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## **Household debt as a determinant of retail and personal consumption – the case of Croatia**

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The main goal of this paper is to determine the main characteristics and determinants of retail trade in Croatia over the last 20 years, and to analyse its retail turnover in comparison with other EU countries, especially during the last economic crisis. Using a regression model, the paper econometrically tests the hypothesis that the speed of the post-crisis recovery in retail turnover can be explained by the debt levels accumulated in the pre-crisis period. The results of the analysis indicate the negative correlation between variables, which means that the countries that had the lowest levels of accumulated private debt, on average experienced the fastest recovery of retail turnover in the post-crisis period, and vice versa. The weaker correlation has been found in case of retail sales of food, beverages and tobacco products, which leads us to the conclusion that its consumption was not mainly financed by borrowing and, also, that its recovery does not depend primarily on the level of household debt. The analysis for the non-food sector indicated a very high dependence of this type of consumption on household debt, which remains one of the main impediments to its recovery.

**Keywords:** retail trade; household debt; personal consumption; consumer confidence; Croatia; determinants of consumption

**JEL classification:** D10, D14, E21, L81.

### **1. Introduction**

Retail is a very important branch of the today's world economy and its significance is particularly visible in generating the gross domestic product and creating new jobs. It represents a key mediator of services in modern economies, which acts as link between thousands of suppliers and consumers. Retail represents an important source of new employment in EU member states and strongly contributes to the creation of gross domestic product (Gilbert, 2003). Large groups of consumers in the EU benefit from the integrated retail market by buying merchandise from other EU member states in their local stores. The retail sector is, also, one of the largest users of information and communications technology (ICT), and, thereby, an initiator of innovations. It has the main role in the development of a sustainable economy and gives EU citizens simple access to cheap and high-quality products in conditions of the current economic crisis.

It is assumed that the growth of international retail is connected with the growing levels of globalisation. An increase of living standards and accelerated urbanisation in

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the period 1880–1929 allowed for very favourable economic conditions for rapid expansion of the retail sector worldwide. Although today the international retail sector seems relatively small vis-à-vis financial services and telecommunications sector, it seems that international retail is one of the sectors that are most responsible for a dramatic growth of foreign direct investment in services (Godley & Hang, 2012, pp. 530–537).

In this paper, retail is being observed as an industry within the distributive trade sector. According to the definition of the Croatian National Bureau of Statistics (DZS), distributive trade is a set of all types of trading activities, from supplying of goods from the producer to distributing them to the final consumer. It comprises the wholesale trade, the retail trade and the repair of motor vehicles and motorcycles (DZS, 2013, p. 403). Retail trade, according to the definition, comprises the sale of goods to final consumers for personal consumption or use in households (DZS, 2013, p. 403), which means that it includes all transactions in which the buyer intends to use the product in personal, family or household use.

Retail is the most important part of the distributive trade sector in the European Union, given that 60% of all trade enterprises are retail enterprises and 60% of all employees in distributive trade are employed in the retail sector (Knežević, Renko, & Knego, 2011, p. 36). As a component of distributive trade, the retail sector is extremely important for the European economy. European retail creates about 4.3% of total value added in the EU and employs around 18.6 million people.<sup>1</sup> From 2000 to 2013 the share of people employed in retail was around 8.4% of all employed persons and it created about 4% of GDP in the EU.<sup>2</sup> However, the global economic crisis led to decreases in sales and employment in all components of the distributive trade (wholesale and retail trade), both in Western and Central and Eastern European countries<sup>3</sup> (Sendić et al., 2011). Furthermore, retail spending represents the key component and a good proxy of personal consumption in virtually every economy.

The gross value added of the distributive trade in Croatia has grown since the mid-1990s until the onset of the economic crisis, despite increasingly present depopulation and ageing processes, as well as the fact that about 20% of the population lives below the poverty frontier. However, it is expected that the recovery of retail turnover will happen until 2018, following the recovery of economic growth and a decrease of unemployment (Business Monitor International, 2014).

The main goal of this paper is to determine the main characteristics of retail trade in Croatia over the last 20 years, and analyse trends in Croatian retail turnover vis-à-vis other EU countries, especially during the recent economic crisis. The paper will also emphasise the changes in the structure of personal consumption in Croatia since late-1990s, considering that the composition of retail turnover depends on it. The analysis will try to explain why the retail trade in Croatia recovers so slowly. Furthermore, the hypothesis that the speed of the post-crisis recovery of retail depends on the level of household debt accumulated in the pre-crisis period, will be tested. The explicit empirical testing of the relationship between the level of the indebtedness of households and retail trade as a proxy variable for private consumption in Croatia has, to our knowledge, not yet been employed in previous research, and this study aims to fill this literature gap.

The rationale for the hypothesis lies in the previous research that dealt with the determinants of real consumption in Croatia (and comparable emerging countries) which emphasised the importance of the wealth effect for the dynamics of private consumption (see Ahec Šonje, Čeh Časni, & Vizek, 2012; Tica & Rosan, 2014). Furthermore, the

impact of the level of debt on economic growth (and consequently on private consumption) has recently become a very popular topic amongst researchers worldwide and has made this strand of literature a fast growing one. For more recent studies on the topic see, for example, Cho and Rhee (2013), Gogas, Plakandaras, and Papadimitriou (2014), Mencinger and Aristovnik (2013) or Mencinger, Aristovnik, and Verbič (2014, 2015) who analyse the relationship between debt and growth on a sample of OECD and EU countries.

The paper is divided into six parts. After the introduction, the second section describes the empirical and theoretical review of current works on the connection between the private consumption structure and retail trade. Descriptive and comparative analysis in the third section analyses the latest trends in retail in Croatia and the rest of the EU. The fourth section carries out the methodology used in the empirical analysis, while its findings are highlighted in the fifth section. The sixth section concludes.

## 2. Private consumption structure and retail turnover

The structure of transactions in retail trade depends on the structure of private consumption, which is a reflection of the socio-economic development of a country (Segetlija, 2005, p. 44). On the other hand, wages and salaries determine the structure of household consumption (Anić & Nušinić, 2003, p. 229). Private consumption is, quantitatively, the most significant component of aggregate demand. The share of private consumption in the gross domestic product in the majority of developed countries amounts to 55–65%, while in the US it reaches 70% (IHS Global Insight, 2010). In the long term, the variations in value and structure of private consumption determine economic flows: economic growth and development, gross domestic product variations, structural changes in output and economy, standard of living and quality of life (Denona Bogović, 2002, p. 622).

Over the last few decades, there have been significant changes in the structure of private consumption in developed countries. In the beginning of the twentieth century, for the majority of the population, personal consumption was focused on purchasing existentially needed products: food, clothes, and housing. With the increase of the living standard, especially in developed countries, in the last decades of the twentieth century the consumption started focusing on a wider spread of luxurious goods and services. These products significantly contributed to the increase in the quality and standard of living, according to Engel's hierarchy of needs.<sup>4</sup> These changes in the structure of consumption were caused by: (1) the expansion of mass production, (2) the appearance and development of communication technologies, (3) the continuous increase of the level of education, (4) the increase of personal income, (5) the increase of leisure time share, etc.

Data on household expenditures in Croatia show positive trends after 1995. A decrease in the share of expenditures on food and existential goods is evident, as well as an increase in the relative expenditures on durable goods. Despite positive changes that have occurred since 1995, the structure of personal consumption in Croatia is worse in comparison with CEE-5<sup>5</sup> countries, which invested more in education, health care, transportation and communications (Denona Bogović, 2002, 635).

Croatia had positive GDP growth rates continuously from 1999 until 2008 as well as a strong credit activity of banks towards households, which resulted in a big increase in retail trade and significant increases in gross value added. However, growing trends in private consumption started to slow down in 2003, which resulted in a decrease of

transactions in retail trade. This was a result of measures taken by the Croatian National Bank to constrain the growth of bank loans (Brčić-Stipčević & Renko, 2004, p. 102). Table 1 shows the structure of private consumption in Croatia from 1998 until 2018 (projected).

There has been a significant decrease in the share of food and non-alcoholic beverages in total private consumption. It decreased from 38.2% in 1998 to 31.7% in 2011, although its share is still the largest one in the overall composition of private consumption. In fact, Business Monitor International (2014) predicts that the aforementioned share will fall to 30.8% by 2018. In the same time period, there has been a significant decrease in the expenditures of alcoholic beverages and tobacco (−28.3%), clothing and footwear (−26.9%) and furnishing, household equipment and routine maintenance (−30.2%). These changes are also correlated with income changes and shifting of the structure of private consumption towards categories other than food and non-alcoholic beverages. These structural changes in private consumption expenditures, according to the projections, should lead to a large increase in expenditures on communication (231.6%), health care (111.7%), education (83.3%) and housing and energy

Table 1. The composition of personal consumption in Croatia, in selected years (in %).

Category	1998	2000	2008	2011	2014 <sup>P</sup>	2018 <sup>P</sup>	Growth rate
1. Food and non-alcoholic beverages	38.2	32.2	32.1	31.7	31.4	30.8	−19.4
2. Alcoholic beverages and tobacco	4.6	4.6	3.5	3.7	3.6	3.3	−28.3
3. Clothing and footwear	6.3	7.5	7.9	6.0	5.5	4.6	−26.9
4. Housing and energy consumption	10.8	13.3	13.8	15.7	15.9	16.2	50.0
5. Furnishing, household equipment and routine maintenance	6.3	5.9	5.4	4.6	4.5	4.4	−30.2
6. Health	1.7	1.8	2.8	2.7	3.0	3.6	111.7
7. Transport	13.4	11.0	12.0	12.9	12.9	12.8	−4.5
8. Communication	1.9	2.1	5.4	5.4	5.7	6.3	231.6
9. Recreation and culture	5.1	5.7	5.4	5.3	5.2	5.0	−1.96
10. Education	0.6	0.7	0.9	0.9	1.0	1.1	83.3
11. Restaurants and hotels	3.1	2.7	3.1	2.4	2.4	2.4	−22.5
12. Other goods and services	8.1	6.9	7.7	8.7	9.0	9.5	17.3

Note: <sup>P</sup>Projections by Business Monitor International (2014).

Source: Anić and Nušinović (2003), DZS (2013), Business Monitor International (2014).

consumption (50.0%) in the observed period. These changes indicate a new composition of private consumption in Croatia, which is getting closer to that of developed EU countries. This was a result of increased purchasing power of European citizens, as well as the increase of their quality of life, which leads to the increase in the demand for luxurious goods and services.

In the long term, an increase of Croatian retail market's potential is expected. It is expected that the luxurious goods will become much more popular when compared with their relatively low current levels, as a result of consumers' higher earnings due to longer working hours. The tourism industry will also contribute to stimulating retail trade, due to the fact that tourists make up more than 50% of all customers in many outlets during the summer months. However, the biggest growth contribution is expected in the category of restaurants and hotels, and culture and recreation. An increase in the investment activity in retail trade is also expected, which is a result of continuous improvements in the domestic business environment since entering the EU (Business Monitor International, 2014, p. 7). More and more shopping malls and 'super stores' are being built on the margins of urban areas, which makes them more accessible not just for citizens living in the biggest urban centres, but also for citizens living in smaller areas. Continued depopulation is still the biggest adverse factor that decelerates the growth of the retail sector, but that negative impact should be balanced out by the decrease of unemployment and increase of income (Business Monitor International, 2014, pp. 36–37). Furthermore, long run growth in retail trade in Croatia could be achieved by increases in net wages, as well as cuts in retail prices and short-term interest rates, as evidenced by Benazić (2014).

Our analysis showed that the pre-crisis borrowing in Croatia was mainly focused on the non-food component of consumption. However, the economic crisis has had a significant impact on household borrowing for expenditures, both on food and non-food products. In the next sections of this paper a regression analysis will be used in an attempt to determine which consumption component was most debt-dependent.

### 3. Trends in retail trade in Croatia and European Union

After years of continuous growth, the total retail trade turnover in Croatia reached its peak in July 2008 and since then it has been decreasing continuously (Figure 1a). By the end of 2013, the deflated turnover in retail trade dropped to the lowest recorded level since 2003. A fall in the turnover of non-food products was stronger than the fall in the retail sales of food, beverages and tobacco, which proved more resilient to the recession in Croatia. Figure 1c indicates that the non-food products turnover reached its lowest point in mid-2012, after which a slight recovery followed, but still not strong enough to surpass the turnover level marked in 2005. A decrease in the retail sale of food, beverages and tobacco has been significantly smaller, but it is concerning that this negative trend has not stopped since the beginning of 2007, and in 2013 it even accelerated.

Figure 2 compares the impact of the recession on the total retail turnover in Croatia with other EU countries. A decrease in Croatia amounted to 18 index points compared with the pre-recession maximum, which is almost a three times higher decrease than in EU-28 as a whole. The strongest recession impact on retail trade turnover was recorded in three Baltic states and Greece, while the turnover in Austria, France, Poland and Belgium proved to be most resilient to the recession.

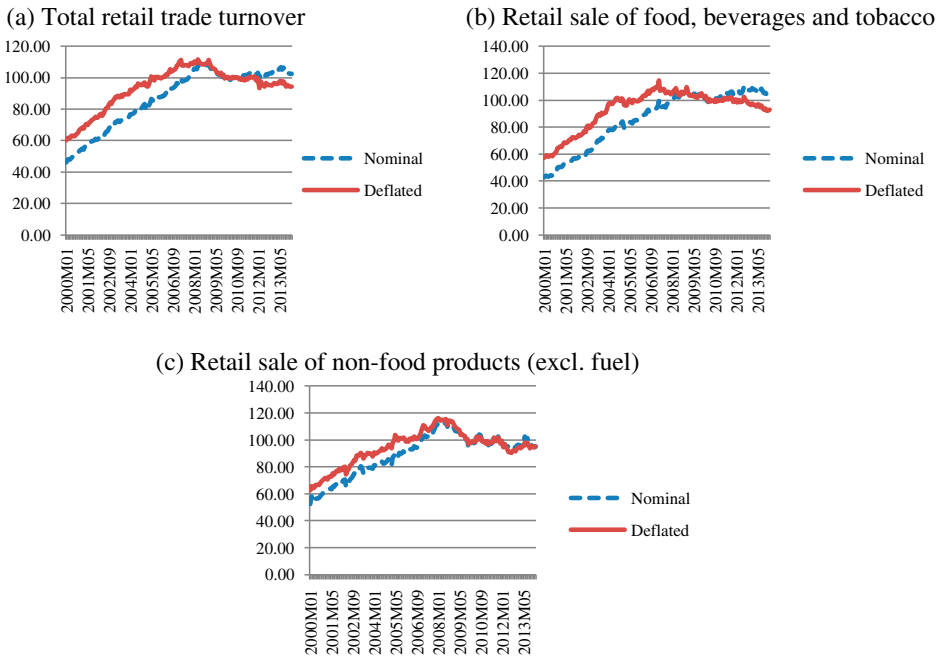


Figure 1. Seasonally adjusted indices of retail turnover in Croatia (2010 = 100). Source: Eurostat (2013), authors' calculations.

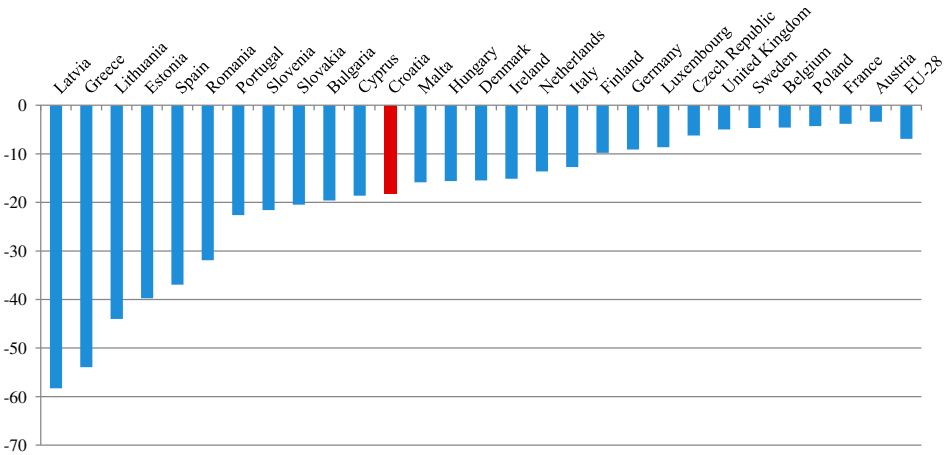


Figure 2. The impact of the recession on total retail turnover in the European Union (the spread between the post-2008 minimum level of turnover and the pre-2008 maximum level of turnover, in index points). Source: Eurostat, authors' calculations.

Although Croatia is not among the countries with the strongest recession impacts on retail trade turnover, the post-crisis recovery of retail trade shows different trends. Figure 3 reveals that in the beginning of 2014 the level of total retail turnover in Croatia

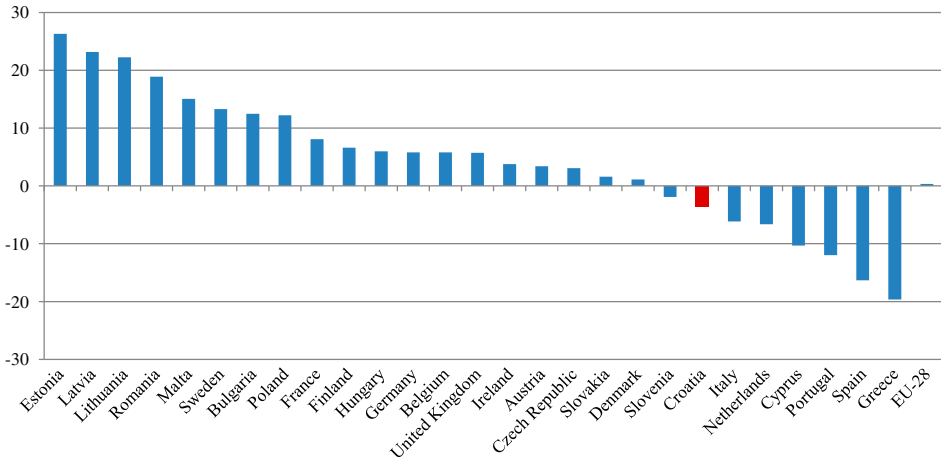


Figure 3. Post-recession recovery of the total retail turnover index in the European Union (the spread between the 2014:M01 turnover and the minimum level of turnover during 2008–2010, in index points).  
Source: Eurostat, authors' calculations.

was lower by 3.5 index points than the recorded minimum in the first two years of the recession (2008–2010). The absence of a recovery of the retail trade was also recorded in Slovenia, Italy, Netherlands, Cyprus, Portugal, Spain and Greece. By the start of 2014, in all other countries the retail trade started to more or less converge towards the pre-crisis levels. These trends are most obvious in three Baltic states which were, alongside Greece, most affected by the recession shock in 2008.

One of the objectives of this paper is to examine if the speed of the post-crisis recovery in retail turnover could be explained by the level of debt accumulated in the pre-crisis period. Figure 4a shows that the correlation between these variables is negative, i.e. the countries with the lowest levels of accumulated private debt recorded, on average, the fastest recovery of retail trade turnover in the post-crisis period, and vice versa. However, this correlation turns weaker if only the retail sale of food, beverages and tobacco products are considered (Figure 4b). This points to the conclusion that the consumption of food, beverages and tobacco has not been financed predominantly by borrowing and that the level of private debt is still not a significant hindrance to the recovery of this aspect of retail turnover, but that it rather depends on other variables.

On the other hand, the correlation is significantly stronger if only sales of non-food products are considered (Figure 4c). Countries with the highest levels of accumulated private debt recorded, on average, the slowest post-crisis recovery of non-food products sales. This leads to the conclusion that this form of consumption was mostly financed with household borrowing in the pre-crisis period. Furthermore, it points to the conclusion that the excessive levels of debt are one of the most important impediments to the recovery of retail trade in Croatia, as well as in other highly indebted countries. The hypothesis on the impact of debt levels on retail trade will be formally and econometrically tested in the following sections.



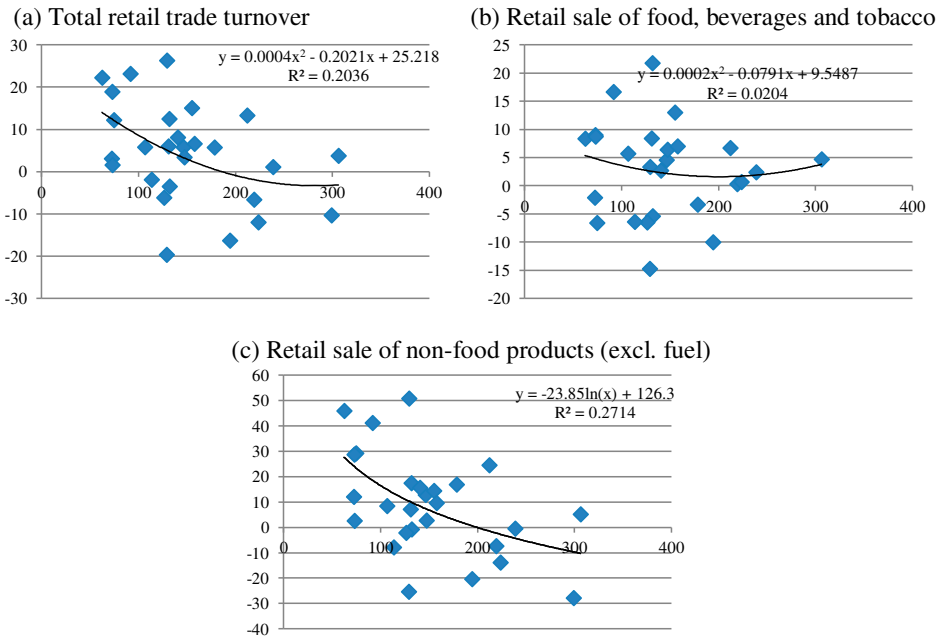


Figure 4. The correlation between the 2012 level of private debt (in % of GDP, x-axis) and the post-recession recovery of the total retail turnover index in the European Union (y-axis). Source: Eurostat, authors' calculations.

#### 4. Data and methodology

This section specifies the data and defines the econometric model used to determine which macroeconomic factors affected the retail trade turnover in Croatia in the period between May 2005 and September 2013. The emphasis will be put on the impact of the levels of household debts on retail turnover, both aggregated and disaggregated to sales of food and non-food products.

Based on the economic theory and previous empirical papers on the topic, the macroeconomic factors that could have an impact on the movement of retail trade turnover in Croatia, and therefore are included in the model, are the following: real gross domestic product (*GDP*) as a measure of economic activity in a country; stock prices movement (*STOCKS*); domestic real wages (*WAGE*); the level of domestic consumer confidence (*CONF*); the hedonic real estate price index (*RESTATE*); the unemployment rate (*UNEMP*) and the level of indebtedness of the household sector (*DEBT*).

Description of all variables used in the analysis, method of their calculation and data sources are given in Table 2, and their graphical representations in given Figure 5. All data are of monthly frequencies.

An Augmented Dickey-Fuller (ADF) test was used to test the stationarity of time series and its test results are displayed in Table 3. Test results showed that all variables are non-stationary in levels, i.e. variables are  $I(1)$  and need to be differentiated to obtain stationary series. Such transformed series can then be used in the estimation process using ordinary least squares (OLS).

The following equations have been econometrically estimated:

Table 2. Description of variables included in the model.

Variable	Description	Source
<i>SALES</i>	Seasonally adjusted deflated index of total retail turnover, excluding motor vehicles (2010 = 100)	Eurostat
<i>SALES_FOOD</i>	Seasonally adjusted deflated index of retail sale of food, beverages and tobacco (2010 = 100)	Eurostat
<i>SALES_NFOOD</i>	Seasonally adjusted deflated index of retail sale of non-food products, excluding fuel (2010 = 100)	Eurostat
<i>GDP</i>	Seasonally adjusted logarithm of real GDP in millions of EUR in 2000 prices, interpolated from quarterly to monthly frequencies using the monthly series of domestic industrial production in WinRATS 8 software	Eurostat, authors' calculations
<i>STOCKS</i>	Croatian stock price index CROBEX (2005 = 100).	IFS
<i>WAGE</i>	Seasonally adjusted index of real wages (2005 = 100)	IFS, authors' calculations
<i>CONF</i>	Composite index of consumer confidence	HNB
<i>RESTATE</i>	Hedonic index of real estate prices in Croatia, interpolated from quarterly to monthly frequencies using the monthly series of apartment prices obtained by Burza nekretnina d.o.o. <sup>a</sup>	HNB, Burza nekretnina d.o.o., authors' calculations
<i>UNEMP</i>	Seasonally adjusted unemployment rate	IFS
<i>DEBT</i>	Logarithm of deflated claims of banks from households, in millions of HRK	HNB, authors' calculations

Note: <sup>a</sup>More detailed description of the interpolation process of variables *GDP* and *RESTATE* is available upon request.

$$\left\{ \begin{array}{c} \Delta SALES_t \\ \Delta SALES\_FOOD_t \\ \Delta SALES\_NFOOD_t \end{array} \right\} = \alpha + \beta \Delta DEBT_t + \gamma X_t + \varepsilon_t \quad (1)$$

where  $\alpha$  is a constant,  $\beta$  a parameter next to the debt level of households,  $\gamma$  is a  $k \times 1$  vector of parameters next to the  $1 \times k$  vector of control variables  $X_t = \{\Delta GDP_t, \Delta STOCKS_t, \Delta WAGE_t, \Delta CONF_t, \Delta RESTATE_t, \Delta UNEMP_t\}$ , and  $\varepsilon_t$  is an error term.

The estimated equations were tested for the presence of heteroscedasticity and serial correlation of residuals. White test results indicate the presence of heteroscedasticity, while the Breusch-Godfrey LM test indicates the presence of serial correlation in the residuals that lead to biased standard errors. Thus, a Newey-West correction was implemented, after which the standard errors are robust to serial correlation and heteroscedasticity. The normality of the distribution of residuals was also tested using the Jarque-Bera test, and the results confirm that the residuals of evaluated equations are normally distributed. The equations were tested for the presence of multicollinearity as well, but the correlation matrix of independent variables does not imply the presence of that problem.<sup>6</sup>

## 5. Results

This section reports the results of the estimated econometric model. Table 4 displays the results of OLS estimation for the model in which the dependent variable is the total

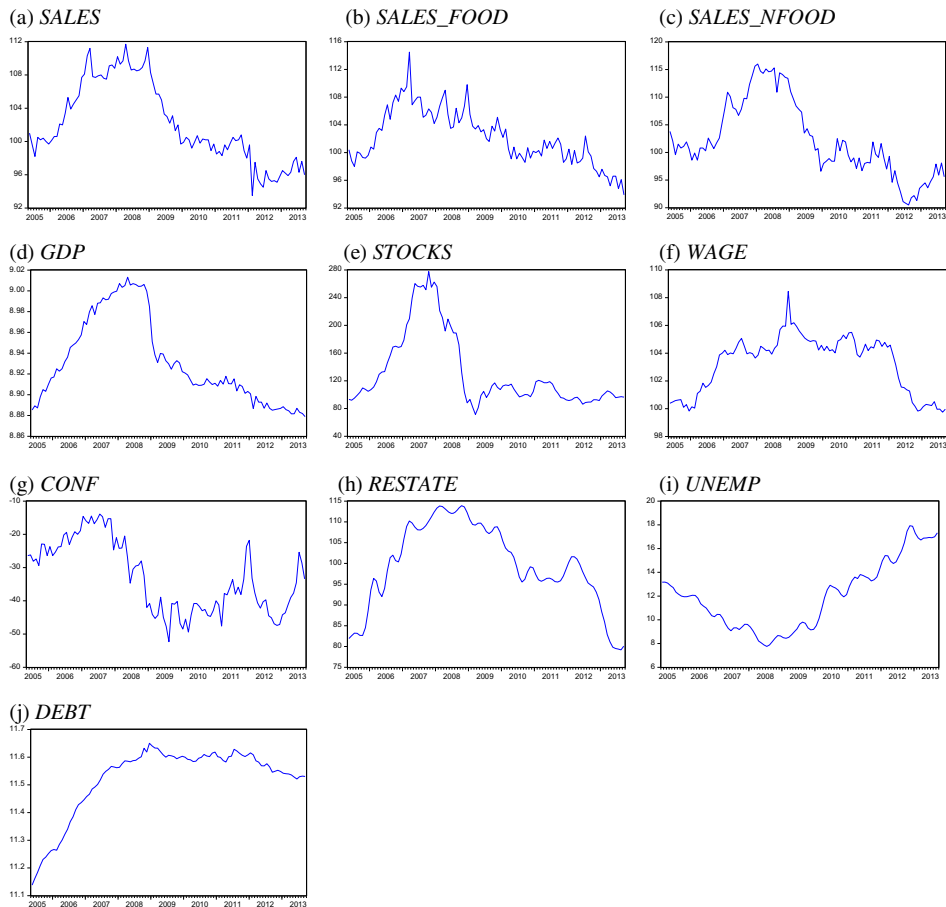


Figure 5. Variables included in the model.

Source: IFS, Eurostat, HNB, Burza nekretnina d.o.o., authors' calculations.

Table 3. Results of ADF tests.

Variable	<i>t</i> -statistics	Variable	<i>t</i> -statistics
<i>SALES</i>	-0.892	<i>WAGE</i>	-1.361
$\Delta$ <i>SALES</i>	-13.648***	$\Delta$ <i>WAGE</i>	-6.026***
<i>SALES_FOOD</i>	-1.302	<i>CONF</i>	-1.899
$\Delta$ <i>SALES_FOOD</i>	-13.507***	$\Delta$ <i>CONF</i>	-10.494***
<i>SALES_NFOOD</i>	-0.948	<i>RESTATE</i>	-2.211
$\Delta$ <i>SALES_NFOOD</i>	-12.509***	$\Delta$ <i>RESTATE</i>	-1.811*
<i>GDP</i>	-0.722	<i>UNEMP</i>	0.184
$\Delta$ <i>GDP</i>	-8.562***	$\Delta$ <i>UNEMP</i>	-5.806***
<i>STOCKS</i>	-1.426	<i>DEBT</i>	-0.722
$\Delta$ <i>STOCKS</i>	-7.012***	$\Delta$ <i>DEBT</i>	-8.562***

Note: The non-stationarity hypothesis can be rejected at.

\*\*\*1% level of significance.

\*\*5% level of significance.

\*10% level of significance.

Source: authors' calculations.

retail turnover in Croatia. Four out of seven independent variables have a statistically significant impact on the total retail turnover in Croatia.

The estimated coefficient of the variable  $\Delta GDP$  has a positive sign and is statistically significant. This was expected considering that more intensive economic activity leads to higher employment and disposable income, which in the end increases household consumption and retail trade turnover. Another significant determinant of retail turnover is a stock price index CROBEX. The coefficient of the variable  $\Delta STOCKS$  is statistically significant at the 10% level. A negative sign is relatively unexpected, but it can reflect the fact that positive movements on the stock market encourage consumers to increase investments in the capital market, which can reduce the amount of disposable income for spending in the retail trade, especially in the category of non-food products for wider consumption. However, a relatively low value of the estimated coefficient shows that the correlation between variables, although statistically significant, is not really strong.

Variable  $\Delta WAGE$  is also statistically significant, but with a positive sign, which means that the increase in real wages, as expected, significantly enlarges the retail turnover in Croatia. Finally, total retail turnover depends on the level of consumer confidence, given that there is a positive and statistically significant coefficient by the variable  $\Delta CONF$ . Real estate prices, unemployment rate and debt level do not appear to be significant for the retail turnover in this model. That can be a result of the fact that total retail trade turnover includes a wide spread of different products with potentially heterogeneous macroeconomic determinants. Therefore, the results of estimated models in which the dependent variables are retail sales of food, beverages and tobacco products (Table 5) and non-food products (Table 6) are also reported below.

Table 5 reveals that the retail sales of food, beverages and tobacco are statistically significantly influenced by almost the same variables as total retail turnover. The

Table 4. Results of the econometrically estimated equation for total retail turnover.

Variable	Coefficient	<i>t</i> -statistics	<i>p</i> -value
Dependent variable: $\Delta SALES$			
Method of estimation: OLS			
Number of observations: 101 (after adjustment)			
HAC standard errors and covariance			
<i>Constant</i>	-0.035	-0.418	0.677
$\Delta GDP$	128.46***	3.233	0.002
$\Delta STOCKS$	-0.017*	-1.846	0.068
$\Delta WAGE$	0.360*	1.784	0.078
$\Delta CONF$	0.045*	1.712	0.090
$\Delta RESTATE$	-0.097	-1.421	0.159
$\Delta UNEMP$	0.218	0.852	0.396
$\Delta DEBT$	1.591	0.157	0.876
$R^2$	0.451	Akaike criterion	3.004
Adjusted $R^2$	0.410	Schwarz criterion	3.211
Standard error of regression	1.046	Hannan-Quinn criterion	3.088
<i>f</i> -statistics	10.926	Durbin-Watson statistics	2.480
Prob. ( <i>f</i> -stat)	0.000		

Note: The null hypothesis of the insignificance of estimated parameters can be rejected at.

\*\*\*1% level of significance.

\*\*5% level of significance.

\*10% level of significance.

Source: authors' calculations.

Table 5. Results of the econometrically estimated equation for retail turnover of food, beverages and tobacco products.

Dependent variable: $\Delta SALES\_FOOD$			
Method of estimation: OLS			
Number of observations: 101 (after adjustment)			
HAC standard errors and covariance			
Variable	Coefficient	<i>t</i> -statistics	<i>p</i> -value
<i>Constant</i>	-0.035	-0.300	0.765
$\Delta GDP$	110.855***	2.935	0.004
$\Delta STOCKS$	-0.035*	-1.962	0.053
$\Delta WAGE$	0.639**	2.041	0.044
$\Delta CONF$	0.055	1.323	0.189
$\Delta RESTATE$	0.013	0.213	0.832
$\Delta UNEMP$	-0.161	-0.416	0.678
$\Delta DEBT$	-0.388	-0.030	0.976
$R^2$	0.301	Akaike criterion	3.781
Adjusted $R^2$	0.249	Schwarz criterion	3.988
Standard error of regression	1.543	Hannan-Quinn criterion	3.864
<i>f</i> -statistics	5.733	Durbin-Watson statistics	2.531
Prob.( <i>f</i> -stat)	0.000		

Note: The null hypothesis of the insignificance of estimated parameters can be rejected at.

\*\*\*1% level of significance.

\*\*5% level of significance.

\*10% level of significance.

Source: authors' calculations.

Table 6. Results of the econometrically estimated equation for retail turnover of non-food products.

Dependent variable: $\Delta SALES\_NFOOD$			
Method of estimation: OLS			
Number of observations: 94 (after adjustment)			
HAC standard errors and covariance			
Variable	Coefficient	<i>t</i> -statistics	<i>p</i> -value
<i>Constant</i>	-0.175	-1.256	0.212
$\Delta GDP$	142.840***	4.899	0.000
$\Delta STOCKS$	-0.003	-0.276	0.782
$\Delta WAGE$	-0.201	-0.510	0.610
$\Delta CONF$	-0.014	-0.356	0.722
$\Delta RESTATE$	-0.176	-1.428	0.156
$\Delta UNEMP$	0.880*	1.976	0.051
$\Delta DEBT$	29.829*	1.847	0.068
$R^2$	0.298	Akaike criterion	3.881
Adjusted $R^2$	0.232	Schwarz criterion	4.125
Standard error of regression	1.610	Hannan-Quinn criterion	3.980
<i>f</i> -statistics	4.514	Durbin-Watson statistics	2.477
Prob.( <i>f</i> -stat)	0.000		

Note: The null hypothesis of the insignificance of estimated parameters can be rejected at.

\*\*\*1% level of significance.

\*\*5% level of significance.

\*10% level of significance.

Source: authors' calculations.

variable  $\Delta SALES\_FOOD$  is positively affected by the gross domestic product and real wages, and negatively by the stock index CROBEX. Consumer confidence did not prove to be significant in this model, along with the real estate prices, unemployment

rate and the debt level. This result is expected, considering that the big portion of expenditures on food products is existentially necessary and does not depend as much on macroeconomic circumstances such as, for example, the consumption of non-food products. The inability to reject the null hypothesis of the insignificance of the coefficient by the variable  $\Delta DEBT$  indicates that expenditures on food, beverages and tobacco have not yet been the purpose of household borrowing in Croatia.

The results of the estimated model of determinants of retail sales of non-food products are displayed in Table 6. In this model, the retail turnover also positively depends on the gross domestic product, which is an additional proof of the dependency of all types of retail consumption on the state of the business cycle. However, unlike the retail sales of food products, the sales of non-food products depend significantly on the unemployment rate, but also on the level of household debt. In fact, the coefficient of the variable  $\Delta DEBT$  is statistically significant and positive, which means that in the estimated time period (2005:M05–2013:M09) the increase of household debt spilled over to the larger consumption of non-food products, which are not existentially necessary.

The debt level of the household sector began to stagnate in 2008, and since 2012 the households have been deleveraging (Figure 5j). This has been caused by the households' inability to take more debt due to already too high levels of debt accumulated in the pre-crisis period. Moreover, the high level of uncertainty about future developments on the labour market has led to the fact that even creditworthy individuals are less likely to raise loans from the banks. All this has led to the significant decrease in the retail trade turnover in non-food products in Croatia (Figure 1c). This is also a potential explanation for the inability of a more serious recovery of total retail turnover in Croatia in terms of a high level of household indebtedness.

## 6. Conclusion

The importance of retail trade for EU member states rose sharply during the second half of the twentieth century. However, the scope of these changes altered significantly across countries. The growing trend of total economic activity and retail trade at the beginning of the twenty-first century was stopped by the economic crisis in late 2008.

The analysis in this paper showed that the total retail turnover has been falling since July 2008 and by the end of 2013 reached its lowest levels since 2003. The analysis showed that the retail sale of non-food products decreased more sharply than that of food, beverages and tobacco products. The latter proved to be more resilient to the recession, but nonetheless also showed negative trends since 2007.

The comparative analysis of the recession impact on the total retail trade turnover showed that its decrease in Croatia was three times bigger than in EU-28 as a whole, but still significantly less pronounced than in three Baltic states and Greece. The biggest level of crisis resilience of the retail trade to the crisis was recorded in Austria, France, Poland and Belgium.

The comparison of the post-crisis recovery of retail turnover showed a different picture. The analysis showed that at the beginning of 2014 the deflated turnover in the retail trade in Croatia was at lower levels than after the first two years of recession, while as many as 20 EU countries marked reverse trends, i.e. with the recovery of retail trade turnover.

This paper aimed to fill the gap in the literature where there is a lack of empirical testing of the relationship between the level of the indebtedness of households and retail

trade as in Croatia and tested the hypothesis that the speed of the post-crisis recovery of the retail trade turnover could be explained by the level of household debt accumulated in the pre-crisis period. The results indicate a negative correlation between these variables, which means that countries that marked the lowest levels of accumulated household debt, on average, experienced fastest recovery of the retail trade turnover in the post-crisis period, and vice versa. A weaker correlation was found if the dependent variable is retail sales of food, beverages and tobacco products, which indicates that their consumption was not largely financed by household borrowing and that the recovery of this retail category does not primarily depend on the level of private debt, but rather on other variables. On the other hand, the analysis of the sales of non-food products indicates a much stronger correlation between debt and turnover. These results indicate a high dependence of this type of consumption on household borrowing and that the current high levels of indebtedness represent one of the biggest impediments to the recovery of retail sales of non-food products.

The aforementioned hypothesis was also tested econometrically, by estimating regression equations using ordinary least squares. The results confirm previously mentioned conclusions. Furthermore, the analysis revealed that other macroeconomic variables had a statistically significant impact on the retail turnover as well as the level of debt, e.g. gross domestic product, real wages, unemployment rate, and consumer confidence. The results of this research have important implications for the development strategy of the retail trade sector, which should take into consideration recent changes in the composition of private consumption, as well as currently high levels of household indebtedness. The study revealed adverse aspects and long-term unsustainability of the retail and consumption growth if it is financed by a continuous increase in the debt burden of households. This type of consumption structure makes it very difficult for policy makers to smooth out consumption cycles in the long run, given that in terms of high levels of accumulated debt and recessionary trends in the economy, the inability of households to keep borrowing aggravates the ability of policy makers to boost consumption by using instruments of fiscal and monetary policy.

Results in this study go in line with the strand of literature that previously dealt with the determinants of private consumption that indicated a negative relationship between debt and consumption and economic growth in emerging markets as well as developed OECD countries (see, for example Berben & Brosens, 2007; Cho & Rhee, 2013; Gogas et al., 2014; Mencinger et al., 2014, 2015; Randveer, Uusküla, & Kulu, 2012) and the positive relationship between real wages and consumption (Benazić, 2014). However, one of the limitations of this study compared with the aforementioned studies is that it tested only for the linear relationship between the level of household indebtedness and private consumption. Furthermore, the econometrical modelling was concentrated on only one country, which makes the implications of this analysis limited in scope. However, expanding the country sample, as well as testing for possible nonlinearities between the variables remains a potentially fruitful topic for future research.

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## Notes

1. Data from: [http://ec.europa.eu/internal\\_market/retail/index\\_en.htm](http://ec.europa.eu/internal_market/retail/index_en.htm) (accessed: 11 July 2014).
2. Data from Eurostat.
3. Analysis that was conducted by Sendić, Kurtović, and Alić (2011) confirmed this finding in four countries of Southeastern Europe (SEE) – Croatia, Slovenia, Serbia and Bosnia and Herzegovina.
4. For more details see: Pasinetti (1993), <http://digamo.free.fr/pasi93.pdf> (accessed: 13 July 2014).
5. CEE-5 are the Czech Republic, Slovakia, Hungary, Poland and Slovenia (Denona Bogović, 2002).
6. The results of serial correlation, heteroscedasticity, normality and multicollinearity tests are available upon request and were not reported due to the space issues.

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