HOUSING COST BURDEN IN REGIONS OF LATVIA

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Abstract. Household financial hardship have been a rising concern of scholars and policy makers since income inequality in Latvia is very high and more than 23% of citizens are on risk of poverty, because housing costs typically represent the largest monthly expense for households. Special concern is about regions of Latvia where the level of living is lower than in cities and financial burden problem is increasing.

The aim of the study is to analyse financial burden of housing costs in regions of Latvia.

Research methods used in preparation of the paper: scientific publication and previous conducted research results analysis, analysis of EU-SILC results and European Central Bank conducted survey on Household income and expenses survey results, results are compared with the results of other EU countries. Survey results are analysed using indicators of descriptive statistics, cross-tabulations for regions of Latvia, for territories: urban-rural living and analysis of variance – ANOVA, for analysing financial burden of housing costs by regions and correlation analysis to analyse relationship of financial burden of housing costs and household composition are used.

The results of analysis have indicated that situation in regions of Latvia in the context of housing conditions is very different and that there are very big challenges for decision makers to find recently the best possible solution.

Keywords: *housing conditions, house quality, living conditions, EU-SILC.*

JEL code: R20; R51

Introduction

Housing in the European Union constitutes the largest expenditure for many households. According to Eurostat 24,2% of household total consumption expenditure in 2017 was on housing, water, electricity, gas and other fuels which is by far the EU's largest household expenditure item, ahead of transport, food and non-alcoholic beverages, restaurants and hotels as well as recreation and culture (Eurostat, 2018). The statistics show that the share of housing expenditure in household disposable income was 17,4% in 2018 in Latvia which is under the average level of European Union, however there is a big income inequality in Latvia and more than 23% of citizens are at risk of poverty and housing burden is important issue. Especially dramatic situation is in regions of Latvia where the level of living is lower than in cities and financial burden problem is increasing.

Taking into account all the mentioned before, the purpose of the study is to analyse financial burden of housing costs in regions of Latvia

In order to achieve the purpose, the tasks are formulated as follows:

1) to review theoretical background of housing burden and factors that influence citizens' satisfaction with housing in context of regional development;
2) to review existing research of financial burden of housing costs in EU and other countries;
3) to analyse financial cost of housing burden in regions of Latvia.

Research methods used: scientific publication and previous conducted research results analysis, analysis of EU-SILC results and European Central Bank conducted survey on Household income and expenses survey results, results are compared with the results of other EU countries. Survey results are analysed using indicators of descriptive statistics, cross-tabulations for regions of Latvia, for territories: urban-rural living and analysis of variance – ANOVA, for analysing financial burden of housing costs by regions and correlation analysis to analyse relationship of financial burden of housing costs and household composition are used.

Literature Review

Housing is generally the largest single household expenditure what means if housing accounts for an excessive share of income it will have a significant impact on households' budget, even more - it can affect life satisfaction especially for low-income families. According to Eurostat housing expenses including rental or mortgage payments, water, electricity, gas or heating cost together are considered as an excessive burden when they represent more than 40% of total disposable income (Eurostat, 2017). Housing indicators relevant to quality of life are housing quality, housing environment and housing expenditures burden. Streimikiene and Kiausiene was researching housing indicators in terms of quality of life in Baltic States compared to EU-27 average and stated that Latvia between Baltic States represents the lowest quality of life in terms of housing, but Estonia has the highest, while Lithuania indicated positive trends in development of all housing quality indicators (Streimikiene, Kiausiene, 2014). Housing satisfaction may be influenced by many factors, from which financial costs are one of the most important, however, according to *Teck-Hong* housing satisfaction in Malaysia is much higher among home owners than renters, households located in the gated-guarded neighbourhood are more likely to be satisfied with their housing situations compare to households who are not and age shows significant effect on housing satisfaction. Also, this study reveals that income and life cycle changes are not important determinants of housing satisfaction (Tech-Hong, 2012). While study in UK revealed that high house prices in one region may result in residents moving away because of the lack of affordability and that remind governments to actively intervene to the problem of high housing burden (Tsai, 2019). Study in Sweden reports that economic and financial crisis are often connected to crises in the housing market and the research results indicate that affordability is a problem and the proportion of households at risk of poverty has been increasing when taking housing costs into consideration (Holmqvist, Turner, 2015).

Research results in Malaysia stated that housing affordability is dependent on dwelling type. Analysing relationship between housing affordability and income percentiles research results indicated that high-rise housing and terrace are the most affordable for households in the 40th percentile and median income range, but these housing types cannot be affordable for the 25th income percentile in Malaysia (Rangel, et.al., 2019). Study in U.S. states that although the provision of affordable housing is a necessary component of any economic transformation that aims to be inclusive, affordable housing alone is unlikely to enable disadvantaged households to take advantage of new economic opportunities (Freeman, Schuetz, 2017).

Zhang have been studying housing cost burden, housing conditions and housing affordability in the context of income inequality in China. According to *Zhang, Zhang* and *Hudson* (2018) housing conditions significantly affect housing satisfaction in China - for young people housing conditions are less important than for old people and house size is significant for old people in terms of overall happiness. The results of the study revealed that housing policy can be used not just to stimulate the economy and to provide workers a place to live, but also to actively promote life satisfaction of the citizens.

Zhang and his colleagues have been researching relationship between income inequality and access to housing in China indicating that higher income inequality in cities is significantly related to a higher housing cost burden, a smaller per capita living space and low housing quality for low-income households and the negative impact of income inequality could be moderated if products would be differentiated in housing markets (Zhang, 2015, 270).

Study in US revealed that rising housing costs strain the financial well-being of low- and moderate - income households in many cities in U.S. (Freeman, Schuetz, 2017) and especially hard situation is for unauthorised Latino immigrants in Los Angeles who experience housing affordability problem (McConnell, 2013) Gold states that public housing could be a solution for low-income families' housing cost burden (Gold, 2019).

However, while housing cost burden may play a part in economic hardship among low-income families, there was no evidence that housing cost burden status differently explained the economic hardship among low-income White,

Black and Hispanic families with children. And economic hardship that families experience is more complex than their poverty status (Mimura, 2008). Cook and her colleagues was researching housing cost burden among female heads of housing and revealed that that housing cost burden varies based on age, living arrangement, and the presence of children, but single mothers experienced the highest cost burdens (Cook, Bruin, Winter, 2015).

Study about differences in perceptions of financial hardship – housing cost burden – in France, Germany, Italy, Spain, and the UK indicate that being a homeowner in Italy most lowers the probability of a high housing cost burden, having an unemployed household head most raises the probability of a high burden in Spain and in France, while self-employment and retirement lower such probability, but being in arrears with some payments has greatest impact on expressing a heavy housing cost burden (Brandolini, et.al., 2013).

Housing expenditure accounts for a large proportion of overall household expenditure and research results in five European countries - Spain, Italy, Germany, UK and France have indicated that housing costs may significantly reduce households' willingness to spend, affecting households' disposable income and lowering their standard of living, however housing costs can be mitigated if households are owners, not renters. The role of tenure status should be taken into account, because home ownership may exert positive effects in long-term perspective and increase overall household well-being (Deidda, 2015).

Lens has indicated that rental affordability problem is getting worse for low-income households and housing subsidies are not growing enough in U.S. (Lens, 2018). Study in Belgium revealed that as in most European countries, in each Belgium region home owners on average are better off than tenants and this goes both for the population as a whole and for poor people, however being a home owner does not protect everyone from housing problems (Winter, Heylen, 2014). Nelson and her colleagues revealed that the higher housing burden ratio predicted lower levels of marital satisfaction as well as homeowner having fully paid mortgage was associated with marital satisfaction then those who were still servicing their mortgages (Nelson, Delgadillo, Dew, 2013).

Many academic research are devoted to housing cost burden impact on health. According to Mari-Dell'Olmo and his colleagues housing insecurity and health emphasize the very poor health status of populations facing poor physical housing conditions and affordability problems (Mari-Dell'Olmo et.al., 2017).

Nobari and his colleagues in their research in Los Angeles revealed that severe housing cost burden is associated with an increase in the odds of childhood obesity (Nobari, et.al., 2019). Study in U.S. revealed that reduced housing cost burden have a positive effect on health (Cheon, Cagle, Lehning, 2019).

However, another study in U.S. revealed no significant relationship between housing cost burden and self-reported health. But education, assets, and participating in regular physical activity in 2004 were significant to the probability of reporting being in good health later (in 2006), and, race/ethnicity, marital status, employment status, and type of health insurance in 2004 were significant predictors of level of housing cost burden in 2006 (Green-Pimentel, 2015). Most of mentioned above aspects are important also in Latvia especially for households with lower income.

Research results and discussion

EU-SILC is the most complete harmonized survey on household income in Europe. EU-SILC survey is conducted annually in line with Eurostat methodology in all European Union countries. In order to acquire information four questionnaires were developed: Household Register, Household Questionnaire Form and Individual Questionnaire Form.

One of the main study objects of the EU-SILC is housing conditions composition and level, in 2017 sample size of EU-SILC in Republic of Latvia - 8 087 randomly selected respondents; data are representative. Completed questionnaire sets were of 6014 households; individual interviews (persons) - 11 304; non-response rate - 25.6% (CSB of Republic of Latvia, 2019).

It is important that anonymized data sets are available in SPSS files by CSB of Republic of Latvia for more detailed statistical data analysis – by statistical regions, by territories (cities or rural areas), by household size and by other indicators which are available for researchers for deeper analysis.

Housing costs in EU

For many countries the largest expenditure each month is related to housing costs and it is increasingly likely that citizens may have to defer or cancel expenditure on other items – in some cases in relation to the basic needs. This is affecting more households in countries having lower income. Share of housing costs in disposable household income is included in figure 1.
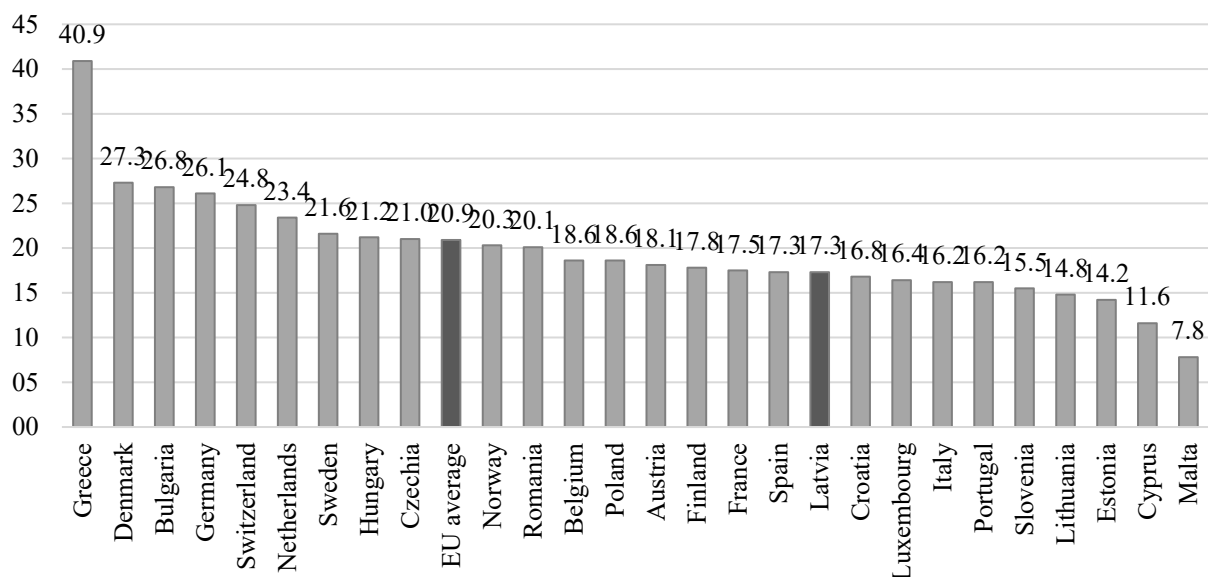
Source: author's construction based on Eurostat data

Fig. 1. **Share of housing costs in disposable household income in EU in 2018**

The data shows that across the European Union more than 20% on average of a household's income is spent on housing expenditure. From all EU countries Greece spend the most – more than 40%, while Cyprus and Malta are spending the least. From Baltic countries Latvia is spending the most for housing expenditure, but Lithuania and Estonia by 5% less.

Housing conditions in regions of Latvia

According to the American Labour Survey (Cheon, Cagle, Lehning, 2019) people spend average 3 hours working at home and more than 16 hours per day at home and it is essential that the quality of house and living conditions there are sufficient.

Mentioned above aspects are interesting from academic point of view also for European counties and this time especially for Latvia. Distributions of evaluations by respondents' on financial burden of housing costs of households in Latvia are included in table 1.

Table 1

Distribution of views on total financial burden of housing costs in Latvia in 2017

Evaluation options		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very cumbersome	2119	35.2	35.2	35.2
	A bit cumbersome	2786	46.3	46.3	81.6
	Not at all cumbersome	1109	18.4	18.4	100.0
	Total	6014	100.0	100.0	

As data included in table 1 indicate – more than 35% of respondents evaluate their financial burden of housing costs as very cumbersome, but less than 20% - not at all cumbersome. Majority of respondents (46,3%) evaluate their financial burden of housing costs as a bit cumbersome.

Main statistical indicators of evaluations on total financial burden of housing costs in Latvia in 2017 are included in table 2.

Table 2

Main statistical indicators of total financial burden of housing costs in Latvia in 2017

N	Valid	6014
	Missing	0
Mean		1.83
Std. Error of Mean		0.009
Median		2
Mode		2
Std. Deviation		0.713
Variance		0.509
Range		2
Minimum		1
Maximum		3

The statistics show that evaluation of financial burden of housing costs is around average level and half of respondents evaluated that their financial burden is not at all cumbersome, but the other half – very cumbersome (indicated by median), most often evaluation is also average (characterised by mode with value 2). Most often evaluation is a bit cumbersome (characterised by mode with value 2).

Regional differences are on great importance in many countries as well as in Latvia, as the regions are developing unevenly. According to the administrative breakdown there are 6 regions in Latvia – Rīga, Pierīga, Vidzeme, Kurzeme, Zemgale and Latgale region. Distribution of evaluations on total financial burden of housing costs in regions of Latvia are included in figure 2.
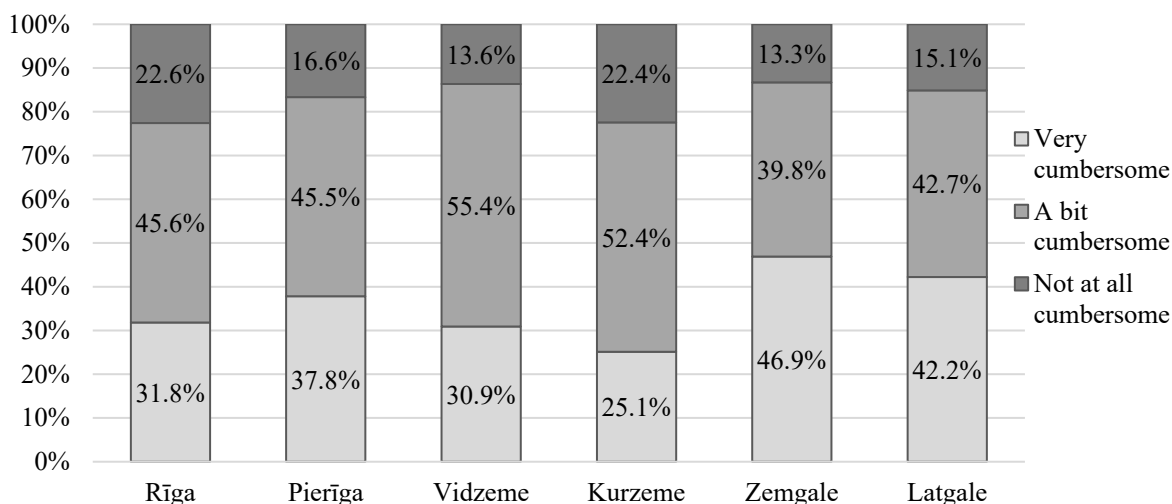
Fig. 2. **Total financial burden of housing costs in regions of Latvia in 2017**

According to the data financial burden of housing costs is very cumbersome for people from Zemgale and Latgale region while for people from Kurzeme region it is less cumbersome. Majority of people who are not at all cumbersome with financial burden of housing costs were from Rīga and Kurzeme region, but majority of people who evaluated their financial burden of housing costs with a bit cumbersome were from Vidzeme region. To be precise in conclusions it was used analysis of variance or ANOVA to test statistical hypotheses on differences of mean evaluations by respondent's region in Latvia on financial burden of housing costs – results of ANOVA analysis are included in table 3.

Table 3

Analysis of Variance (ANOVA) of financial burden of housing costs in regions in Latvia in 2017

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	64.488	5	12.898	25.882	0.000
Within Groups	2993.891	6008	0.498		
Total	3058.379	6013			

Source: author's calculations based on EU-SILC, n=10933. Evaluation scale: 1-3, where 1 – very cumbersome, 2 – a bit cumbersome, 3 – not at all cumbersome

As data included in table 3 indicate – the average evaluations of respondents' region on financial burden of housing costs does not differ statistically different with level of significance 0,000.

Very often regional differences are measured and compared between territories – urban and rural areas of the country as it was mentioned in scientific publications analysed above that there are huge differences by this aspect in many other countries. Our question was – how the situation is in Latvia?

Main statistical indicators on respondent's evaluations by households in Latvia by territory (urban and rural areas) on financial burden of housing costs in Latvia in 2017 are included in table 4.

Table 4

Main statistical indicators of financial burden of housing costs in Latvia territories in 2017

TERITORY	N	Mean	Standard Deviation	Standard Error of Mean
Urban	4162	1.82	0.716	0.011
Rural	1852	1.87	0.705	0.016

Source: author's calculations based on EU-SILC, n=10933

Evaluation scale: 1-3, where 1 – very cumbersome, 2 – a bit cumbersome, 3 – not at all cumbersome

As data table 4 indicate – the evaluations of respondents from rural and urban territories are very alike with more differences in evaluations by urban respondents – indicated by bigger standard deviation. To be precise in conclusions it was used t-test to test statistical hypotheses on differences of mean evaluations by respondents from urban and rural territories on financial burden of housing costs – results are included in table 5.

Table 5

Independent samples test of financial burden of housing costs in Latvia territories in 2017

Variance equality or inequality	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Standard Error of Difference	95% Confidence Interval of the Difference Lower	Upper
Equal variances assumed	9.593	0.002	-2.666	6012	0.008	-0.053	0.020	-0.092	-0.014
Equal variances not assumed			-2.681	3600.825	0.007	-0.053	0.020	-0.092	-0.014

Source: author's calculations based on EU-SILC, n=10933. Evaluation scale: 1-3, where 1 – very cumbersome, 2 – a bit cumbersome, 3 – not at all cumbersome

Independent Sample t-test of differences of responses revealed that there is no significant territory-related relationship in financial burden of housing costs evidences by the level of significance with is 0.008 and 0.007.

According to Central Statistical Bureau of Latvia data unsatisfactory housing conditions are characterized with assistance of following housing quality questions: leaking roof, damp walls, floors, roof or foundation of house, or rot in window frames or floor, too dark, not enough daylight, no bath or shower, no flushing toilet. It is considered that household has unsatisfactory housing conditions if it indicates at least one housing problem mentioned before (CSB, 2019).

Table 6

Main statistical indicators of level of satisfaction on housing conditions (in %) in regions of Latvia in 2017

Analysed aspect	Evaluation	Rīga	Pierīga	Vidzeme	Kurzeme	Zemgale	Latgale
ABILITY TO MAINTAIN SUITABLE HEAT AT HOME	Yes	83,5	90,5	90,2	92,0	85,9	83,2
	No	16,5	9,5	9,8	8,0	14,1	16,8
THE HOUSE HAS A BATH OR SHOWER	Yes, for household use only	95,0	87,4	72,0	85,7	82,1	69,7
	Yes, for sharing	1,2	0,8	0,5	0,3	0,5	0,3
	No	3,8	11,8	27,5	14,0	17,4	29,9
INDOOR TOILET WITH WATER CLOSET	Yes, for household use only	95,0	88,6	74,4	86,3	82,5	72,7
	Yes, for sharing	2,5	0,7	0,9	0,9	0,7	0,5
	No	2,5	10,7	24,7	12,8	16,8	26,8
TOO DARK, NOT ENOUGH DAYLIGHT	Yes	11,3	4,4	10,7	7,6	7,7	11,4
	No	88,7	95,6	89,3	92,4	92,3	88,6

Source: author's calculations based on EU-SILC, n=10933

Data of the table 6 indicate that housing conditions in regions in Latvia differ. The largest ability to maintain suitable heat at home is in Kurzeme, Pierīga and Vidzeme region while more than 16% of respondents in Rīga and Latgale region cannot maintain suitable heat at home. Majority of households with a bath or shower only for households' use are Rīga and Pierīga region, but Latgale and Vidzeme region show the biggest percent of households without bath or shower. Similar situation is with indoor toilet with water closet in regions in Latvia – around one fourth of households in Vidzeme and Latgale region do not have one, but majority of households in Rīga has indoor toilet with water closet only for household use. Shareable bath, shower or toilet is not so common practice in Latvia. The brightest houses are in Pierīga region where only 4,4% or houses is not enough daylight, while in Latgale and Rīga region are the majority of too dark houses. The statistics of unsatisfactory housing conditions indicate that the worst situation is in Latgale region, followed by Vidzeme region and Riga region.

Conclusions, proposals, recommendations

1. The analysis of the theoretical research revealed that housing cost burden have been researching from different perspectives as income, ownership, affordability, housing conditions, satisfaction etc. and this issue is important across the world – especially in countries which are overpopulated as China and Indonesia, however analysis in the context of regions of the country is not so common.

2. Share of housing costs in disposable household income in all Baltic countries are under the EU Average level – housing costs in Latvia is bigger than in Estonia and Lithuania who spend for 5% less for housing expenditure,

while the biggest spending for housing is in Greece, Denmark, Bulgaria and Germany, but Cyprus and Malta have the least.

3. The analysis revealed that there are differences in evaluations for housing cost burden in different regions in Latvia and they are statistically different. The best situation where majority of respondents do not feel cumbersome at all with financial burden of housing costs are in Rīga and Kurzeme region, however situation in other four regions is worse. Special concern is about Zemgale and Latgale regions where majority of respondents feels very cumbersome with financial burden of housing costs.

4. Independent Sample t-test of differences of responses revealed that there is no significant territory-related (urban and rural areas) relationship in financial burden of housing costs.

5. The statistics of unsatisfactory housing conditions indicate that the worst situation is in Latgale region, where more than 25% of houses lack of toilet and bath or shower as well as there is not enough daylight and houses cannot maintain suitable heat at home. Large part of households with unsatisfactory housing conditions are also in Vidzeme region and Riga region.

Bibliography

Brandolini, M., Corneo, F., Giarda, E., Moriconi, C., See, S.G., 2013. Differences in Perceptions of the Housing Cost Burden among European Countries. SSRN Electronic Journal, Nota di lavoro 2010-01(Prometeia), 1-26.

Cheon, J.H., Cagle, J., Lehning, A., 2019. Housing Costs Burden and Self-related Health: Preliminary Findings from a U.S. Sample. Innovation in Aging, 3(1). [in-press]

Cook, C.C., Buin, M.J., Winter, M., 2015. Housing Cost Burden Among Female Heads of Housing. Housing and Society, 21. 16-31.

CSB (Central Statistical Bureau of Republic of Latvia), 2019. Anonymised Data Sets of EU-SILC Survey in 2017. [Online] Available at https://www.csb.gov.lv/lv/statistika/petniecibas-un-macibu-dati [Accessed 10.10.2019].

Deidda, M., 2015. Economic Hardship, Housing Cost Burden and Tenure Status: Evidence from EU-SILC. Journal of Family and Economic Issues, 36, 531-556.

Eurostat, 2019. Household Expenditure. [Online] Available at: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20181130-1 [Accessed: 29.11.2019].

Eurostat, 2017. Housing Costs – an Excessive Burden for 11% of Europeans. [Online] Available at: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170309-1?inheritRedirect=true [Accessed: 3.12.2019.]

Freeman, L., Schuetz, J., 2017. Producing Affordable Housing in Rising Markets: What Works? US Department of Housing and Urban Development, 19(1). 217-236.

Gold, S., 2019. Does Public Housing Reduce Housing Cost Burden among Low-income Families with Children? Journal of Children and Poverty, DOI: 10.1080/10796126.2019.1682754.

Green-Pimentel, L.E., 2015. The Relationship Between Housing Cost Burden and Health Status of Older Adults in the United States. Housing and Society, 28 (1). 1-23.

Holmqvist, E., Turner, L.M., 2014. Swedish Welfare State and Housing Markets: under Economic and Political Pressure. Journal of Housing and the Built Environment, 29, 237-254.

Lens, M.C. 2018. Extremely low-income households, housing affordability and the Great Recession. Urban Studies, 55(8), 1615-1635.

Mari-Dell'Olmo, M., Novoa, A.M., Camprubi, L., Peralta, A., Vasquez-Vera, H., Bosch, J., Amat, J., Diaz, F., Palencia, L., Mehdipanah, R., Rodriguez-Sanz, M., Malmusi, D., Borrell, C., 2017. Housing Policies and Health Inequalities. International Journal of Health Services, 47(2), 2017-232.

McConnell, E.D. 2013. Who has Housing Affordability Problems? Disparities in Housing Cost Burden by Race, Nativity and Legal Status in Los Angeles. Race and Social Problems, 5(3). 173-190.

Mimura, Y. 2008. Housing Cost Burden, Poverty Status, and Economic Hardship among Low-income Families. Journal of Family and Economic Issues, 29. 152-165.

Nelson, S., Delgadillo, L., Dew, P.J. 2013. Housing Cost Burden and Marital Satisfaction, Marriage & Family Review, 49(6). 546-561.

Nobari, T.Z., Whaley, S.E., Blumenberg, E., Prelip, M.L., Wang, M.C., 2019). Severe Housing-cost Burden and Obesity among Preschool-aged lLw-income Children in Los Angeles County. Preventive Medicine Reports, 13, 139-145.

Rangel, G.J., Ng, J.W.J., Murugasu, T.T., Poon, W.C., 2019. Measuring Malaysian Housing Affordability: the Lifetime Income Approach. International Journal of Housing Markets and Analysis, 12 (5), 966-984.

Streimikiene, D., Kiausiene, I., 2014. Housing Indicators in Baltic States after EU Accession, Transformations in Business tê Economics, 13(1). 97-106.

Teck-Hong, T., 2012. Housing Satisfaction in Medium- and Hhigh-cost Housing: The Case of Greater Kuala Lumpur, Malaysia. Habitat International, 36, 108-116.

Tsai, I.-C., 2019. Relationships among Regional Housing Markets: Evidence on Adjustments of Housing Burden. Economic Modelling, 78, 309-318.

Winters, S., Heylen, K., 2014. How Housing Outcomes Vary between the Belgian Regions. Journal of Housing and the Built Environment, 29 (3), 541-556.

Zhang, C., 2015. Income Inequality and Access to Housing: Evidence from China. China Economic Review, 36, 261-271.

Zhang, F., Zhang, C., Hudson, J., 2018. Housing Conditions and Life Satisfaction in Urban China. Cities, 81, 35-44.