ISSN 1648-2603 (print)
ISSN 2029-2872 (online)

VIEŠOJI POLITIKA IR ADMINISTRAVIMAS
PUBLIC POLICY AND ADMINISTRATION
2023, T 22, Nr. 1/2023, Vol. 22, Nr. 1, p. 9-19

Assessment of the Deadweight Loss Arising from the Imperfect Competition in the Banking Market

Kristaps Freimanis
Riga Technical University
Kalnciema street 6, Riga, LV-1048, Latvia

Maija Šenfelde
Riga Technical University
Kalnciema street 6, Riga, LV-1048, Latvia

Vytautas Juščius
Klaipėda University
Herkaus Manto str. 84, 92294, Klaipėda, Lithuania

https://doi.org/10.5755/j01.ppaa.22.1.33723

Abstract. *Financial market failures lead to deadweight (welfare) loss for society. Assessment of the deadweight loss started with the so-called Harberger Triangles, where Harberger offered a clear and persuasive derivation of the triangle method of analysing the deadweight loss and applied the method to estimate deadweight losses due to income taxes in the United States. Hertog further put the deadweight loss into the model with government intervention to assess the optimal level of welfare loss control. This concept is central to regulatory economics. Harberger's approach is based on the deviation of market equilibrium measured in terms of price and quantity. When analysing imperfect competition as one of the market failures, authors have identified in the literature variables for "price" and "quantity". The research presents the approach how calculating the deadweight loss arising from the imperfect competition using the following variables: "price" – interest rates (loans), "quantity" – exposure of loans on banks' balance sheets. The outcome of the research is integral for the assessment of the deadweight loss arising from imperfect competition. Deadweight loss calculations for selected countries show results corresponding to the expectation to be lower than 12% - the maximum value is 4,6% for Latvia, which experienced the most significant increase in the banking market concentration from the sample. Research methods used: literature analysis, regression analysis, and mathematical analysis tools (integrals).*

Keywords: *Banking market, deadweight loss, imperfect competition, market regulation, model construction, regulatory economics*
Raktažodžiai: *bankų verslas, praradimai, netobula konkurencija, modelis, konstrukcija, valdymo ekonomika*

Introduction

The financial market is extremely important for the proper functioning of the economy. The experience of many countries in the world shows that failures in this market could lead to serious social consequences affecting, most probably, every citizen. This situation has pushed governments to act and introduce regulations aimed at preventing crises arising from failures in the financial market, which lead to deadweight (welfare) loss for society. Over the years extent of the regulations has risen significantly, especially after the crisis in recent decades.

On the other hand, it is important to promote competition, which as per Smith (1776), leads the economic system towards equilibrium and is considered as the basic building block of modern market economies. Regulation can potentially have adverse effects on the competition. Thereby it is important to find the balance between the two. Dangers from overregulation have often been put in the spotlight by market participants (Michel 2016; Reichwald 2016), mostly addressing the issue with innovations when regulations scale up. Even some regulators have warned that too complex regulation poses risks for seeing the real risks building in the financial systems (Noonan 2021). In separate interviews with the Financial Times, Norway and Denmark's financial supervision chiefs address the issue of too complex regulations requiring substantial resources to implement them and manage to see the big picture.

Assessment of the deadweight loss started with so-called the Harberger Triangles (Harberger 1964a; 1964b; 1966; 1971), where Harberger offered a clear and persuasive derivation of the triangle method of analysing the deadweight loss and applied the method to estimate deadweight losses due to income taxes in the United States. Hertog (2010) further put the deadweight loss into the model with government intervention to assess the optimal level of welfare loss control. This concept is central to regulatory economics.

Harberger's approach is based on the deviation of market equilibrium measured in terms of price and quantity. When analysing the information asymmetry as one of the market failures, authors have identified in the literature variables for "price" and "quantity". The research presents the approach how calculating the deadweight loss arising from the imperfect competition using the following variables: "price" – loan interest rates, "quantity" – exposure of loans on banks' balance sheets. The outcome of the research is integral for the assessment of the deadweight loss arising from the imperfect competition in the euro area banking market. Demand functions' parameter assessment show that functions can be assessed with a high degree of explanatory power and statistical significance of variables. Exceptions here are Latvia and Slovenia, which have average explanatory power. Supply functions' parameter assessment show that functions can be assessed with a medium-to-high degree of explanatory power and statistical significance of variables. More countries here have average explanatory power.

Literature review

Assessment of the deadweight loss started with so-called the Harberger Triangles (Harberger 1964a; 1964b), where Harberger offered a clear and persuasive derivation of the triangle method of analysing deadweight loss and applied the method to estimate deadweight losses due to income taxes in the United States. Harberger (1966) shortly thereafter produced estimates of the welfare cost of the United States' capital taxes. In a subsequent survey, Harberger (1971) clarified various aspects of this method and addressed several of its perceived shortcomings.

Harberger's approach is based on the deviation of market equilibrium measured in terms of price and quantity (see Fig. 1).

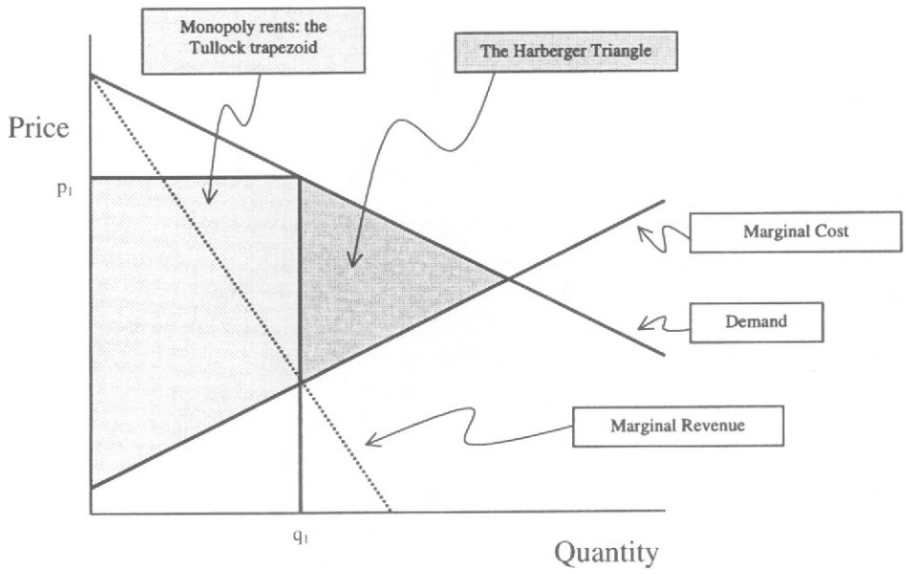

Figure 1. ***The Harberger Triangle***
Source: Hines, 1999

As per Yoon's (2004) comments regarding Fig. 1., a firm faces totally different marginal revenue curves depending on whether it is in a competitive market or a monopolistic market. In a competitive market, a firm is a price taker and must accept the price ruling in the market. Therefore, a perfect competitor faces a horizontal marginal revenue curve at the point where the market price will be. In a monopolistic market, however, firms are aware that they can use their monopoly power. Thus, they can determine both the price and output of their product as a price setter. A monopolist will reduce output when it wants to raise a price, while it will lower a price when it wants to increase output. Increasing output reduces the firm's marginal revenue, and the monopolist firm faces a downward marginal revenue curve. Thereby if the total quantity of output decreases and its social welfare consequently decreases by the area of the triangle ABC (see Fig. 1. and Fig. 2.). Such social welfare loss is called the social cost of monopoly because it is caused by the firms who have monopoly power.

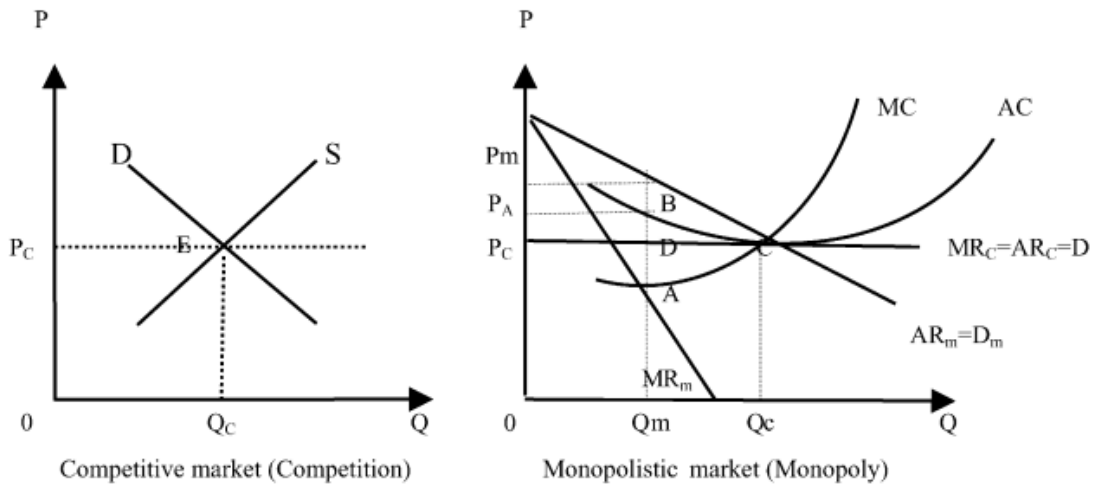

Figure 2. ***Equilibrium in competitive and in a monopolistic market***
Source: Yoon, 2004

Considering the abovementioned, the deadweight loss of imperfect competition can be expressed as:

$$\int_{q(X*)}^{q(X)} [D(q) - S(q)]dq \quad (1)$$

where *q(X*)* – quantity with imperfect competition, *q(X)* – equilibrium quantity in the competitive market.

To specify variables "price" and "quantity" for the banking market, the authors have reviewed the articles regarding this aspect and summarised the result in Table 1.

Table 1. ***Variables of the Harberger Triangle in the case of imperfect competition***

RESEARCH PAPER	VARIABLE FOR "PRICE"	VARIABLE FOR "QUANTITY"
Freixas and Rochet 1997	interest rates of loans, deposits, and interbank market	*not described*
Oroz and Salas 2003 Fernández de Guevara et al. 2005	interest rates of loans, deposits, and interbank market	GDP
Bolt and Humphrey 2005	fee for transaction	volume of transactions
Paal et al. 2005	interest rate of deposits	deposit demand
Kitsios 2012 Crawford, Pavanini and Schivardi 2018	credit price (interest rate)	credit supply

Source: Authors.

Other research mostly covers variables for "price", e.g., international financial spillovers (Fratzscher et al. 2014; Mishra et al. 2014; IMF 2016). DeFusco, Tang and Yannelis (2022) as price offer a "*willingness to pay for the loan as a share of the initial loan amount*", which could be challenging to observe in data.

Based on information in Table 1, authors conclude that the most appropriate and widely available (statistical databases of local authorities and supranational bodies, e.g., the European Central Bank) variables for "price" and "quantity" would be "interest rates of loans" and "exposure of loans on banks' balance sheets" accordingly.

Methodology

The hypothesis of the research is that the deadweight loss arising from imperfect competition will be lower than 12% of the Gross Domestic Product. The hypothesis is based on the research results of Jenny and Weber (1983), who assessed that deadweight loss could be up to 12% of the GDP of the whole economy. Their data covered the French economy.

To develop the methodology for the assessment of economic losses due to imperfect competition, authors evaluated available data on the market level, e.g., national and supranational statistical databases, reports of supervisory authorities and financial statements of banks regarding credit balances, interest incomes and interest rates.

At first, the authors define the function following the logic in Formula 1, i.e.,

$$i = f(bal) \quad (2)$$

where bal – exposure of loans on the bank balance sheet, i – loan interest rates.

Subsequently, the deadweight loss from the imperfect competition can be expressed as the integral from exposures (bal), i.e.,

$$DWL_{imperf} = \int_{q(X*)}^{q(X)} [D(q) - S(q)]dq = \int_{bal(i*)}^{bal(i)} [D(bal) - S(bal)]dbal \quad (3)$$

where *bal(i*)* – exposure with excess interest rate level, *bal(i)* – exposure with equilibrium interest rate level.

In the calculations it is important to exclude the effect of GDP growth and inflation thereby exposure "*bal(i*)*" should be adjusted by relevant ratios prior to running the deadweight loss calculations.

To assess excess interest rate level corresponding to higher monopoly power in the market several indices could be used. One of the most popular indices is Herfindahl-Hirschman index used mostly by authorities when mergers and acquisitions appear in the markets (Horizontal Merger Guidelines, 2015).

$$HHI = \sum_{i=1}^{N} (MS_i)^2 \quad (4)$$

where MS_i– market share of the company in the market, N – number of companies in the market

Values of HHI range from 0 till 10 000 and it is sensitive to the slightest changes in the market. As per Horizontal Merger Guidelines (2015) market are classified into three types:

1. Unconcentrated Markets: HHI below 1500
2. Moderately Concentrated Markets: HHI between 1500 and 2500
3. Highly Concentrated Markets: HHI above 2500

Considering that HHI is sensitive to changes, there have been thresholds introduced to interpret those changes:

1. Small Change in Concentration: Mergers involving an increase in the HHI of less than 100 points are unlikely to have adverse competitive effects and ordinarily require no further analysis.
2. Unconcentrated Markets: Mergers resulting in unconcentrated markets are unlikely to have adverse competitive effects and ordinarily require no further analysis.
3. Moderately Concentrated Markets: Mergers resulting in moderately concentrated markets that involve an increase in the HHI of more than 100 points potentially raise significant competitive concerns and often warrant scrutiny.
4. Highly Concentrated Markets: Mergers resulting in highly concentrated markets that involve an increase in the HHI of between 100 points and 200 points potentially raise significant competitive concerns and often warrant scrutiny. Mergers resulting in highly concentrated markets that involve an increase in the HHI of more than 200 points will be presumed to be likely to enhance market power. The presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power.

The excess interest rate level is interpreted by authors as the interest rate in the case when the market's HHI change has been more than 100 points.

Demand function i = D(bal) is econometrically assessed based on actual transaction data. The demand function is based on the actual data since only concluded loan agreements represent the sample of loan applications which were eligible for financing considering all selection criteria (creditworthiness, enough initial cash etc.) – thereby representing the customers able to pay.

Supply function i = S(bal) is econometrically assessed based on:

1. actual transaction data with the same approach as disclosed above in the case of demand function,
2. before the equilibrium point: breakeven amounts to be supplied by banks to the banking market are assessed based on the Lending Margins, which represent the difference between the cost of basic funds for banks (deposits) and the income of basic sources of income in the traditional banking – loans. Some parts of the Lending Margins are used to cover costs of operations for banks thereby, Adjusted Lending Margins are calculated:

$$ALM = LM \cdot \frac{(1 - CI)}{100} \quad (5)$$

where LM – lending margin, ALM – adjusted lending margin, CI – Cost-to-income ratio

Adjusted Lending Margin then is deducted from the Interest Rates to assess the lowest rate supplier (the bank) is going to accept to provide loans to the banking market.

After equilibrium point: additional amounts not supplied to the market are assessed based on the Loan-to-Deposit ratio. In case the Loan-to-Deposit ratio is lower than 1.0 all amounts above this threshold are considered as available to the market if demanded.

Results

Authors validated the methodology based on euro area data from the European Central Bank and local regulator (Bank of Latvia 2022; ECB Statistical Data Warehouse 2022; FCMC Statistics 2022) for the sample of euro area countries:

1. representing different sizes, e.g., Germany vs Latvia, geographical regions, e.g., Malta vs France, and development levels, e.g., Slovenia vs Luxembourg,
2. covering approximately 50% of the total number of euro area countries (9 out of 19),
3. data covers the period from 2003 to 2022.

Results of the econometric analysis are reflected in Table 2 (demand functions) and Table 3 (supply functions).

Table 2. ***Demand functions for selected countries***

COUNTRY	DEMAND FUNCTION	BASIC STATISTICS OF REGRESSION	
		R^2	p-values
Austria	$5{,}8 \cdot 10^{-5}x^2 + 0.0327x - 2{,}5532$	83,5%	1%; 4%
Belgium	$-0{,}0061x + 3{,}706$	92,8%	$7{,}5 \cdot 10^{-33}$%
Germany	$16{,}242x^3 - 137{,}55x^2 + 386{,}1x - 357{,}71$	91,6%	$5{,}4 \cdot 10^{-10}$%; $5{,}8 \cdot 10^{-10}$%; $7{,}0 \cdot 10^{-10}$%
France	$4{,}1721x^3 - 30{,}815x^2 + 74{,}799x - 58{,}238$	88,7%	0,07%; 0,07%; 0,09%
Luxembourg	$-0{,}0002x^2 + 0.0397x + 0{,}4761$	78,3%	0,01%; 0,02%
Latvia	$0{,}7006x^2 - 16{,}82x + 105{,}87$	44,6%	0,6%; 0,6%
Malta	$0{,}0172x^3 - 0{,}6593x^2 + 7{,}9931x - 28{,}575$	72,3%	0,2%; 0,2%; 0,2%
Slovakia	$0{,}0002x^3 - 0{,}0379x^2 + 2{,}1338x - 37{,}264$	90,7%	0,5%; 0,6%; 0,6%
Slovenia	$0{,}1208x^3 - 7{,}569x^2 + 157{,}33x - 1082{,}5$	66,3%	0,2%; 0,2%; 0,2%

Source: Authors. based on ECB Statistical Data Warehouse 2022

Demand functions' parameter assessment show that functions can be assessed with high degree of explanatory power and statistical significance of variables. Exceptions here are Latvia and Slovenia, which have average explanatory power. For some countries, e.g., Belgium, functional

relationship was strongly linear, i.e., linear function with high degree of explanatory power, while for other countries, e.g., Germany, France, Malta, Slovakia, functional relationship was cubic. In some cases, even cubic relationship did not grant high degree of explanatory power, e.g., Slovenia. Deeper analysis of data shows that functional relationships are stronger when data of larger economies are analysed, e.g., France or Germany, which could be explained by lower variances in total numbers of bank balance sheet items.

Table 3. ***Supply functions for selected countries***

COUNTRY	DEMAND FUNCTION	BASIC STATISTICS OF REGRESSION	
		R^2	p-values
Austria	$-0{,}0095x + 4{,}5155$	83,8%	$1{,}4 \cdot 10^{-22}$%
Belgium	$-0{,}0064x + 3{,}4988$	78,2%	$7{,}9 \cdot 10^{-18}$%
Germany	$19{,}788x^3 - 169{,}95x^2 + 484{,}09x - 456{,}18$	91,8%	$2{,}4 \cdot 10^{-5}$%; $3{,}2 \cdot 10^{-5}$%; $4{,}3 \cdot 10^{-5}$%; $5{,}8 \cdot 10^{-5}$%
France	$-28{,}752x^4 + 289{,}98x^3 - 1093{,}5x^2 + 1826{,}2x - 1138$	90,1%	0,07%; 0,07%; 0,09%
Luxembourg	$0{,}0006x^2 - 0{,}1488x + 11{,}124$	62,7%	0,13%; 0,15%
Latvia	$-2{,}5311x^2 + 58{,}154x - 329{,}04$	44,5%	5,2%; 5,3%
Malta	$-0{,}1764x^2 + 3{,}9942x - 21{,}032$	54,0%	$3{,}4 \cdot 10^{-4}$%; $4{,}1 \cdot 10^{-4}$%
Slovakia	$0{,}0008x^3 - 0{,}1469x^2 + 8{,}6093x - 166{,}19$	57,0%	$3{,}9 \cdot 10^{-6}$%; $7{,}5 \cdot 10^{-6}$%; $15{,}0 \cdot 10^{-6}$%
Slovenia	$0{,}1206x^3 - 7{,}5212x^2 + 155{,}68x - 1067{,}9$	67,9%	4,9%; 5,4%; 6,1%

Source: developed by authors based on ECB Statistical Data Warehouse 2022

Supply functions' parameter assessment show that functions can be assessed with medium-to-high degree of explanatory power and statistical significance of variables. More countries here have average explanatory power. Conclusions in the assessments of supply functions are like the ones made with demand function assessments and described above.

Results of demand and supply functions' parameter assessment are used to assess the deadweight loss of selected countries due to imperfect competition in banking markets. This calculation is reflected in the Table 4 together with the Herfindahl-Hirschman Index (HHI) to show changes in the market concentration in the context of deadweight loss. In order to exclude the effects of GDP growth and inflation from assessment adjusted number of 2022 has been calculated. This adjusted number has been used for the deadweight loss calculation purposes.

Table 4. ***HHI and calculated Deadweight loss for selected countries***

COUNTRY	HHI		EXPOSURES, BN EUR			INTEREST RATES, %		DEADWEIGHT LOSS	
	2017	2022	2017	2022	2022*	2017	2022	bn EUR	% GDP
Austria	374	407	321	392	360	3,5	3,1	N/A	N/A
Belgium	1 102	1 319	294	388	353	1,9	1,4	N/A	N/A
Germany	250	289	2 560	3 072	2 870	1,7	1,2	N/A	N/A
France	574	661	2 183	2 759	2 578	1,6	1,2	N/A	N/A
Luxembourg	256	293	113	130	112	1,8	1,5	0,3	0,4
Latvia	**1 237**	**1 848**	12	11	8,5	4,5	6,8	**1,6**	**4,6**
Malta	1 599	1 701	10	12	9,8	2,6	2,2	0,4	2,7
Slovakia	1 332	1 511	49	65	57	1,9	1,1	N/A	N/A

COUNTRY	HHI		EXPOSURES, BN EUR			INTEREST RATES, %		DEADWEIGHT LOSS	
	2017	2022	2017	2022	2022*	2017	2022	bn EUR	% GDP
Slovenia	1 133	1 415	19	21	17,7	2,8	1,9	1,1	2,1

**GDP growth and inflation adjusted data*
Source: Authors, based on ECB Statistical Data Warehouse 2022; Eurostat 2022

Jenny and Weber (1983) assessed on the whole economy that deadweight loss could be up to 12% from GDP. Their data covered the French economy. From this angle, data in Table 4 seem to be relevant as the max value is for Latvia (4,6% from GDP), which experienced the most significant increase in the banking market concentration from the sample. Thereby the deadweight loss calculations for selected countries show results corresponding to the expectation to be lower than 12%. A lot of countries experienced insignificant changes in market concentration which are reflected in the data – exposures increased, and interest rates decreased. The research hypothesis is confirmed.

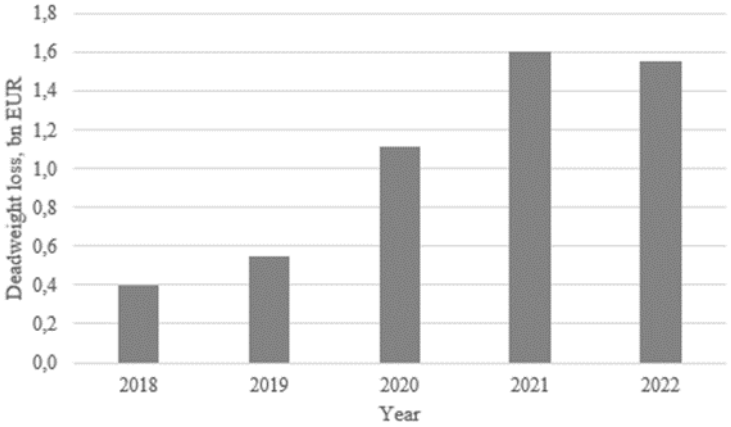

Figure 3. ***Build-up of the deadweight loss in Latvia***
Source: Authors.

In the cases where the deadweight loss has been observed, it is possible the follow on the build-up of the deadweight loss, e.g., in Latvia (see Fig. 3). These results are closely related to the development of HHI over the same period. HHI in 2021 in Latvia was slightly higher than in 2018, i.e., 1912, thereby calculated deadweight loss number is slightly higher. In the case of Latvia, the growth of monopolisation indicator was the most significant.

Conclusions

In general, the deadweight loss assessment approach gives relevant results.

1. Variables of the Harberger Triangle in the scientific literature include "interest rates of loans, deposits, and interbank market", "credit price (interest rate)", "GDP", "credit supply", etc. The authors concluded that the most appropriate and widely available (statistical databases of local authorities and supranational bodies, e.g., the European Central Bank) variables for "price" and "quantity" would be "interest rates of loans" and "exposure of loans on banks' balance sheets" accordingly.
2. In the calculations, it is important to exclude the effect of GDP growth and inflation. Thereby, exposure should be adjusted by relevant ratios prior to running the deadweight loss calculations.

3. The demand function is based on the actual data since only concluded loan agreements represent the sample of loan applications which were eligible for financing considering all selection criteria (creditworthiness, enough initial cash etc.) – thereby representing the customers able to pay.

4. Demand functions' parameter assessment show that functions can be assessed with a high degree of explanatory power and statistical significance of variables. Exceptions here are Latvia and Slovenia, which have average explanatory power. Supply functions' parameter assessment show that functions can be assessed with a medium-to-high degree of explanatory power and statistical significance of variables. More countries here have average explanatory power.

5. Deadweight loss calculations for selected countries confirm the research hypothesis – maximum value is 4,6% of GDP for Latvia, which experienced the most significant increase in the banking market concentration from the sample.

Acknowledgement

This work has been supported by the European Social Fund within Project No 8.2.2.0/20/I/008 "Strengthening of Ph.D. students and academic personnel of Riga Technical University and BA School of Business and Finance in the strategic fields of specialisation" of the Specific Objective 8.2.2 "To Strengthen Academic Staff of Higher Education Institutions in Strategic Specialization Areas" of the Operational Programme "Growth and Employment".

References

1. Bank of Latvia, n/a. "Euribor statistics." https://bank.lv/statistika/dati-statistika/naudas-tirgus-index/euribor-un-libor
2. Bolt, W., Humphrey, D. 2005. "Public good issues in TARGET. Natural monopoly, scale economies, network effects and cost allocation." Working Paper Series No. 505, European Central Bank. https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp505.pdf
3. Crawford, G. S., Pavanini, N., and Schivardi, F. 2018. "Asymmetric Information and Imperfect Competition in Lending Markets." *American Economic Review*, 108 (7): 1659-1701.
4. DeFusco, A. A., Tang, H., and Yannelis, C. 2022. "Measuring the Welfare Cost of Asymmetric Information in Consumer Credit Markets." Working Paper 29270, National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w29270/w29270.pdf
5. ECB Statistical Data Warehouse 2022. "Interest rates and loan amounts." Retrieved from ECB data warehouse: https://sdw.ecb.europa.eu/
6. Eurostat 2022. "GDP and inflation." Retrieved from Eurostat data warehouse: https://ec.europa.eu/eurostat/web/main/data/database
7. FCMC Statistics 2022. "Quarterly bank reports." https://www.fktk.lv/statistika/kreditiestades/
8. Fernández de Guevara, J., Maudos, J., and Pérez, F., 2005. "Market power in European banking." *Journal of Financial Services Research*, 27 (2): 109–138.
9. Fratzscher, M, Lo Duca, M., and Straub, R. 2014. "ECB unconventional monetary policy actions: market impact, international spillovers, and transmission channels." 15th Jacques Polak Annual Research Conference, International Monetary Fund, Washington DC. https://www.imf.org/external/np/res/seminars/2014/arc/pdf/fratzscher_loluca_straub.pdf
10. Freixas, X., and Rochet, J.-Ch., 1997. "Microfoundations of Banking." The MIT Press.
11. Harberger, A. C. 1964a. "The measurement of waste." *American Economic Review*, 54 (3): 58-76.
12. Harberger, A. C. 1964b. "Taxation, resource allocation, and welfare. The role of direct and indirect taxes in the federal revenue system." Princeton, NJ: Princeton University Press, p. 25-70.
13. Harberger, A. C. 1966. "Efficiency effects of taxes on income from capital. Effects of corporation income tax." Detroit: Wayne State University Press, p. 107-117.
14. Harberger, A. C. 1971. "Three basic postulates for applied welfare economics." *Journal of Economic Literature*, 9 (3): 785-797.
15. Hertog, J. 2010. "Review of economic theories of regulation." Discussion Paper Series 10–18. Tjalling C. Koopmans Research Institute
16. Hines, J. J. 1999. "Three Sides of Harberger Triangles." *Journal of Economic Perspectives*, 13 (2): 167-188. https://doi.org/10.1257/JEP.13.2.167
17. Horizontal Merger Guidelines 2015. The Department of Justice and the Federal Trade Commission of the United States of America. https://www.justice.gov/atr/horizontal-merger-guidelines-08192010#5c

18. IMF 2016. "Global Financial Stability Report: Potent Policies for a Successful Normalisation." International Monetary Fund, Washington DC, April.
19. Jenny, F. and Weber, A. 1983. "Aggregate welfare loss due to monopoly power in the French economy: some tentative estimates." *Journal of Industrial Economics*, 32, p. 113-30.
20. Kitsios, M. 2012. "Credit, Bankruptcy Law and Bank Market Structure." Working Paper, University of London. https://www.city.ac.uk/__data/assets/pdf_file/0008/120131/Manos-Kitsios-2012-Credit-Bankruptcy-Law-Bank-Market-Structure.pdf
21. Michel, N. 2016. "Time To Fix the Overregulation Problem in Financial Markets." Forbes. https://www.forbes.com/sites/norbertmichel/2016/05/03/time-to-fix-the-overregulation-problem-in-financial-markets/?sh=5cf157bb3db8
22. Mishra, P., Moriyama, K., N'Diaye, P., and Nguyen, L. 2014. "Impact of Fed tapering announcements on emerging markets." IMF Working Papers, No. 14/109.
23. Noonan, L. 2021. "Europe's over-complex bank rules increase risk, watchdogs warn." Financial Times, 23 December 2021. https://www.ft.com/content/f520bc35-d84f-4ef5-bfa0-c554a25859fc
24. Oroz, M., and Salas, V., 2003. "Competencia y eficiencia en la intermediación financiera en España: 1977–2001." *Moneda y Crédito,* 217: 73–99.
25. 25. Paal, B., Smith, B., Wang, K. 2005. "Monopoly versus Competition in Banking: Some Implications for Growth and Welfare." Working Paper, Boston College. http://fmwww.bc.edu/repec/sed2005/up.9633.1106939711.pdf
26. Reichwald, H. P. 2016. "Does Overregulation Lead to Underperformance?" CFO. https://www.cfo.com/corporate-finance/2016/10/does-overregulation-lead-to-underperformance/
27. Smith, A. 2002. "The Wealth of Nations." Oxford, England: Bibliomania.com Ltd.
28. Yoon, S. 2004. "Welfare losses due to monopoly: Korea's case." *Journal of Policy Modelling*, Vol. 26, p. 945–957.

Kristaps Freimanis, Maija Šenfelde, Vytautas Juščius

Dėl netobulos konkurencijos bankų rinkoje atsirandančių neadekvačių nuostolių vertinimas

Anotacija

Finansų rinkos nepakankamumas lemia visuomenės „mirusiosios masės" (gerovės) nuostolius. Negyvojo svorio nuostolių vertinimas prasidėjo nuo vadinamojo Harbergerio trikampio, kuriame Harbergeris pateikė aiškią ir įtikinamą trikampio metodo, skirto analizuoti negyvojo svorio nuostolius, išvestinę ir pritaikė šį metodą, kad įvertintų negyvojo svorio nuostolius dėl pajamų mokesčių Jungtinėse Valstijose. Toliau Hertogas įtraukė „mirusiosios masės nuostolius" į modelį su vyriausybės intervencija, kad įvertintų optimalų gerovės nuostolių kontrolės lygį. Ši koncepcija yra pagrindinė reguliavimo ekonomikoje. Harbergerio metodas grindžiamas rinkos pusiausvyros nuokrypiu, matuojamu pagal kainą ir kiekį. Analizuodami netobulą konkurenciją kaip vieną iš rinkos ydų, autoriai literatūroje išskyrė kintamuosius „kaina" ir „kiekis". Tyrime pateikiamas požiūris, kaip apskaičiuoti dėl netobulos konkurencijos atsirandančius „mirusiojo svorio" nuostolius naudojant šiuos kintamuosius: „kaina" - palūkanų normos (paskolos), „kiekis" - paskolų pozicija bankų balansuose. Tyrimo rezultatas - integralus dėl netobulos konkurencijos atsirandančių "mirusio svorio" nuostolių vertinimo metodas. Atrinktoms šalims apskaičiuoti mirusiųjų nuostolių nuostoliai rodo, kad lūkesčius atitinkantys rezultatai yra mažesni nei 12 % - didžiausia reikšmė yra 4,6 % Latvijoje, kurioje bankų rinkos koncentracija padidėjo labiausiai iš visų tirtų šalių. Taikyti tyrimo metodai: literatūros analizė, regresinė analizė, matematinės analizės priemonės (integralai).

Kristaps Freimanis, Scientific Assistant, 4th-year Ph.D. Student, Department of the Territorial Development Management and Urban Economics, Faculty of Engineering Economics and Management, Riga Technical University, Riga, Latvia.
E-mail: kristaps.freimanis_5@rtu.lv

Maija Šenfelde, Professor, Department of the Territorial Development Management and Urban Economics, Faculty of Engineering Economics and Management, Riga Technical University, Riga, Latvia.
E-mail: maija.senfelde@rtu.lv

Vytautas Juščius, Professor, Department of Economics, Faculty of Social Sciences, Klaipėda University, Klaipėda, Lithuania.
E-mail: mr.ek.shmf@ku.lt

Kristaps Freimanis, mokslinis asistentas, doktorantas, Rygos techinikos universitetas, Inžinerinės ekonomikos ir vadybos fakultetas, Teritorijų vystymo valdymo ir miestų ekonomijos katedra, Ryga, Latvia.
El. paštas: kristaps.freimanis_5@rtu.lv

Maija Šenfelde, profesorė, Rygos techinikos universitetas, Inžinerinės ekonomikos ir vadybos fakultetas, Teritorijų vystymo valdymo ir miestų ekonomijos katedra, Ryga, Latvia.
El. paštas: maija.senfelde@rtu.lv

Vytautas Juščius, profesorius, Klaipėdos universiteto Socialinių mokslų fakultetas, Ekonomikos katedra, Klaipėda, Lietuva.
El. paštas: mr.ek.shmf@ku.lt