2015). Indeed, smart governance is an essential element of a smart city (Tomor et al., 2021). However, the vast majority of the literature on the effects of public governance on the quality of life has focused on comparing countries, with only few studies available at local level.

For instance, Charron et al. (2015) present the “European Quality of Government Index” for 206 regions and show that “the huge variation in social well-being across European regions is matched by huge variations in quality of government”. While the authors admit that causality probably runs in both directions, they report that a region with a high quality of governance also enjoys higher income, more education, higher level of social trust, as well as fewer problems such as economic and gender inequalities, unemployment and infant mortality.

Cárcaba et al. (2022) point to an immediate positive effect of government efficiency on subjective well-being levels of an individual in a sample of Spanish municipalities. Therefore, citizens living in a municipality which is well managed are happier. This effect may come directly from the improvements that can be achieved in the provision of public services with a better management. In turn, control of corruption tends to have a lagged impact on subjective well-being. It may take some time until the effects of corrupt practices have a noticeable impact on measurable outputs like increased taxes or municipal debt, and worse provision of public services.

It should be noted that neither the presence of a causal link between governance and prosperity nor its direction is fully clear in the literature. In other words, it is not clear whether greater prosperity is a consequence of better governance or whether better governance is a result of higher levels of prosperity. However, in general, there is sufficient association between the quality of regional governance and various indicators of regional prosperity (such as the income level, regional innovation and life expectancy) to suggest that governance quality is an important issue to consider when monitoring and promoting prosperity (Stead, 2015).

Among 83 European cities surveyed by the Eurobarometer in 2019, the best perceived quality of governance was recorded in Zurich, while the worst – in Rome. In Riga, the quality of governance lags significantly behind Tallinn and Vilnius. Riga was identified as one of the ten European cities with the lowest governance quality score (see Figure A7 for PCA results) –

according to this metrics it is located twice as close to Rome than to Zurich and quite close to other southern European cities – Sofia, Lisbon and Bucharest. Tallinn and Vilnius, on the other hand, are closer to Zurich than to Rome (see Figure 22).

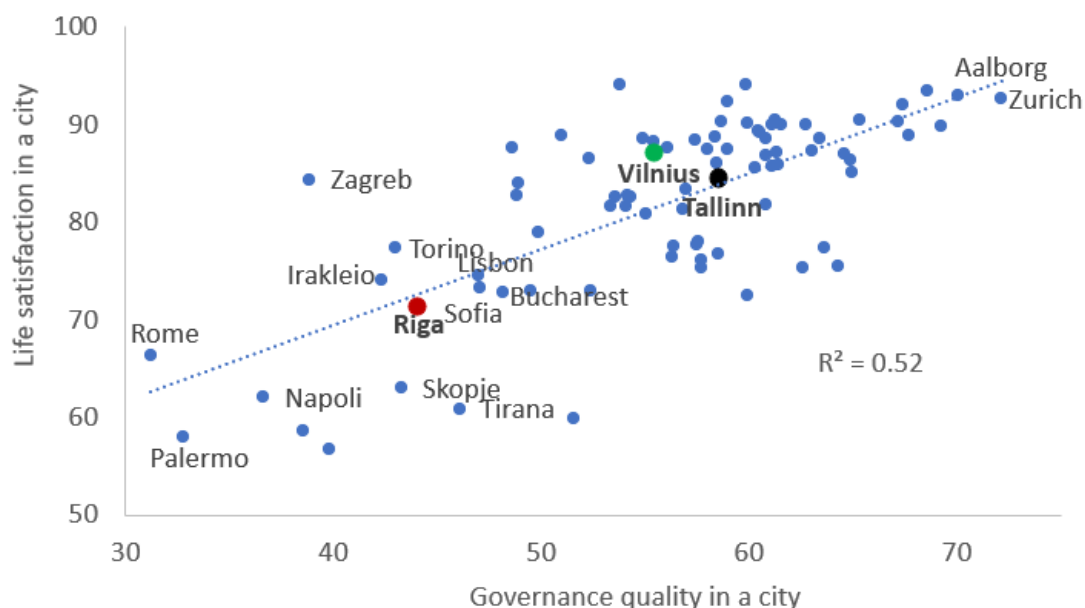


Figure 22: Governance quality and life satisfaction in a city (0–100 point scale; in 2019)

Notes. Governance quality in a city measure reflects the answers of respondents to five questions: speed of solving requests, procedures are straightforward and easy to understand, fees are reasonable, information and services, corruption in a local public administration. The balance of replies was recalculated to a 0–100 point scale, where 0 is the worst possible score (a higher rate of corruption, worse governance quality), while 100 is the best possible score.

Sources: Eurobarometer survey data, author's calculations.

The rather low position of Riga in a quality of governance ranking is evident across all indicators of urban governance. Even in those areas of city governance where Riga's performance is relatively good – the easiness of procedures, speed of solving requests and the availability of information online – perceived quality of governance is worse than in about three quarters of European cities surveyed by the Eurobarometer. In turn, in the areas where the evaluation of Riga residents is the most critical - the prevalence of corruption and whether fees collected by the local public administration are reasonable – Riga is in the 8th and 6th place, respectively, from the bottom, among 83 European cities (see Figure 23).

Almost 40% of Riga residents do not agree with the statement that the fees charged by the local public administration are reasonable - this figure is three times higher than in Vilnius and ten times higher than in Tallinn. Also, 45% of Riga residents are fully convinced regarding the presence of corruption in the work of local public administration, which is twice as high as in Tallinn and threefold the figure in Vilnius (see Figure 24).

It is undeniable that the quality of governance in the city partly reflects the overall gover-

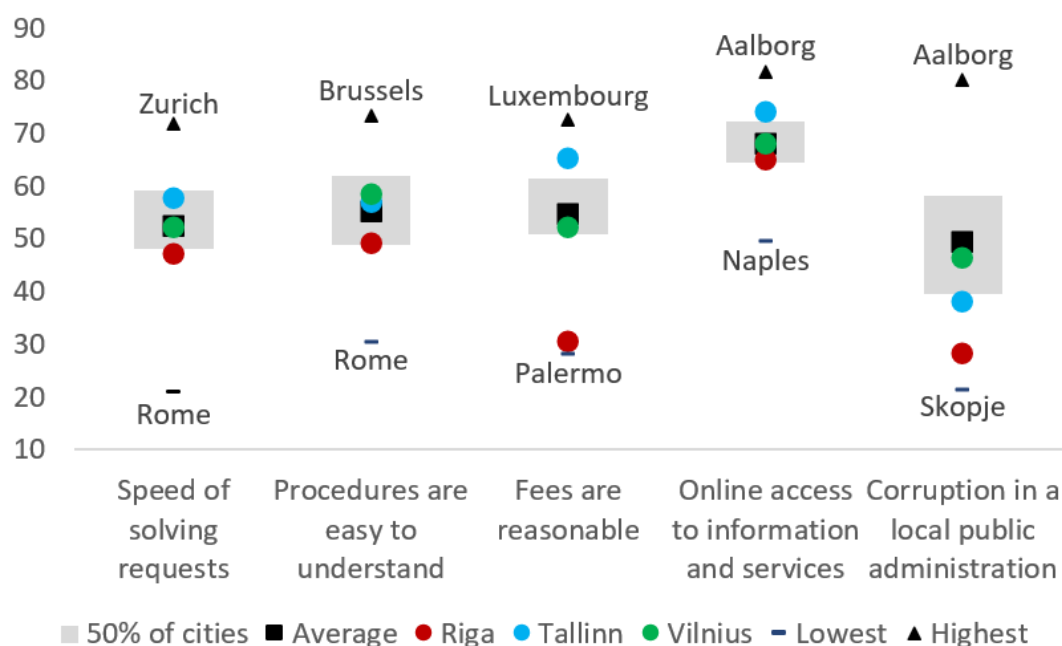
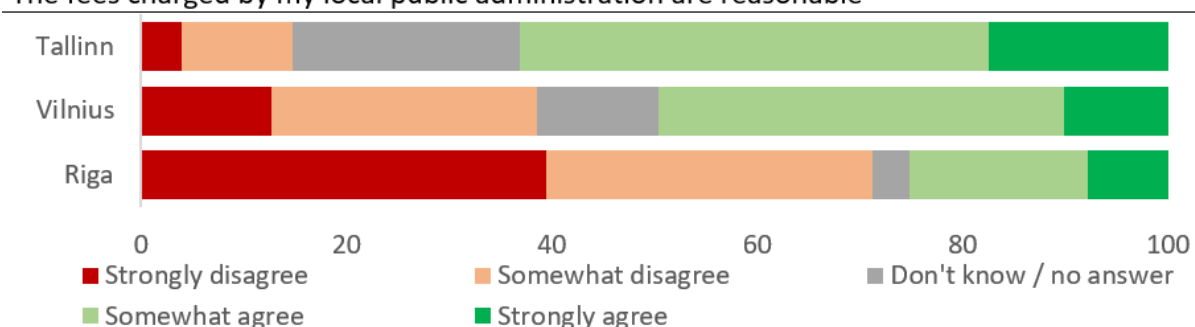


Figure 23: Perceived quality of governance in Riga, Tallinn and Vilnius compared to other European cities (0–100 point scale; in 2019)

Note. The balance of replies to each question was recalculated to a 0–100 point scale, where 0 represents the worst possible outcome, while 100 – the best possible outcome.

Sources: Eurobarometer survey data, author's calculations.

The fees charged by my local public administration are reasonable



There is corruption in my local public administration

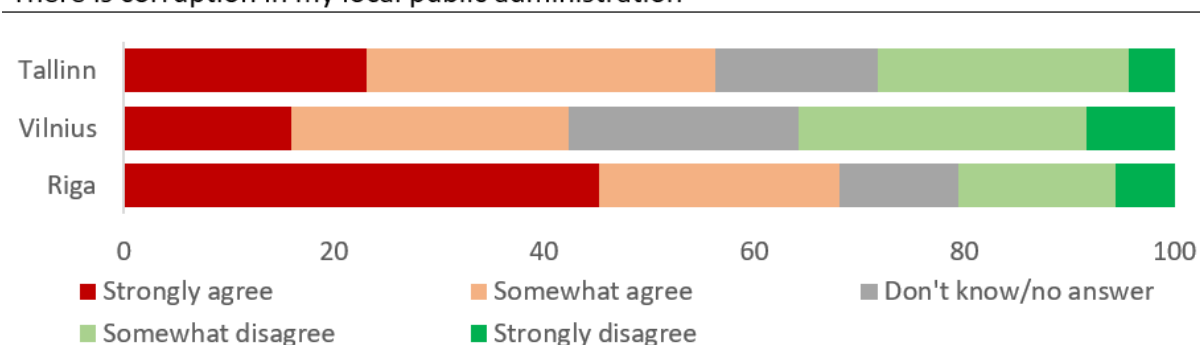


Figure 24: Satisfaction with the fees charged by local public administration and corruption in Riga, Tallinn and Vilnius (in 2019)

Notes: The number of respondents is 700 in each city. The structure of respondents corresponds to the gender and age structure of the population.

Source: Eurobarometer survey data.

nance system in the country – the apple does not fall far from the apple tree. However, even taking into account the perceived quality of governance and prevalence of corruption in Latvia, Riga shows rather low governance quality scores. For instance, in Latvia and Lithuania the perceived prevalence of corruption is similar, but in Vilnius it was significantly lower than in Riga. Moreover, the perceived quality of governance in Vilnius and Tallinn is in line with the respective performance of the public sector in Lithuania and Estonia; in turn, the perceived quality of governance in Riga lags significantly behind the corresponding level in Latvia (see Figure 25). This implies that measures to improve governance and combat corruption at country level may not be sufficient to achieve a major improvement in Riga; additional steps in these areas should be implemented at city level.

In some large Latvian cities, the quality of local governance is perceived to be better than in Riga. For instance, residents' satisfaction with the services provided by the municipality is the lowest in Riga among all large Latvian cities surveyed by the CSB. Riga residents' trust in the city administration is also relatively low – lower indicators were observed only in Daugavpils and Jurmala (see Figure 26).

Riga's backwardness in terms of governance quality is not a legacy; it is a phenomenon of the last ten years. Ten years ago, in several areas, the perceived governance quality in Riga was either similar to that of Tallinn and Vilnius or even higher than in the two capitals. For example, in 2012, the trust of Riga residents in the local public administration was the highest among the Baltic capital cities; however, rapid progress in Tallinn and Vilnius determined the backwardness of Riga in the following years (see Figure A22).

One might argue that the poor governance scores of Riga are to a large extent driven by the corruption scandal in the Riga City Council in 2019, which earned criticism from Riga residents and could have influenced the results of the Eurobarometer survey conducted that year. However, it should be noted that the downward trend in corruption perceptions in Riga was observed well before 2019 (see Figure 27).

However, note that the assessment of the activities of the Riga City Council in the most recent years may have been affected by the Covid-19 pandemic. For example, the satisfaction of the population with the quality of service provision in municipal institutions may have decreased reflecting the fact that several municipal services were not available in person during that time.

Perceived prevalence of corruption in the Riga City Council has decreased over the past year. The reason for this could be the change in the leadership of the Riga City Council after the 2020 elections. However, the value of the index below 50 points means that even today more

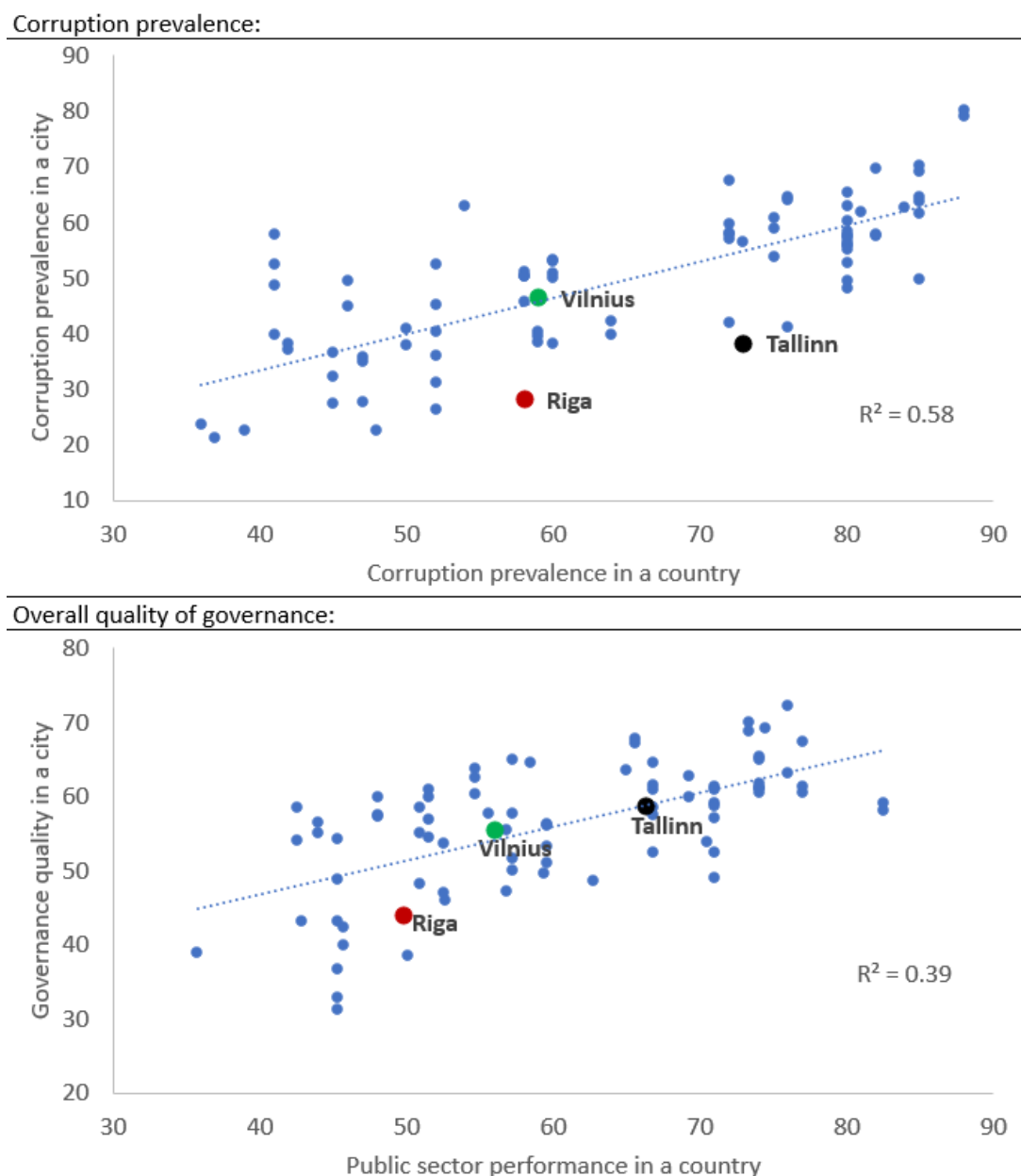


Figure 25: Governance quality and corruption prevalence in European cities and the respective countries (in 2019)

Notes. City Statistics: the balance of replies was recalculated to a 0–100 point scale, where 0 is the worst possible score (increased corruption, worse governance quality), while 100 is the best possible score.

Sources: Global Competitiveness Index (countries) and Eurobarometer survey (cities) data, author's calculations.

respondents are still convinced of the existence of corruption in the local public administration than of its absence. This indicates that further progress in fighting corruption is still needed.

There is some evidence that Riga residents had become accustomed to corruption in the Riga City Council – the value of the respective index in Riga has never been above 50 points. When asked to mention three problems that the local public administration should address primarily, even during the 2019 corruption scandal, no more than 6% of respondents spontaneously mentioned the issues related to reducing the risk of corruption (only about 3% in the mid-2022).

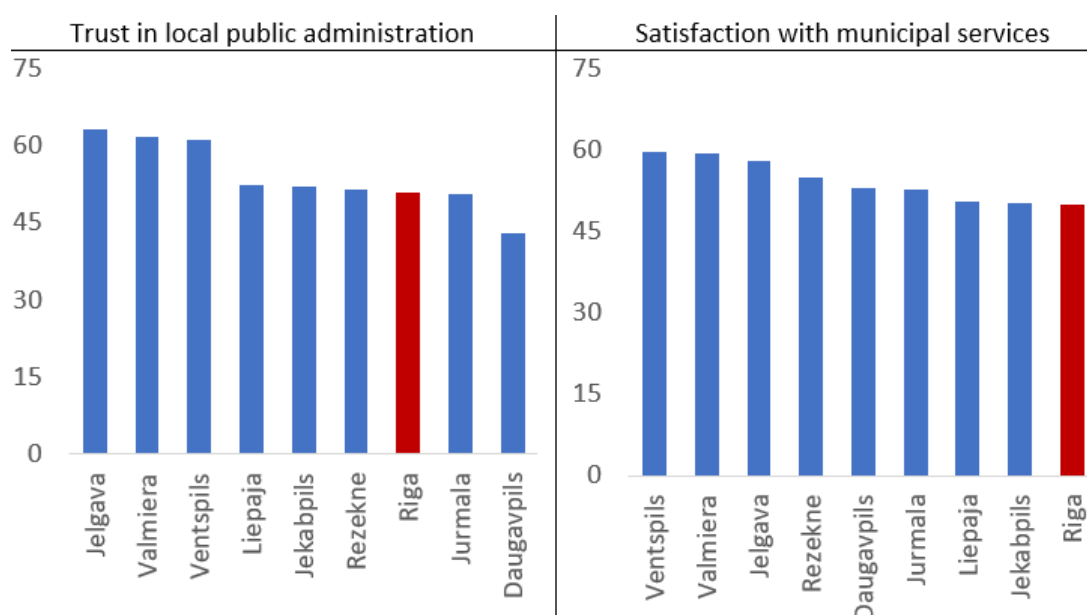


Figure 26: Trust in local public administration and satisfaction with municipal services in large Latvian cities (index; 0–100 point scale)

Note. The balance of replies to each question was recalculated to a 0–100 points scale, where 0 is “strongly disagree”, while 100 – “strongly agree”.

Sources: author’s calculations, based on the CSB 2017 survey on eight big Latvian cities and EC 2015 survey on Riga.

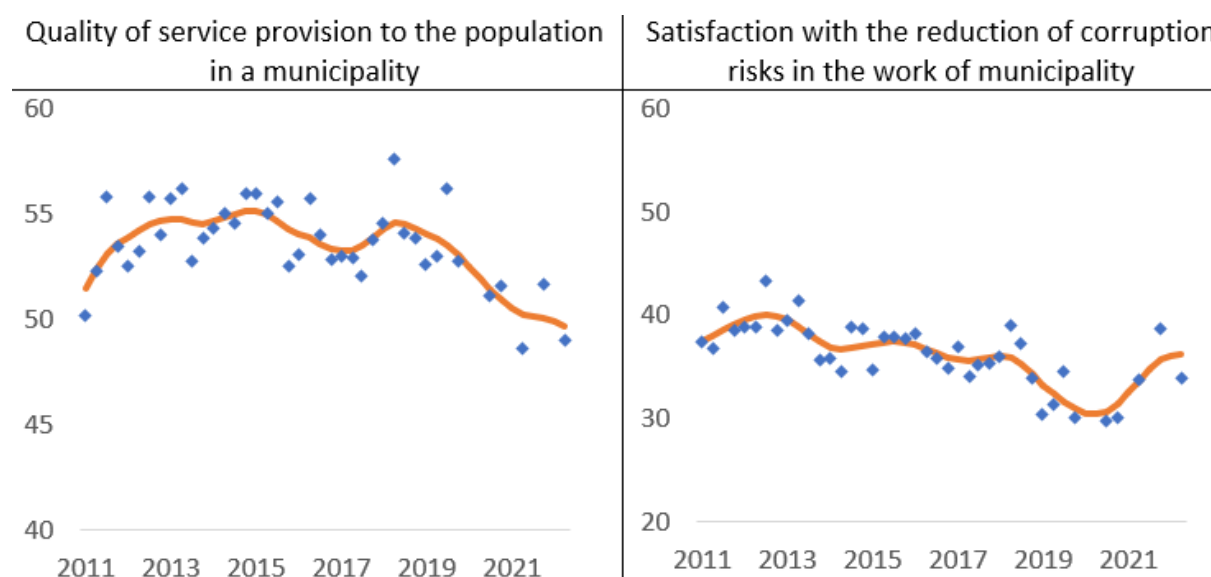


Figure 27: Satisfaction with the quality of local public administration services and with a decrease in corruption risks (0–100 point scale; over 2011–2021)

Notes. The balance of replies was recalculated on a 0–100 point scale, with “0” reflecting complete dissatisfaction, “100” – complete satisfaction. The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the Hodrik-Prescott filtered trend of the SKDS survey data ($\lambda = 10$). In some quarters (including due to Covid constraints) the survey was not conducted; the relevant data were interpolated.

Sources: SKDS survey data, author’s calculations.

However, it could also reflect the fact that, according to Riga residents, other problems (for example, urban development, traffic or poverty) are more important for the city or they do not regard the possibility of combating corruption as real, at least in the short term.

8 Urban economic growth

Academic literature has identified a strong positive association between economic prosperity of a city and urban quality of life ([Akande et al., 2019](#)), which is likely to reflect a two-way causality between these variables. On the one hand, rich cities have more resources to take care of well-being of its citizens. On the other hand, attractive, diverse and tolerant urban environment enhances international visibility and attracts highly qualified people. Attracting human capital means attracting firms and investment and thus economic development for cities ([Morais, 2013](#)). Given that nowadays cities are competing for investments and human capital both regionally and globally, urban quality of life is increasingly recognized as a key factor for city development and urban competitiveness ([Morais and Camanho, 2011](#)).

While economic prosperity is a crucial element of the quality of life, economic growth alone does not make urban citizens happy. This is evident by the presence of many relatively rich European cities with shrinking population and rather unhappy citizens. Modern literature on urban development emphasizes several other pillars of a sustainable, smart and attractive city – good environment and city governance, quality of housing and reliable public transport services, feeling safety and trust among citizens.

It would be logical if Riga – the largest city in the Baltic States in terms of population, would also be the largest economic centre of the Baltics. However, Riga has recently lost its leadership in terms of economy size (GDP) in the Baltics to Vilnius. In 2020, GDP of Vilnius region (Vilniaus apskritis) became larger than that of Riga region (Riga and Pieriga). Note that 20 years ago Riga’s economy was by a third larger; this reflects faster economic development in Vilnius over time. Besides, as the price level in Vilnius is generally lower than in Riga, one may consider that in fact the economy of Vilnius, if measured by GDP adjusted by purchasing power parity, exceeded that of Riga already in 2017 (see [Figure 28](#)).

Vilnius has also recently become the richest city (i.e. with the largest GDP per capita) in the Baltics, overtaking Tallinn in 2018. Today, GDP per capita in Vilnius is a third higher than in Riga, while at the beginning of the century the income level of both cities was similar. One could also deduct that the average income level in Riga lags behind the respective variable in Vilnius and Tallinn by about 7–8 years. Over time, the income gap between Riga and the other Baltic capitals has widened in absolute terms (see [Figure 29](#)).

This does not mean that Riga’s economy is stagnating; Riga residents have become almost three times richer over the last 20 years (based on GDP per capita PPP metrics). Riga has also been developing faster than Latvia or the EU on average. The fact that the average income

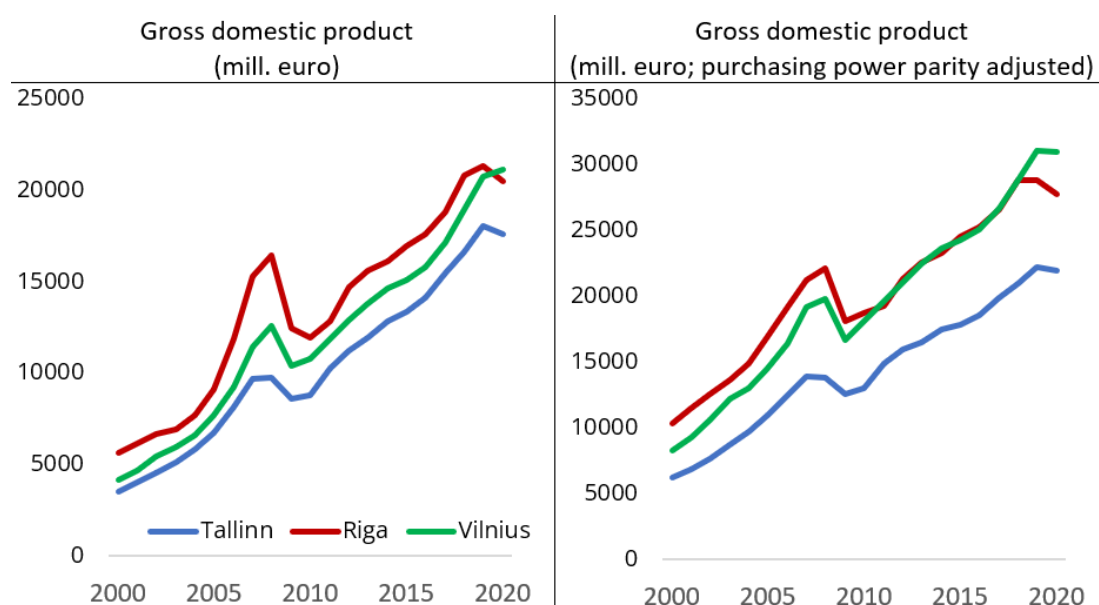


Figure 28: Size of the economy in Riga, Tallinn and Vilnius (over 2000–2020)

Notes. Here and thereafter: Riga's GDP in 2020 was not available; it is assumed that it changed similarly to Latvia's GDP. In addition, GDP is available at level of NUTS-3 regions, rather than at city level. Therefore, Riga reflects Riga region (Riga and Pieriga), Vilnius – Vilniaus apskritis; Tallinn – Põhja-Eesti region. Sources: Eurostat and Central Statistical Bureau of Latvia data, author's calculations.

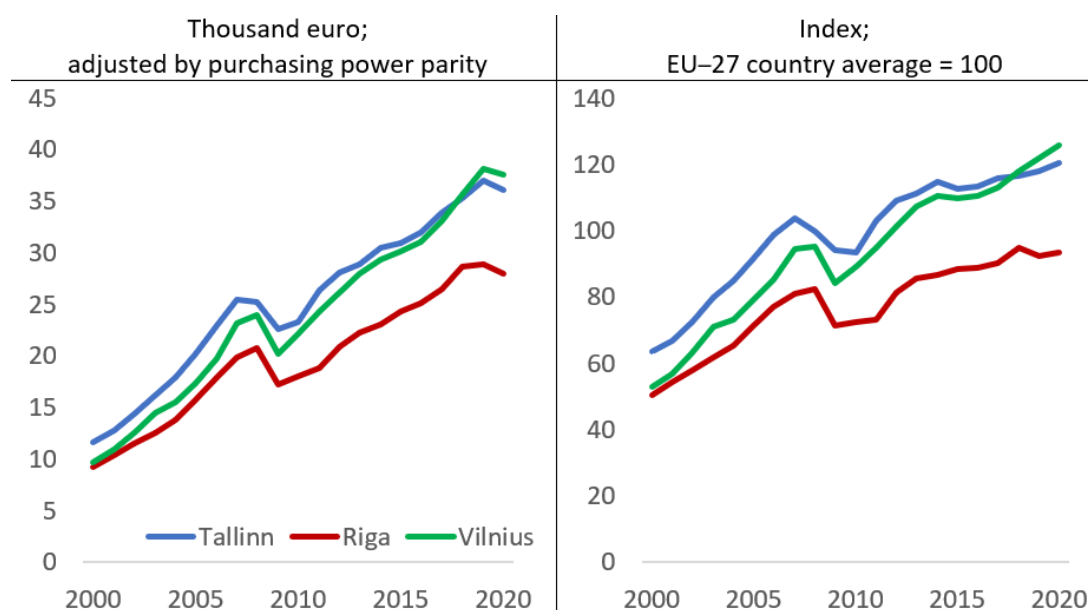


Figure 29: Gross domestic product per capita in Riga, Tallinn and Vilnius (over 2000–2020)

Sources: Eurostat and Central Statistical Bureau of Latvia data, author's calculations.

level in Riga increased from a half of the EU average at the beginning of the century to just a few percent behind the EU average today, might be viewed as a nice convergence story.

However, a different perspective arises when economic development in Riga is compared to that of Vilnius and Tallinn. From a similar relative income at the beginning of the century, Vilnius exceeded the EU average income level already ten years ago, and has only become richer since then. Note also that Tallinn had higher income level than Riga at the beginning of the

century. Assuming that Tallinn and Riga have the same steady-state income level, the beta-convergence effect implies that income growth in Riga had to be 0.5–0.7 percentage points faster than in Tallinn (see Figure 30). In fact, however, GDP per capita growth in Riga and Tallinn was quite similar since the beginning of the century. This implies that either the steady-state income in Riga is indeed lower than in Tallinn or Riga's transition to the steady state is hindered; both could be driven by fundamental deficiencies such as lower human capital or worse governance quality in Riga (among many other factors).

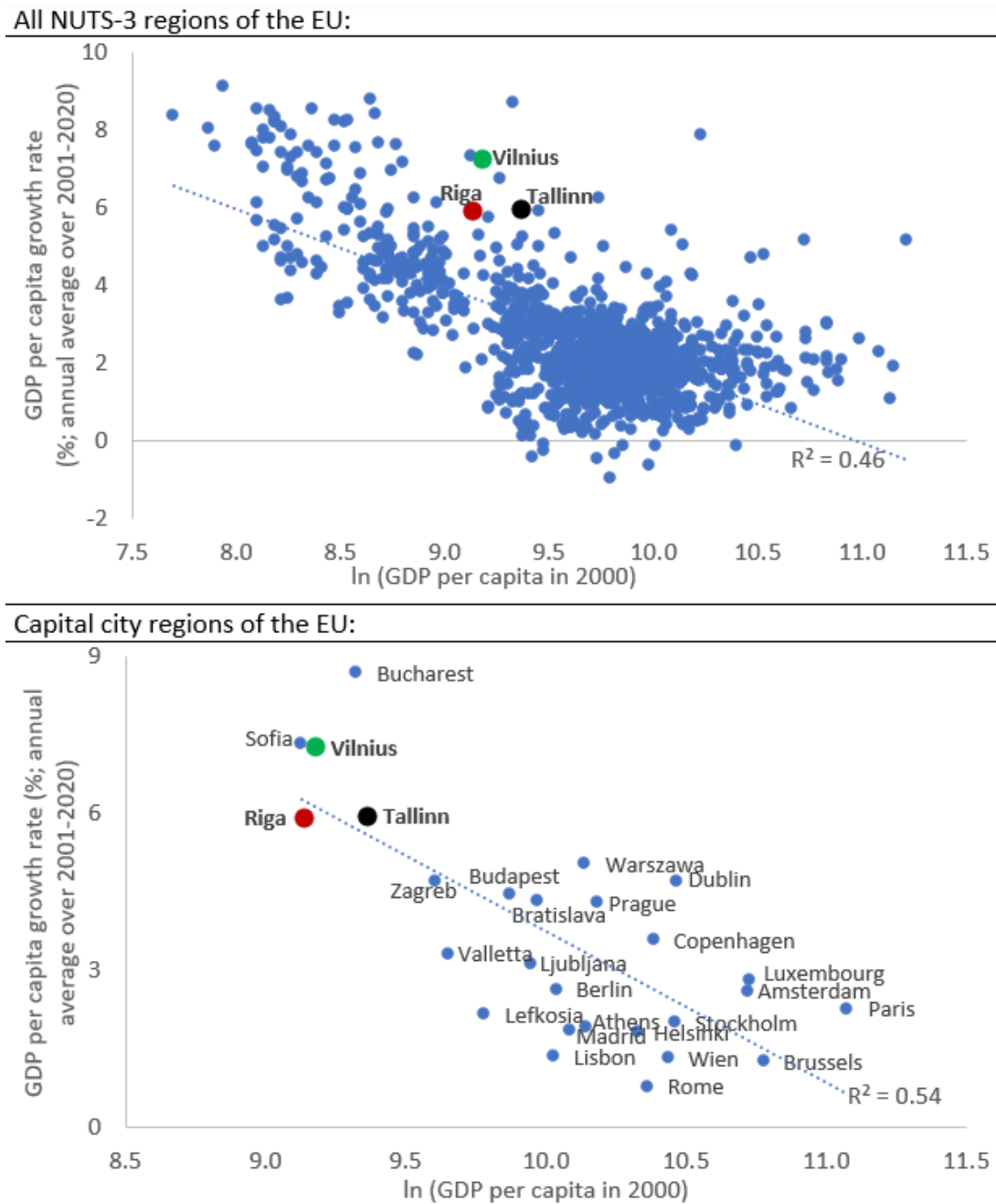


Figure 30: Absolute beta-convergence among EU regions (over 2001–2020)

Note. Gross domestic product per capita is adjusted for purchasing power parity.

Sources: Eurostat and Central Statistical Bureau of Latvia data, author's calculations.

Economic growth rates in Vilnius were on average only by a couple percentage points higher than in Tallinn or Riga (see Figure 31). Such growth rate differences may have gone unnoticed in the short run, possibly written off due to short-term developments or statistical inaccuracies. However, even these seemingly insignificant growth rate differences can create a notable gap in the income levels when accumulated in the long run.

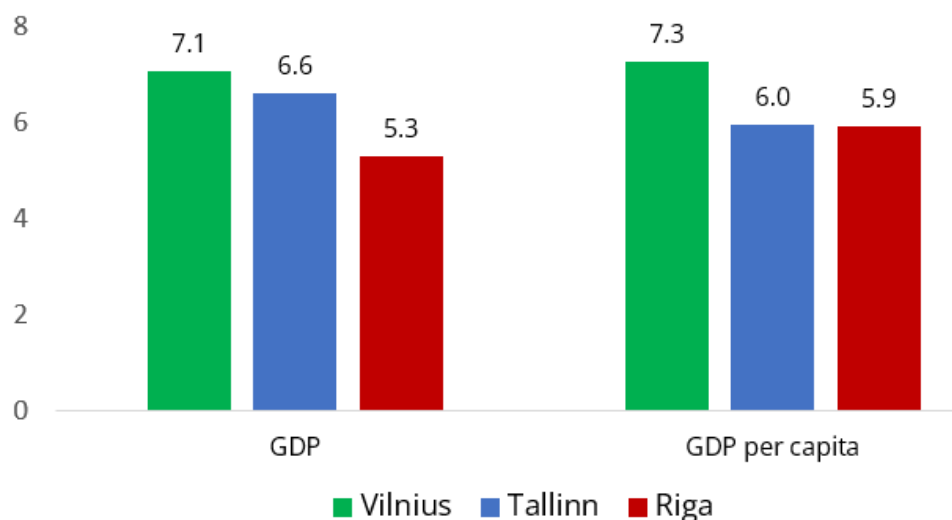


Figure 31: Economic growth rates of Riga, Tallinn and Vilnius (%; annual average over 2001–2020)

Sources: Eurostat and Central Statistical Bureau of Latvia data, author's calculations.

In order for Riga to reach the income level of Vilnius and Tallinn, it must develop faster than its neighbours, but so far Riga has developed somewhat slower. This implies that with the current pace of development, Riga will never reach the income level of Vilnius and Tallinn.

One might argue that the Latvian economy is developing unevenly as growth in Riga is considerably faster than in the rest of Latvia. However, the economic growth differential between the capital city and the rest of the country is even more pronounced in Lithuania and Estonia. Capital city regions are often growing faster than other regions, and the Baltic countries are no exception. In all three Baltic countries, economic growth in the capital city regions has been faster than in the rest of the country. The Lithuanian economy has been developing faster than the Estonian and Latvian one since the turn of the century. However, Vilnius stands out even compared to the favourable growth dynamics in the rest of Lithuania (see Figure 32). More rapid economic development of Vilnius, compared to Riga and Tallinn, goes in line with the changes in residents' purchasing power and the quality of life in general as indicated by Numbeo regular surveys. While Riga and Vilnius enjoyed similar quality of life just a few years ago, Vilnius developed considerably faster and currently it is at par with Tallinn (see Figure 33).

Note that also in the Eurobarometer survey, the economic situation in Tallinn and Vilnius is perceived to be better than in Riga (see Figure A8 for PCA results).

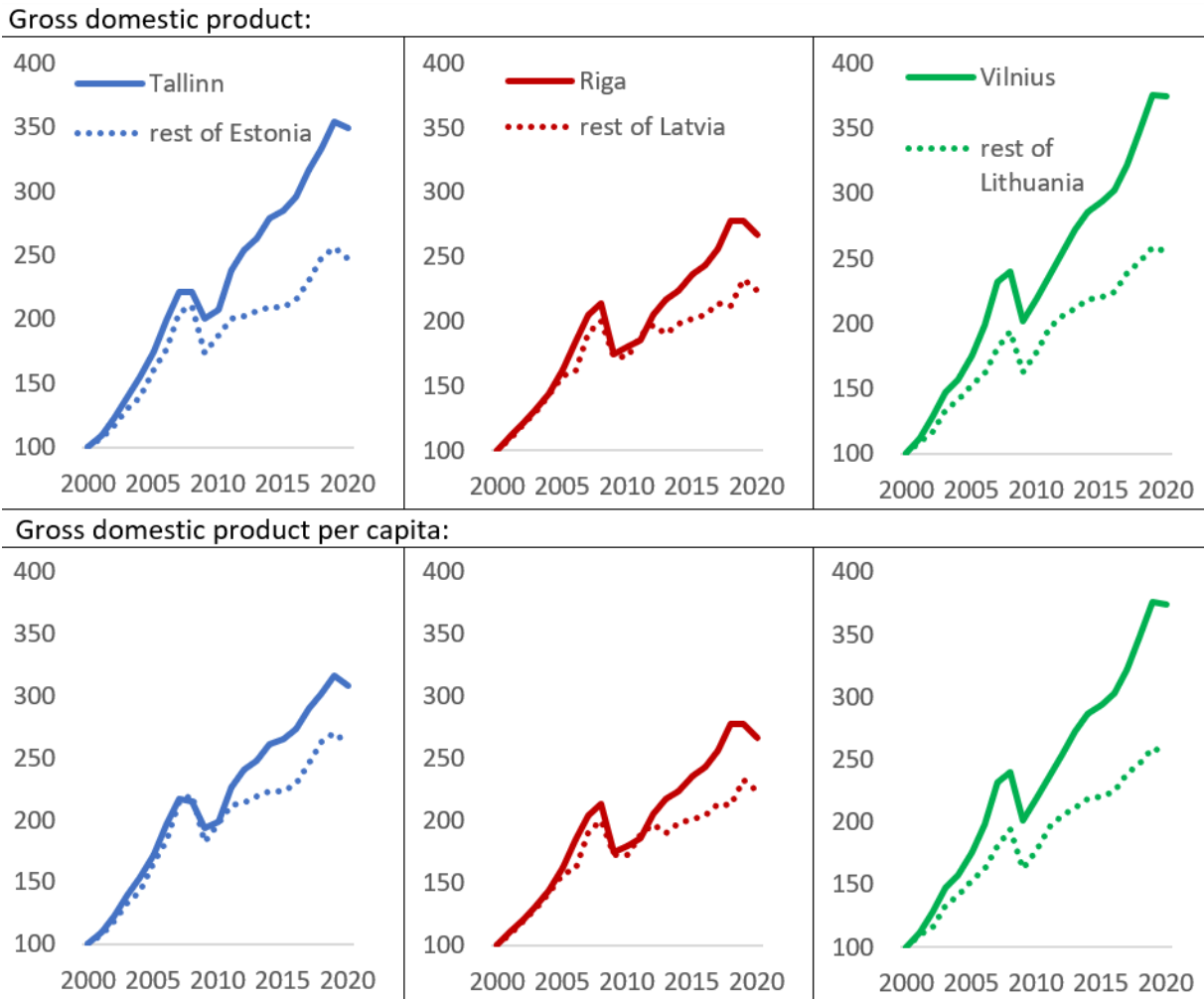


Figure 32: Dynamics of gross domestic product in the capital cities and other territories of the Baltic countries (index; year 2000 = 100; purchasing power parity adjusted)

Sources: Eurostat and the Central Statistical Bureau of Latvia data, author’s calculations.

Technically, the “success story” of the Vilnius economy could be closely linked to demographic and labour market developments. For example, the differences in the age structure of the population among the Baltic capital cities imply that Vilnius currently has the largest share of the working age population. Moreover, the participation rate in Vilnius is also higher than in Tallinn and Riga. This is in stark contrast with the situation at the beginning of the century when Vilnius had the lowest participation rate and the highest unemployment rate (see Figure A23).

However, this (technical) answer does not say why so many young people live in Vilnius and why the labour market is improving rapidly. It could be just a consequence of Vilnius’ rapid economic growth since it is economic growth that tends both to attract young people and reduce unemployment. Or, it is possible that Vilnius manages to attract young people by improving

the living conditions for young families with children; then, more young qualified people fuel economic growth.

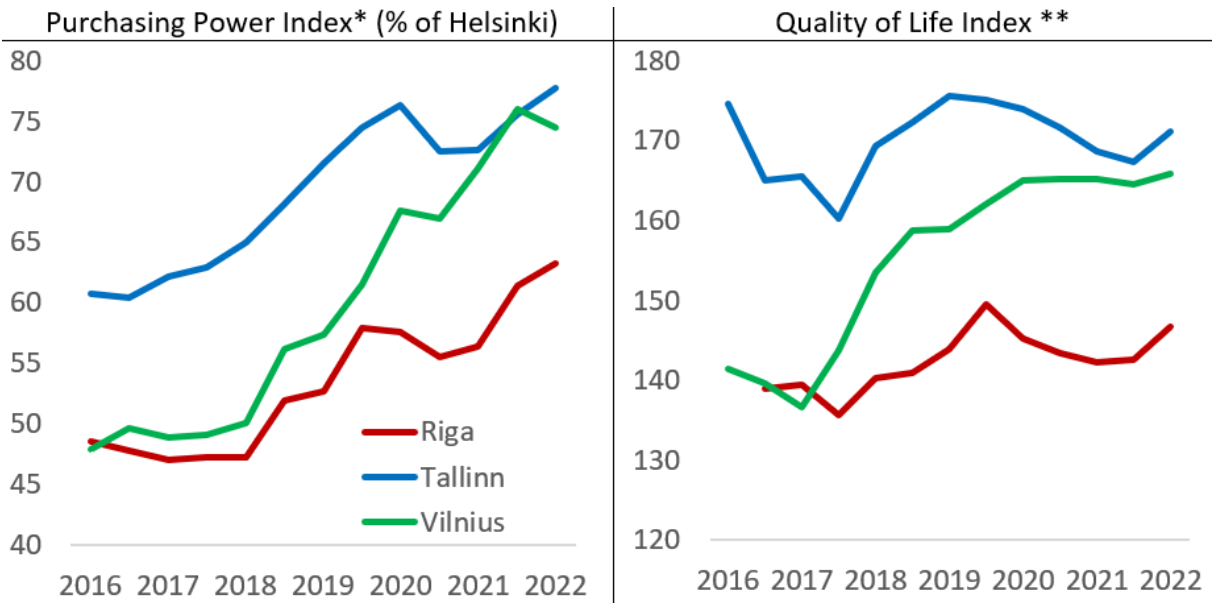


Figure 33: Purchasing power and the quality of life dynamics in Riga, Tallinn and Vilnius (over 2016–2022)

Notes. * Purchasing Power Index (higher is better) reflects the amount of goods and services that could be purchased at the average net wage in that city.
 ** Numbeo Quality of Life Index (higher is better) reflects an overall quality of life, considering purchasing power, pollution, house price to income ratio, cost of living, safety, health care, traffic commute time and climate.
 Sources: Numbeo survey data, author’s calculations.

A logical continuation of the paper would be presentation of several differences between Riga, Tallinn and Vilnius, looking for variables in which Vilnius is doing better and trying to justify Vilnius’ faster economic growth with the respective variables. Vilnius is ahead of Riga in many fields, for instance, a larger share of population with higher education, better health of the population, better infrastructure and less crime, higher average company size and the share of fast growing companies, less corruption and better city governance, more trust in people around and more favourable attitude towards foreigners. There might be as many opinions regarding which of these or other variables are the most important ones in determining the success story of Vilnius economic development as the number of researchers trying to answer this question. All these variables are likely to be endogenous, and the causality with the economic growth rate is likely to be bi-directional.

For example, on the one hand, better education and health of the population boosts productivity and thus income; on the other hand, higher income provides additional opportunities to acquire a higher level of education and receive a better health care. Similarly, higher income reduces crime in a city, which in turn promotes higher safety and trust between citizens, resulting in higher economic activity and income levels.

It is not clear whether the improvement of the urban environment in Vilnius started before, after or at the same time as the faster economic development (quality of life measurement databases are relatively novel and many of them are available only once every few years). However, it is clear that if Vilnius did not become a city where the population enjoys high life satisfaction and recognises it as suitable for young families with children, there would be no reason to expect robust economic development in the coming years (any initial demographic dividend such as higher share of young people tends to vanish over time).

Economic development is a long-term process in which seemingly small differences in annual growth rates (1–2 percentage points per year) result in impressive income disparities over time. Riga cannot in any way catch up with Vilnius or Tallinn in just a couple of years. However, this paper illustrates the fact that improving the quality of life, which is often seen as a by-product of the economic development process, can also be an important factor in economic growth. Cities that have achieved a significant improvement in the quality of life in recent years are also the cities with the fastest economic growth.

9 Urban housing and infrastructure

Housing satisfaction captures the impact of one's dwelling characteristics on subjective well-being. Together with neighborhood satisfaction and commute satisfaction it is one of the key subjective urban well-being indicators. Housing satisfaction depends on many factors, including the construction quality; the plan, size, price and design of the dwelling; the adequacy of interior space and the housing amenities.

[Mouratidis \(2020\)](#) surveys the citizens of Oslo (Norway) and argues that housing satisfaction has a significant direct association with subjective well-being. He also captures an indirect impact of neighbourhood satisfaction on well-being via personal relationships satisfaction, housing satisfaction and leisure satisfaction. In turn, commute satisfaction was found to affect subjective well-being mainly via neighbourhood satisfaction and job satisfaction.

In the Netherlands, housing satisfaction is found to decrease with the urbanization level, indicating the impact of negative externalities such as pollution, congestion and noise. In turn, a higher contact frequency with relatives, friends and club activities have a positive effect on housing satisfaction, while the distance to work was not significantly related to housing satisfaction ([Grigolon et al., 2014](#)).

Visual and acoustic features are major environmental components of the neighbourhood satisfaction, the perception of which strongly affects well-being, quality of life and mental health ([Youssofi et al., 2020](#)). Therefore, better soundscape quality in dwellings is one of the keys to promote housing satisfaction and quality of life ([Hasegawa and Lau, 2022](#)). Studies that use spatial modelling techniques usually find that housing satisfaction is positively related to landscape view (e.g. forest), but negatively to traffic noise and traffic view.

A significant part of the population of Latvian cities lives in overcrowded and inadequate housing. Almost half of the population of Latvian cities lives in overcrowded housing – with insufficient number of rooms per household member, which is twice as many as in Lithuanian cities and three times more than in Estonian cities. Also, the severe housing deprivation rate (i.e. the share of population living in overcrowded housing lacking basic amenities) in Latvian cities is relatively high (see [Figure 34](#)).

The Eurobarometer survey reveals that, compared to Riga, it is easier to find a good housing at a reasonable price in many European cities with declining populations. Thus, compared to many other European cities, the perceived availability of housing in Riga can be assessed as low.

This reflects smaller residential construction activity in Latvia compared to Lithuania and Estonia (see Appendix regarding the view of Martins Vanags from The Alliance of Real Estate

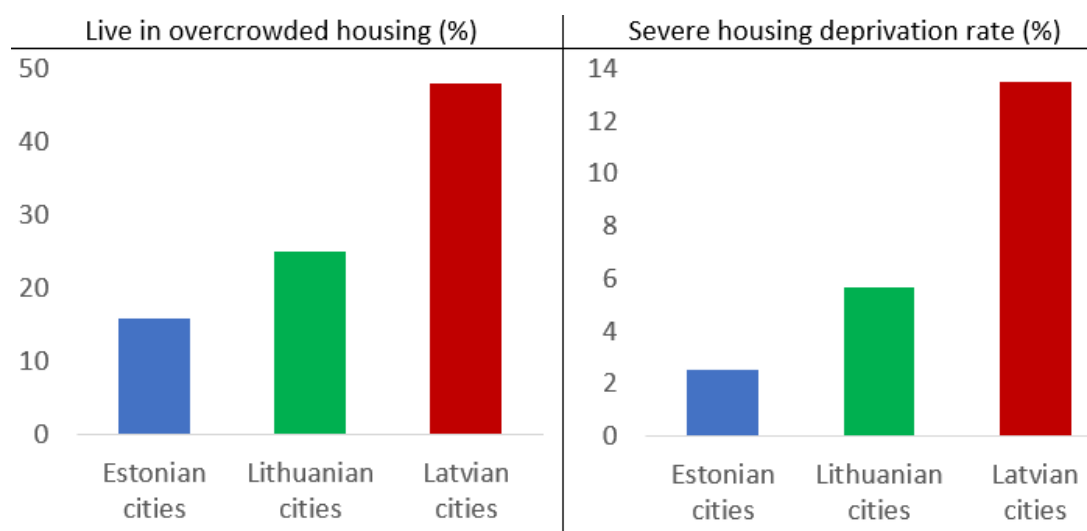


Figure 34: Share of people living in overcrowded housing in the Baltic countries (% of population; annual average over 2017–2019)

Notes: A person is considered as living in an overcrowded household if the household does not have at its disposal a minimum number of rooms equal to: one room for the household; one room per couple in the household; one room for each single person aged 18 or more; one room per pair of single people of the same gender between 12 and 17 years of age; one room for each single person between 12 and 17 years of age and not included in the previous category; one room per pair of children under 12 years of age.

Severe housing deprivation rate is defined as the percentage of population living in the dwelling which is considered as overcrowded, while also exhibiting at least one of the following housing deprivation measures: leaking roof, no bath/shower and no indoor toilet or a dwelling is considered too dark.

Source: Eurostat data.

Developers). In terms of new housing construction, Riga lags behind not only Pierīga, but also several regions of Latvia (in per capita terms; see Figure A24). Two thirds of Riga residents live in houses built during the Soviet era. In Riga, more people live in houses built before the First World War than in those built after 2000 (see Figure 35). In addition, most of Riga's new dwellings are concentrated in only a few neighbourhoods (such as Dreilīni and Skanstē).

While many people live in overcrowded housing, a number of uninhabited slums still could be seen in the city centre. Every sixth residential house in Riga is not inhabited, and many of them are in poor condition. Particularly, every third residential house in Riga built before 1945 is uninhabited.

A big share of housing consisting of high-rise panel estates built during the socialist period is a common feature of many other Central and Eastern European cities. Socialist housing estates originally had largely homogeneous demographic structures dominated by young families with children; however, due to their ageing currently districts of panel buildings are increasingly occupied by the elderly. Although residents of districts dominated by high-rise panel buildings generally perceive them less critically than outsiders, and residential satisfaction is particularly high among older people, this segmentation may potentially lead to the deterioration of local services and a decline in investment activity in the respective areas (Temelová and Slezáková,

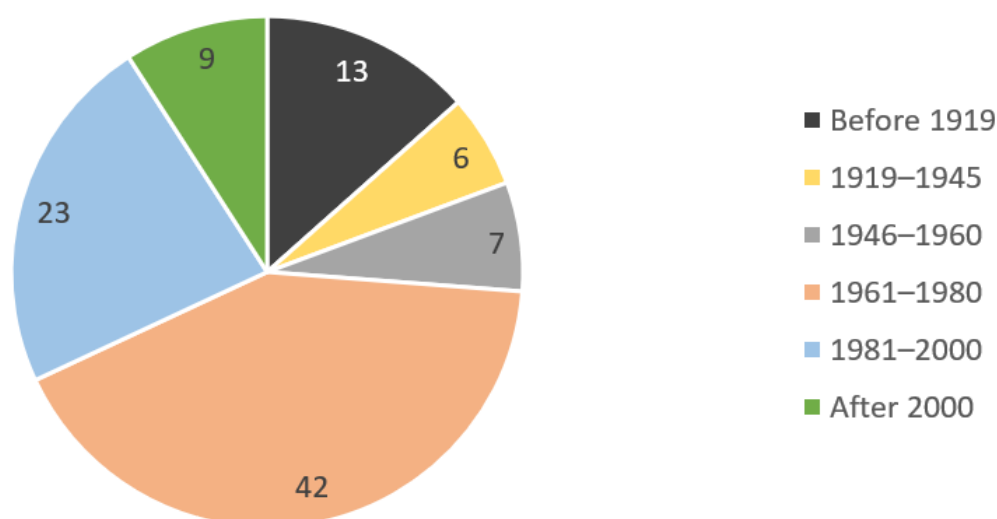


Figure 35: Distribution of Riga residents by time of housing construction (%; in 2021)

Note. The figure reflects traditional housing – residential housing and non-residential buildings.

Sources: Central Statistical Bureau of Latvia data, author's calculations.

2014). Moreover, in times of considerable rise in energy prices, central heating of energy inefficient panel blocks of flats built during the Soviet era determines the importance of measures to increase energy efficiency.

The construction of residential housing in Riga is likely to be hindered by several supply and demand factors.

First, construction formalities in Riga are more complicated, more expensive and take more time. For example, it takes at least half a year in Riga to complete the formalities required for the construction of a typical warehouse – this is almost twice as long as in Tallinn and three times longer than in Vilnius (see Figure A25). Compared to other Baltic capital cities, the start of construction in Riga involves more procedures, as well as higher costs.

Second, many people in Riga cannot afford good quality housing. Although in euro terms apartments and their rent in Riga cost less than in Vilnius and Tallinn, the income is also lower in Riga. In terms of housing price to income ratio, Riga ranks between Vilnius and Tallinn (see Figure A26). In addition, it should be noted that possible differences in the quality of housing are not taken into account here. Considering the higher depreciation of housing stock and worse neighbourhood quality in Riga, in some real estate segments the price-quality ratio in Riga may be even higher than in Vilnius and Tallinn, meaning that Riga residents might pay a bigger share of their income for similar quality housing.

In addition, it is more difficult to get a home loan in Riga. Commercial bank loans for house purchase in Latvia have long been somewhat more expensive than in Lithuania and Estonia (see

Figure A27). Even a seemingly small interest rate differential means higher interest payments, particularly for housing mortgages.

Third, many people in Riga find it difficult to pay utility bills even for their current (rather small) apartments. Utility bills in Riga are almost as high as in Tallinn despite smaller purchasing power of the population. Thus, utility bills account for a significantly larger share of net disposable income in Riga than in Tallinn and Vilnius (see Figure A28), making it more difficult for Riga residents to pay their utility bills. Around 40% of Riga residents claim to have at least some difficulty in paying their monthly bills, which is one and a half times more than in Vilnius and twice as much as in Tallinn (see Figure A29)¹¹. A larger apartment usually means higher utility bills. Thus, living in overcrowded housing is also a way to save on monthly bills.

Fourth, given the relatively complex construction formalities in Riga and lower purchasing power of Riga residents, housing construction might be viewed as a more risky business, compared to, for instance, construction of infrastructure which is often co-financed by EU funds. The risk appetite of Latvian construction companies may also have been dampened by less competition for orders.¹²

Fifth, the shortage of new housing in Riga also partly reflects lower demand due to emigration. Undoubtedly, the low availability of housing is one of the factors exacerbating the depopulation trend in Riga. At the same time, however, the depopulation of Riga also means lower demand for housing.

Therefore, some of the factors hindering housing construction in Riga lie at city level (heavy construction formalities, depopulation of the city), others could be solved only at country level (higher interest rates on mortgage loans, comparatively low competition in the construction sector in Latvia). In turn, raising purchasing power of Riga residents could be viewed as a by-product of economic growth process, which could be enhanced both at country and city level, as showed in Section 8.

Europeans' satisfaction with living in the city largely reflects their satisfaction with the neighbourhood they live (see Figure 36). The lower satisfaction of Riga residents with the neighbourhood they live than the residents of Tallinn and Vilnius may reflect both slightly lower rated infrastructure objects (public spaces, cultural objects, green areas; (see Figure A5

¹¹These data correspond to the Eurobarometer survey performed in 2019; as utility bills have increased markedly since then, even more people may face difficulties in paying their monthly bills despite massive government support programmes to deal with the energy crisis.

¹²In 2021, the Competition Council of the Republic of Latvia found a long-standing prohibited agreement of ten large construction companies on the conditions of participation in public and private procurements in Latvia. It was concluded from the transcripts of the audio recordings that the representatives of the largest construction companies discussed the terms of participation in 70–90 procurements with the total costs of almost 700 million euro. Moreover, some procurements were discussed even before their official publication.

and Table 6), as well as worse safety and environment. Note also that the satisfaction of Riga residents with their life in the city is lower than the corresponding level of satisfaction with the neighbourhood. This may reflect negative characteristics of the city that are not directly related to the neighbourhood (such as lower satisfaction with the quality of city governance or lower perceived opportunities to find a good job).

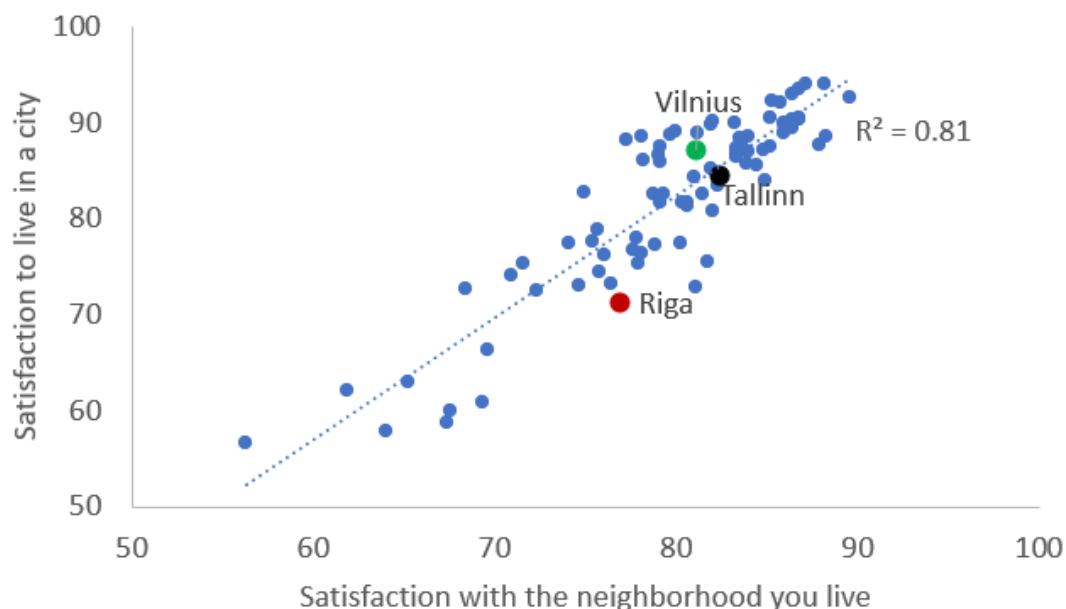


Figure 36: Satisfaction to live in a city and satisfaction with the neighbourhood you live across European cities (in 2019)

Notes. Respondents were asked whether they agree with the statement “I’m satisfied to live in my city” and whether they are satisfied with “the neighbourhood where you live”. The balance of replies was recalculated to a 0–100 point scale, where “0” reflects strong disagreement/dissatisfaction, while “100” reflects strong agreement/satisfaction).

Sources: European Commission survey data, author’s calculations.

Among the problems that the Riga City Council should solve first of all, currently the inappropriate condition of streets is at the top of the list. Although this partly reflects the dissatisfaction with the snow removal at the end of 2021, the inadequate condition of the streets of Riga has been a topical problem for many years. Compared to 2018, the satisfaction of Riga residents with the maintenance of streets, sidewalks and squares decreased, while the share of respondents pointing to inadequate street condition as one of the most pressing problems in the city increased further (see Figure 37).

The absolute majority of the population of the Baltic cities, including Riga, lives in apartments (see Figure A30). This determines rather limited possibilities of an individual to change the quality of the existing housing or its surroundings (apart from the possibility to change a place of residence). In this case, the quality of housing and the surrounding area are largely a result of the joint action or inaction of the general public (including the local public adminis-

Table 6: Satisfaction with the infrastructure objects in Riga, Tallinn and Vilnius (index; 0–100 point scale)

	Riga	Tallinn	Vilnius
European Commission survey (2019):			
Satisfied with the neighbourhood you live	76.9	82.4	81.1
Satisfied with cultural facilities	75.7	80.7	76.4
Satisfied with green spaces	75.3	76.5	75.6
Satisfied with markets, squares, pedestrian areas	66.7	69.6	71.5
Satisfied with schools and other educational facilities	60.9	66.7	59.5
Satisfied with sport facilities	59.0	67.7	57.7
European Commission survey (2015):			
Condition of streets and buildings in the neighborhood you live	50.8	54.3	55.8
Availability of retail shops	81.5	85.3	87.5

Notes. The balance of replies to each question was recalculated on a 0–100 point scale, where 0 is the worst possible value and 100 is the best possible value. The colour reflects the place of a particular city among the Baltic capital cities: green: 1st place (best); yellow: 2nd place; red: 3rd place (worst).

Sources: European Commission survey data, author's calculations.

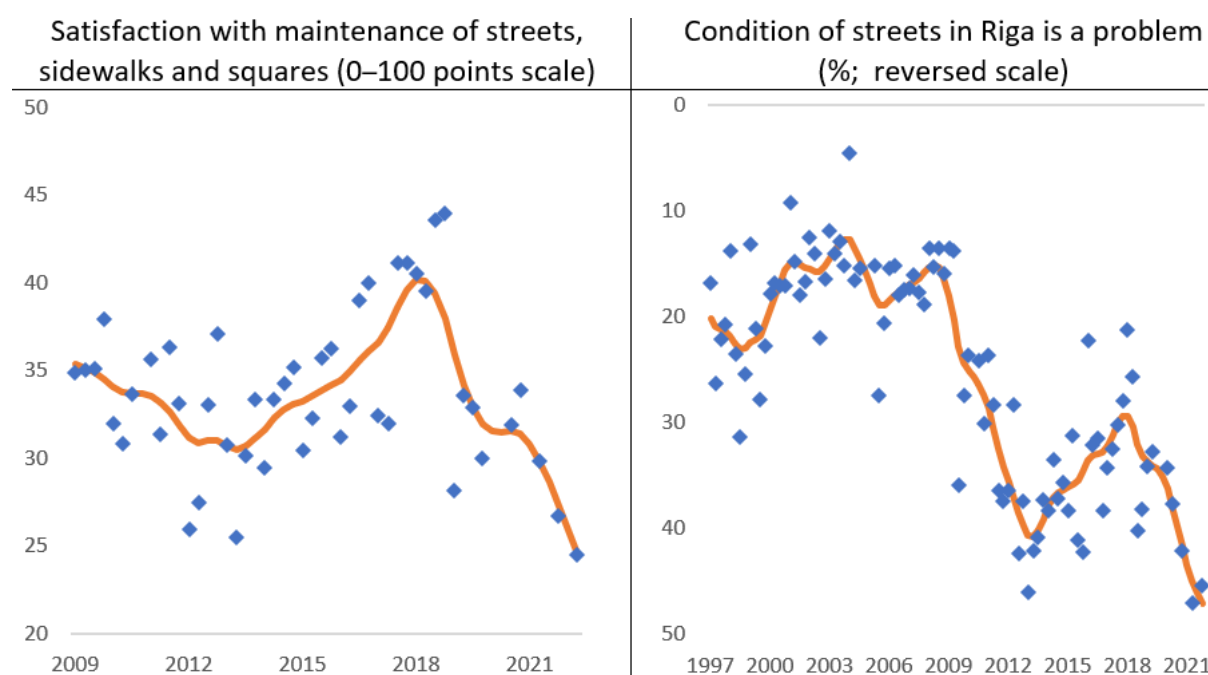


Figure 37: Satisfaction of Riga residents with the conditions of streets in the city (over 1997–2022)

Notes. Image on the left. The following question has been asked: “How do you rate the work of the Riga City Council in fulfilling the functions specified in the Law “On Municipalities”: maintenance and repair of streets, sidewalks and squares?”. The balance of answers was recalculated on a 0–100 point scale (“0” is completely dissatisfied; “100” is completely satisfied).

Image on the right. The share of respondents who pointed to the condition of the streets in Riga as one of the three problems that the Riga City Council should address first and foremost.

The blue dots represent the data of the SKDS quarterly survey. The orange line reflects the Hodrick-Prescott filtered trend of the SKDS survey data (lambda = 10). In some quarters (including due to Covid constraints), the survey was not conducted; the relevant data were interpolated.

Sources: SKDS survey data, author's calculations.

tration) or at least of a group consisting of several people. Thus, the involvement of all parties is needed to improve the quality of housing and its neighbourhoods in Riga.

10 Municipal budget

The quality of the urban environment is largely determined by the size of city budget and the efficiency of its use. Thus, it is not surprising that wealthy cities like Zurich, Copenhagen and Stockholm account for the overwhelming majority on a list of European cities where residents are most satisfied with the quality of life.

The main budget of the Riga municipality – a little bit less than a billion euro annually, is comparable to the annual budgets of Vilnius or Tallinn. The fact that Tallinn has by a third less population means that Tallinn spends more per capita than Riga; however, this may reflect Tallinn's higher income and slightly higher prices.¹³

During the last ten years, the main budget of the Riga municipality increased by half. This is significantly less than in Tallinn and Vilnius, where the size of the budget more than doubled. It is also smaller than in any Latvian municipality around Riga. For example, the budget of Adazi or Marupe municipality grew much faster during this period (see Figure 38). The budget of the Riga municipality has obviously stagnated in the last few years. For instance, it is planned to collect the same amount of tax revenues in 2022 as four years ago. A rise in the cost of living over these years resulted in a reduction of the budget of the Riga municipality in real terms. It should be noted, however, that the revenue dynamics of the Riga municipality is quite similar to those of other Latvian municipalities on average (except Pieriga municipalities).

The main source of local government revenue in Latvia is personal income tax (PIT) payments.¹⁴ In 2022, it is planned to collect even a little less PIT revenues in Riga municipal budget than three years ago. While the dynamics of PIT revenues are driven by several factors¹⁵, one of the reasons that determines the reduction of PIT revenues in Riga is migration of economically active and well-earning residents from Riga to Pieriga.

It is PIT payments that largely determine the differences in the size of the budget per capita in different Latvian municipalities. The municipalities with the highest employment rates and the largest number of high wage earners also enjoy a bigger budget per capita. The richest municipalities in Latvia, i.e. with a biggest budget per capita, are located in Pieriga (see Figure 39); a large number of rich people live there, a significant part of whom work in Riga. For instance, the number of employees in Riga companies is double the number of employees who

¹³An international comparison of city budgets can be hampered by the fact that the division of functions between the central government and local government may differ from country to country.

¹⁴Out of every nine euros in the tax revenue of Riga main budget, eight euros come from the PIT of residents, while the remaining one euro comes from the real estate tax.

¹⁵Such as the increase in the non-taxable minimum of PIT in the country and the reduction of the share of PIT collected by the municipal budgets from 80% to 75% as from 2021.

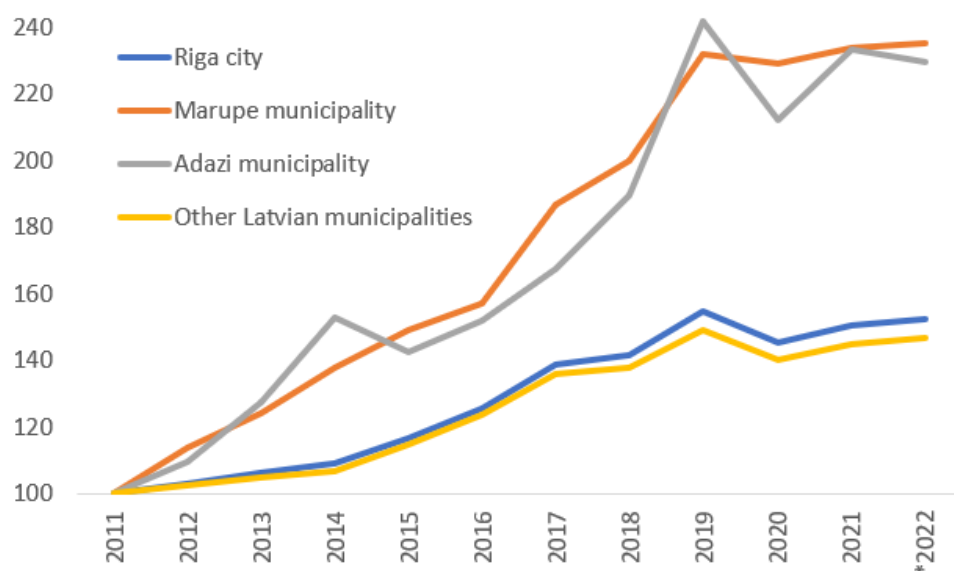


Figure 38: Local budget revenues in Riga city, Adazi municipality and Marupe municipality (index; year 2011 = 100)

Notes. This figure takes into account the change of municipality borders under the administrative reform of 2021. Marupe municipality before 2021 consisted of Marupe and Babite municipalities. Adazi municipality before 2021 consisted of Adazi and Carnikava municipalities.

* Budget projections for 2022.

Sources: Treasury of Latvia data, author's calculations.

declare their place of residence in Riga.

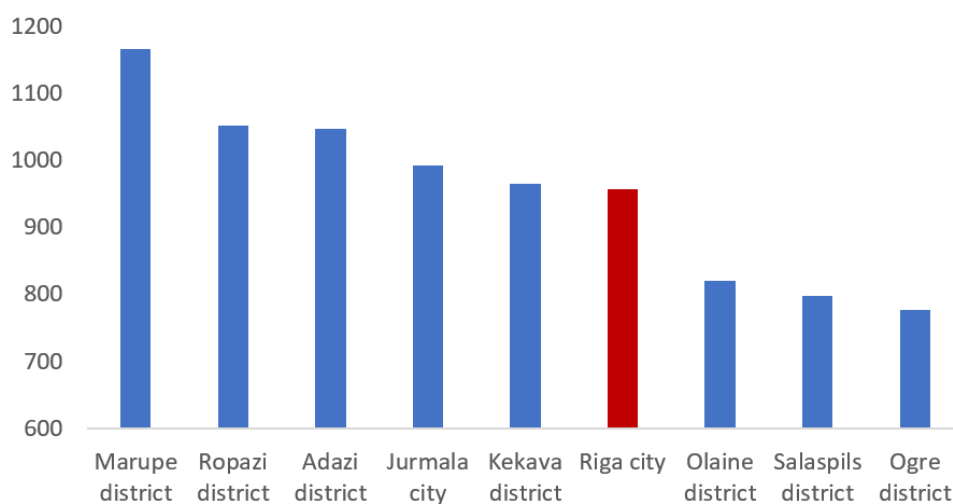


Figure 39: Local budget revenues from the personal income tax (euro per capita; Riga and surrounding municipalities; plan for 2022)

Sources: Treasury of Latvia and Central Statistical Bureau of Latvia data, author's calculations.

Migration of Riga residents to Pieriga is a long-lasting process, which at least partly reflects dissatisfaction of Riga residents with the quality of life in the city (in Vilnius and Tallinn, where people are significantly more satisfied with the quality of life, the population is growing both in the city itself and in the metropolitan area). The Covid-19 pandemic further intensified the

process of migration of residents from Riga to Pierīga. First, as the possibilities of remote work expanded significantly, the proximity of the workplace became a less important factor in choosing a place to live. Second, as residents spend more time at home and in its surroundings, more and more attention is paid to the quality of the urban environment in the process of choosing a place of residence.

Fewer declared residents in Riga means lower tax revenues in the budget of Riga city. Less money means fewer opportunities to improve the quality of life in the city. Especially if the city still needs to maintain the urban infrastructure intended for a far greater number of residents (population of Riga city decreased by a third over the last 30 years; see section 6). More non-Riga residents working in Riga also mean more traffic jams and private car transport, which can only reduce the quality of life satisfaction of the remaining Riga residents, encouraging them to leave the city. Thus, a vicious circle sets in, from which there is no easy way out.

How might the vicious circle of Riga's depopulation be broken?

The first option – an exogenous increase in population – could be ruled out. There are several cities in the world with a poor quality of life, where the population is growing, for example, in Brazil or India. The geographically closest example to Latvia is Turkey. The population of Ankara or Istanbul has doubled in the last 30 years despite the fact that a much larger share of urban population, compared with Riga, is dissatisfied with the quality of life, as reported by the Eurobarometer survey. However, the population in these cities is growing due to high birth rates and rapid urbanization. Nothing like that is predicted in Latvia. Net migration rate in the country has been negative for three decades. Also, the urbanization rate has remained broadly unchanged since the 1990s. Even the influx of Ukrainian refugees to Latvia in 2022 (around 1.5% of Latvia's population) is not sufficient to break the depopulation trend. Thus, it is clear that without improving the quality of life in Riga, the number of Riga residents will continue to decrease.

The second option – an exogenous increase in Riga city budget – is an object of political negotiations. One could argue that the current model of municipal budget formation in Latvia promotes the specialization of municipalities around big cities as the sleeping areas of the rich. Given that the main source of revenue for municipal budgets is the PIT payments of residents declared in the relevant municipality, the municipality may not be directly interested in promoting business activities in its territory. This is also confirmed by the fact that the share of Riga in the gross domestic product of Latvia significantly exceeds the share of the budget of Riga municipality; in Pierīga the opposite is true. Among the possible solutions one may propose to

divert part of the corporate income tax to the municipal budgets or to divert part of the PIT payments to the municipalities where the relevant individual's workplace is located. Each of these proposals might have its political opponents and administrative costs.

Note that in Estonia and Lithuania PIT payments are also received by the municipality where an individual has declared his place of residence. Despite a similar model of municipal budgeting, the population of Vilnius and Tallinn started to grow again. In other words, it is not the model of municipal budgeting that is unfair to Riga; rather it is because Riga is losing the competitive battle for the best living location, and this is reflected in the dynamics of the city's budget revenues.

The third option – an exogenous improvement in the quality of life in the city – has its limits within the current city budget, as argued particularly by Riga Mayor Martins Stakis (see Appendix).

The experience of Vilnius and Tallinn shows that the vicious circle of urban depopulation can be broken by improving the quality of life in the city. As residents' satisfaction with the urban environment increases, so does the number of residents and thus also the tax revenues of the municipal budget, which in turn is spent to further improve the quality of life in the city. Of course, this does not rule out the possibility that the vicious circle could be broken by first increasing the city's funding. For example, the revival of Liverpool and Leipzig was based on ambitious state programmes and the attraction of EU funds; the initiatives of a single municipality might not be enough to achieve urban regrowth. However, unlike the UK and Germany, there are no other large and rich municipalities in Latvia that could subsidize the regrowth of Riga in this way. Riga is also at the bottom of the list of Latvian municipalities in terms of the amount of the received EU funds per capita. EU funds have accumulated more in the economically backward municipalities so far. Although theoretically, the regrowth of Riga could be partially financed by means of the EU funds (as it was previously done in the case of Ventspils city), political discussions on the optimal distribution of EU funds may not be easy.

Among the factors that can slow down Riga's development, Riga's payments to the municipal equalization fund are sometimes mentioned, which in euro terms (almost 100 million euro per year) are higher than payments of other municipalities. However, Pieriga municipalities tend to pay a larger share of their revenues to the equalization fund than Riga (up to 20% compared to around 10% in Riga). Similar municipal equalization funds also exist in Lithuania and Estonia; Vilnius and Tallinn are donors of the respective funds.

Policy coordination and cooperation with the surrounding municipalities, government and

companies are important for any municipality, and Riga is no exception. In the case of Riga, poor cooperation with the government could have been one of the factors slowing down the city's development in the 2010s – the period when Riga lagged behind Vilnius economically (See Section 8) – as argued by the former Mayor of Riga Nils Usakovs (2009–2019)¹⁶ and the current Vice-Mayor Linda Ozola (as from 2020).¹⁷

Would the panacea be the introduction of multi-level municipalities, as is the case, for example, in Germany? The municipal model, in which transport issues between Riga and Pierīga would be dealt with by the “Greater Riga” municipality, while, for example, the repair of local roads would be left under the control of lower-level municipalities, may look attractive. However, in Estonia and Lithuania there is one level of local government, just like in Latvia. Moreover, given that the number of municipalities in Germany has been reduced several times over the last half century, there is reason to believe that Germany's current still fragmented system of municipalities is more a historical artifact than a conscious choice. It is unlikely that the model of multi-level municipalities provides significant benefits that could not be obtained through effective cooperation and coordination with surrounding municipalities and the government.

Does Vilnius, which is de jure a single-level municipality, de facto not work in this “Greater Vilnius” concept, since several territories adjacent to the city are located within its administrative boundaries? The territory of Vilnius is actually a third larger than that of Riga. However, the territory of Tallinn is twice smaller than that of Riga. As we can see, each city has its own characteristics, but no single administrative feature can be identified, the presence or absence of which would clearly separate fast-growing European cities from those lagging behind. Also, the literature concludes that there is no such single success factor for cities. European cities with rapid development are characterised by a set of factors, including the emphasis on improving the quality of life, the coordinated political will at different levels of state administration, the revival of the city centre, and the availability of external funding (Haase et al., 2021).

The vicious circle of urban depopulation is therefore called “vicious” because it is difficult to break. Although theoretically it can be broken at any chain, practically in the case of Riga, it remains only to “improve the quality of life for the existing city residents” which is also recognized by the literature as the optimal strategy in cities with a declining population (Hospers, 2014). Greater satisfaction of Riga residents with the quality of life is therefore a powerful tool to end

¹⁶See an interview of Nils Usakovs, as part of television report by journalist Ivo Butkevics, broadcasted on TV3 News on 30 April 2022. Available: <https://zinas.tv3.lv/latvija/viedokli/usakovs-starp-rigu-un-valdibu-nekad-nav-bijusi-nekada-sadarbiba/>.

¹⁷See the position of Linda Ozola in a TVNET.lv article published on 29 April 2022. Available: <https://www.tvnet.lv/7511325/rigas-vicemere-sadarbiba-starp-rigu-valdibu-un-uznemejiem-lidz-sim-nav-bijusi-efektiva>.

the city's depopulation trajectory, which in turn means a larger Riga municipality budget and thus opportunities to further raise the quality of life in the city.

11 Taking stock

Economic growth is not likely to be a panacea for making urban residents happy. The Eurobarometer survey reveals that (contrary to income convergence) there is a lack of “happiness convergence” among European cities. Cities that feel unhappy do not tend to become happier over time. The differences between European cities in terms of their residents' life satisfaction in 2019 are even more pronounced than they were in 2012. Particularly, life satisfaction has increased in Vilnius and Tallinn, while that of Riga residents has decreased during this period (see Figure 40).

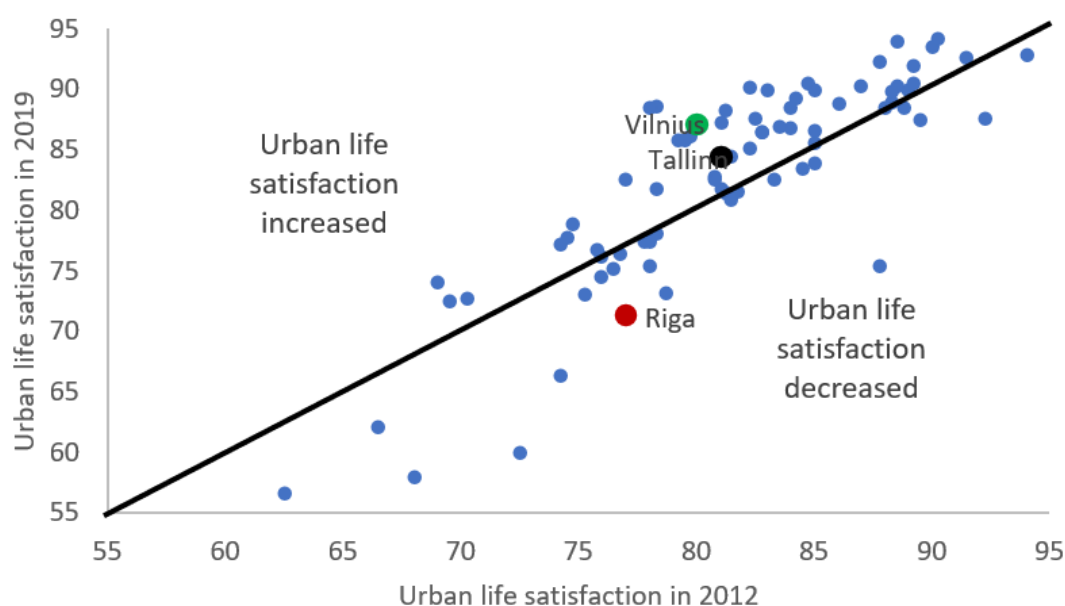


Figure 40: Urban life satisfaction in European cities in 2012 and 2019

Notes. Urban life satisfaction reflects respondents' agreement with the statement “I am satisfied to live in my city”. The balance of the answers was recalculated on a 0–100 point scale, where 0 represents strong disagreement, 100 – strong agreement.

Sources: Eurobarometer survey data; author's calculations.

This paper shows that Riga lags behind Vilnius and Tallinn in all areas of quality of life. In some areas the quality of life gap is not large (e.g. environment), while in some other areas it is considerable (trust to each other, urban governance and a good place to live; see Figure 41).

Someone could argue that the survey data might just reflect the annoyance of Riga residents. However, ten years ago – in 2012 – Riga residents were not annoyed, life satisfaction of Riga residents was close to the scores recorded in Tallinn and Vilnius, with Riga even ahead of its



Figure 41: Quality of life in the Baltic capital cities by area (0–100 point scale; in 2019)

Notes: The figure reflects the value of the first principal component of the PCA to every particular area of the quality of life (see European city ranking in Figures A1–A8). 0 – worst score among 83 European cities; 100 – best score. See Table A1 for the list of 83 cities included in the Eurobarometer survey in 2019.

Sources: Eurobarometer survey data; author’s calculations.

neighbours in some areas (for example, urban environment). The fact that the current quality of life in Riga city lags behind Vilnius and Tallinn is reflected also in a continuous population decline in Riga and a more moderate economic growth rate than in Vilnius and Tallinn. Note that the depopulation trend continues to negatively affect the size of the city’s municipal budget, limiting opportunities to improve the quality of life.

Improving urban quality of life is a key to stop depopulation in a city. The population is also decreasing in other European cities where residents are not satisfied with urban life. On the other hand, in cities where residents are satisfied with urban life, their number is growing (see Figure 42).

There is a correlation among European cities – the higher the income level, the better the quality of life. However, in terms of quality of life, Riga lags behind Tallinn, Vilnius and most European cities significantly more than in terms of the income level. A vertical distance between an observation of a particular city and DEA Urban quality of life frontier may be interpreted as an output-oriented technical inefficiency. This means that even at the current GDP per capita level – between Bialystok (Poland) and Aalborg (Denmark) – residents of Riga can live a much happier life. Many European cities having a GDP per capita similar to that in Riga enjoy considerably higher quality of life (i.e. lower technical inefficiency): Krakow, Gdansk, Rostock,

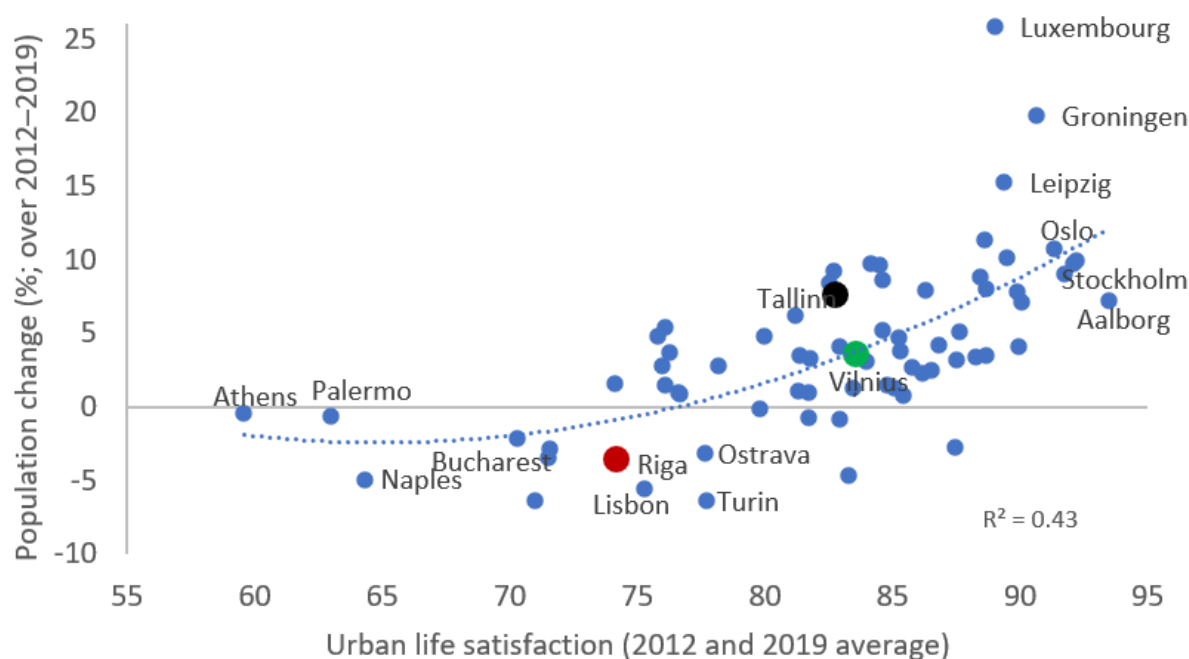


Figure 42: Urban life satisfaction and population growth in European cities

Note. The figure includes all EU cities represented in the EC survey (except Malta), as well as cities located in the UK, Norway, Switzerland and Iceland.

Sources: Eurostat, Macro Trends and Eurobarometer survey data; author's calculations.

Leipzig, Malmo, Oulu and many others (see Figure 43).

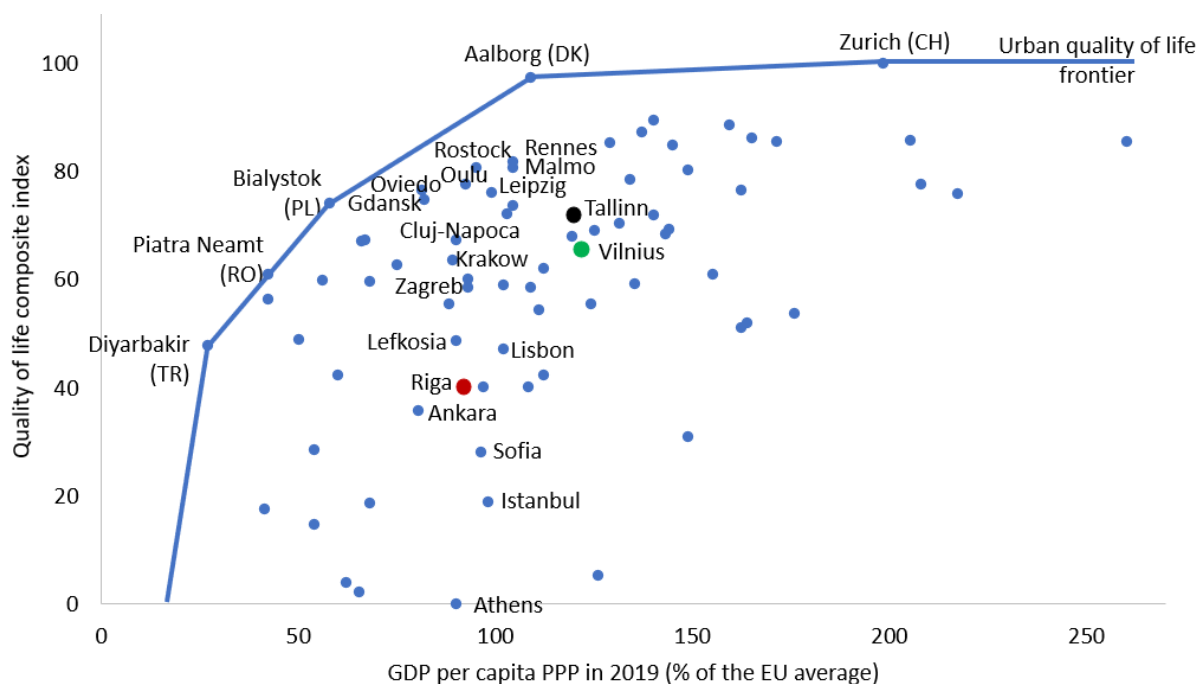


Figure 43: Income level and urban life satisfaction in European cities (in 2019)

Notes. The quality of life composite index reflects the value of the first principal component of the PCA, which includes 40 questions from the Eurobarometer 2019 survey (it reflects every quality of life area except the economic situation). See Table A12 for the value KMO criterion and factor loadings. See Table A1 for the list of 83 cities included in the Eurobarometer survey in 2019. This figure excludes cities located in the United Kingdom due to the unavailability of internationally comparable GDP data at city level.

Sources: Eurostat and Eurobarometer data; author's calculations.

Riga can significantly increase the quality of life even with its current population of slightly above 600 thousand residents. European cities whose residents are most satisfied with life usually are relatively small in size: Oslo, Copenhagen, Stockholm, Zurich or Aalborg (see Figure 44)¹⁸. The inhabitants of these cities are happier than in multi-million cities like London or Paris. Smaller cities may have several advantages that attract highly qualified and creative people from metropolitan centres: a clean, authentic and unique environment, better urban organization, a more comfortable rhythm of life, greater opportunities to stick to a healthier lifestyle, as well as social proximity and greater opportunities to participate in community life.

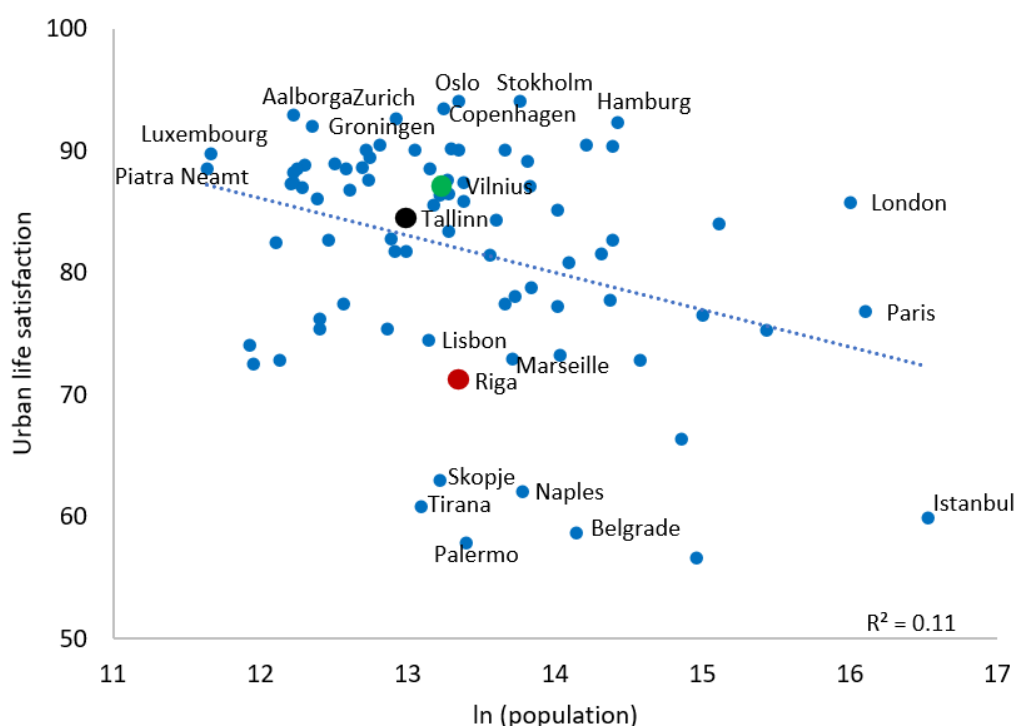


Figure 44: Population size and urban life satisfaction in European cities (in 2019)

Sources: Eurostat and Eurobarometer survey data; author's calculations.

Riga's development goals must be both ambitious and realistic. Riga will never become New York; and it does not need it either, because the quality of life in smaller towns tends to be better than in the megacities. In order to increase the quality of life, it would be enough for Riga to become the best version of itself.

There is no universal recipe for how to do this. Different elements of the quality of life are closely interconnected. Moreover, the cause-and-effect relationship is difficult to determine and two-way causality is very likely. A few examples of this are vicious circles between safety,

¹⁸The relation between the city size and urban life satisfaction is likely to be non-linear, possibly in a form of inverted U. On the one hand, megacities may suffer from overcongestion. On the other hand, very small communities tend to lack basic amenities. As the latter are not observable in the Eurobarometer survey, we can only deduct the first part of inverted U relationship.

trust and economic development, between urban environment and economic development or between the depopulation trend and tax revenue reduction. However, this paper identifies several measures to improve the quality of life in Riga that should be taken at city level and at country level. For instance, at city level housing construction is dampened by heavy construction formalities and depopulation of a city, with the latter reflecting migration of young people from Riga to Pieriga. Among city-level measures to make Riga a good place to live, particularly for young families with children, it is crucial to address people's needs such as unmet needs for city cleanliness and green areas or better urban governance. Urban quality of life would also greatly benefit from the improvement of health care, education and police systems at country level. In turn, the economic growth process, which is a cornerstone of urban quality of life, could be enhanced at both country and city level. What is clear, however, is that it is almost impossible to improve a particular quality of life area in a city without affecting other quality of life areas. It is also clear that improving the quality of life for the city's current residents, rather than being just a by-product of the economic growth process, could have a positive impact on both the urban economic development and the number of urban population.

If one wants to increase both the material well-being of Riga residents and the quality of life in general, then Vilnius, Tallinn and the cities of Northern Europe show an excellent example. The fact that there is no objective reason why people a few hundred kilometres away live a richer and happier life, but Riga would be predestined for eternal backwardness, points to a large development potential of Riga city. This paper highlights the fact that Riga could consistently increase its living standards even with the current population and GDP per capita level.

12 Conclusions

Improving urban quality of life is now increasingly at the top of the political agenda of modern cities. However, right policy treatment requires a thorough analysis and correct diagnosis. This paper is such a diagnostic tool. It aims to drive the urban structural reform agenda in Riga – the regional centre of the Baltics. This paper provides a systematic assessment of the quality of life in Riga city both over time and in the contexts of Latvia, the Baltics and Europe; this paper also links the quality of life with a comparative economic development, demographic trends, the availability of housing and local tax revenue receipts.

The first urban quality of life area examined in this paper is urban safety and trust.

Perceived safety and trust in the people around contribute to economic development; the causality between these variables is likely to run in both directions. Although Riga residents feel much safer today than in the 1990s, over the most recent ten years safety perceptions have changed little. Compared to Tallinn and Vilnius, people in Riga are more likely to be victims of crime, feel more threatened in the city and have less trust in each other. Riga is perceived by its residents as one of the most unsafe capital cities in the European Union, and also less safe than could be justified by the actual crime experience in the city (the latter may reflect low confidence in police force or an imprint from much higher level of crime during the 1990s). In general, according to the perceived safety and trust in other people, Riga is located close to the Southern European cities like Rome, Marseille, Istanbul, Belgrade, Skopje and Bucharest. This reflects a large room for improvement in this quality of life area. For instance, the perceived safety would greatly benefit from enhanced confidence in police, including raising professional prestige and wages of police officers. Crime rates could be decreased further by improving the quality of education and eradicating school bullying, as well as by ensuring vivid economic growth and maintaining low unemployment rates. These country-level policies could be further strengthened by city-level measures like promotion of neighbourhood associations in order to enhance trust within local communities.

Then we move to the examination of urban environmental quality and transport.

Main environmental problems faced by European cities are air and noise pollution, which may cause dozens of diagnoses and cost about 60 thousand lives per year. In line with the Environmental Kuznets Curve hypothesis suggesting that after a certain income threshold more economic growth goes hand in hand with better environment, rich European cities tend to be less polluted than the poor ones; and the causality is likely to run in both directions. Perceived quality of the environment in Riga is still slightly better than in many European cities of similar

size. But there was a lack of progress in Riga over time. Ten years ago the quality of the environment in Riga was perceived as the best among the Baltic capital cities. Since then, Tallinn and Vilnius have made significant progress, while environmental improvements in Riga have been only modest. As a result, currently Riga lags behind Tallinn and Vilnius according to the environmental quality. Moreover, the most recent surveys (2020–2022) show a worrying downward trend in the satisfaction of Riga residents with city cleanliness, waste management, maintenance of parks and green areas, reflecting sizeable unmet needs in this respect. The major part of air and noise pollution in big European cities, including Riga, comes from private cars. Frequent use of private cars within the city is driven by a low satisfaction with the public transport services and inadequate cycling infrastructure. Compared to Tallinn and Vilnius, the residents of Riga rate public transport as less affordable, less safe and less frequent. Both frequency and satisfaction with the public transport in Riga decreased further during the Covid-19 pandemic. But a gradual improvement of the existing urban public transport system is not without limits. While there is a room for improving the quality of public transport services to the level of Zurich and Copenhagen, this could only be achieved at substantial costs (borne either by passengers or the city budget). But even the current public transport costs are binding on many passengers in Riga.

Within the three Baltic capital cities, Riga is the city with the lowest birth rate, highest death rate and the only city where population is still declining. The high death rate reflects aging population and worse health status (the latter represents, *inter alia*, worse health care services - long waiting lists, high costs, insufficient accuracy of medical equipment and reporting, which should be solved at country level). In turn, the low birth rate in Riga is a pure “city” (rather than a country) effect driven by a massive emigration of young people to the area around Riga (Pieriga), since many people do not regard Riga a good place to live for young families with children. As a result, in the neighbourhood of Riga the age structure of the population is younger than in the city itself; this situation is the opposite to Vilnius, which enjoys a younger population than the neighbourhood area. If the trend persists, Vilnius is likely to outstrip Riga in terms of population size already by 2025. There is hardly other way to stop the Riga depopulation trend but to improve urban life satisfaction of the current city residents. Indeed, the urban quality of life satisfaction is a key for urban regrowth. While there are many shrinking European cities with comparatively low quality of life satisfaction, nearly all European cities with fastly growing populations are the ones with very high urban quality of life satisfaction.

Migration of Riga residents to Pieriga is a long-lasting process, which at least partly reflects

dissatisfaction of Riga residents with the quality of life in the city. The Covid-19 pandemic expanded possibilities of remote work which further intensified the process of migration of residents from Riga to Pieriga. As the main revenue source for municipal budgets is the personal income tax payments of residents declared in the relevant municipality, fewer declared residents in Riga means lower tax revenues in the Riga city budget.¹⁹ In turn, less money means fewer opportunities to improve the quality of life in the city; particularly if the city still needs to maintain an urban infrastructure intended for a far greater number of residents. Riga was also at the bottom of the list of Latvian municipalities in terms of the amount of the received EU funds per capita, and previously experienced a lack of cooperation with the central government. It should be noted that any exogenous increase of a budget size of the Riga municipality could be implemented only via country-level policies; thus, enhancing cooperation between the Riga City Council and the central government, the surrounding municipalities and business leaders is crucial. Possible measures to exogenously increase the Riga budget size may include a diversion of part of the PIT payments to the municipalities where the relevant individual's workplace is located, as well as a wider use of central budget funds and EU funds in Riga infrastructure projects.

Many Riga residents still live in overcrowded or inadequate housing. Two thirds of Riga residents live in houses built during the Soviet era. More people live in houses built before the First World War than in those built after 2000; many of these old houses are in poor condition. There are several reasons why residential construction in Riga lags substantially behind Vilnius and Tallinn. While some of them can clearly be addressed at city level (heavy construction formalities, depopulation of the city owing to a migration of young and wealthy residents to Pieriga), others could be solved only at country level (higher interest rates on mortgage loans, lower competition in the construction sector in Latvia) or in a close cooperation of the city and the country (raising purchasing power of Riga residents, which is a by-product of the economic growth process).

In terms of the economy's size, Riga region (Riga and Pieriga) already lost its leadership in the Baltics to Vilnius region (Vilniaus apskritis) in the second half of the 2010s. Vilnius has also recently become the richest city (i.e. with the largest GDP per capita) in the Baltics, overtaking Tallinn. Today, GDP per capita in Vilnius is by a third higher than in Riga, while at the beginning of the century the income level of both cities was similar. This story reflects how seemingly small differences in annual growth rates (1–2 percentage points per year) accumulate

¹⁹However, these people continue to use Riga city infrastructure by working or receiving services (e.g. education and health care) in Riga.

over time in impressive income disparities. Currently, the average income level in Riga lags behind the respective variable in Vilnius and Tallinn by about 7–8 years. With the current pace of development, Riga will never reach the income level of Vilnius and Tallinn. ²⁰

Worse urban governance might be one of the factors behind slower economic growth of Riga compared to Vilnius and Tallinn. Almost 40% of Riga residents do not agree with the statement that the fees charged by the local public administration are reasonable – this figure is three times higher than in Vilnius and ten times higher than in Tallinn. Also, 45% of Riga residents are fully convinced regarding the presence of corruption in the work of local public administration, which is twice as much as in Tallinn and three times more than in Vilnius. Both the prevalence of corruption and total quality of governance in Riga city are assessed to be worse than the corresponding figures in Latvia. This implies that measures to improve governance and combat corruption at country level may not be sufficient to achieve a major improvement in Riga; additional steps in these areas should be taken at city level. Although the corruption prevalence score improved somewhat after the change in the leadership of the Riga City Council after the 2020 elections, further progress in this area is still needed.

Overall, we find that although the quality of life in Riga tends to improve over time, in many areas the progress appears to be slower than in the neighbouring capital cities Vilnius and Tallinn. While Riga performs rather well in terms of economic growth and environmental quality compared to other European cities, we identify a large room for improvement in the areas of social trust, the quality of urban governance and how pleasant a city is to live. The paper highlights how the quality of life, economic prosperity, the availability of housing, size of city budget and population growth are all closely linked in an urban context, making all these variables mutually dependent. Still, this paper identifies several measures to improve the quality of life in Riga that should be taken at city and country level.

Despite the fact that Riga lags behind Vilnius and Tallinn in all areas of urban quality of life, this paper emphasizes the development potential of Riga. It shows that Riga can significantly improve the quality of life even with its current population and the GDP per capita level. Moreover, urban quality of life is not just a by-product of economic growth; it is a powerful tool itself to stop depopulation of a city and spur economic development.

²⁰Note that economic growth in Riga is much faster than in many other European capital cities, but this mainly reflects a beta-convergence process (i.e. cities with lower initial income level tend to develop faster). Note also that Riga's economy is developing considerably faster than in the rest of Latvia, but this is a typical case for the capital cities.

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Appendix

Opinion of Mr. Martins Vanags (Chairman of the Board, The Alliance of Real Estate Developers), exclusively for the current research project, first published on 30 June 2022

The current problem of Riga is that people's willingness to move to Pieriga and pay their taxes there increases with income growth. The central part of Riga has noticeably emptied in the last ten years, while Marupe, Adazi, Kekava and other parts of Pieriga are experiencing rapid growth. In the competition between an apartment in the centre of Riga and a Pieriga meadow, even without access roads and engineering networks, a Pieriga meadow still wins.

For comparison, an average of 500 apartments have been bought in the central part of Riga in recent years, while 2700 plots of land intended for individual construction were sold in Pieriga last year. It is not for nothing that people say that Riga is full of haunted houses, which are passed by polished jeeps from Pieriga. Therefore, it is important both to develop the urban environment and build new, affordable housing in Riga. According to Colliers data, 24 thousand new homes have been built in Vilnius in the last ten years, while only 8 thousand in Riga.

Bureaucracy in construction and project coordination has been a major problem faced by developers; the situation has improved with the introduction of the "Green Corridor" for large investment projects in Riga. It is important for the Riga Investment and Tourism Agency to attract more international companies to Riga, for example, more than 30 thousand people work in international business service centres in Vilnius, but only around 15 thousand in Riga. Good news for investors in Riga is the new Residential Tenancy Law; as a result of its adoption, more than 100 million euro is currently being invested in new rental houses in Riga, which is attractive for investment funds, and this is also good news for labour mobility.

Riga, that is, we all have to get along to catch up with Vilnius in the coming years, since now we can only dream about Singapore or Copenhagen.

**Opinion of Mr. Martins Stakis (Mayor of Riga since 2020),
exclusively for the current research project, first published on
15 July 2022**

1. Residents' return to the city – purposeful policy of Riga city

According to the data of the Office of Citizenship and Migration Affairs, the number of registered residents in the Riga city is decreasing. But these are the declared residents. The daily flow of people who use Riga's infrastructure on a daily basis, including the housing stock, does not decrease. In Riga, although new residential houses are being built, the demand for living space still exceeds the supply. This means that residents living in Riga have declared their place of residence also outside the administrative borders of Riga city and pay their personal income tax in other municipalities.

For the past two years, the city of Riga has purposefully worked on improving the living space in Riga's districts by creating a more pleasant, greener and more sustainable environment, as well as by involving local residents in planning the development and cleaning up of their neighbourhood. This bears fruit, as positive trends are visible when looking at the population dynamics in different city districts.

2. Riga city is not just one of the 43 municipalities of Latvia

In 2021, the city's economy and rhythm of life continued to be affected by the Covid-19 crisis and its containment measures. While there was a slight increase in the economic activity as a whole, the sectors vital for the city such as tourism, food and real estate experienced notable declines. Also, the existing national policy in the area of financial equalization of municipalities and government grants for certain sectors reduce the economic growth rates of Riga.

For example, when providing guaranteed state loans, an equal amount of one million euro is provided for each municipality, without taking into account population differences. When providing support mechanisms for Ukrainian civilians, support for housing rent is provided 300 EUR in each municipality, without taking into account differences in the cost of living.

At the same time, the city of Riga is prohibited from applying for mechanisms for attracting external financial resources in order to obtain additional funds for the development of public infrastructure, business and rental housing. The state's regional policy has been designed in such a way that it is difficult for Riga to attract external funding. On the one hand, there is a requirement to pay 95 million euro into the financial equalization fund, but on the other hand,

it is expected that the capital city, following the payment, will somehow handle the development of the big projects on its own.

This is evidenced by both the established borrowing limits and the regional policy, with public funding being prioritized for the regions rather than the capital city despite the fact that the latter is a driver of economic development of the entire country. Currently we see public-private partnership (PPP) projects as an alternative to raise funding. Unfortunately, until now there was no PPP in Riga; we are starting to implement it now, and we are going to develop the first PPP project already next year.

3. Riga – an economic engine that needs fuel

The main revenue source of the local government budget – the personal income tax – will also be affected in the following years by the tax reform being implemented since 2018, as well as other tax policy measures implemented in recent years, such as the increase in the non-taxable minimum. This policy not only reduces the PIT revenues in municipalities, but also increases the dependency of local government revenues on the national policy in the area of PIT compensation and the distribution of the government special purpose grants. A good example is the salary of teachers. For many years, the (teacher-pupil) ratio of 1:16.5 was applied to Riga city, 1:15.5 to other Latvian big cities and 1:14 to the municipalities of Pierīga. As a result, since 2015, Riga school teachers have received 6% less funding than other cities and 15% less than Pierīga municipalities. In 2022, personal income tax revenues in the municipal budget of Riga city will be affected by wage and employment dynamics, the Covid-19 crisis and its containment measures, the war in Ukraine, as well as tax policy measures. Tax policy measures – an increase in the non-taxable minimum for people in employment, retirees, etc. – change the PIT revenues of Riga city in 2022. The reduction in the share of Riga municipality in PIT allocation across municipalities from 41.96% to 41.50% will reduce Riga's potential revenue by 6.4 million euro. In addition, in 2022, due to the changes of the special grants of the central government budget to offset the reduction in PIT, the amount of contributions of the donor municipalities increased; in the case of Riga city – by 53.2 million euro (2.3 times more). It should be noted that the municipal budget revenues of almost 1 billion euro in 2008 and 2022 are not comparable. The increase in consumer prices in the period from April 2008 to April 2022 is 39.3%, so in the prices of 2008 our real income this year would be 715 million euro, 17% less than in 2008.

Table A1: Cities included in the Eurobarometer quality of life survey in 2019

Country	City	Country	City
Albania	Tirana	Latvia	Riga
Austria	Graz	Lithuania	Vilnius
	Wien	Luxembourg	Luxembourg
Belgium	Antwerp	Malta	Valletta
	Brussels	Montenegro	Podgorica
	Liege	Netherlands	Amsterdam
Bulgaria	Burgas		Groningen
	Sofia		Rotterdam
Croatia	Zagreb	North Macedonia	Skopje
Cyprus	Lefkosia	Norway	Oslo
Czechia	Ostrava	Poland	Bialystok
	Praha		Gdansk
Denmark	Aalborg		Krakow
	Copenhagen		Warsaw
Estonia	Tallinn	Portugal	Braga
Finland	Helsinki		Lisbon
	Oulu	Romania	Bucharest
France	Bordeaux		Cluj-Napoca
	Lille		Piatra Neamt
	Marseille	Serbia	Belgrade
	Paris	Slovakia	Bratislava
	Rennes		Kosice
	Strasbourg	Slovenia	Ljubljana
Germany	Berlin	Spain	Barcelona
	Dortmund		Madrid
	Essen		Malaga
	Hamburg		Oviedo
	Leipzig	Sweden	Malmo
	Munich		Stockholm
	Rostock	Switzerland	Geneve
Greece	Athens		Zurich
	Iraklion	Turkey	Ankara
Hungary	Budapest		Antalya
	Miskolc		Diyarbakir
Iceland	Reykjavik		Istanbul
Ireland	Dublin	UK	Belfast
Italy	Bologna		Cardiff
	Naples		Glasgow
	Palermo		London
	Rome		Manchester
	Turin		Tyneside
	Verona		

Source: Eurobarometer survey.

Table A2: Share of variance explained by the respective principal component (%)

Quality of life area	1	2	3	4	5	6	7	8...
Safety	58.6	20.5	7.7	6.5	5.3	1.3		
Trust	60.9	29.6	6.5	2.9				
Environment	79.6	10.0	7.1	3.3				
Public transport	72.7	14.0	5.7	3.6	2.6	1.4		
Infrastructure	73.7	8.1	6.9	4.9	3.0	2.2	1.3	
Good place to live	66.6	17.8	7.7	3.3	2.3	2.3		
Governance	72.6	9.8	7.9	7.1	2.6			
Economic situation	76.8	14.1	5.8	3.3				
General	73.1	20.8	4.4	1.8				
Composite	50.6	9.1	5.8	5.3	3.9	3.1	2.6	19.6

Notes. Columns represent the respective principal component. For instance, when measuring urban environmental quality, the first principal component explains 79.6% of the total variance, while the second principal component explains only 10.0% and is therefore neglected. "8..." indicates the sum of variance explained by 8th–40th principal components.

Sources: Eurobarometer survey data, author's calculations.

Table A3: Safety: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q2_03	Feel safe walking alone at night in my city	A (5)	-0.474	0.70
q2_04	Feel safe walking alone at night in my neighbourhood	A (5)	-0.440	0.69
q7	Confidence in the local police force	Y / N	-0.403	0.87
q9	Assaulted or mugged during the last year	Y / N	-0.398	0.82
q6_02	Public transport is safe	A (5)	-0.392	0.91
q8	Stolen money or property during the last year	Y / N	-0.327	0.69

Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.76.

A (5): agreement on a 5-point Likert scale: Strongly disagree (0) / Somewhat disagree (25) / Don't know (50) / Somewhat agree (75) / Strongly agree (100).

Y / N: Yes (100) / Don't know (50) / No (0).

Source: Eurobarometer survey data, author's calculations.

Table A4: Trust: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q2_06	Most people in my city can be trusted	A (5)	-0.549	0.58
q2_07	Most people in my neighbourhood can be trusted	A (5)	-0.514	0.55
q11	Could receive material help from people you know	Y / N	-0.507	0.63
q12	Could receive non-material help from people you know	Y / N	-0.421	0.56

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.58.

A (5): agreement on a 5-point Likert scale: Strongly disagree (0)/Somewhat disagree (25)/Don't know (50)/Somewhat agree (75)/Strongly agree (100).

Y / N: Yes (100)/Don't know (50)/No (0).

Sources: Eurobarometer survey data, author's calculations.

Table A5: Environment: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q1_09	Noise level	S (5)	-0.523	0.73
q1_10	Cleanliness	S (5)	-0.493	0.85
q1_05	Green spaces such as parks and gardens	S (5)	-0.493	0.76
q1_08	Air quality	S (5)	-0.490	0.75

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.77.

S (5): satisfaction on a 5-point Likert scale: Very unsatisfied (0)/Rather unsatisfied (25)/Don't know (50)/Rather satisfied (75)/Very satisfied (100).

Sources: Eurobarometer survey data, author's calculations.

Table A6: Public transport: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q6_04	Public transport is frequent (comes often)	A (5)	-0.447	0.83
q6_03	Public transport is easy to get	A (5)	-0.441	0.83
q6_05	Public transport is reliable (comes when it says it will)	A (5)	-0.440	0.89
q1_01	Satisfaction with public transport	S (5)	-0.433	0.92
q6_02	Public transport is safe	A (5)	-0.423	0.89
q6_01	Public transport is affordable	A (5)	-0.214	0.98

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.88.

A (5): agreement on a 5-point Likert scale: Strongly disagree (0)/Somewhat disagree (25)/Don't know (50)/Somewhat agree (75)/Strongly agree (100).

S (5): satisfaction on a 5-point Likert scale: Very unsatisfied (0)/Rather unsatisfied (25)/Don't know (50)/Rather satisfied (75)/Very satisfied (100).

Sources: Eurobarometer survey data, author's calculations.

Table A7: Infrastructure: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q1_05	Green spaces: parks and gardens	S (5)	-0.404	0.84
q1_06	Public spaces: markets, squares, pedestrian areas	S (5)	-0.402	0.89
q1_03	Sport facilities: sport fields and indoor sports halls	S (5)	-0.394	0.87
q1_04	Cultural facilities: concert halls, theatres, museums, libraries	S (5)	-0.388	0.95
q1_01	Public transport	S (5)	-0.361	0.95
q1_07	Schools and other educational facilities	S (5)	-0.350	0.81
q1_02	Health care services, doctors and hospitals	S (5)	-0.341	0.90

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.89.

S (5): satisfaction on a 5-point Likert scale: Very unsatisfied (0)/Rather unsatisfied (25)/Don't know (50)/Rather satisfied (75)/Very satisfied (100).

Sources: Eurobarometer survey data, author's calculations.

Table A8: Good place to live: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q3_01	For people in general	Y / N	-0.453	0.83
q3_04	For immigrants from other countries	Y / N	-0.423	0.81
q3_06	For elderly people	Y / N	-0.419	0.80
q3_05	For young families with children	Y / N	-0.406	0.80
q3_02	For racial and ethnic minorities	Y / N	-0.378	0.81
q3_03	For gay or lesbian people	Y / N	-0.364	0.79

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.81.

Y/N: A good place to live (100)/Don't know (50)/Not a good place to live (0).

Sources: Eurobarometer survey data, author's calculations.

Table A9: Governance: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q13_01	Satisfied with request solving speed	A (5)	-0.495	0.76
q13_04	Information and services can be easily accessed online	A (5)	-0.445	0.93
q13_03	Fees charged are reasonable	A (5)	-0.443	0.86
q13_02	Procedures are straightforward and easy to understand	A (5)	-0.438	0.84
q13_05	There is corruption in my local public administration	A (5)	-0.411	0.91

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.85.

A(5): agreement on a 5-point Likert scale: Strongly disagree (0)/Somewhat disagree (25)/Don't know (50)/Somewhat agree (75)/Strongly agree (100).

Sources: Eurobarometer survey data, author's calculations.

Table A10: Economic situation: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q4_02	Your personal job situation	S (5)	-0.537	0.73
q4_03	Financial situation of your household	S (5)	-0.527	0.77
q_10	Difficulties to pay your bills at the end of the month	Y / N	-0.467	0.83
q2_02	It is easy to find a good job in my city	A (5)	-0.465	0.78

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.77.

S (5): satisfaction on a 5-point Likert scale: Not at all satisfied (0)/Not very satisfied (25)/Don't know (50)/Fairly satisfied (75)/Very satisfied (100).

A (5): agreement on a 5-point Likert scale: Strongly disagree (0)/Somewhat disagree (25)/Don't know (50)/Somewhat agree (75)/Strongly agree (100).

Y/N: Most of the time (0)/From time to time (50)/Almost never or never (100)/Don't know (50).

Sources: Eurobarometer survey data, author's calculations.

Table A11: General life satisfaction: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Question	Answers	Factor loading	KMO
q4_01	Neighbourhood where you live	S (5)	-0.568	0.66
q2_01	Satisfied to live in my city	A (5)	-0.551	0.81
q4_04	The life you lead	S (5)	-0.534	0.75
q14	Compared to five years ago, quality of life in your city	D / I	-0.299	0.70

Notes. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.73.

A(5): Strongly disagree (0)/Somewhat disagree (25)/Don't know (50)/Somewhat agree (75)/Strongly agree (100).

S (5): Not at all satisfied (0)/Not very satisfied (25)/Don't know (50)/Fairly satisfied (75)/Very satisfied (100).

D/I: Decreased (0)/Stayed the same (50)/Increased (100)/Don't know (50).

Sources: Eurobarometer survey data, author's calculations.

Table A12: Composite quality of life index: Kaiser-Meyer-Olkin criterion and factor loadings of the first principal component

Code	Factor loading	KMO	Code	Factor loading	KMO
q2_01	-0.209	0.94	q13_03	-0.164	0.87
q4_01	-0.207	0.93	q1_02	-0.160	0.86
q4_04	-0.193	0.92	q1_08	-0.158	0.88
q1_06	-0.192	0.91	q6_03	-0.156	0.91
q1_05	-0.189	0.91	q6_04	-0.155	0.82
q1_09	-0.187	0.88	q7	-0.152	0.85
q2_07	-0.186	0.87	q6_05	-0.151	0.87
q6_02	-0.185	0.92	q13_04	-0.149	0.91
q1_10	-0.180	0.89	q3_05	-0.147	0.90
q2_06	-0.179	0.91	q3_04	-0.137	0.82
q3_01	-0.179	0.92	q3_03	-0.131	0.88
q1_03	-0.178	0.93	q2_02	-0.126	0.83
q13_05	-0.172	0.87	q3_02	-0.112	0.73
q1_01	-0.171	0.87	q13_02	-0.112	0.84
q1_07	-0.171	0.87	q9	-0.111	0.83
q13_01	-0.171	0.93	q8	-0.097	0.82
q2_03	-0.169	0.84	q11	-0.095	0.75
q3_06	-0.168	0.90	q14	-0.092	0.72
q1_04	-0.167	0.87	q6_01	-0.080	0.71
q2_04	-0.167	0.82	q12	-0.057	0.76

Note. Overall Kaiser-Meyer-Olkin (KMO) criterion = 0.88.

Sources: Eurobarometer survey data, author's calculations.

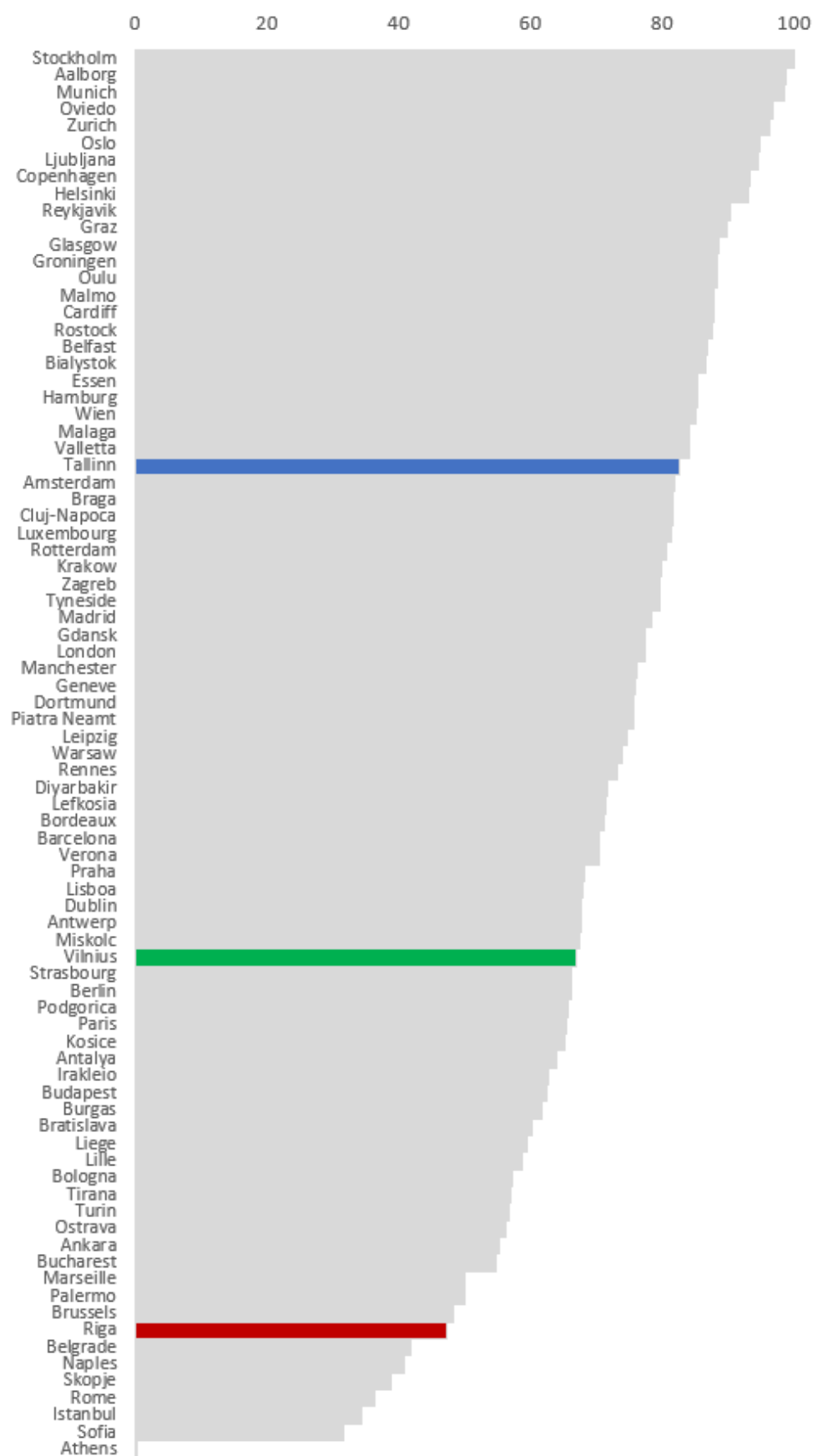


Figure A1: Safety: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best safety across European cities, but 0 – the worst safety. See factor loadings and the value of KMO criterion in Table A3.

Sources: Eurobarometer survey data, author's calculations.

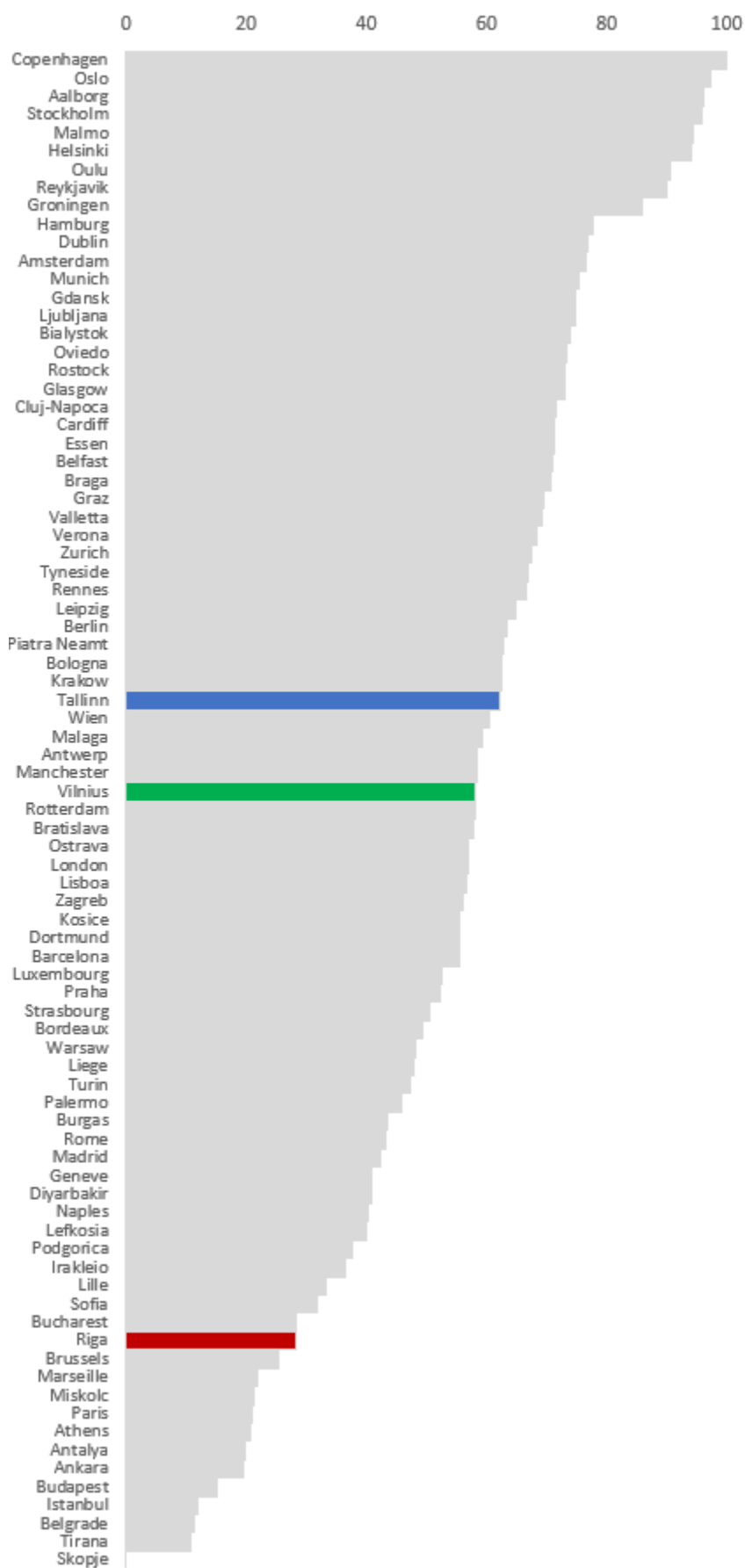


Figure A2: Trust: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the highest trust across European cities, but 0 – the lowest trust. See factor loadings and the value of KMO criterion in Table A4.

Sources: Eurobarometer survey data, author's calculations.

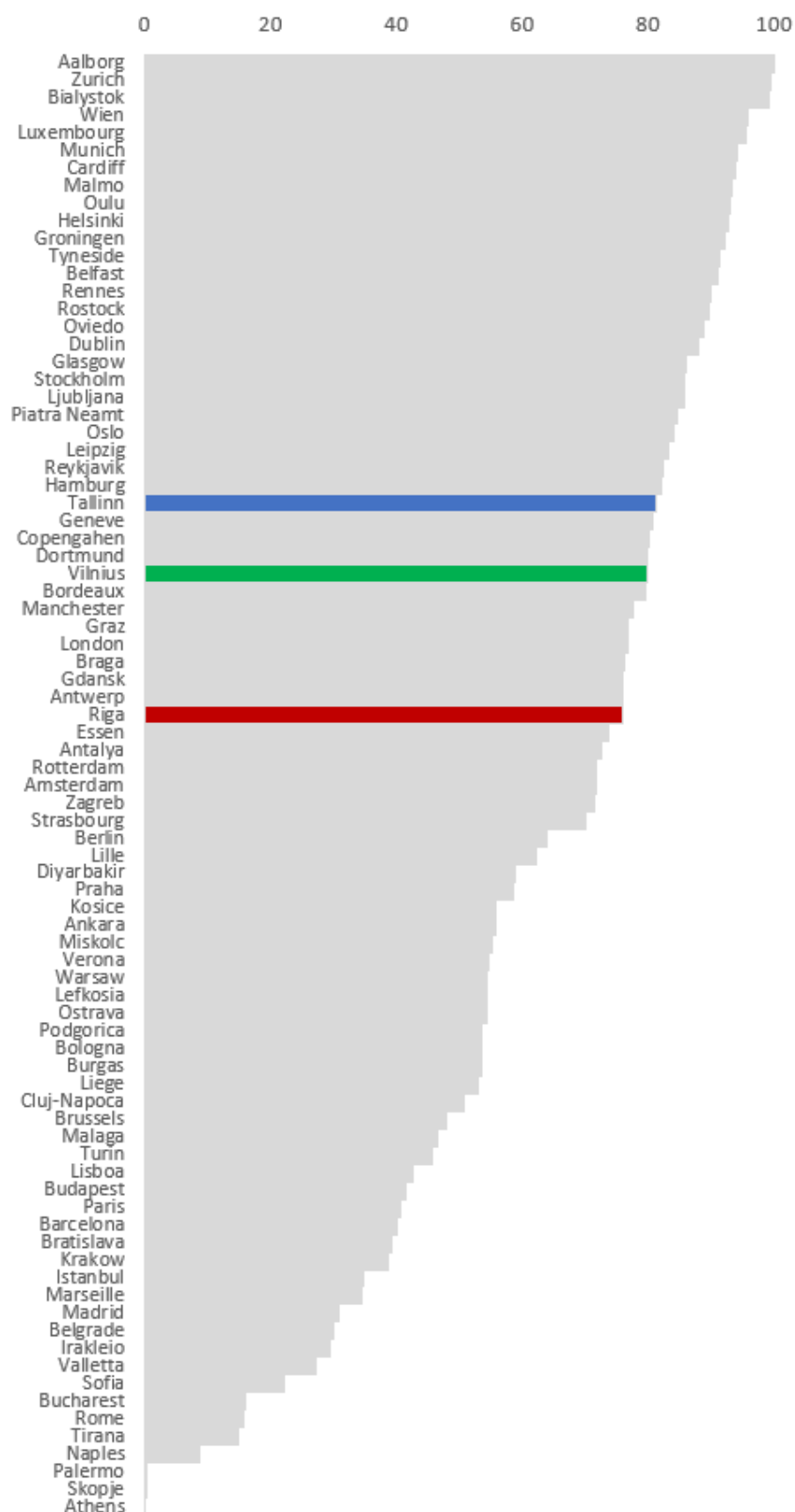


Figure A3: Environment: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best environmental quality across European cities, but 0 – the worst environmental quality. See factor loadings and the value of KMO criterion in Table A5.

Sources: Eurobarometer survey data, author's calculations.

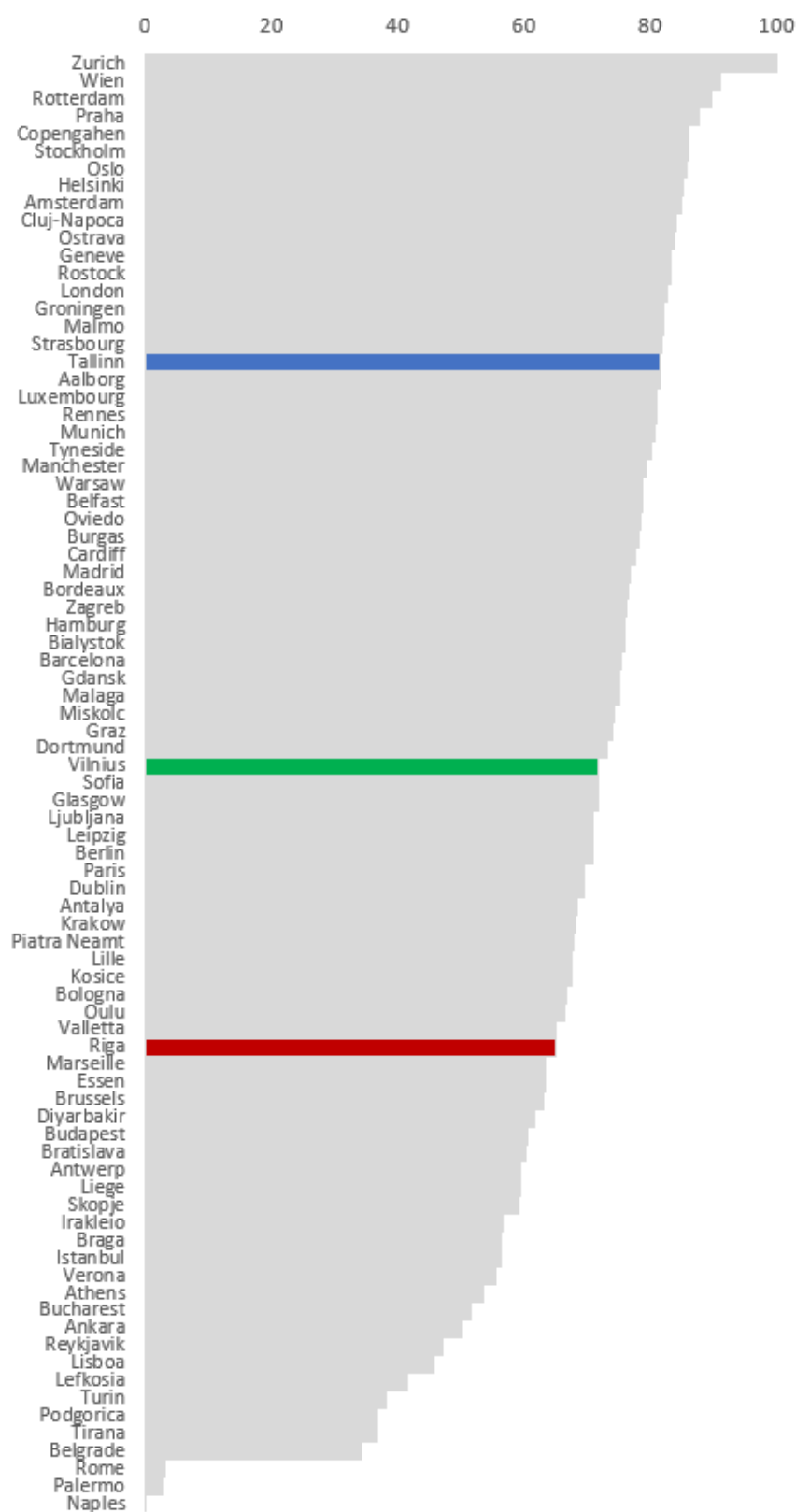


Figure A4: Public transport: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best perceived public transport quality across European cities, but 0 – the worst public transport quality. See factor loadings and the value of KMO criterion in Table A6.

Sources: Eurobarometer survey data, author's calculations.

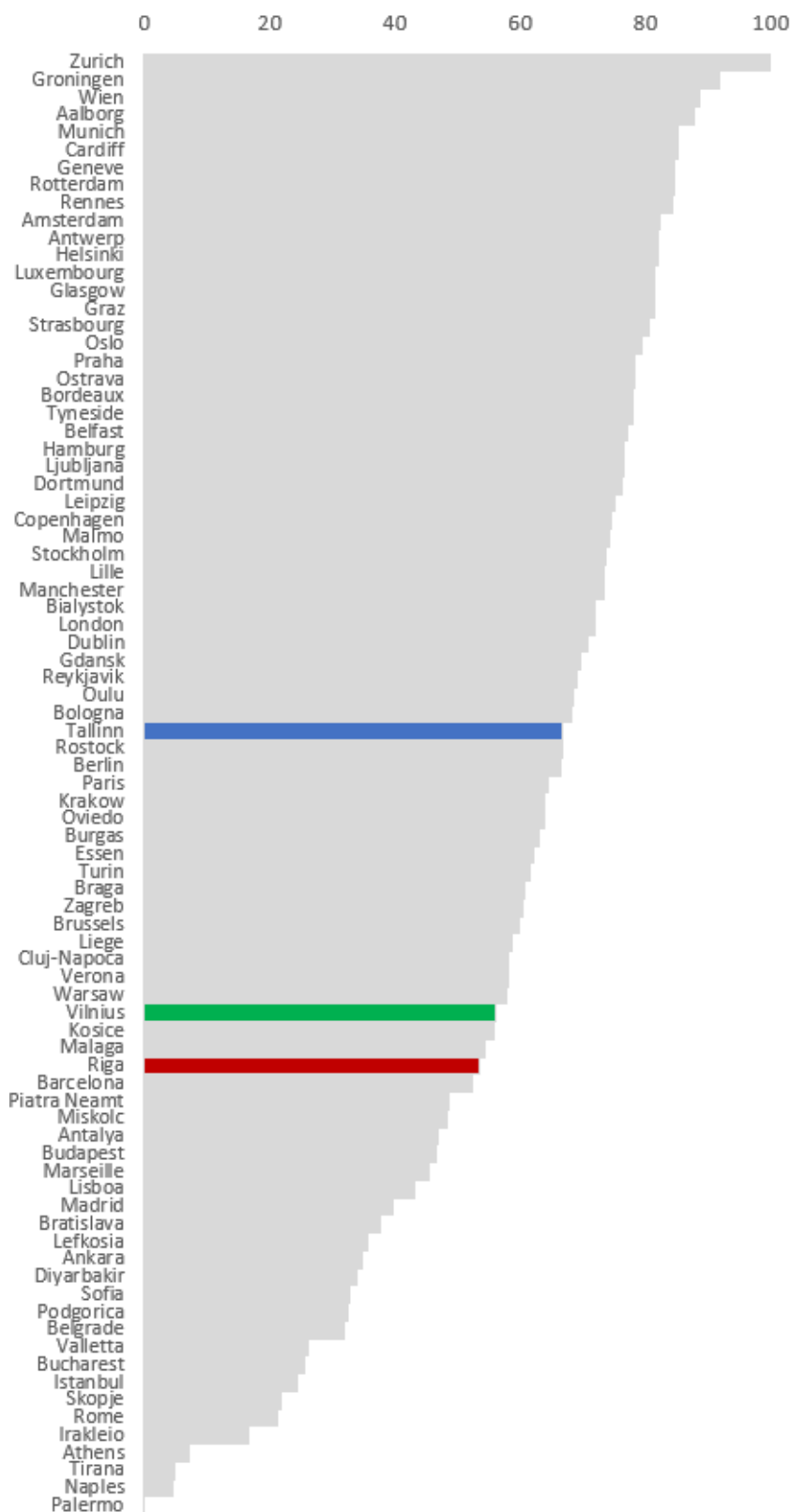


Figure A5: Infrastructure: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best perceived quality of infrastructure across European cities, but 0 – the worst quality of infrastructure. See factor loadings and the value of KMO criterion in Table A7.

Sources: Eurobarometer survey data, author's calculations.

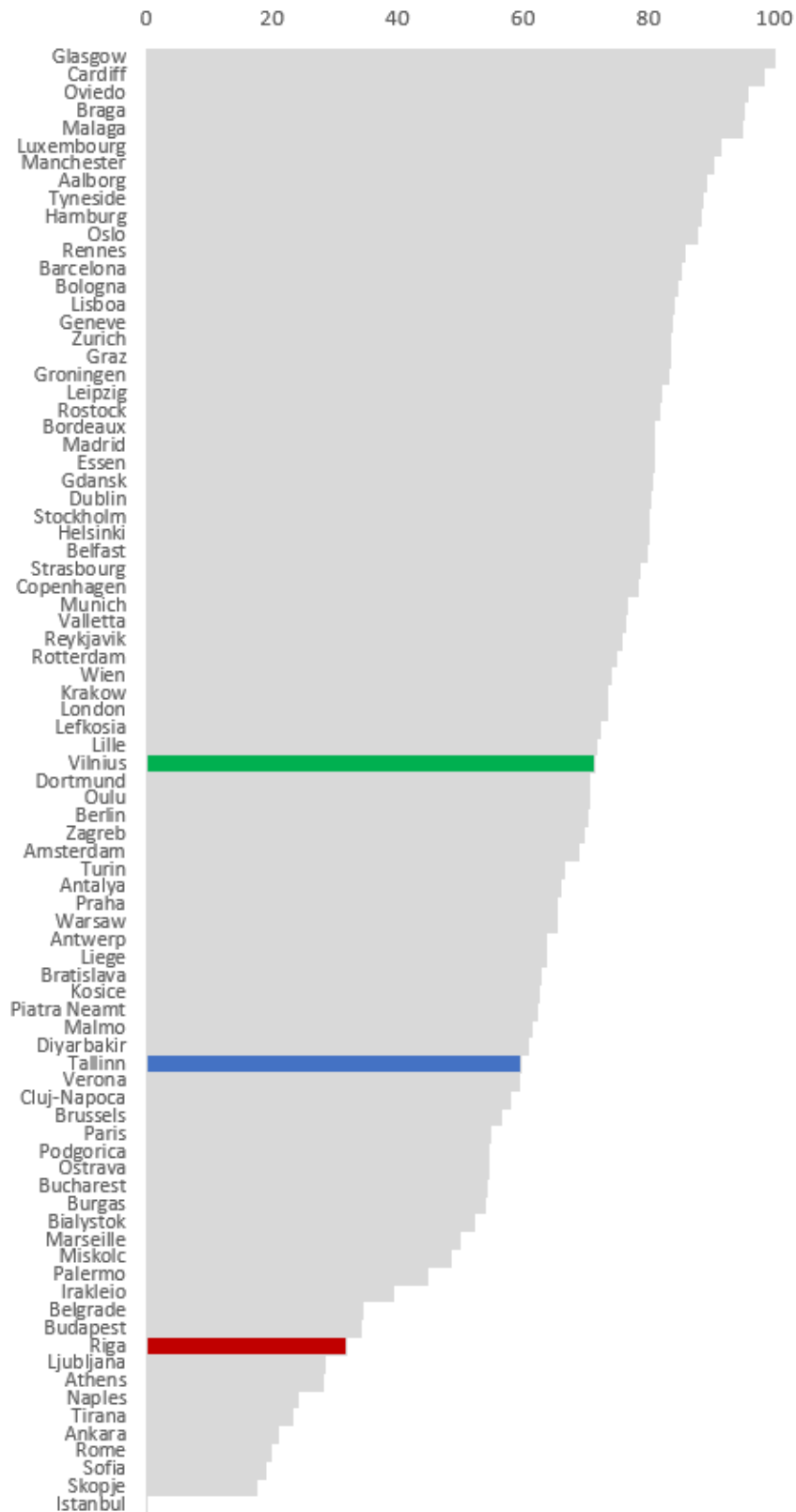


Figure A6: Good place to live: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best perceived place to live across European cities, but 0 – the worst place to live. See factor loadings and the value of KMO criterion in Table A8.

Sources: Eurobarometer survey data, author's calculations.

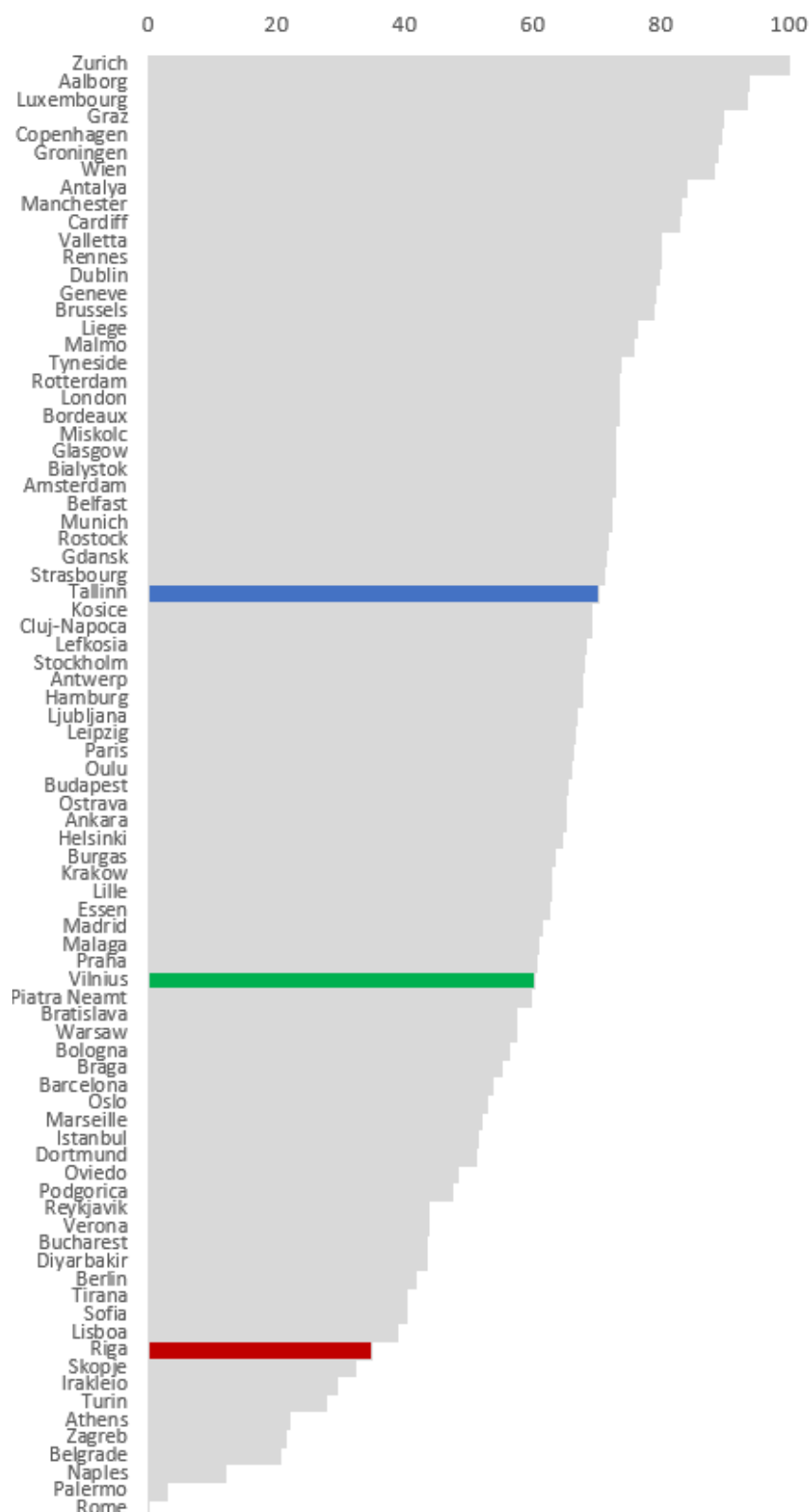


Figure A7: Governance: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best perceived quality of urban governance across European cities, but 0 – the worst quality of urban governance. See factor loadings and the value of KMO criterion in Table A9.

Sources: Eurobarometer survey data, author's calculations.

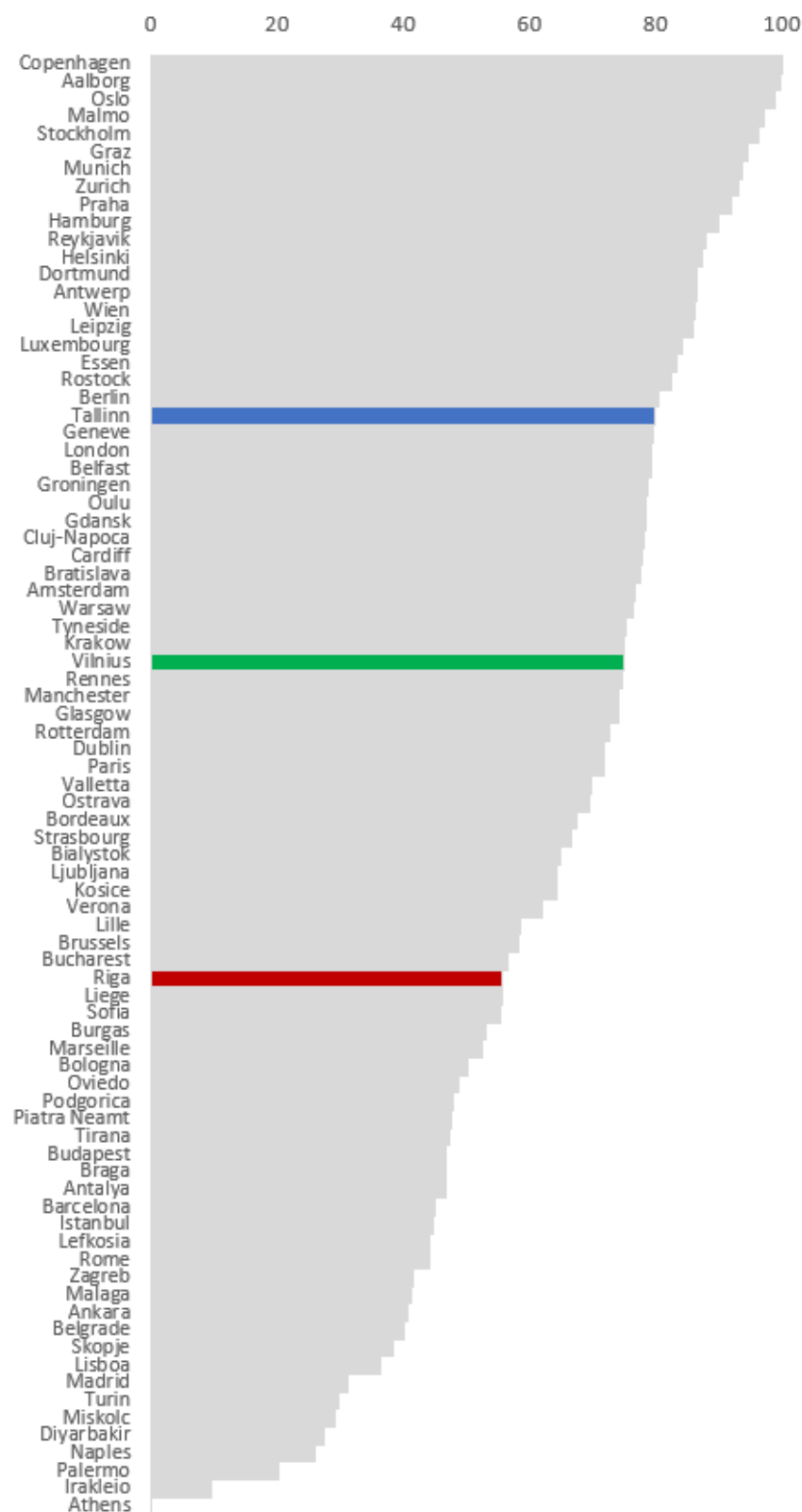


Figure A8: Economic situation: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best perceived economic situation across European cities, but 0 – the worst economic situation. See factor loadings and the value of KMO criterion in Table A10.

Sources: Eurobarometer survey data, author's calculations.

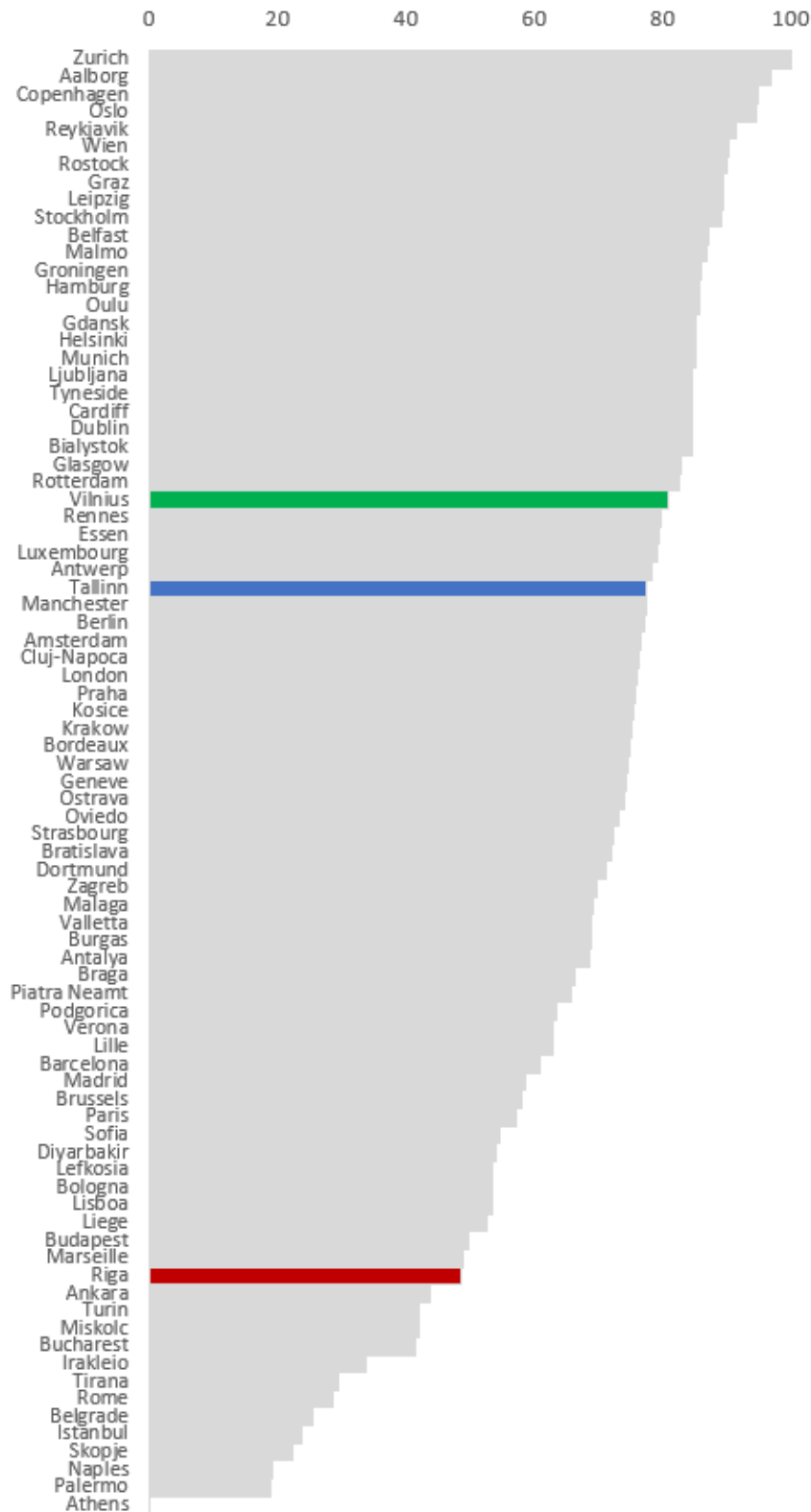


Figure A9: General urban life satisfaction: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best general urban life satisfaction across European cities, but 0 – the worst general life satisfaction. See factor loadings and the value of KMO criterion in Table A11.

Sources: Eurobarometer survey data, author's calculations.

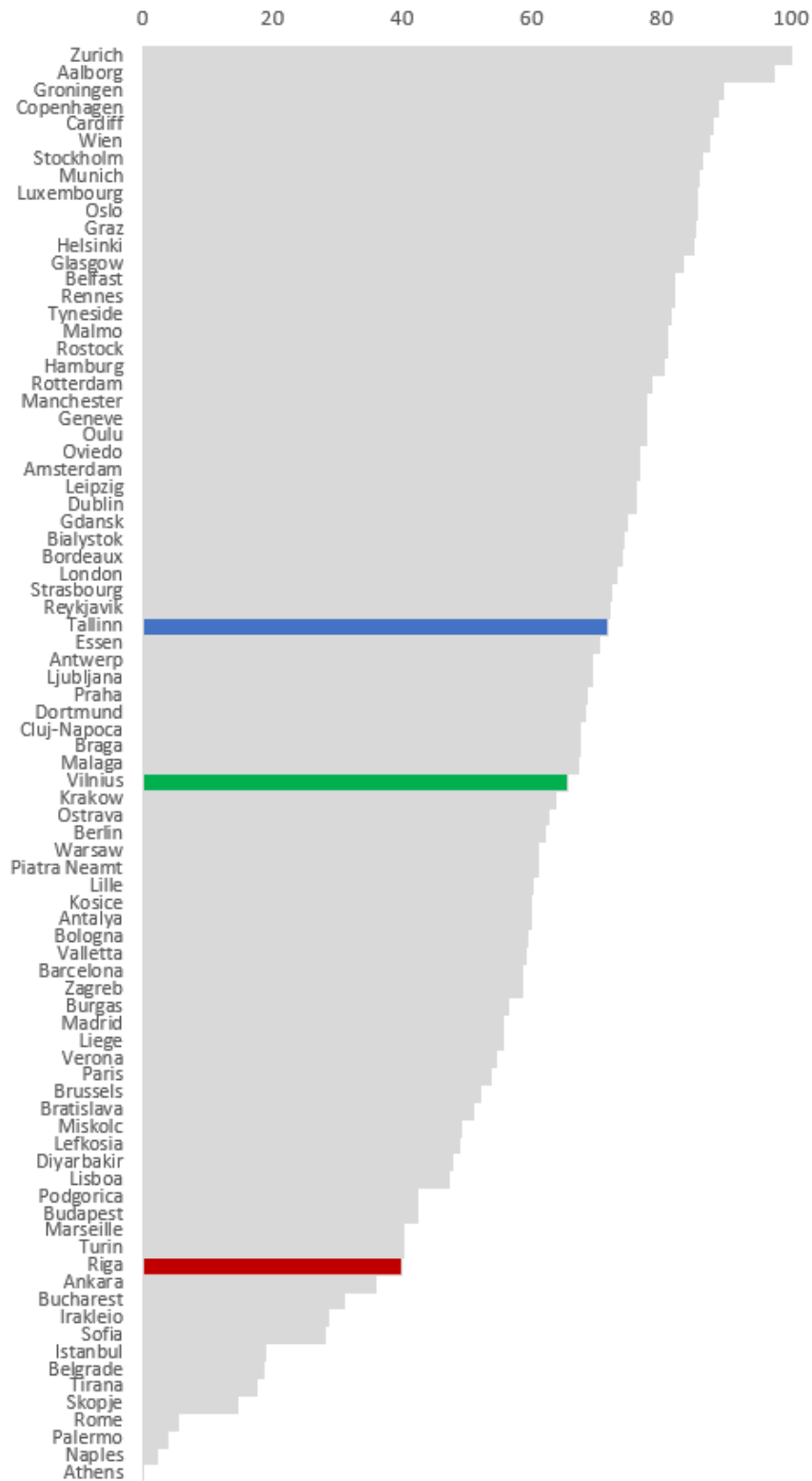


Figure A10: Composite urban quality of life index: ranking of 83 European cities (0–100 point scale, in 2019)

Notes. The figure shows the value of the first principal component rescaled to a 0–100 point scale, where 100 reflects the best quality of life across European cities, but 0 – the worst quality of life. See factor loadings and the value of KMO criterion in Table A12.

Sources: Eurobarometer survey data, author's calculations.

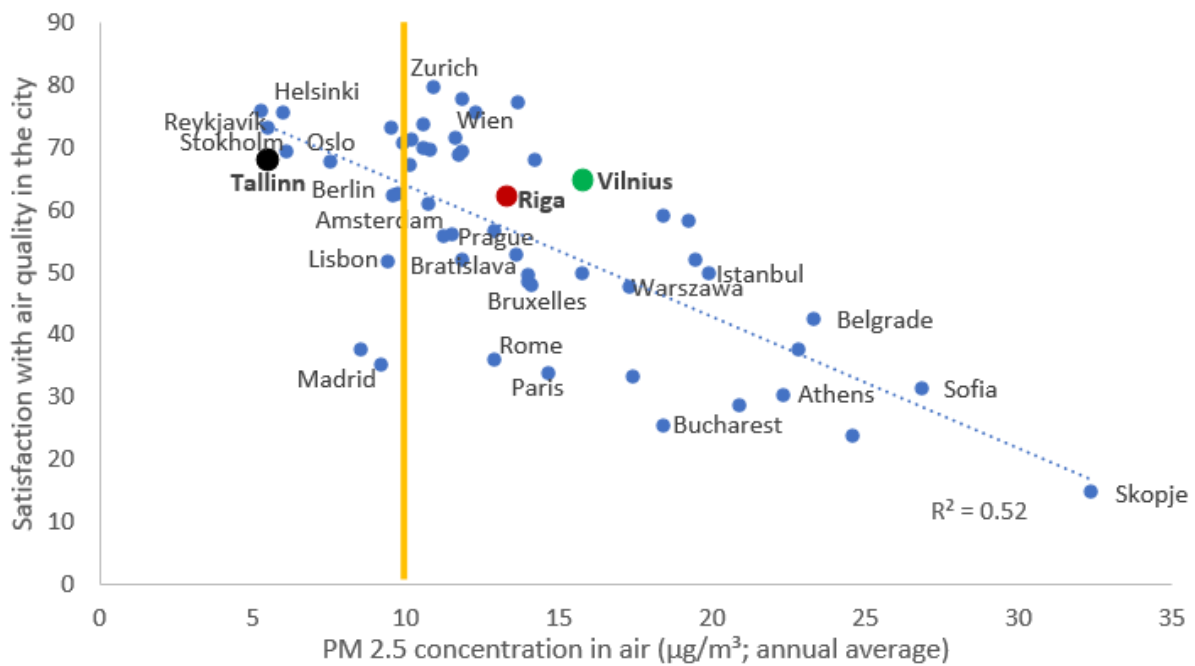


Figure A11: Concentrations of PM2.5 in the air and public satisfaction with air quality in European cities (in 2019)

Notes. The orange line represents the World Health Organization threshold for airborne concentrations of PM 2.5 (particulate matter less than 2.5 microns in diameter) of $10 \mu\text{g} / \text{m}^3$. Satisfaction with air quality in the city: the balance of replies is recalculated on a 0–100 point scale, where “0” is very unsatisfied, “100” is very satisfied). Sources: Eurobarometer survey and IQ Air (the world’s most polluted cities) data, author’s calculations.

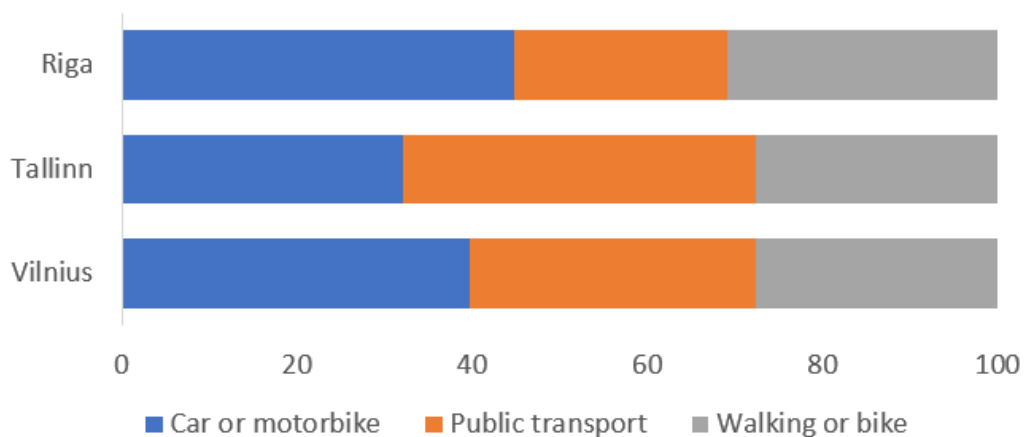


Figure A12: Main means of transport to get to work or school in Riga, Tallinn and Vilnius (%; excluding those working and studying from home)

Notes. The number of respondents is 115 in Riga, 89 in Tallinn, 101 in Vilnius. The results of the survey were released in early 2022 and include responses from the last 36 months. Sources: Numbeo data, author’s calculations.

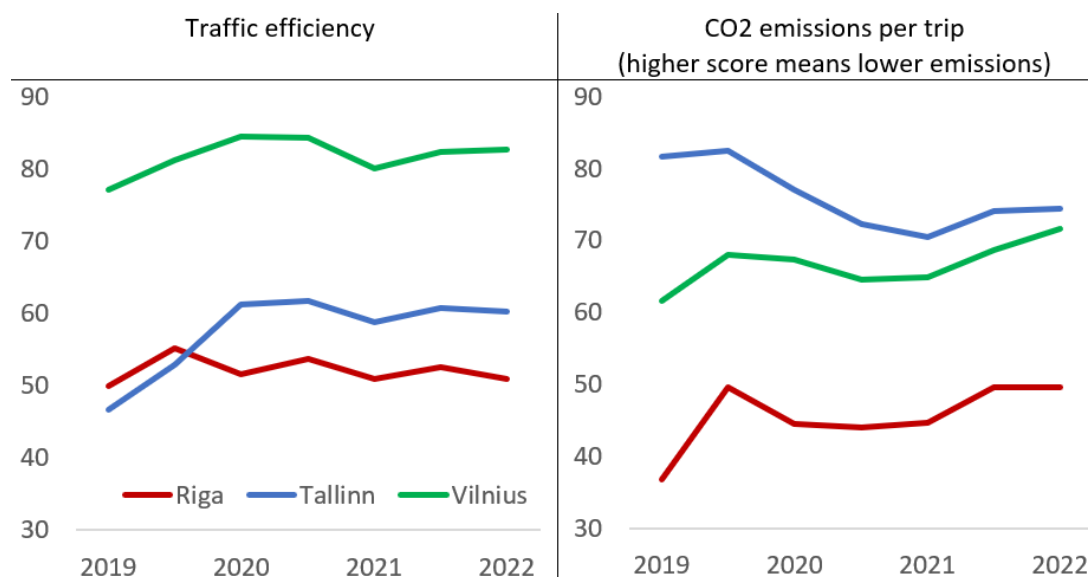


Figure A13: City traffic efficiency and carbon dioxide emissions during one trip in Riga, Tallinn and Vilnius (0–100 point scale)

Notes. Low traffic efficiency reflects an increased use of private road transport and longer average journey times. The estimate of carbon dioxide emissions per journey is based on the frequency of use of the modes of transport and the average journey time in the city, as well as on the assumption of carbon dioxide emissions per minute for different modes of transport. Numbeo data were recalculated to a 0–100 point scale, where “0” represents the worst indicator among European cities (Rome), “100” – the best indicator among European cities (Basel/Vienna). Sources: Numbeo data, author’s calculations.

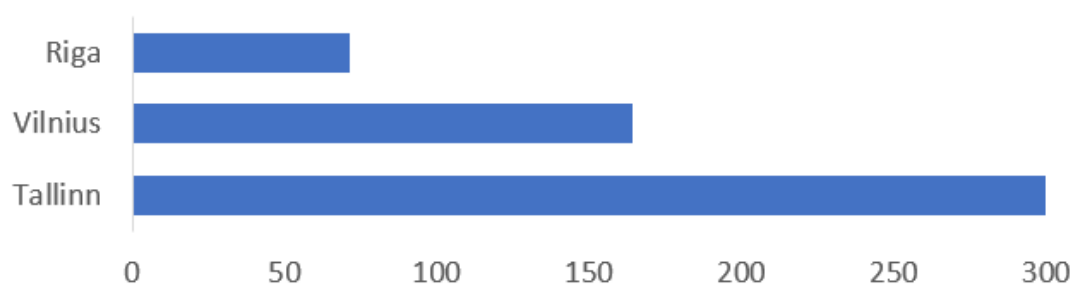


Figure A14: Length of the bicycle network in Riga, Tallinn and Vilnius (dedicated cycle paths and lanes; km; in 2020)

Source: Eurostat data.

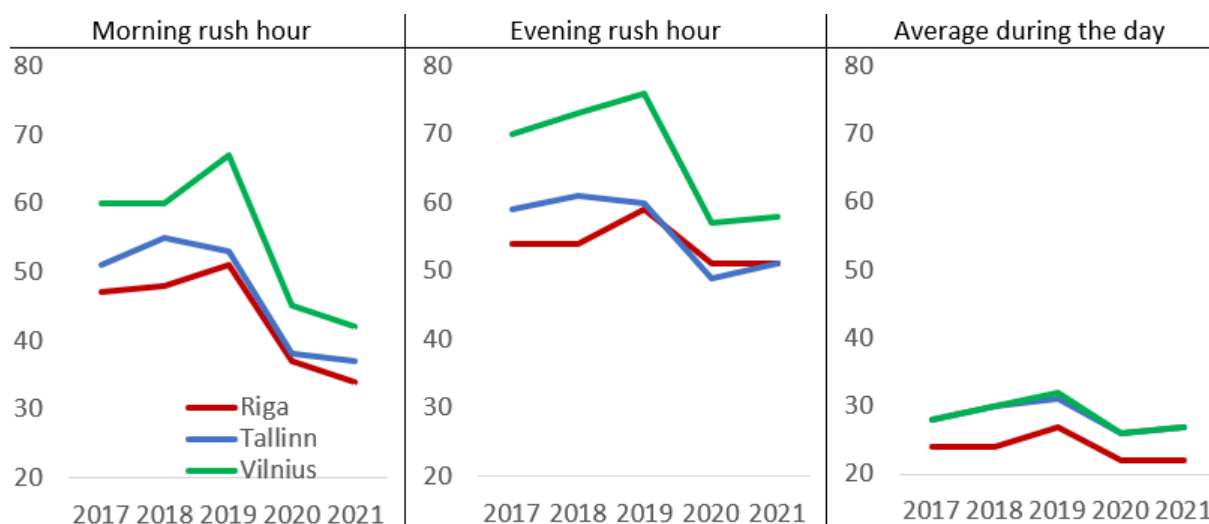


Figure A15: Extra time spent on the road due to traffic congestion (%)

Source: TomTom data.

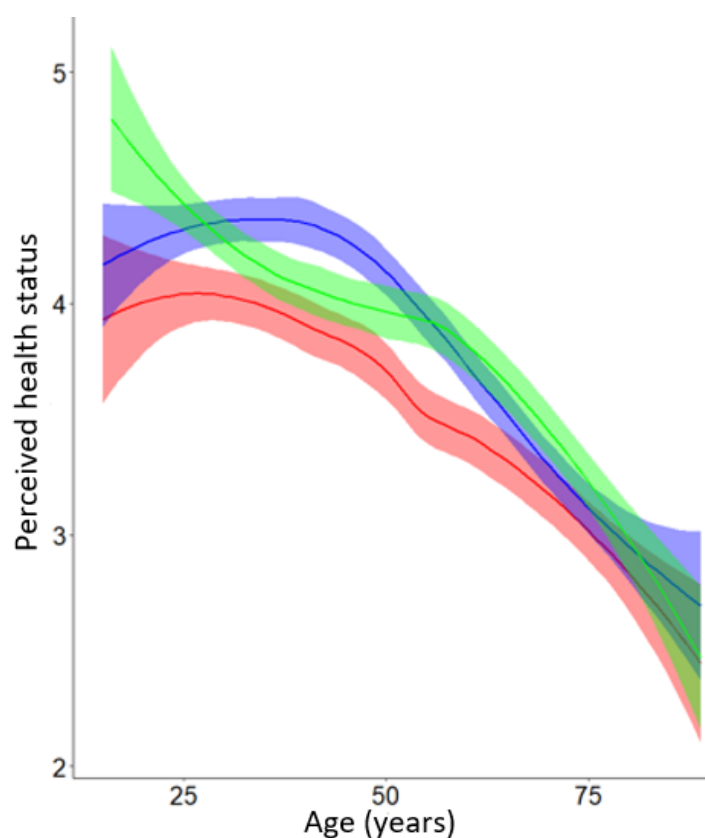


Figure A16: Health-age profile in Riga, Tallinn and Vilnius (in 2019)

Note. The lines reflect a smoothed local regression between the perceived health status and age of respondents in three cities: Riga (red), Tallinn (blue) and Vilnius (green). The area indicates a 95% confidence interval. Sources: Eurobarometer survey data, author's calculations.

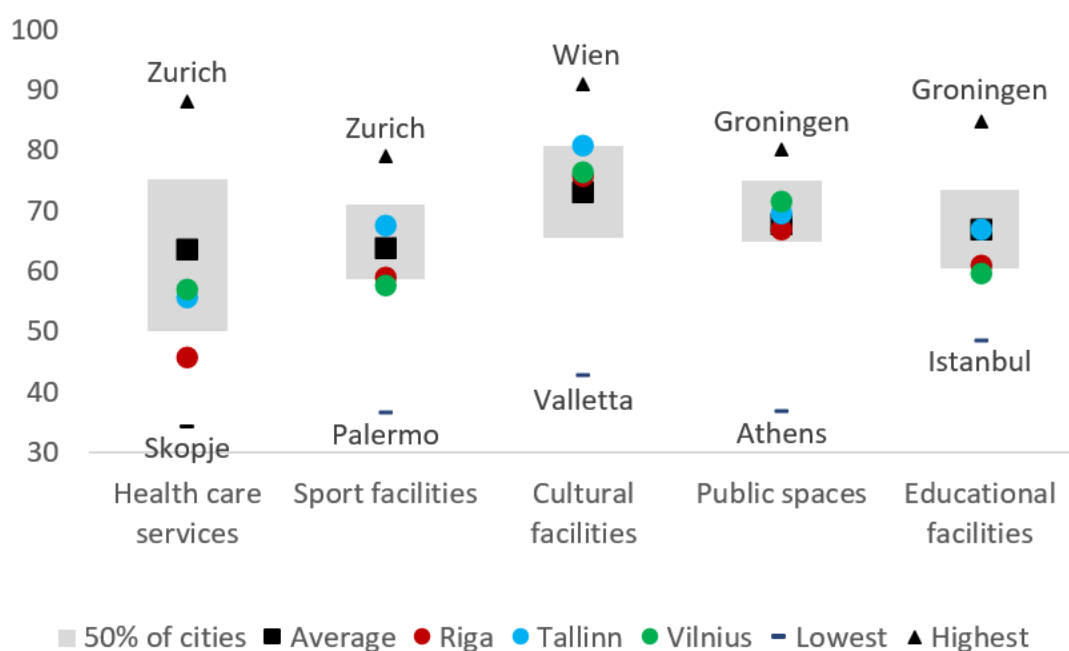


Figure A17: Perceived quality of infrastructure in Riga, Tallinn and Vilnius compared to other European cities (0–100 point scale; in 2019)

Sources: Eurobarometer survey data, author's calculations.

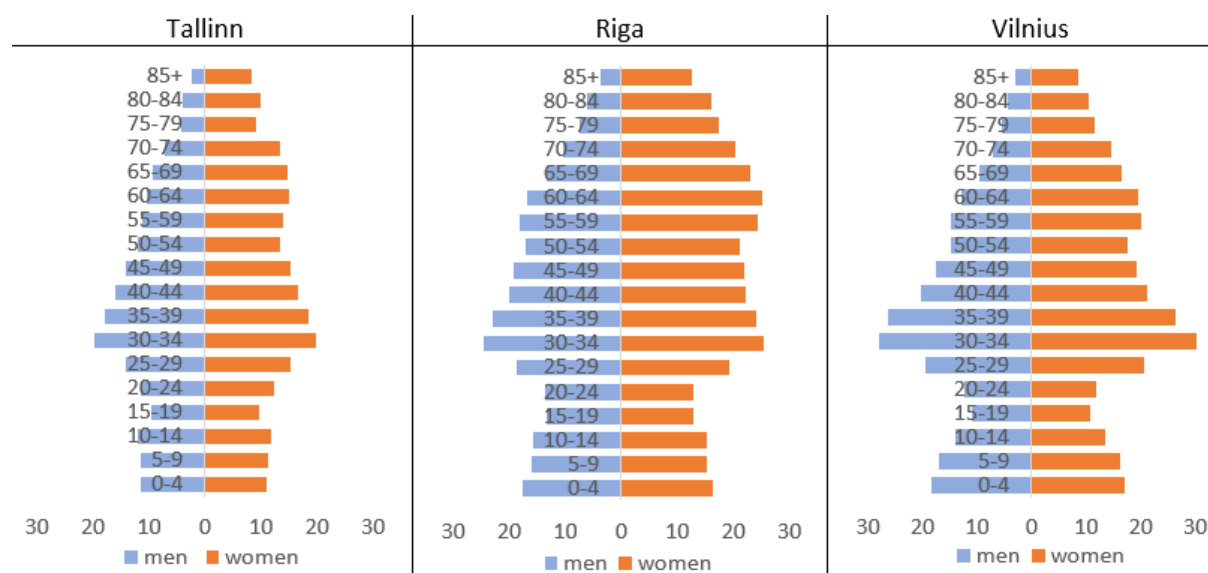


Figure A18: Population age structure in Riga, Tallinn and Vilnius (at the beginning of 2020)

Source: Eurostat data.

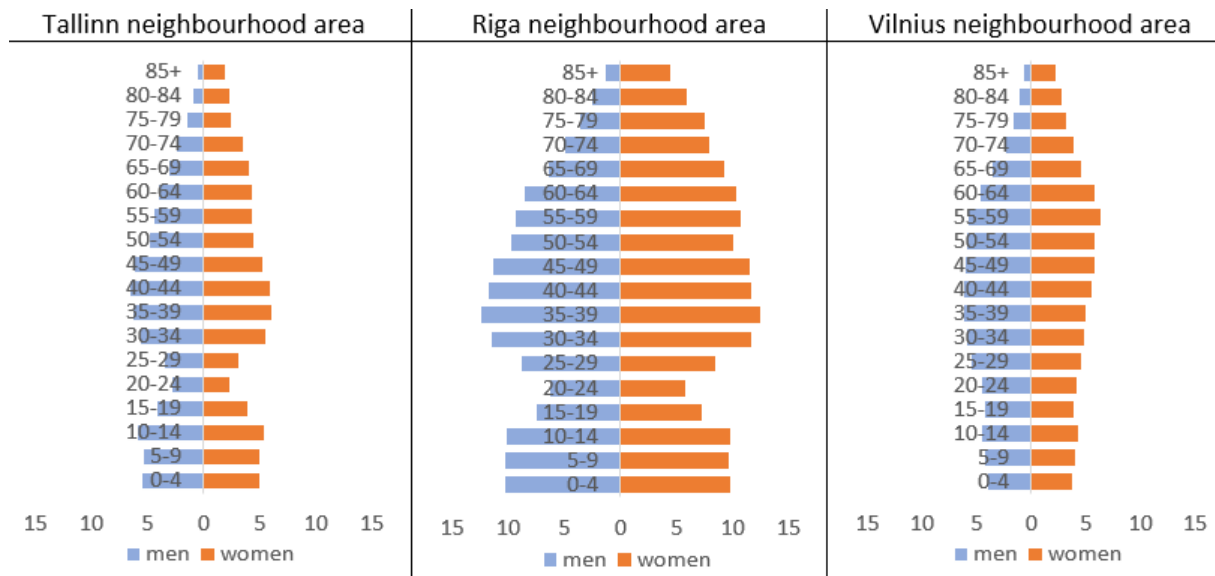


Figure A19: Population age structure in the neighbourhood of Riga, Tallinn and Vilnius (at the beginning of 2020)

Note. The neighbourhood area is defined as a functional urban area outside city.
Sources: Eurostat data, author's calculations.

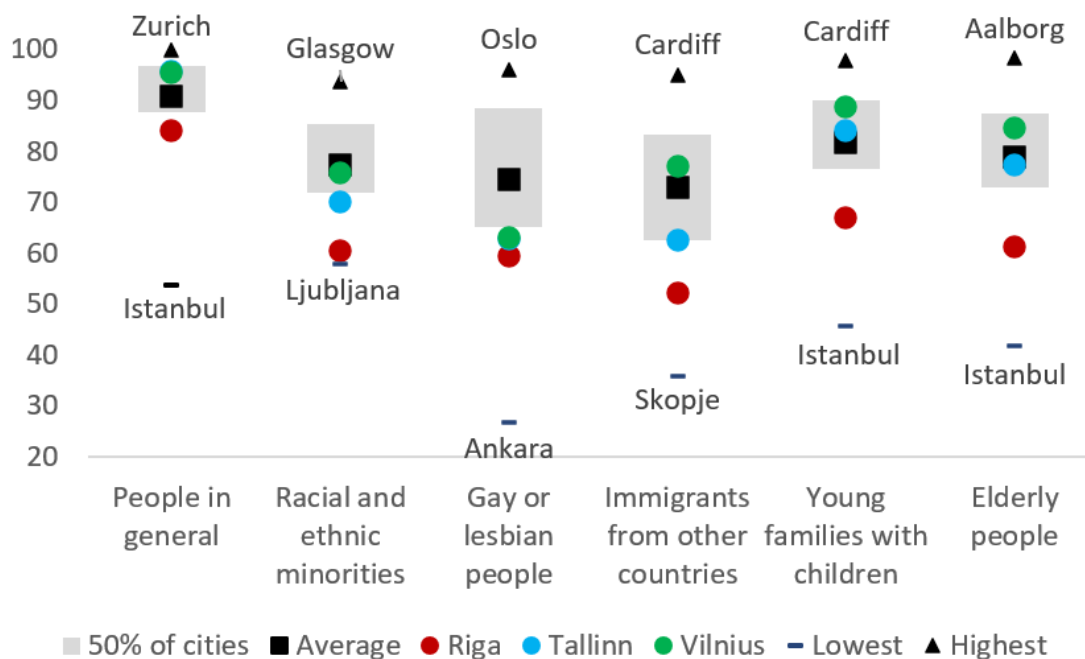
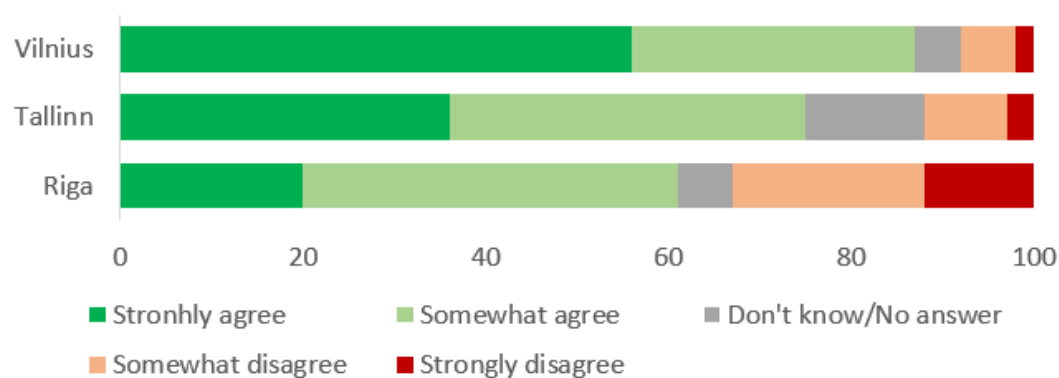


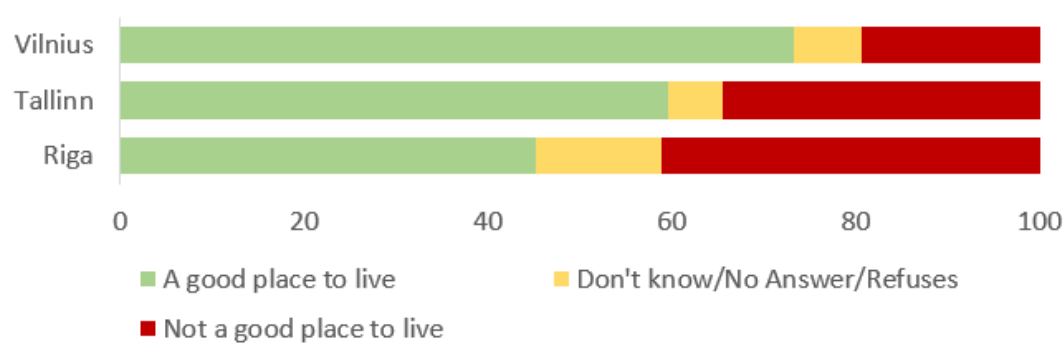
Figure A20: Perceived quality of life for particular population groups in Riga, Tallinn and Vilnius compared to other European cities (0–100 point scale; in 2019)

Sources: Eurobarometer survey data, author's calculations.

The presence of foreigners is good for this city (%; in 2015):



City is a good place to live for immigrants from other countries (%; in 2019):



Foreigners who live in this city are well integrated (%; in 2015):

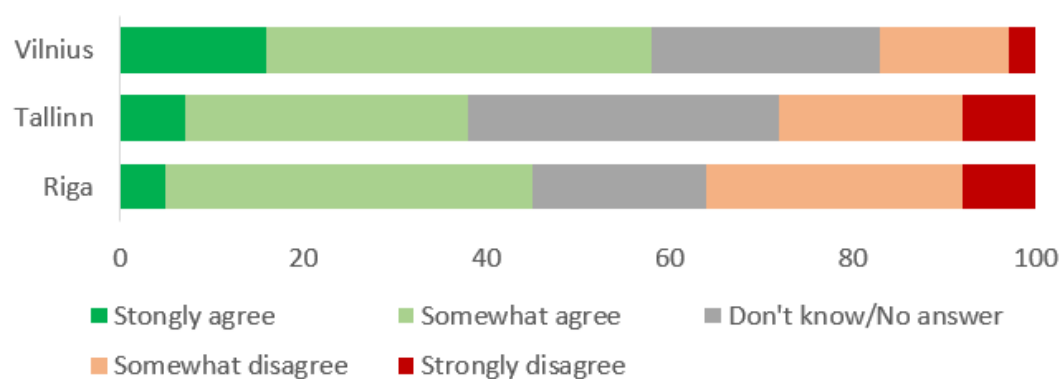


Figure A21: Attitude towards foreigners and immigrants in Riga, Tallinn and Vilnius

Note. The structure of respondents corresponds to the gender and age structure of the city's population.
Sources: Eurobarometer survey data, author's calculations.

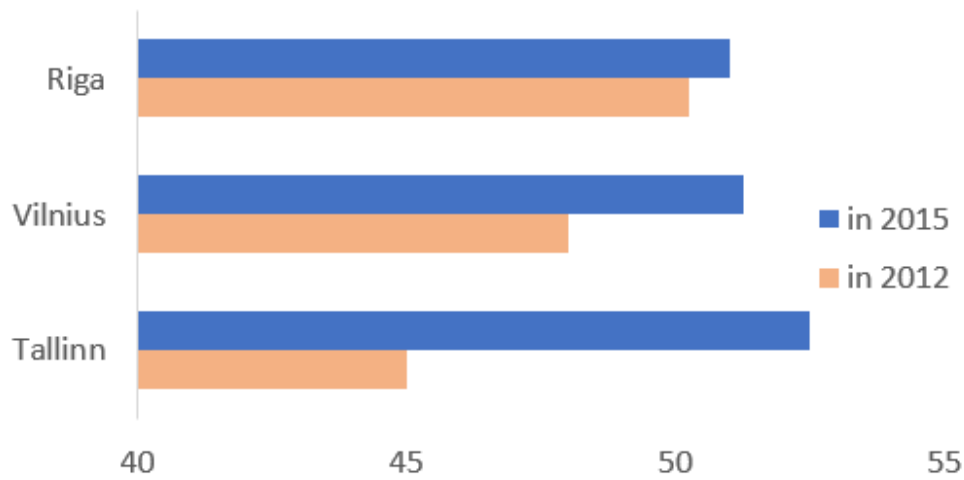


Figure A22: Trust to the local public administration in Riga, Tallinn and Vilnius (index; 0–100 point scale)

Notes. Respondents were asked if they agree with the statement “The public administration of the city can be trusted.” The balance of replies was recalculated to a 0–100 point scale, where 0 is “strongly disagree”, while 100 – “strongly agree”.

Sources: Eurobarometer survey data, author’s calculations.

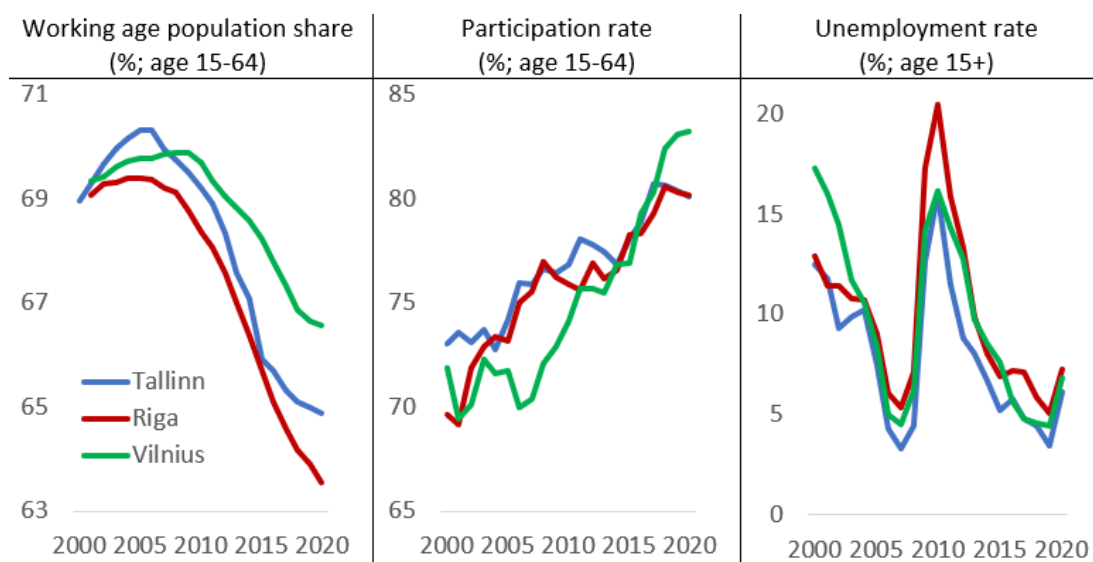


Figure A23: Labour market indicators in Tallinn, Riga and Vilnius (over 2000–2020)

Sources: data of central statistical offices of the Baltic countries, author’s calculations.

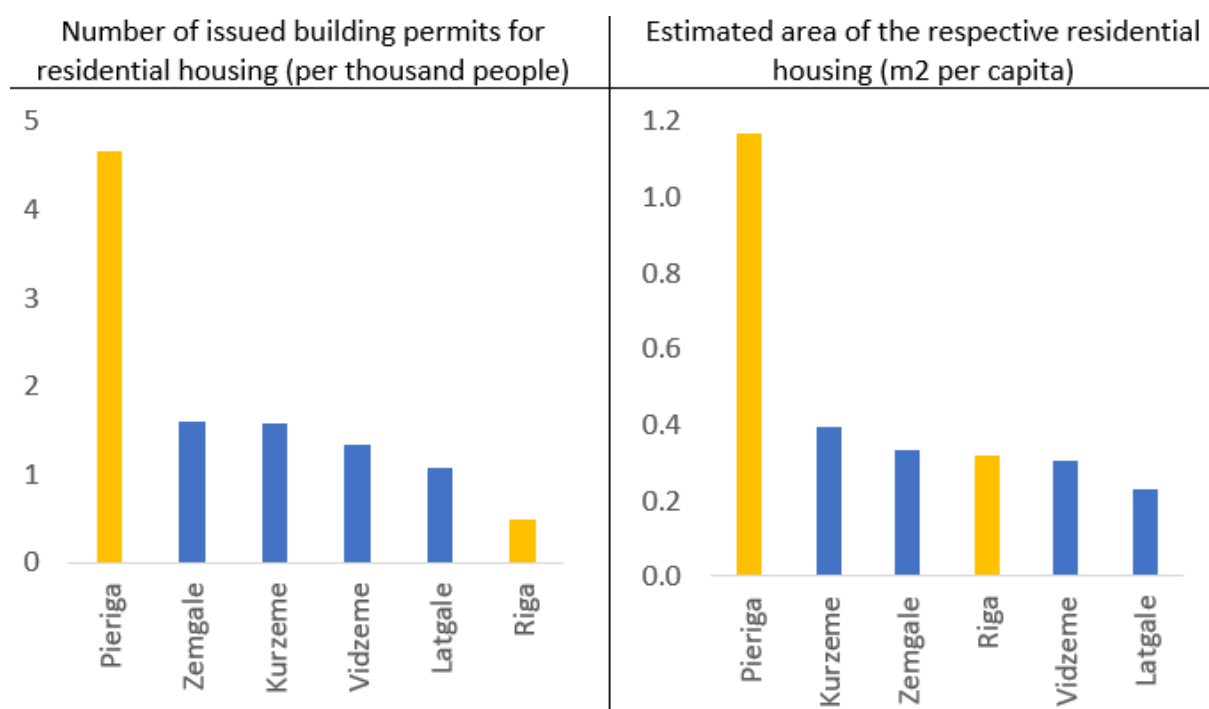


Figure A24: Construction of residential buildings in Latvia by region (annual average over 2018–2020)

Sources: Central Statistical Bureau of Latvia data, author's calculations.

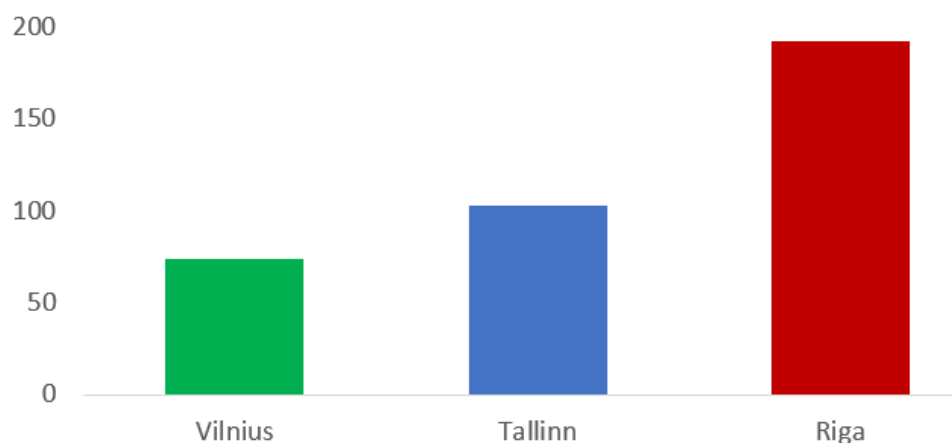
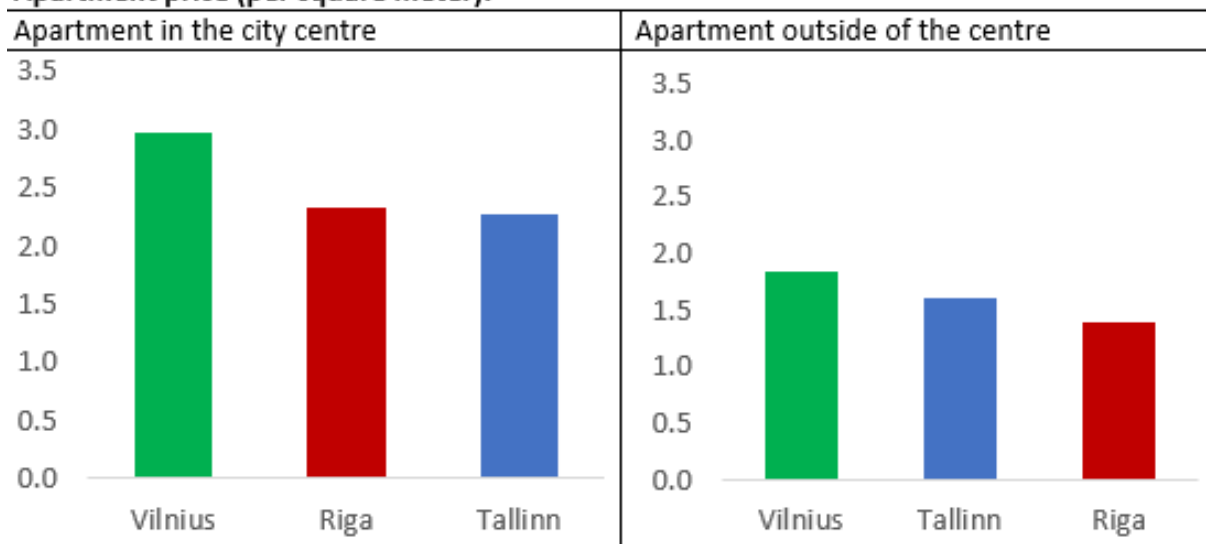


Figure A25: Number of days required to complete construction formalities in Riga, Tallinn and Vilnius (in 2019)

Notes. The figure includes all the procedures required for a local private construction company to build a standardized warehouse of 1300 m², including obtaining the necessary licences and permits, submitting all required notifications, requesting and receiving all necessary inspections and obtaining utility connections. Information is collected through a questionnaire administered by experts specializing in construction licensing, including architects, civil engineers, construction lawyers, construction firms, utility service providers and public officials who deal with building regulations, including approvals, permit issuance and inspections.

Source: Doing Business data.

Apartment price (per square meter):



Rent per month

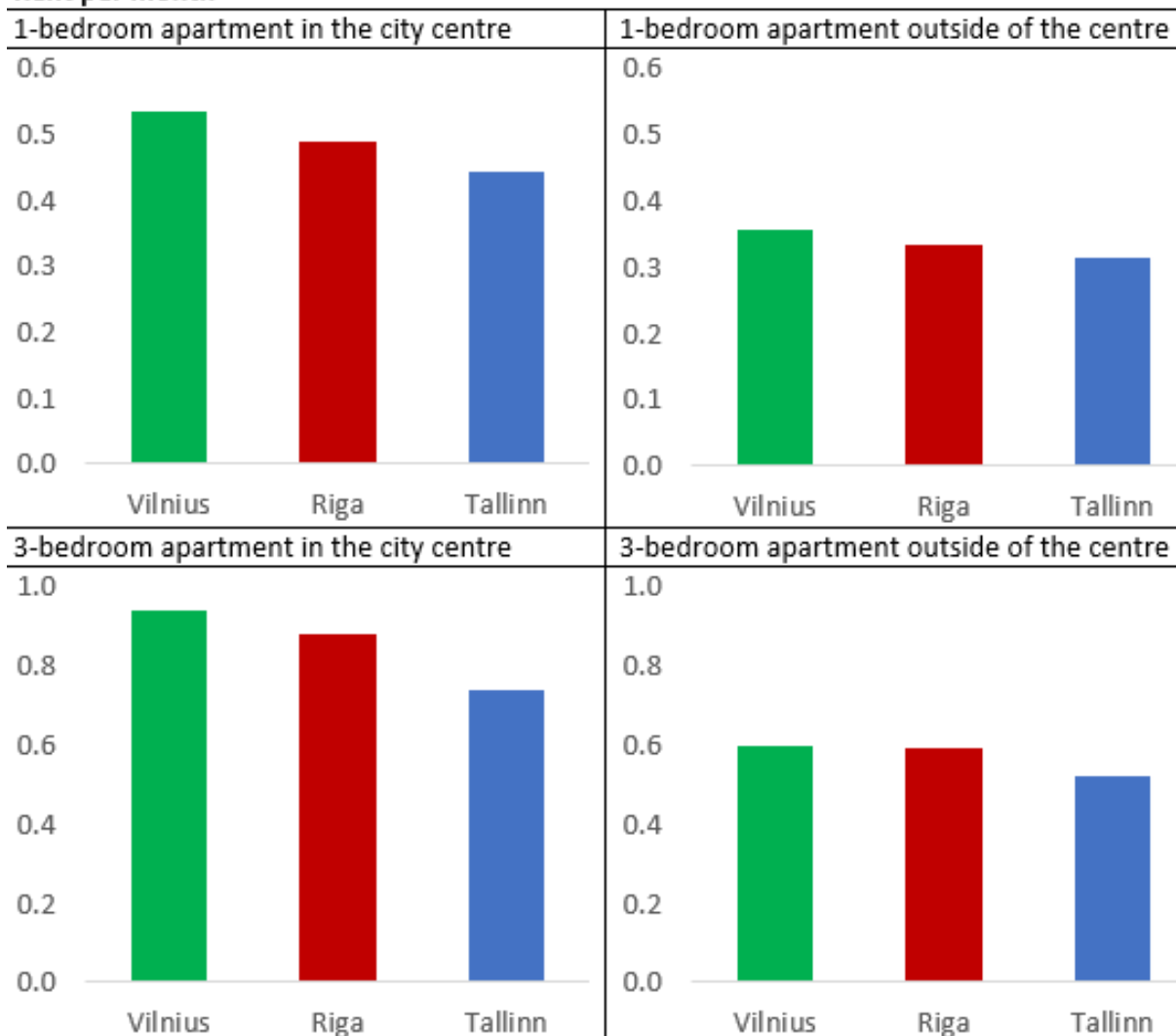


Figure A26: Housing prices and rentals in the Baltic capital cities (compared to the average monthly net wage; average over 2019–2021)

Note. For instance, the value of 2.33 in the upper left graph indicates that the recorded price of an apartment in the centre of Riga is 2.33 average monthly net wages in the city.

Sources: Numbeo survey data, author's calculations.

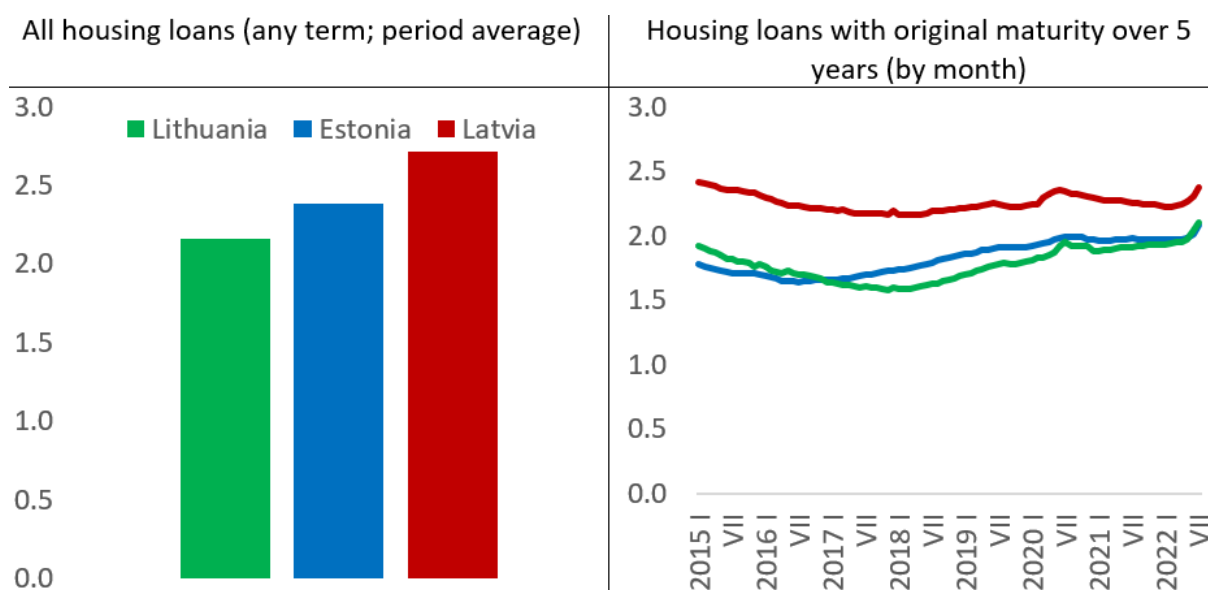


Figure A27: Loan rate for households – for house purchase (January 2015–July 2022)

Source: European Central Bank data.

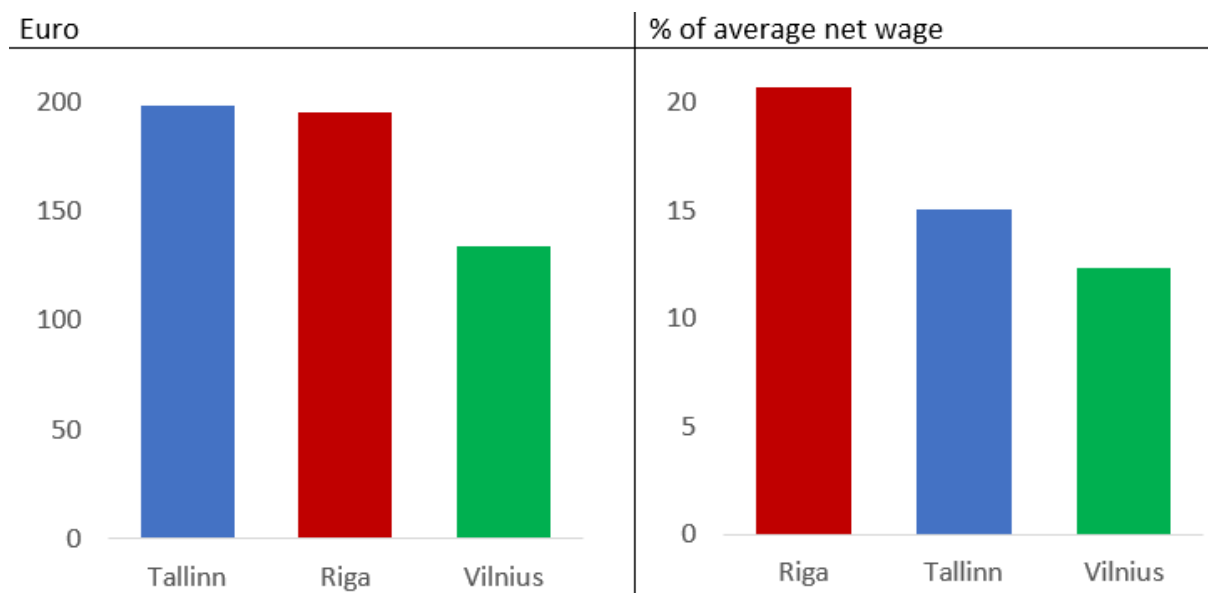


Figure A28: Costs of basic utilities for 85m2 apartment in Riga, Tallinn and Vilnius (electricity, heating, cooling, water, garbage; in 2021)

Sources: Numbeo survey data, author's calculations.

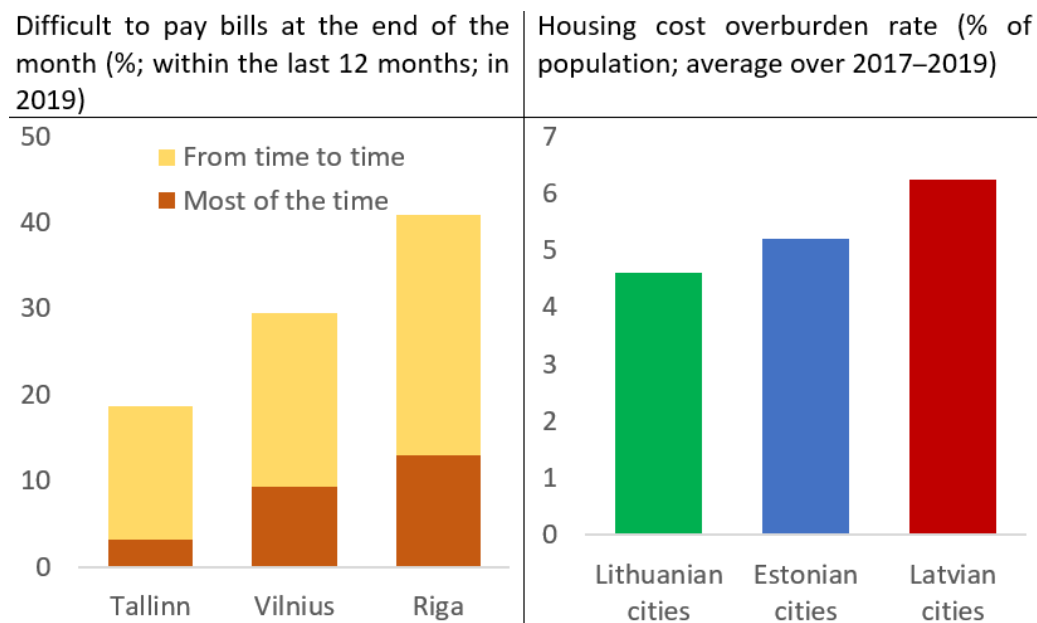


Figure A29: Difficulties to pay utility bills in Riga, Tallinn and Vilnius

Note. Housing cost overburden rate: the percentage of the population living in households where the total housing costs (net of housing allowances) represent more than 40% of disposable income (net of housing allowances). Sources: Eurostat and Eurobarometer survey data.

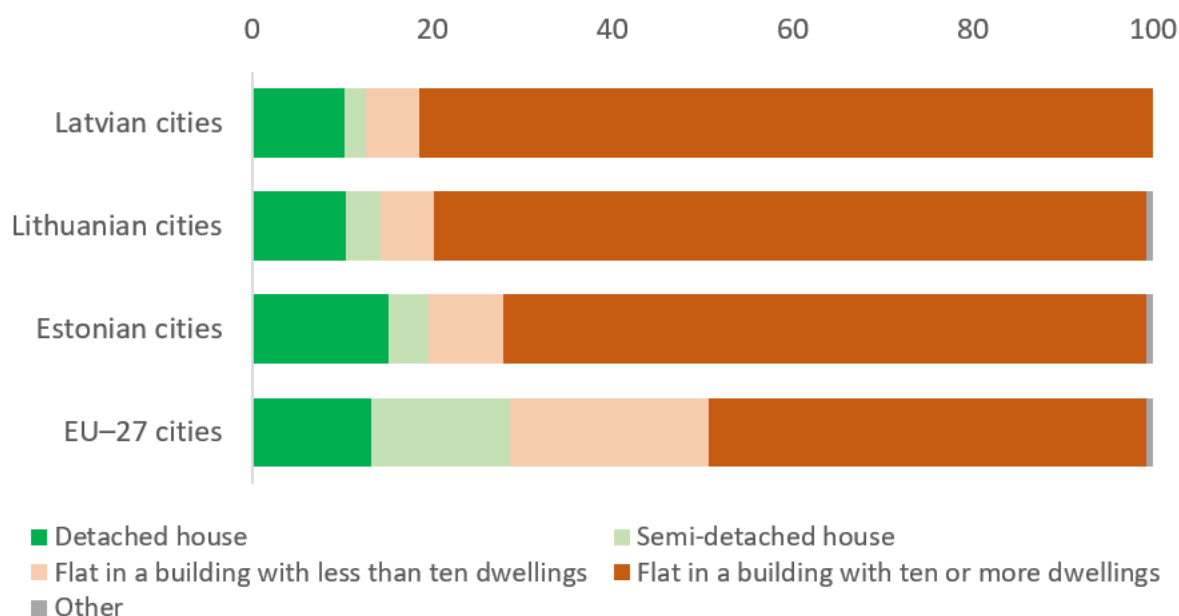


Figure A30: Distribution of urban population subject to the housing type in the Baltic countries and in the EU on average (average over 2018–2020)

Sources: Eurostat data, author's calculations.