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DETERMINANTS OF FIRM PROFITABILITY IN EASTERN CROATIA[1]

ABSTRACT

The aim of this paper is to analyze the determinants of firm profitability in Eastern Croatia (namely County of Virovitica-Podravina,County of Požega-Slavonia, County of Brod-Posavina, County of Osijek-Baranja, and County of Vukovar-Srijem) and to determine if they differ significantly from firm profitability determinants in the rest of Croatia. In the analysis data from the Amadeus database on medium, large, and very large active companies is used, in the biggest four sectors of activity in Eastern Croatia: agriculture (A), manufacturing(C), construction (F), and trade (G). After statistical rejection of lagged profits as determinants of current profits, a fixed effects model using Driscoll-Kraay standard errors is applied, and positive effects of market share (in sectors C and G), labor productivity (C and G), capital productivity (C and G), liquidity (C and G), export intensity (C) and negative effects of insolvency (C and G), indebtedness (G), export intensity (G), capital intensity (C and G), taxes (A and G) and labor costs (C and G) are found. The analysis also shows that when comparing Eastern Croatia to the rest of the country, there is significantly greater positive impact of export intensity (in sectors A and C) and labor productivity (G) in Eastern Croatia. On the other hand, there is significantly greater negative impact of taxes (A and G) and export intensity (G), but also a less negative impact of labor costs (C and G) and insolvency (G) in Eastern Croatia compared to the rest of the country. The analysis revealed no robust statistically significant profitability determinants for the construction sector and also no robust differences in profitability determinants of this sector. These results offer clear directions for assisting development of Eastern Croatian entrepreneurship, both in general and sector-specific.

Key words: *firm profitability, eastern Croatia, fixed effects.*

1. Introduction

The region of Eastern Croatia encompasses five Croatian counties, namely Virovitica-Podravina, Požega-Slavonia, Brod-Posavina, Osijek-Baranja, and Vukovar-Srijem County

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(Tax Administration, 2019). The Eastern Croatia distinguishes itself economically from the other parts of Croatia in many aspects, making it an interesting and important area to study. Namely, in 2018 development index and economic indicators of Eastern Croatia were below the Croatian average. Consequently, it has extremely high risk of poverty (Marošević, 2018). According to the Croatian Bureau of Statistics (2011) poverty risk rate measured using the expenditure method in Croatia equals 17.1%. The lowest rates of poverty risk are recorded in Zagreb (5.9%), and the highest in Brod-Posavina County (33.9%). In all five counties of Eastern Croatia risk of poverty is over 30%. The Croatian government recognizes this problem and states that Eastern Croatia should intensify efforts to fight poverty and social exclusion (Vlada RH, 2020). This high risk of poverty is related to the fact that its regional index of competitiveness is below the Croatian average. Apart from Osijek-Baranja County, all the other Eastern Croatian counties occupy the bottom positions. Vukovar-Srijem County has the lowest quality of the business environment (which includes demographics, health and culture, education, basic infrastructure and the public sector indicators) and Brod-Posavina County the lowest quality of the business sector (which includes investment and entrepreneurial dynamics, entrepreneurship development and economic results) (Slipčević, Dikonić, Lakoš, 2019). Eastern Croatia is also characterized by the lowest level of entrepreneurial activity and the lowest motivational index, which includes perception of opportunities and intentions of launching a business venture (Slipčević, Dikonić, Lakoš, 2019). Kovačević, Kovačević and Kršul (2014) find that the entrepreneurs from that region generate the lowest revenue and profit of all Croatian regions, and with the exception of Osijek-Baranja County, other counties of Eastern Croatia are entrepreneurially underdeveloped. Finally, this area is characterized by the lowest level of political accountability and the lowest budget outcomes (Ott, Mačkić, Prijaković, 2019).

Having in mind this entrepreneurial underdevelopment of Eastern Croatia, questions arise – what are the determinants of profitability of Eastern Croatian companies and do they differ significantly from the profitability determinants in the rest of Croatia? These are the questions that this paper aims to answer.

The determinants of Croatian companies' profitability have been studied so far for the small and medium sized companies (SMEs) (Harc, 2014), for the companies listed at the Zagreb Stock Exchange (Pervan, Pervan and Todorić, 2012) and for the companies of the different sectors of activity: manufacturing sector (Škuflić, Mlinarić and Družić (2016), Anić, Rajh and Teodorović (2009), Pervan and Višić (2012), Pervan, Pervan and Ćurak (2019)), food and beverage manufacturing sector (Pervan, Pervan andĆurak (2017), Pervan and Mlikota (2013), Muminović and AljinovićBarać (2015)), construction sector (Škuflić, Mlinarić and Družić, 2018), insurance sector (PavićKramarić, Miletić and Pavić, 2017), banking sector (Pervan, Pelivan and Arnerić, 2015), hotel companies (Dimitrić, Tomas Živković and ArbulaBlechich (2019), Škuflić and Mlinarić (2015)) and software companies (Korent and Orsag, 2018). However, the analysis of the regional specifics of firm profitability in Croatia has been scarce and only partial. Letinić, Budimir and Župan (2019) analyze the correlation between profitability and the tax breaks in the area of special national status from 2005 to 2013 and find a positive relationship. Kovačević, Kovačević and Kršul (2014) analyze profitability in Eastern Croatia and other Croatian regions using correlation coefficients and find negative correlation between profitability and share of total debt in total assets, share of short-term debt in total assets and the share of debt in capital structure. This paper, on the other hand, conducts a comprehensive empirical panel analysis of the profitability determinants of Eastern Croatian companies from 2008 to 2017, and statistically tests the hypothesis that there is no difference between these profitability determinants in Eastern Croatia compared to the rest of the country. Additionally, the analysis is conducted for the four most important sectors of activity in Eastern Croatia, namely agriculture (A), manufacturing (C), construction (F), and trade (G). The results

of this comprehensive analysis bridge the gap in the existing empirical literature and offer insights for the economic policy.
The paper is organized as follows. First, a brief theoretical background and explanation of the most commonly assumed determinants of firm profitability is provided. Next, an explanation is provided of the data and methodology used in the paper. This is followed by the empirical analysis and the results. The last section concludes.

2. Theoretical background and variables

Identifying the determinants of firm profitability is an important theme in economics, strategic management, accounting and finance research and their approaches to the subject differ. For example, the industrial economics focuses on industry characteristics that determine profitability, such as concentration, economies of scale and entry and exit barriers (Bain, 1956; Slater and Olson, 2002). Within it, the persistence of profit approach focuses on the time-series behavior of profitability. The strategic management approach, on the other hand, views internal resources specific to the firm as determinants of profitability (Teece, 1981; Barney, 1991, 2001). Resource-based view states that organizational structures and management practices are the main determinants. Internal resources, which can be tangible (financial and physical factors of production) or intangible (technology, reputation, architecture), reflect the firm's core and distinctive capabilities (Prahalad and Hamel, 1990). The accounting and finance approach represents a separate but related strand of research concerning the usefulness of the random walk model as a descriptor of time series movements in profitability. Little (1962), Little and Rayner (1966), Ball and Watts (1972), Watts and Leftwich (1977), Callen et al. (1993) and Chan et al. (2003) present evidence in support of the random walk hypothesis. Other studies (Lev(1983), Penman (1991), Lipe and Kormendi (1994), Callen(2001)), which analyze profitability measures such as return on equity (ROE), assets or sales, report findings similar to those of the persistence of profit literature in industrial economics: there is serial correlation in profit rates, which tend to converge towards firm-specific long run average values (Goddard, Tavakoli and Wilson, 2005).
Škuflić and Mlinarić (2015) divide all of the firm profitability determinants into global (such as global trends on commodity, input and output markets), national (e.g. the economic growth, domestic demand, education, labor and financial market characteristics, tax system, infrastructure and institutions, exchange rate, etc.), industry-level (e.g. industry size, market concentration, barriers to entry, strategic interconnectedness, mergers and acquisitions, etc.) and firm-level determinants (size, productivity, previous year's profits, liquidity, solvency, leverage, research, investment, etc.). This classification regarding industry-level and firm-level determinants is followed throughout this paper.

3. Data and methodology

3.1. Data

In the empirical analysis the data from Amadeus database on 9108 medium, large, and very large active companies is used, in the biggest four sectors of activity in Croatia: agriculture (A), manufacturing(C), construction (F), and trade (G). Amadeus classifies companies based on size by the following criteria. A firm is considered to be "very large" if it satisfies one of the following criteria: operating revenue above 100 mil EUR, total assets above 200 mil EUR, or more than 1000 employees. "Large" firms criteria are: operating revenue above 10 mil EUR, total assets above 20 mil EUR or more than 150 employees. And finally, "medium" firms' criteria are: operating revenue above 1 mil EUR, total assets above 2 mil EUR, or more than 15

employees. The period of analysis is from 2008 to 2017. The variables used in the analysis were constructed from basic variables available in the Amadeus database, and are presented in Table 1 together with the calculation method used to obtain them. The last column shows the papers that used the listed variables in their firm profitability analysis on Croatian data. Independent variables from Table 1 are additionally modified by multipling them with a dummy variable which takes the value 1 if the firm operates in East Croatia, and 0 otherwise. Those variables are listed with a suffix „_east".

Table 1: Description of variables

Variable name	Symbol	Calculation method/source	Croatian literature
EBITDA margin	EBITDA_m	(EBITDA/turnover)*100	Pervan, Pervan and Ćurak (2017), Pervan and Višić (2012)
Profit margin	Profit_m	(Profit/turnover)*100;	Pervan and Višić (2012)
Return on assets	ROA	Net profit before tax plus interest (EBIT)/total assets;	Anić, Rajh and Teodorović (2009), Korent and Orsag (2018), Muminović and AljinovićBarać (2015), PavićKramarić, Miletić and Pavić (2017), Pervan, Pelivan and Arnerić, (2015), Pervan, Pervan and Ćurak (2019), Pervan, Pervan and Todorić (2012), Pervan and Višić (2012),
Market share	market_share2ln	Natural logarithm of company's market power defined as the percentage of its turnoverin totalindustry turnover;	Korent and Orsag (2018)
Labor productivity	productivity1ln	Natural logarithm of the ratio of turnover to employment;	Dimitrić, Tomas Živković and ArbulaBlechich (2019)
Capital productivity	c_productivityln	Natural logarithm of the ratio of turnover to capital;	-
Liquidity	liquidityln	Natural logarithm of [(current assets-stock)/current liabilities];	Pervan, Pervan and Ćurak (2017)
Solvency	debt_ratio100	Total debt/total assets;	Anić, Rajh and Teodorović (2009), Pervan and Višić (2012)
Indebtedness	debt_m2	Debt/EBITDA;	Škuflić, Mlinarić and Družić (2016)
Growth of company	firm_growth	Annual changes in revenue - operating turnover percentage change;	Korent and Orsag (2018)
Export intensity	export_intensity2ln	Ratio of export to sales;	Anić, Rajh and Teodorović (2009)
Capital intensity	capital_intensity1ln	Fixed assets per employee;	Anić, Rajh and Teodorović (2009)
Taxes	e_tax1	Tax/Profit;	-
Labor cost	labor_costln	(Employees cost/turnover)*100;	Pervan, Pervan and Ćurak (2019)

Source: Authors

EBITDA margin, profit margin and return on assets (ROA) are in the analysis used as dependent variables, i.e. indicators of firm profitability. The rest of the variables from Table 1 are explanatory variables, assumed to impact firm profitability.

Most of the independent variables are self-explanatory, however in the case of "market share" two problems arose which warrant further elaboration. First, it is necessary to define what is meant by "industry". Here, the approach of Goddard, Tavakoli and Wilson (2005) is followed who define an industry by its two-digit NACE rev.2 classification. The second problem is more nuanced, and has to do with data quality. The Amadeus database is constructed in such a way so that every firm in the database in our 10year timeframe (2008-2017) is represented in each year regardless of how many years it was active. In the case that the firm did not yet exist (or closed) during this period its values are reported as missing. In addition, there are some gaps in the database, where key variables (such as turnover or number of employees) are not reported in certain years (even in some cases for very large firms), and are therefore also reported as missing. These two facts constitute a problem for market share calculations, since it becomes a non-trivial problem to determine whether a firm in a given year has not yet begun/ceased to exist, or alternatively is simply missing data for that year. By taking samples of the data it was determined that cases exist where very large firms have instances of missing data, which result in extreme variations of market share values in corresponding industries. To address this problem an additional turnover variable was created in which all missing data was filled with the closest available values, and then used to calculate market share values. This came at a cost however, in the form of ignoring the fact that some firms might not have existed or closed down during the analyzed period. It was felt that this is the "lesser of the two evils", since market share values are less likely to be significantly affected by firm entry and exit (which in a ten year timeframe is predominantly small firm behavior) than by missing values of key market players in certain years.

As far as the expected coefficient signs of independent variables are concerned, they are relatively straightforward. Market share is expected to be positively correlated with firm profitability, since firms with market power tend to have anti-competitive strategies that enable them to earn abnormal profit. Alternatively, firms with a large market share may have acquired it by being more innovative or efficient in the past (Goddard, Tavakoli and Wilson, 2005). Firm growth and market share can be considered to be somewhat linked, as both measure a firms "staying power", i.e. the degree to which a firm has adapted to the market successfully. Additionally, the size of market share is expected to be especially relevant in this case, since three out of the four analyzed industries (agriculture, manufacturing, and construction) traditionally exhibit strong economies of scale.

Labor and capital productivity constitute productivity measures, both of which are expected to have a positive impact on profitability. Similar measures include capital intensity, which under the assumption that more capital per worker implies higher worker productivity is also expected to have a positive impact on our dependent variables. In some sense it can be argued that the "labor cost" variable constitutes the opposite of labor productivity, measuring how much is spent on labor for every additional unit of turnover, which means the expected coefficient sign is negative.

Solvency and indebtedness are closely tied together as measures of how much the firm is saddled with debt, the amount of debt usually being negatively correlated with profitability. On the other hand, liquidity captures a similar concept but the other way around: the ratio of assets to liabilities which is expected to have a positive impact on profitability the higher it goes, as a proxy measure of less indebtedness. Namely, liquidity indicates the speed at which a firm can react to sudden changes in its environment and holding a high proportion of assets in liquid form makes it less exposed to risk. However, a too high proportion of assets in liquid form may constrain its ability to exploit profitable long-term investment opportunities (Goddard, Tavakoli and Wilson, 2005).

The "etax1" variable is designed to capture the amount of tax burden in the economy, which is expected to have a negative impact on profitability due to overly burdened and complex Croatian tax system.
The final independent variable is export intensity. Generally, some evidence suggests that export intensity is an important driver of firms' performance since it may help firms improve the utilization of production capacity, develop superior management capabilities and enhance innovation in products and processes (Anić, Rajh and Teodorović, 2009),

3.2. Methodology

As the data consists of few time periods (10 years, from 2008 to 2017) and many individuals (9108 firms), it is a short panel. Considering that most authors (Goddard, Tavakoli and Wilson (2005), Škuflić, Mlinarić and Družić (2016), Škuflić, Mlinarić and Družić (2018), Pervan, Pervan and Todorić (2012), Pervan, Pervan, Ćurak (2017), Škuflić and Mlinarić (2015), Pervan, Pervan and Ćurak (2019), Dimitrić, Tomas Živković and Arbula Blechich (2019), etc.) have found dynamic relationship between firm profitability measures and their determinants, a dynamic analysis is conducted in this paper. Arellano–Bond (Arellano and Bond 1991) and Arellano–Bover/Blundell–Bond (Arellano and Bover 1995; Blundell and Bond 1998) dynamic panel estimators are appropriate for situations with few time periods and many individuals; a linear functional relationship; dynamic dependent variable; independent variables that are not strictly exogenous; fixed individual effects; and heteroskedasticity and autocorrelation within individuals but not across them (Roodman, 2009). Since the Sargan statistic is not robust to heteroskedasticity or autocorrelation, Hansen (1982) J statistic is used, which is the minimized value of the two-step generalized method of moments criterion function, and is robust. Hansen test did not confirm the validity of instruments used in the analysis[2]. Therefore, a static panel model was applied in this paper.
In microeconometric analysis of panel data there are two basic models, fixed effects (FE), and random effects (RE) (Cameron and Trivedi, 2010). The decision between FE and RE in this paper is based upon the results of the Hausman test and modified Hausman test (Hausman, 1978; Hoechle, 2007). The results of these tests confirm the use of FE model (which corresponds to some empirical literature on firm profitability in Croatia such as Pervan and Višić (2012)).

The FE model equation (1) is shown below:

$$Y_{it} = \beta_k X_{it} + \alpha_i + u_{it} \quad (1)$$

where α_i is the constant term for every group, Y_{it} the vector of dependent variables in time t, and group i, X_{it}vector of independent variables, and u_{it} is the error term. Driscoll and Kraay (1998) standard errors are used since they are robust to general forms of cross-sectional dependence, but also autocorrelation and heteroskedasticity.

4. Empirical analysis

A unit root test is conducted for all variables in the analysis on a balanced panel subsample and indicated stationarity of all variables. On the grounds of the (modified) Hausman test results, it

[2]Results available on request.

was decided to conduct a panel model with fixed effects.[3] The analysis is divided into two parts. First, the determinants of firm profitability in Eastern Croatia are analyzed on the subsample of only Eastern Croatian firms. Second, the hypothesis that the profitability determinants in Eastern Croatia do not differ significantly from the profitability determinants in the rest of the Croatia is tested. This second part of the analysis is conducted on the full sample of all Croatian firms in the four analyzed sectors.

4.1. Profitability determinants in Eastern Croatia

Firm profitability determinants in Eastern Croatia are first analyzed for the four biggest sectors in Eastern Croatia jointly. Next, specific sectors are analyzed individually, namely sectors A (agriculture), C (manufacturing), G (construction), and F (trade). The relationships between profitability measures EBITDA margin (Model 1), ROA (Model 2), and profit margin (Model 3) and previously stated independent variables are shown in Tables2 –6. Table 2 shows the models 1 – 3 for all four sectors together; Table 3 depicts the results for sector A; Table 4 for sector C; Table 5 sector F; and Table 6 sector G. The analysis of three profitability indicators offers an insight into the robustness of the obtained results.

The joint results for the firms in the four biggest sectors of activity in Eastern Croatia show that market share, labor and capital productivity display robustly positive and labor cost robustly negative influence on profitability (Table 2). Firm growth appears also with a robustly negative coefficient although the coefficient value is negligible. Additionally, for the two out of three profitability measures insolvency and higher capital intensity appear to exert negative impact on firm profitability.

Table 2: Determinants of firm profitability in Eastern Croatia (all sectors)

	1	2	3
market_share2ln	**3.0999*** **	**0.0073***	**4.5844*** **
	(0.0001)	**(0.0871)**	**(0.0001)**
productivity1ln	**5.1323*** **	**0.0533*** **	**5.5817** **
	(0.0000)	**(0.0000)**	**(0.0116)**
c_productivityln	**0.3746***	**0.0103*** **	**1.0778*** **
	(0.0818)	**(0.0000)**	**(0.0000)**
liquidityln	**2.0261*** **	**0.0321*** **	**3.1342*** **
	(0.0004)	**(0.0000)**	**(0.0000)**
debt_ratio100	0.0025	**-0.0006*** **	**-0.0515*** **
	(0.7560)	**(0.0002)**	**(0.0000)**
debt_m2	0.0040	**-0.0002*** **	**0.0740*** **
	(0.7494)	**(0.0000)**	**(0.0000)**
firm_growth	**-0.0000*** **	**-0.0000*** **	**-0.0000*** **
	(0.0000)	**(0.0098)**	**(0.0000)**
export_intensity2ln	0.1005	0.0009	0.2635
	(0.4518)	(0.1396)	(0.1251)
capital_intensity1ln	0.1715	**-0.0171*** **	**-0.6377*** **
	(0.1998)	**(0.0000)**	**(0.0006)**
e_tax1	**-0.1408***	-0.0007	**-0.2785** **
	(0.0555)	(0.4385)	**(0.0107)**

[3]All the results are available from authors upon request.

	1	2	3
labor_costln	**-2.4393***	**-0.0300*****	**-4.4421****
	(0.0654)	**(0.0001)**	**(0.0301)**
_cons	-13.4941***	-0.1816***	-22.5348***
	(0.0004)	(0.0000)	(0.0013)
N	2430	2430	2430
R-sq	0.1337	0.1637	0.1857

Source: Authors' calculation
*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 3 analyses sector A in more detail. The results show that the only fairly robust determinant of profitability in agricultural firms in Eastern Croatia are taxes with their negative impact, as anticipated. Liquidity, firm growth, export intensity and capital intensity might have a positive impact on profitability and insolvency negative, but these results are not robust.

Table 3: Determinants of firm profitability in Eastern Croatia (sector A)

	1A	2A	3A
market_share2ln	-2.1325	0.0006	-2.7998
	(0.1386)	(0.9421)	(0.2256)
productivity1ln	-1.5311	-0.0185	-0.5745
	(0.1201)	(0.2109)	(0.8513)
c_productivityln	0.8580	0.0044	0.3911
	(0.3803)	(0.5313)	(0.6509)
liquidityln	0.9713	**0.0162****	0.1273
	(0.4150)	**(0.0329)**	(0.9199)
debt_ratio100	-0.0777	**-0.0008****	-0.0070
	(0.1426)	**(0.0480)**	(0.9014)
debt_m2	0.0003	0.0000	-0.0573
	(0.9839)	(0.7955)	(0.1710)
firm_growth	0.0058	**0.0001****	0.0025
	(0.2791)	**(0.0139)**	(0.5798)
export_intensity2ln	0.1895	0.0028	**1.1895***
	(0.5764)	(0.1354)	**(0.0618)**
capital_intensity1ln	**5.9624*****	-0.0047	1.6377
	(0.0000)	(0.6840)	(0.1759)
e_tax1	**-0.1928*****	-0.0008	**-0.4545*****
	(0.0002)	(0.2874)	**(0.0001)**
labor_costln	-3.6953	-0.0239	-5.8180
	(0.5166)	(0.4270)	(0.4482)
_cons	-16.6826	0.1183	-14.8863
	(0.3949)	(0.2552)	(0.4229)
N	326	326	326
R-sq	0.0776	0.0993	0.0691

Source: Authors' calculation
*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 4 displays results for the manufacturing sector. There appears to be a robustly positive impact of market share, labor and capital productivity, liquidity and export intensity on firm profitability in this sector. Insolvency, capital intensity and labor cost show robustly negative impact on profitability of manufacturing firms.

Table 4: Determinants of firm profitability in Eastern Croatia (sector C)

	1C	2C	3C
market_share2ln	**4.2815*** **	0.0188	**6.6555*** **
	(0.0004)	(0.1190)	**(0.0000)**
productivity1ln	**7.3835*** **	**0.0503*** **	**7.7040** **
	(0.0017)	**(0.0022)**	**(0.0204)**
c_productivityln	**0.6764** **	**0.0140*** **	**1.5134*** **
	(0.0168)	**(0.0000)**	**(0.0000)**
liquidityln	**2.0248** **	**0.0295*** **	**3.6262*** **
	(0.0293)	**(0.0000)**	**(0.0010)**
debt_ratio100	0.0133	**-0.0005*** **	**-0.0456***
	(0.1408)	**(0.0005)**	**(0.0546)**
debt_m2	0.0459	**-0.0004*** **	0.0840
	(0.3309)	**(0.0000)**	(0.2641)
firm_growth	**-0.0000*** **	**-0.0000** **	**-0.0000*** **
	(0.0000)	**(0.0130)**	**(0.0000)**
export_intensity2ln	**0.3974** **	**0.0059*** **	0.2642
	(0.0121)	**(0.0093)**	(0.2007)
capital_intensity1ln	0.0109	**-0.0192*** **	**-1.1352*** **
	(0.9471)	**(0.0000)**	**(0.0000)**
e_tax1	0.2112	-0.0006	**0.7366***
	(0.3546)	(0.6213)	**(0.0614)**
labor_costln	-2.1624	**-0.0280***	**-4.9179***
	(0.2558)	**(0.0623)**	**(0.0500)**
_cons	-20.1868***	-0.1289**	-29.7937***
	(0.0051)	(0.0112)	(0.0052)
N	1473	1473	1473
R-sq	0.1898	0.1852	0.2117

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 5 displays the analysis of the construction sector. It shows that there is no robust firm profitability determinant in this sector. Individual models indicate that labor productivity, firm growth, export intensity but also taxes might have positive impact and insolvency and labor costs negative impact on firm profitability in the construction sector of Eastern Croatia, but these results are not robust.

Table 5: Determinants of firm profitability in Eastern Croatia (sector F)

	1F	2F	3F
market_share2ln	-4.7995	-0.1224	0.6373
	(0.4693)	(0.1588)	(0.8644)
productivity1ln	34.9538	**0.4348***	2.7995

	1F	2F	3F
	(0.1216)	**(0.0849)**	(0.7931)
c_productivityln	-1.1567	0.0097	-0.1796
	(0.2368)	(0.5012)	(0.8120)
liquidityln	2.9677	0.0607	3.3106
	(0.4544)	(0.4093)	(0.4436)
debt_ratio100	-0.1655	-0.0014	**-0.2133*****
	(0.2534)	(0.4239)	**(0.0001)**
debt_m2	**0.0447*****	-0.0002	**-0.0667*****
	(0.0071)	(0.4633)	**(0.0014)**
firm_growth	0.0049	**0.0001***	0.0008
	(0.1203)	**(0.0987)**	(0.8351)
export_intensity2ln	**0.9841****	-0.0119	0.2430
	(0.0496)	(0.1495)	(0.2689)
capital_intensity1ln	-2.5819	-0.0326	0.8690
	(0.2500)	(0.3385)	(0.4826)
e_tax1	-1.1172	**0.1012***	1.2121
	(0.7853)	**(0.0508)**	(0.6306)
labor_costln	5.1394	-0.0450	**-11.8867****
	(0.6537)	(0.6940)	**(0.0168)**
_cons	-113.4573	-1.9457**	-22.9324
	(0.1351)	(0.0304)	(0.5545)
N	103	103	103
R-sq	0.4909	0.4465	0.3860

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 6 displays the results for the trade sector. It shows that market share, labor and capital productivity and liquidity have a robust positive impact on firm profitability in this sector, while insolvency, indebtedness, export intensity, capital intensity, taxes and labor costs represent negative determinants of firm profitability in East Croatia's trade sector.

Table 6: Determinants of firm profitability in Eastern Croatia (sector G)

	1G	2G	3G
market_share2ln	**2.1704****	-0.0041	**3.0216*****
	(0.0103)	(0.8323)	**(0.0000)**
productivity1ln	1.3739	**0.0771****	**2.0037****
	(0.2047)	**(0.0240)**	**(0.0500)**
c_productivityln	0.2252	**0.0080***	**0.9738****
	(0.3240)	**(0.0707)**	**(0.0250)**
liquidityln	**1.7136*****	**0.0418*****	**1.7497*****
	(0.0043)	**(0.0000)**	**(0.0038)**
debt_ratio100	0.0074	**-0.0007*****	**-0.0381*****
	(0.5198)	**(0.0013)**	**(0.0008)**
debt_m2	0.0026	**-0.0001*****	**0.1119*****

	1G	2G	3G
	(0.5972)	**(0.0000)**	**(0.0000)**
firm_growth	-0.0000	-0.0000	0.0001
	(0.5771)	(0.1603)	(0.3069)
export_intensity2ln	**-0.5616*****	**-0.0044****	**-0.3548****
	(0.0001)	**(0.0483)**	**(0.0159)**
capital_intensity1ln	-0.1532	**-0.0164*****	**-0.6107****
	(0.6363)	**(0.0073)**	**(0.0316)**
e_tax1	**-1.5463*****	-0.0097	**-1.0369****
	(0.0007)	(0.3306)	**(0.0374)**
labor_costln	-0.7291	**-0.0164***	**-1.3900***
	(0.3237)	**(0.0674)**	**(0.0657)**
_cons	5.2975	-0.3631*	-1.2108
	(0.4590)	(0.0667)	(0.8550)
N	520	520	520
R-sq	0.1366	0.2556	0.6570

Source: Authors' calculation
*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

4.2. Profitability determinants in Eastern Croatia compared to the rest of Croatia

This chapter contains the models analyzed on the complete sample of 9108 Croatian firms in sectors A, C, F, and G (Tables 7 - 11). The models contain, in addition to previously employed independent variables, the variables derived by their multiplication with the dummy variable for Eastern Croatian companies. This enables testing of the null hypothesis of no difference between the impact of specific determinant on profitability in Eastern Croatia compared to the rest of the country. Statistically significant coefficients next to the variables with the extension "_east" in their names, signify that Eastern Croatia differs from the rest of the country regarding the impact that that specific determinant has on firm profitability.
By inspecting the coefficients and their significance of the variables with the extension "_east" in their names in Table 7 it is evident that export intensity has a more positive, i.e. labor cost less negative impact on profitability in Eastern Croatia compared to the rest of the country. Taxes on the other hand have more pronounced negative impact on profitability in these four sectors of activity in Eastern Croatia.

Table 7: Profitability determinants in Eastern Croatia compared to the rest of Croatia (all sectors)

	1	2	3
market_share2ln	**10.6003****	**0.0251*****	**23.2544***
	(0.0498)	**(0.0000)**	**(0.0542)**
productivity1ln	**5.9360****	**0.0087****	**12.2957***
	(0.0433)	**(0.0278)**	**(0.0726)**
c_productivityln	**0.6966*****	**0.0088*****	**1.1727*****
	(0.0000)	**(0.0000)**	**(0.0000)**
Liquidityln	0.6689	**0.0358*****	0.9746
	(0.3095)	**(0.0000)**	(0.6387)
debt_ratio100	0.0496	**-0.0011*****	-0.0077

	1	2	3
	(0.2443)	**(0.0000)**	(0.9513)
debt_m2	**0.0062*** **	0.0000	0.0321
	(0.0100)	(0.9364)	(0.1832)
firm_growth	0.0000	-0.0000	0.0000
	(0.6419)	(0.2177)	(0.3583)
export_intensity2ln	**-1.1935***	**0.0016*** **	**-2.4689***
	(0.0870)	**(0.0016)**	**(0.0991)**
capital_intensity1ln	-1.6320	**-0.0104*** **	-3.8437
	(0.1968)	**(0.0000)**	(0.1542)
e_tax1	**0.0128*** **	**0.0001*** **	**0.0180***
	(0.0064)	**(0.0000)**	**(0.0789)**
labor_costln	**-24.0231*** **	**-0.0887*** **	**-43.9712****
	(0.0034)	**(0.0000)**	**(0.0156)**
market_share2ln_east	-7.5004	**-0.0178*** **	-18.6700
	(0.1752)	**(0.0007)**	(0.1324)
productivity1ln_east	-0.8037	**0.0446*** **	-6.7140
	(0.8287)	**(0.0000)**	(0.4247)
c_productivityln_east	**-0.3221***	0.0015	-0.0949
	(0.0530)	(0.2058)	(0.7762)
liquidityln_east	**1.3572***	-0.0037	2.1597
	(0.0911)	(0.2189)	(0.2732)
debt_ratio100_east	-0.0471	**0.0005*** **	-0.0438
	(0.3108)	**(0.0074)**	(0.7305)
debt_m2_east	-0.0022	**-0.0002*** **	0.0419
	(0.8719)	**(0.0000)**	(0.2776)
firm_growth_east	**-0.0000*** **	**-0.0000****	**-0.0000*** **
	(0.0000)	**(0.0102)**	**(0.0000)**
export_intensity2ln_east	**1.2940****	-0.0007	**2.7324***
	(0.0359)	(0.3978)	**(0.0578)**
capital_intensity1ln_east	1.8035	**-0.0067***	3.2060
	(0.1407)	**(0.0535)**	(0.2552)
e_tax1_east	**-0.1536****	-0.0008	**-0.2965*** **
	(0.0402)	(0.3706)	**(0.0043)**
labor_costln_east	**21.5838****	**0.0586*** **	**39.5291****
	(0.0116)	**(0.0000)**	**(0.0262)**
_cons	-45.8529***	-0.0902***	-92.2781**
	(0.0081)	(0.0003)	(0.0189)
N	25373	25373	25373
R-sq	0.0244	0.1271	0.2066

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

The analysis of the agricultural sector shows that export intensity has a robustly and significantly greater contribution to firm profitability in Eastern Croatia compared to the rest of the country. Market share, labor productivity and taxes on the other hand display robustly less

positive i.e. more negative impact on agricultural firm profitability in this region compared to the rest of the Croatia (Table 8).

Table 8: Profitability determinants in Eastern Croatia compared to the rest of Croatia (sector A)

	1A	2A	3A
market_share2ln	**4.2092*** **	**0.0268*** **	**6.5926*** **
	(0.0000)	**(0.0002)**	**(0.0008)**
productivity1ln	**9.6585***	0.0213	**9.9796***
	(0.0614)	(0.3217)	**(0.0890)**
c_productivityln	**-1.0741*** **	0.0027	**-1.0209*** **
	(0.0001)	(0.1002)	**(0.0086)**
Liquidityln	0.2569	**0.0272*** **	**3.4953***
	(0.8744)	**(0.0004)**	**(0.0870)**
debt_ratio100	-0.0135	**-0.0010*** **	0.0038
	(0.8737)	**(0.0055)**	(0.9663)
debt_m2	0.0026	0.0000	-0.0025
	(0.4915)	(0.4641)	(0.5667)
firm_growth	**0.0000*** **	**0.0000*** **	**0.0000*** **
	(0.0017)	**(0.0080)**	**(0.0099)**
export_intensity2ln	**-1.5461*** **	**-0.0123*** **	**-1.7503*** **
	(0.0027)	**(0.0096)**	**(0.0052)**
capital_intensity1ln	-0.3204	-0.0011	-1.2313
	(0.7903)	(0.8781)	(0.4375)
e_tax1	**0.7707*** **	-0.0016	**1.0368** **
	(0.0007)	(0.3002)	**(0.0119)**
labor_costln	-0.8299	-0.0233	-3.9867
	(0.8577)	(0.4329)	(0.3776)
market_share2ln_east	**-6.3416*** **	**-0.0261***	**-9.3924** **
	(0.0003)	**(0.0589)**	**(0.0124)**
productivity1ln_east	**-11.1895** **	**-0.0398***	-10.5541
	(0.0308)	**(0.0559)**	(0.1384)
c_productivityln_east	**1.9321***	0.0017	1.4120
	(0.0792)	(0.8116)	(0.1562)
liquidityln_east	0.7144	-0.0111	**-3.3680***
	(0.6365)	(0.2047)	**(0.0585)**
debt_ratio100_east	-0.0642	0.0002	-0.0109
	(0.2506)	(0.6286)	(0.9144)
debt_m2_east	-0.0023	0.0000	-0.0548
	(0.8848)	(0.9220)	(0.1618)
firm_growth_east	0.0058	**0.0001** **	0.0025
	(0.2768)	**(0.0124)**	(0.5789)
export_intensity2ln_east	**1.7356*** **	**0.0151** **	**2.9398*** **
	(0.0045)	**(0.0162)**	**(0.0012)**
capital_intensity1ln_east	**6.2829*** **	-0.0035	2.8690

	1A	2A	3A
	(0.0025)	(0.8104)	(0.1774)
e_tax1_east	**-0.9636*** **	0.0008	**-1.4913*** **
	(0.0001)	(0.7180)	**(0.0020)**
labor_costln_east	-2.8654	-0.0005	-1.8314
	(0.7738)	(0.9924)	(0.8759)
_cons	**-26.0664***	-0.0106	**-33.9256** **
	(0.0562)	(0.8439)	**(0.0153)**
N	886	886	886
R-sq	0.1063	0.1326	0.1496

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 9 shows that in manufacturing sector of Eastern Croatia the profitability determinants do not differ (robustly) as much as in other sectors. It appears that the export intensity has a more beneficial effect, and labor cost less detrimental effect on manufacturing firm profitability in Eastern Croatia compared to the rest of the country.

Table 9: Profitability determinants in Eastern Croatia compared to the rest of Croatia (sector C)

	1C	2C	3C
market_share2ln	**21.7871***	**0.0287*****	**48.6525***
	(0.0698)	**(0.0000)**	**(0.0697)**
productivity1ln	**14.9337** **	**0.0160** **	**35.5083***
	(0.0490)	**(0.0203)**	**(0.0533)**
c_productivityln	**1.2434*****	**0.0113*****	**1.9974*****
	(0.0000)	**(0.0000)**	**(0.0000)**
Liquidityln	-1.8640	**0.0377*****	-5.8965
	(0.4780)	**(0.0000)**	(0.2861)
debt_ratio100	0.1596	**-0.0011*****	0.3328
	(0.1474)	**(0.0000)**	(0.2264)
debt_m2	**0.0195** **	-0.0000	**0.0506** **
	(0.0206)	(0.7604)	**(0.0140)**
firm_growth	-0.0000	**0.0000*****	-0.0000
	(0.6637)	**(0.0027)**	(0.7336)
export_intensity2ln	-2.3246	**0.0041*****	-5.4454
	(0.1332)	**(0.0000)**	(0.1014)
capital_intensity1ln	-4.1446	**-0.0134*****	-11.4461
	(0.2063)	**(0.0000)**	(0.1059)
e_tax1	**0.2053*****	-0.0002	**0.3616*****
	(0.0000)	(0.2719)	**(0.0010)**
labor_costln	**-41.4162** **	**-0.1017*****	**-78.0980** **
	(0.0165)	**(0.0000)**	**(0.0410)**
market_share2ln_east	-17.5056	-0.0100	-41.9970
	(0.1637)	(0.4896)	(0.1243)
productivity1ln_east	-7.5502	**0.0343***	-27.8044

	1C	2C	3C
	(0.4017)	**(0.0809)**	(0.1672)
c_productivityln_east	**-0.5670****	**0.0027****	-0.4840
	(0.0431)	**(0.0381)**	(0.2537)
liquidityln_east	3.8888	-0.0082	**9.5227***
	(0.1179)	(0.1298)	**(0.0747)**
debt_ratio100_east	-0.1463	**0.0005*****	-0.3784
	(0.2029)	**(0.0014)**	(0.1553)
debt_m2_east	0.0264	**-0.0004*****	0.0334
	(0.5711)	**(0.0000)**	(0.6605)
firm_growth_east	**-0.0000*****	**-0.0000*****	**-0.0000****
	(0.0000)	**(0.0003)**	**(0.0185)**
export_intensity2ln_east	**2.7220***	0.0018	**5.7096***
	(0.0785)	(0.3829)	**(0.0952)**
capital_intensity1ln_east	4.1554	-0.0059	10.3109
	(0.2037)	(0.2044)	(0.1549)
e_tax1_east	0.0059	-0.0003	0.3750
	(0.9798)	(0.7451)	(0.4049)
labor_costln_east	**39.2538****	**0.0737*****	**73.1801***
	(0.0232)	**(0.0000)**	**(0.0565)**
_cons	**-96.4195****	**-0.1215*****	**-208.1295****
	(0.0212)	**(0.0006)**	**(0.0349)**
N	12343	12343	12343
R-sq	0.0398	0.1316	0.0328

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

The analysis of construction sector is presented in Table 10. It shows no robust differences in profitability determinants of this sector in Eastern Croatia compared to the rest of the country.

Table 10: Profitability determinants in Eastern Croatia compared to the rest of Croatia (sector F)

	1F	2F	3F
market_share2ln	**1.1705****	-0.0002	**6.0050****
	(0.0135)	(0.9658)	**(0.0148)**
productivity1ln	2.8579	-0.0044	**10.2286****
	(0.1677)	(0.7149)	**(0.0376)**
c_productivityln	0.4582	0.0060	0.2608
	(0.1478)	(0.1422)	(0.5045)
Liquidityln	**2.9184***	**0.0567*****	2.7758
	(0.0521)	**(0.0000)**	(0.2725)
debt_ratio100	**-0.0595***	**-0.0019*****	**-0.1173*****
	(0.0864)	**(0.0000)**	**(0.0000)**
debt_m2	**-0.0555****	**-0.0001***	**-0.0877***
	(0.0357)	**(0.0565)**	**(0.0783)**

	1F	2F	3F
firm_growth	-0.0000	0.0000	-0.0001
	(0.6545)	(0.6970)	(0.3652)
export_intensity2ln	-0.0427	-0.0010	1.4869
	(0.8620)	(0.7420)	(0.1893)
capital_intensity1ln	**-1.6962****	**-0.0181*****	**-3.0216*****
	(0.0492)	**(0.0000)**	**(0.0035)**
e_tax1	**1.0064*****	0.0063	**2.8585*****
	(0.0003)	(0.5825)	**(0.0048)**
labor_costln	**-9.8699*****	**-0.1463*****	-17.0911
	(0.0000)	**(0.0000)**	(0.1056)
market_share2ln_east	-5.9700	-0.1222	-5.3677
	(0.3696)	(0.1364)	(0.3624)
productivity1ln_east	32.0959	**0.4392***	-7.4291
	(0.1438)	**(0.0840)**	(0.3140)
c_productivityln_east	-1.6149	0.0037	-0.4404
	(0.1068)	(0.7772)	(0.5635)
liquidityln_east	0.0493	0.0040	0.5348
	(0.9901)	(0.9533)	(0.9233)
debt_ratio100_east	-0.1061	0.0005	**-0.0960****
	(0.3896)	(0.8080)	**(0.0439)**
debt_m2_east	**0.1002****	-0.0001	0.0210
	(0.0114)	(0.6146)	(0.7089)
firm_growth_east	0.0049	**0.0001***	0.0009
	(0.1165)	**(0.0943)**	(0.8112)
export_intensity2ln_east	**1.0269***	-0.0110	-1.2439
	(0.0599)	(0.1128)	(0.2052)
capital_intensity1ln_east	-0.8858	-0.0145	**3.8906*****
	(0.6438)	(0.6552)	**(0.0086)**
e_tax1_east	-2.1236	**0.0948****	-1.6464
	(0.5846)	**(0.0387)**	(0.3743)
labor_costln_east	15.0094	0.1013	5.2044
	(0.2448)	(0.4491)	(0.7190)
_cons	**-25.0782****	**-0.2961*****	**-46.8290***
	(0.0313)	**(0.0000)**	**(0.0777)**
N	1232	1232	1232
R-sq	0.1268	0.2722	0.0372

Source: Authors' calculation

*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

Table 11 displays the results for the trade sector. Labor productivity appears to impact firm profitability more beneficially and insolvency and labor cost less adversely in the Eastern Croatia compared to the rest. Additionally, export intensity has a less beneficial effect and taxes more negative effect on the profitability of trade companies in the Eastern Croatia compared to the rest of the country.

Table 11: Profitability determinants in Eastern Croatia compared to the rest of Croatia (sector G)

	1G	2G	3G
market_share2ln	**2.7146*** **	**0.0271*** **	**3.0149*** **
	(0.0004)	**(0.0000)**	**(0.0000)**
productivity1ln	-0.7002	0.0098	**-3.8446** **
	(0.2348)	(0.3300)	**(0.0177)**
c_productivityln	**0.3156*** **	**0.0065*** **	**0.5337** **
	(0.0000)	**(0.0000)**	**(0.0200)**
Liquidityln	**2.0993*** **	**0.0382*** **	4.0409
	(0.0000)	**(0.0000)**	(0.1114)
debt_ratio100	**-0.0348*** **	**-0.0011*** **	**-0.3126** **
	(0.0000)	**(0.0000)**	**(0.0415)**
debt_m2	0.0057	-0.0000	**0.2141***
	(0.2737)	(0.3695)	**(0.0788)**
firm_growth	**-0.0000*** **	**-0.0000*** **	0.0000
	(0.0000)	**(0.0000)**	(0.9388)
export_intensity2ln	**-0.1737***	**0.0007***	0.0251
	(0.0705)	**(0.0589)**	(0.8368)
capital_intensity1ln	0.2096	**-0.0063** **	1.4022
	(0.2190)	**(0.0158)**	(0.1915)
e_tax1	0.0006	**0.0001*** **	0.0040
	(0.7915)	**(0.0000)**	(0.2330)
labor_costln	**-7.0087*** **	**-0.0640*** **	**-10.2590*** **
	(0.0000)	**(0.0000)**	**(0.0000)**
market_share2ln_east	-0.5443	**-0.0311***	0.0067
	(0.6318)	**(0.0744)**	(0.9927)
productivity1ln_east	2.0742	**0.0673** **	**5.8483*** **
	(0.1472)	**(0.0147)**	**(0.0007)**
c_productivityln_east	-0.0904	0.0015	0.4400
	(0.7429)	(0.6929)	(0.4754)
liquidityln_east	-0.3857	0.0036	-2.2912
	(0.5771)	(0.7123)	(0.4088)
debt_ratio100_east	**0.0422*** **	0.0004	**0.2745***
	(0.0062)	(0.2664)	**(0.0622)**
debt_m2_east	-0.0031	**-0.0001*** **	-0.1022
	(0.7488)	**(0.0000)**	(0.4149)
firm_growth_east	-0.0000	-0.0000	0.0001
	(0.5781)	(0.1584)	(0.3046)
export_intensity2ln_east	**-0.3878*** **	**-0.0051** **	**-0.3799*** **
	(0.0005)	**(0.0182)**	**(0.0069)**
capital_intensity1ln_east	-0.3627	-0.0101	**-2.0129***
	(0.1938)	(0.1358)	**(0.0861)**
e_tax1_east	**-1.5470*** **	-0.0097	**-1.0408** **
	(0.0005)	(0.3237)	**(0.0342)**

	1G	2G	3G
labor_costln_east	**6.2797*** **	**0.0475*** **	**8.8690*** **
	(0.0000)	**(0.0000)**	**(0.0000)**
_cons	1.0431	-0.0486	5.5324
	(0.6246)	(0.3191)	(0.1653)
N	10094	10094	10094
R-sq	0.1144	0.1306	0.0592

Source: Authors' calculation
*Note: *, **, *** denote 10%, 5% and 1% significance respectively.*

5. Conclusion

The aim of this paper was to analyze the determinants of firm profitability in Eastern Croatia, and to determine if those determinants differ significantly from the rest of Croatian firm's profitability determinants in the corresponding sectors. The five Eastern Croatian counties that the analysis focuses on are Virovitica-Podravina, Požega-Slavonia, Brod-Posavina, Osijek-Baranja, and Vukovar-Srijem County. The Croatian firm data are obtained for the period from 2008 to 2017 from the Amadeus database on 9108 medium, large, and very large active companies in the four most important sectors of activity in Eastern Croatia, namely agriculture (A), manufacturing(C), construction (F), and trade (G). The methodology used in the analysis is the fixed effects panel model with Driscoll and Kraay (1998) standard errors since they are robust to general forms of cross-sectional dependence, but also autocorrelation and heteroskedasticity.

The results of this comprehensive study enable precise pinpointing of the most important profitability determinants in four sectors of activity in Eastern Croatia, and a determination of whether they are statistically significantly different from the rest of the country. This in turn can direct regional-specific policies to boost profitability and the catch-up process of this region. The obtained results can be summarized as follows.

The analysis of agricultural sector showed robust negative impact of taxes on profitability and this negative impact is significantly greater in the Eastern Croatia compared to the rest of the country. This is an interesting finding for the policy makers wishing to stimulate entrepreneurial activity in this region via tax reduction for producers of agricultural goods. There are several ways of stimulating entrepreneurial activity, as reducing income tax in agriculture, profit tax or introducing grace periods for starting a business in agricultural sector. Export intensity also stands out as a possible great contributor to profitability of agricultural firms, even greater than in the agricultural sector of the other parts of Croatia. It should be noted however that the lack of small firms is the main limitation of the study of agricultural sector in Eastern Croatia since this sector predominantly consists of precisely small family firms. The conclusions of this study hence do not necessarily apply to them.

The firm profitability of the manufacturing sector is positively impacted by the market share, labor productivity, capital productivity, liquidity and export intensity and negatively by insolvency, capital intensity and labor cost. Compared to the rest of the country only the export intensity has a more beneficial effect in this region, just like in the agricultural sector, and labor costs have less detrimental effect on manufacturing firm profitability in Eastern Croatia.

The analysis of the construction sector showed that none of the assumed profitability determinants are robustly statistically significant and also that there are no robust differences in profitability determinants of this sector in Eastern Croatia compared to the rest of the country. This sector, hence, warrants some further analysis.

The trade sector firm profitability is positively determined by the market share, labor and capital productivity and liquidity. At the same time, it is negatively impacted by the insolvency, indebtedness, export intensity, capital intensity, taxes and labor costs. Additionally, the analysis showed that productivity impacts firm profitability more beneficially and insolvency and labor costs less adversely in the Eastern Croatia compared to the rest of the country. Interestingly, export intensity and taxes appear to have more negative effect on the profitability of trade companies in the Eastern Croatia compared to the rest of the country.

In general, the firms in the four biggest sectors of activity in Eastern Croatia benefit from the higher market share, labor productivity and capital productivity. On the other hand, the profitability is negatively impacted by labor costs, insolvency and higher capital intensity. Also, export intensity has on average more beneficial effect on profitability in this region, labor costs are less constraining and taxes have more pronounced negative impact on profitability of in these four sectors of activity in Eastern Croatia.

These results offer clear directions for assisting development of Eastern Croatian entrepreneurship, both in general and sector-specific. Focusing on export-oriented activities in this region, decreasing the tax burden or investing in labor productivity measures are just a few approaches that could help Eastern Croatian catch-up process to the Croatian average. Although labor costs stand out with their negative impact on profitability, this impact is significantly less negative than in the rest of the country, probably because these costs are much lower in Eastern Croatia already. That is why decreasing labor costs would not be one of our main recommendations for stimulating growth of this region, unless it is done through tax cuts.

The main limitations of this study are the absence of small companies in the analysis and the possible errors in the market share calculation (as was explained in the Data section). However, since the analyses of the regional specifics of firm profitability in Croatia have been scarce and only partial, this paper, with its comprehensive empirical panel analysis of the profitability determinants of Eastern Croatia companies from 2008 to 2017, and statistical testing of the differences between these determinants in Eastern Croatia compared to the rest of the country, contributes significantly to the scientific economic literature. Additionally, the robust conclusions of the study have important significance for the economic policy which can tailor the entrepreneurial support according to the needs of specific sectors.

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