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## Vsebina / Contents

Ricardo Ferraz, António Portugal Duarte

Economic Growth and Public Indebtedness  
in the Last Four Decades: Is Portugal different  
from the other PIIGS' economies?

3

Anna Moździerz

Tax Policy and Income Inequality  
in the Visegrad Countries

12

Nataša Pivec, Vojko Potočan

The Influence of Employees' Values  
on the Acquisition of Knowledge  
in Organizations

19

Miran Grah, Polona Tominc

Relationships among Store Image  
and Store Loyalty in Slovenia

28



# Economic Growth and Public Indebtedness in the Last Four Decades: Is Portugal different from the other PIIGS' economies?

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## Abstract

Portugal is a member of the group known by investors as 'PIIGS', countries characterised by having high public debt and weak economic growth. Using an extended time horizon, 1974–2014, this study seeks to empirically explore the relationship between economic growth and public debt in the PIIGS economies, particularly in the case of Portugal. Based on the estimation of linear regression models, it was concluded that in the last four decades there has been a negative relationship between economic growth and public debt in both cases, which is consistent with the literature. The negative relationship was even more pronounced in the case of the PIIGS than it was in the case of Portugal.

**Keywords:** Economic Growth, Portugal, 'PIIGS', Public Debt.

## 1 Introduction

Portugal belongs to the group of economies referred to as the 'PIIGS'.<sup>1</sup> Despite having attracted some controversy, the PIIGS acronym is commonly used in the world of international investors to refer to the peripheral and weaker economies of the European Union (EU). Whilst it is not possible to identify the creator of the acronym, it is known that it first originated in the 1990s, when the PIIGS were only the 'PIGS'.<sup>2</sup>

All these economies, with the exception of Italy, recently received financial assistance from the 'troika',<sup>3</sup> within a context of difficult access to funding in the capital markets, high public debt and weak economic growth (see Roubini & Mihm, 2011). In this regard, it should be noted that some studies have revealed

<sup>1</sup> Portugal, Italy, Ireland, Greece, and Spain.

<sup>2</sup> Portugal, Italy, Greece, and Spain. Ireland was not yet considered to be part of the group. See Krouse (2012).

<sup>3</sup> The 'troika' is composed of the European Commission (EC), European Central Bank (ECB), and International Monetary Fund (IMF). In 2010, Greece and Ireland agreed to their respective adjustment programmes with the 'troika', followed by Portugal in 2011. Finally, in 2012, Spain agreed a financial assistance programme exclusively for the recapitalisation of its financial institutions. See European Commission (2013).

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a negative relationship between public debt and economic growth.

One of the benchmark studies in the economic literature on the relationship between economic growth and public debt is that of Reinhart and Rogoff (2010). Using a sample of 44 countries, including Spain, the United States, France, Italy, and Portugal, and considering a time horizon of more than one hundred years, these authors concluded that higher levels of public debt correspond to a slower rate of economic growth.<sup>4</sup> Based on a sample of 12 countries from the Eurozone, including Germany, Spain, France and Portugal, Checherita and Rother (2012) also concluded that, from 1970 to 2010, there was a negative relationship between economic growth and public debt, with the latter accounting for between 90% and 100% of the GDP.

Similarly, the International Monetary Fund (IMF) found that high levels of public debt have a negative effect on economic growth (see IMF, 2013a).

High and increasing levels of public debt can lead to higher interest rates and slower growth. High debt also makes public finances more vulnerable to future shocks, both by constraining the ability of governments to engage in countercyclical policies and by increasing the primary surplus needed to stabilize the debt ratio following an adverse shock to growth or interest rates. Indeed, when debt is high, there is a risk of falling into a bad equilibrium caused by self-fulfilling expectations. (IMF, 2013b, p. 6)

<sup>4</sup> This study was revised and corrected in 2013 by the authors, who were able to confirm the validity of the conclusions obtained in the initial study.

However, neither the IMF nor the previous authors specifically discussed the relationship between public debt and economic growth either in the case of PIIGS in general or in the particular case of Portugal.

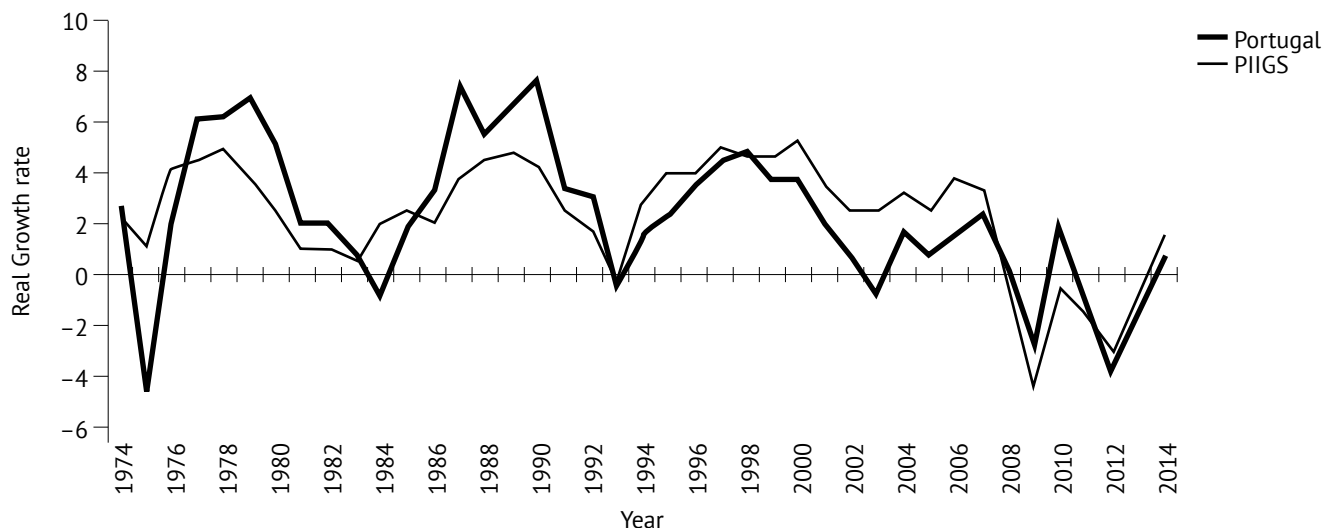
Thus, based on an extended time horizon for which data are available for all the peripheral countries of Europe (1974–2014), we empirically explore the relationship between economic growth and public debt, in the case of PIIGS in general as well as the particular case of Portugal. The aim is to answer the following questions: Is the relationship between economic growth and public debt negative in both cases, as the economic literature seems to suggest? In this relationship, are there any differences between the Portuguese economy and the PIIGS economies as a whole?

The work is divided into five sections. After the introduction, Section 2 presents a brief framework that allows us to understand the behaviours of economic growth and public debt in Portugal and in PIIGS as a whole. In Section 3, we describe the empirical methods used to explore the relationship between economic growth and public debt for Portugal and for PIIGS as a whole. In Section 4, we discuss the empirical results obtained. Finally, in Section 5, the main conclusions are presented.

## 2 Economic Growth and Public Debt: A brief outline

Figure 1 illustrates the behaviour of the average real growth rates of both the Portuguese GDP and the PIIGS' GDP over the last four decades (i.e., 1974–2014). In the period under analysis, both cases had higher economic growth before the 1990s.

**Figure 1** Real growth rates of GDP (at 2010 prices), 1974–2014



Source: AMECO (2015) and the authors' own calculations.

From the analysis of the real average annual growth rates of GDP presented in Table 1, it can also be concluded that the Portuguese economy grew in real terms over the past 41 years at an average rate of 2.2% per year, a lower value than the PIIGS' average. However, this figure is still higher than in several of the more developed economies, such as Spain, Sweden, and the United Kingdom.

**Table 1** Real Average Annual Growth Rates of GDP (at 2010 prices), 1974–2014

Countries	Real Average Annual Growth Rates of GDP
<b>Portugal</b>	<b>2.2</b>
Italy	1.5
Ireland	4.2
Greece	1.4
Spain	2.1
<b>Average of PIIGS</b>	<b>2.3</b>
United States	2.8
Japan	2.3
United Kingdom	2.1
Sweden	2.0

Source: AMECO (2015) and the authors' own calculations.

Considering the evolution of public debt as a percentage of GDP during the same period (see Figure 2), we can also observe that in both Portugal and the PIIGS' economies as a whole, there was a trend towards an increase in their respective public debt-to-GDP ratios. It should also be noted that, before 2006, Portugal always had a lower ratio than the PIIGS' average. However, from that year onwards, this ceased to be the case.

The values presented in Table 2 paint a clearer picture of this reality. As can be seen, in the period under consideration, the growth of the public debt-to-GDP ratio was faster in Portugal when compared with the average ratio of the countries comprising PIIGS as well as when compared with some of the most developed countries, such as the United States and Japan.

**Table 2** Growth Rates and Changes in the Public Debt-to-GDP Ratio, 1974–2014

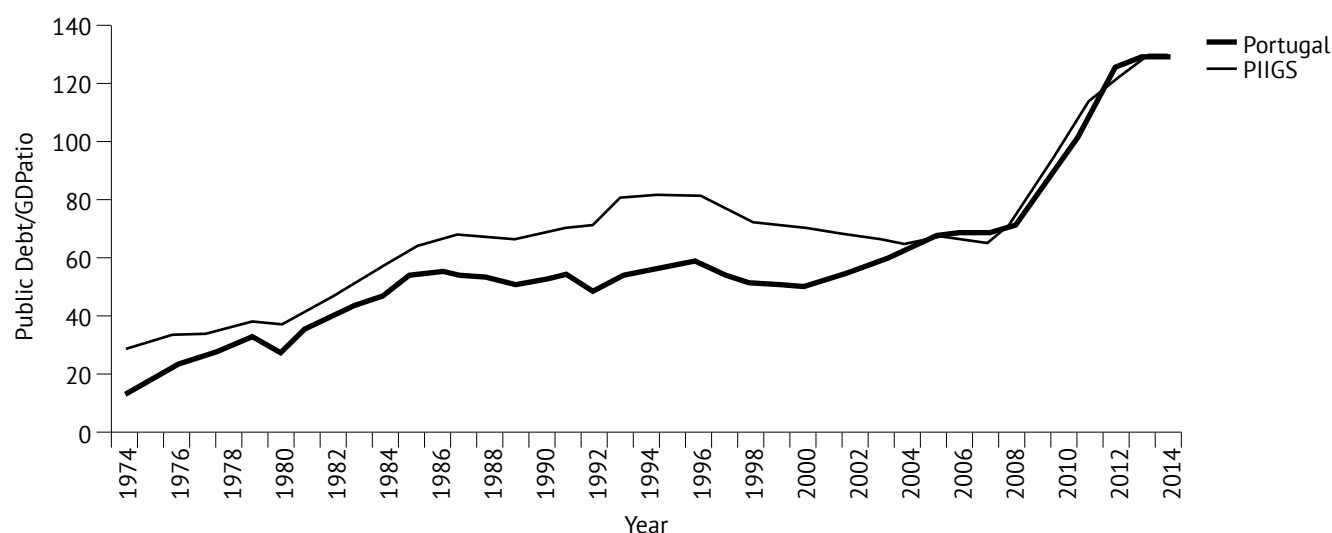
Countries	Average Annual Growth Rate of the Public Debt/GDP Ratio
<b>Portugal</b>	<b>5.9</b>
Italy	2.5
Ireland	2.0
Greece	5.6
Spain	5.5
<b>Average of PIIGS</b>	<b>3.3</b>
United States	2.4
Japan	6.9
United Kingdom	0.9
Sweden	1.3

Source: AMECO (2015) and the authors' own calculations.

In short, from the point of view of a simple statistical analysis, it can be concluded that, on average, for the period 1974–2014, real GDP growth rates were lower in Portugal when compared with the average of the PIIGS' economies. In contrast to this, however, the public debt-to-GDP growth ratios were higher in Portugal than the PIIGS' average.

In addition, and even more importantly, it can be observed that in Portugal, as well as in PIIGS as a whole, the public

**Figure 2** Public debt-to-GDP ratios, 1974–2014



Source: AMECO (2015) and the authors' own calculations.

debt-to-GDP ratio grew more rapidly than the real GDP. However, the main questions still remain. Is the relationship between economic growth and public debt negative in both cases? In this relationship, are there any differences between Portugal and the PIIGS' economies as a whole?

### 3 Empirical Strategy

An efficient and effective way of testing the relationship between economic growth and public debt for the period 1974–2014 in Portugal and the PIIGS' economies as a whole is to estimate the following simple linear regression models:

$$yPI_t = \beta_0 + \beta_1 pdPI_t + e_t \quad (1)$$

$$yP_t = \alpha_0 + \alpha_1 pdP_t + u_t \quad (2)$$

In model (1), the explanatory variable  $pdPI_t$  is the growth rate of the PIIGS' public debt-to-GDP ratio, the dependent variable  $yPI_t$  is the real growth rate of the PIIGS' GDP,  $\beta_0$  is the constant, and  $e_t$  is an error term. In turn, in model (2), the explanatory variable  $pdP_t$  is the growth rate of the Portuguese public debt-to-GDP ratio, the dependent variable  $yP_t$  is the real growth rate of the Portuguese GDP,  $\alpha_0$  is the constant, and  $u_t$  is the error term.

Both models have their explanatory variables and dependent variables in growth rates, which will allow us to obtain better results in terms of stationarity. This is a very important condition in time series analysis (see, for example, Baffes, 1996).<sup>5</sup>

Under these circumstances, we first need to test the stationarity of the four variables: (i) growth rate of the PIIGS' public debt-to-GDP ratio; (ii) real growth rate of the PIIGS' GDP; (iii) growth rate of the Portuguese public debt-to-GDP ratio; and (iv) real growth rate of the Portuguese GDP. This can be done by applying two of the most widely used unit root tests: the Augmented Dickey-Fuller (ADF) and the Augmented Dickey-Fuller Generalised Least Squares (ADF-GLS) (see Dickey & Fuller, 1979; Elliott, Rothenberg, & Stock, 1999).<sup>6</sup> In both tests, the null hypothesis is the presence of a unit root — which means that the series is not stationary — and the alternative hypothesis is that there is no unit root, meaning that the series is stationary.<sup>7</sup>

After performing these tests, we can estimate both models and draw conclusions.

### 4 Empirical Results

In order to perform the unit root tests and estimate the models, we used the Gnu Regression, Econometrics and Time-Series Library (GRET) software, an open-source software for econometric analysis (see GRET, 2014), and the AMECO data source for all the variables used (see AMECO, 2015).

As previously stated, the first step in our empirical analysis was to perform the unit root tests. Table 3 shows the results obtained with these tests.<sup>8</sup>

Thus, by analysing the  $p$ -values, the ADF test indicated that all the variables were stationary, with the exception of the real growth rate of the PIIGS' GDP. In turn, the  $p$ -values of the ADF-GLS test showed that all the variables were stationary, with no exceptions.

Because the ADF-GLS test has greater power and usually provides more robust results when compared with the ADF test, we chose the conclusion of this test for the real growth rate of the PIIGS' GDP instead of the conclusion of the ADF test. Thus, we assumed that all the variables were stationary.

Taking into account the results obtained with the unit root tests, we then sought to assess the relationship between the real growth rates of GDP and the growth rates of the ratios of public debt-to-GDP. Therefore, our objective was to estimate models (1) and (2) using the Prais-Winsten estimation method, because the OLS estimation revealed problems in terms of a serial correlation of errors.<sup>9</sup> Table 4 presents the results obtained, with the estimation of the first regression being made using the Prais-Winsten estimation method.<sup>10</sup>

<sup>8</sup> In Figures A.1 and A.2 in the Appendix, it is possible to analyse the behaviour of all the variables from 1974 to 2014. As can be seen, they do not display any type of trend.

<sup>9</sup> We started by testing both models using the OLS method. From the analysis of the values shown in Table A1 and Table A2 in the Appendix, we can conclude that, although neither estimation reveals any problems of heteroscedasticity, they do present problems of a serial correlation of errors.

<sup>10</sup> In order to correct the problems of serial correlation revealed in the OLS estimations, we conducted some experiments. For example, we used the Newey-West estimator to overcome the auto-correlation problems. However, the results were not very favourable, contrary to what happened with the estimations made using the Prais-Winsten method, which is why we chose to use the latter. The Prais-Winsten method corrects the problems associated with serial correlation.

<sup>5</sup> A time series is stationary when it follows a stochastic process — that is, when its mean, variance, and covariance are constant in time.

<sup>6</sup> The ADF-GLS test “is similar to an (augmented) Dickey–Fuller  $t$  test [...], but has the best overall performance in terms of small sample size and power, dominating the ordinary Dickey–Fuller test” (see Baum, 2000, p. 36).

<sup>7</sup> The unit root is a process that makes a series non-stationary and, consequently, causes problems in inference.



**Table 3** Results of the ADF-GLS and ADF Tests – Annual Frequency

ADF				
Test with constant and without trend				
Variable	Lags	Test statistic	<i>p</i> -value	Conclusion
Real growth rate of the Portuguese GDP	1	3.21514	0.0191**	<b>S</b>
Real growth rate of the PIIGS' GDP	2	-2.13637	0.2304	<b>NS</b>
Growth rate of the Portuguese public debt-to-GDP ratio	2	-3.58692	0.0060***	<b>S</b>
Growth rate of the PIIGS' public debt-to-GDP ratio	1	-2.73277	0.0684*	<b>S</b>
ADF-GLS				
Test with constant and without trend				
Variable	Lags <sup>11</sup>	Test statistic	<i>p</i> -value	Conclusion
Real growth rate of the Portuguese GDP	1	-3.26649	0.0010***	<b>S</b>
Real growth rate of the PIIGS' GDP	2	-2.19968	0.0268 **	<b>S</b>
Growth rate of the Portuguese public debt-to-GDP ratio	2	-3.71021	0.0001***	<b>S</b>
Growth rate of the PIIGS' public debt-to-GDP ratio	1	-2.57366	0.0097***	<b>S</b>

Source: Output provided by GRETL (2014).

Note: \*, \*\* and \*\*\* were used to represent the rejection of the null hypothesis of the ADF and ADF-GLS tests at a significance level of 10%, 5% and 1%, respectively. S = Stationary; NS = Non-Stationary. The main results are shown in bold in the Conclusion column.

**Table 4** Estimation of Equation (1) using the Prais-Winsten Method

Dependent variable: $yPI_t$				
Explanatory variables	Coefficient	Standard Error	<i>t</i> -stat	<i>p</i> -value
Constant	3.15796	0.565158	5.588	1.93e-06 ***
Growth rate of the PIIGS' public debt-to-GDP ratio	-0.173846	0.034269	-5.073	9.95e-06 ***
<b>R-squared: 0.715571; Adjusted R-squared: 0.708278</b>				
<b>Durbin-Watson statistic (d)<sup>12</sup>: 2.042163</b>				

Source: Output provided by GRETL (2014).

Note: \*, \*\* and \*\*\* represent the statistical significance of the regressor at the 10%, 5% and 1% level, respectively.

An analysis of the values shown in Table 4 — although the explanatory power of the model is not very high<sup>13</sup> — identified a negative relationship between economic growth and public debt. Thus, it can be concluded that an increase of 1 percentage point (pp) in the growth rate of the PIIGS' public

debt-to-GDP ratio was associated, on average, with a reduction in the real growth rate of the PIIGS' GDP of about 0.17 pp between 1974 and 2014.

The results obtained with the estimation of the second regression (again using the Prais-Winsten method) are presented in Table 5 (again using the GRETL software).

The results for the particular case of Portugal also show a negative relationship between economic growth and public debt — again, despite the fact that the explanatory power of the model is not high (and even lower than in the first estimation).<sup>14</sup> More precisely, we can say that an increase of 1 pp in the growth rate of the Portuguese public debt-to-GDP

<sup>11</sup> Number of lags for all tests selected automatically by GRETL (2014), for a maximum number of lags equal to 4.

<sup>12</sup> If  $d < d_L$ , the error terms are positively auto-correlated. If  $d > d_U$ , there is no evidence that the error terms are positively auto-correlated. If  $(4-d) < d_L$ , the error terms are negatively auto-correlated. If  $(4-d) > d_U$ , there is no evidence that the error terms are negatively auto-correlated. Taking into account that  $d_L = 1.4493$  and  $d_U = 1.5490$ , this means that there is no evidence of serial correlation. We also confirm the absence of serial correlation in our model by drawing the correlogram of the residuals in GRETL (2014).

<sup>13</sup> The adjusted R-squared was approximately 0.71, which means that the explanatory power of the model is 71%; in other words, this model explains 71% of the behaviour of the real growth rate of the PIIGS' GDP. This is not a very high value, but we must take into account that there is only one regressor (excluding the constant) explaining the behaviour of the real growth rate of the PIIGS' GDP.

<sup>14</sup> The adjusted R-squared was approximately 0.52, which means that this model only explains 52% of the behaviour of the real growth rate of the PIIGS' GDP. This value is not high, but again we must take into account that there is only one regressor (excluding the constant) explaining the behaviour of the dependent variable.

**Table 5** Estimation of Equation (2) using the Prais-Winsten Method

Explanatory variables	Dependent variable: $yP_t$			
	Coefficient	Standard Error	t-stat	p-value
Constant	2.98259	0.817909	3.647	0.0008 ***
Growth rate of the Portuguese public debt-to-GDP ratio	-0.134196	0.0315744	-4.250	0.0001 ***
<b>R-squared: 0.532567; Adjusted R-squared: 0.521101</b>				
<b>Durbin-Watson statistic (d)<sup>15</sup>: 2.067848</b>				

Source: Output provided by GRETL (2014).

Note: \*, \*\* and \*\*\* represent the statistical significance of the regressor at the 10%, 5% and 1% level, respectively.

ratio was associated, on average, with a reduction of 0.13 pp in the real growth rate of the Portuguese GDP between 1974 and 2014.<sup>15</sup>

Hence, in light of the results obtained, it can be concluded that, in both PIIGS as a whole and Portugal specifically, the growth of the public debt was negatively associated with the growth of GDP. In the case of the PIIGS' economies as a whole, this association was even more negative than it was for Portugal, as evident from the analysis of the coefficients of the explanatory variables.<sup>16</sup>

## 4 Conclusion

All the PIIGS countries, with the exception of Italy, recently received financial assistance from the 'troika' within a context of difficult access to funding in the capital markets, high public debt and weak economic growth. In fact, in the PIIGS' economies, as well as in the particular case of Portugal, the public debt-to-GDP ratio grew more rapidly than real GDP in the last four decades (i.e., 1974–2014).

In order to study the relationship between economic growth and public debt in both the PIIGS' economies and in Portugal from an empirical point of view, we estimated simple linear regression models using the Prais-Winsten method. The main aim was to analyse whether a negative relationship existed between economic growth and public debt in both cases, as suggested in the economic literature.

Although the explanatory power of the models was not very high, it was possible to conclude that, in the case of the PIIGS' economies, an increase of 1 pp in the growth rate of its public debt-to-GDP ratio was associated, on average, with a reduction in the real growth rate of GDP of about 0.17 pp. In turn, in the case of Portugal, it was observed that an increase of 1 pp in the growth rate of its public debt-to-GDP ratio was associated, on average, with a reduction of 0.13 pp in the real growth rate of GDP.

In this context, the empirical results obtained show a negative relationship between economic growth and public debt for both the PIIGS' economies and Portugal. These results are consistent with the literature on the subject, which has shown that public debt can act as a drag on growth (see Reinhart & Rogoff, 2010; Checherita & Rother, 2012), and, in particular, they agree with the position of the IMF, which stated that "high and increasing levels of public debt can lead to (...) slower growth" (see IMF, 2013b, p. 6).

These findings highlight the need for the peripheral economies of the European Union to adopt responsible fiscal policies in order to ensure that the public debt will not increase significantly. Otherwise, economic growth could be compromised. To better understand this reality, and taking into account that our estimated models did not present a very high adjusted R-squared, it is our intention to consider the inclusion of more variables in future research in order to improve their explanatory power.

## Acknowledgments

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<sup>15</sup> Taking into account that  $d_t = 1.4493$  and  $d_u = 1.5490$ , this means that in this second regression there is also no evidence of serial correlation. We further confirmed the absence of serial correlation in our model by drawing the correlogram of the residuals in GRETL (2014).

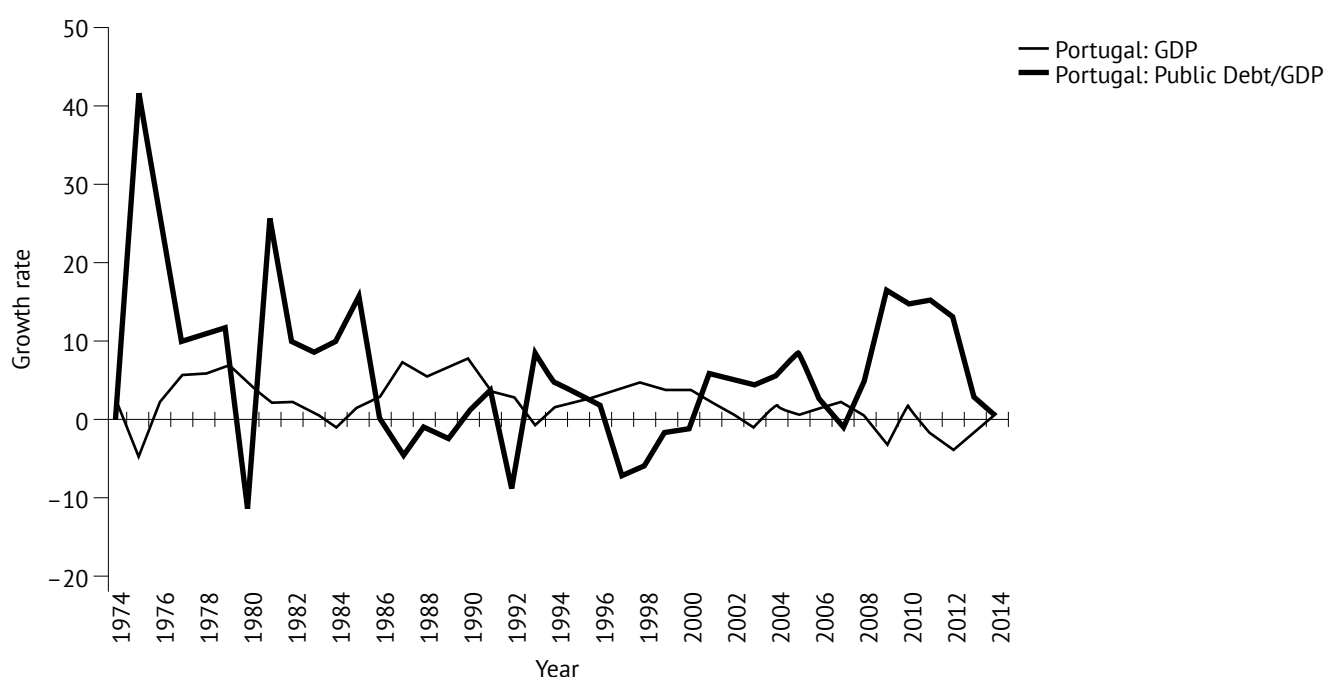
<sup>16</sup> This seems to mean that other variables that are not in the models may have been more important in explaining the behaviour of Portuguese economic growth than in explaining the behaviour of the PIIGS' economic growth. This is an aspect that we intend to investigate in future research.

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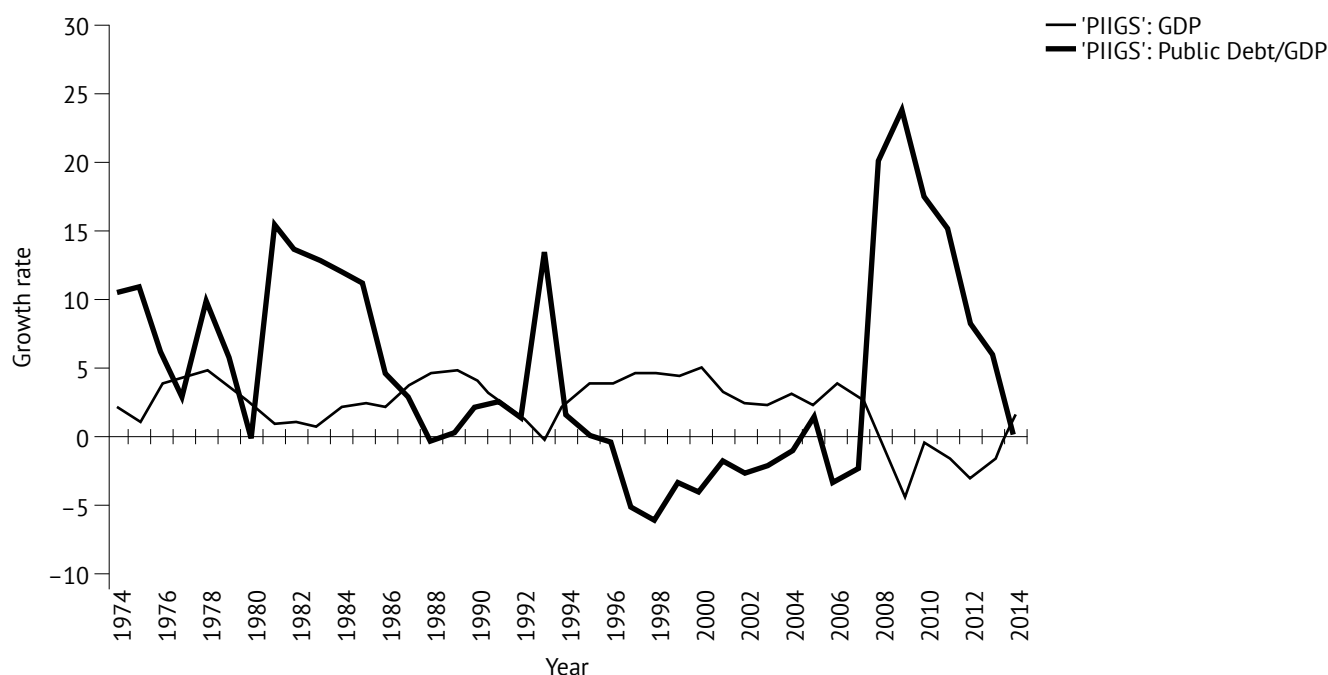
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## Appendix

**Figure A.1** Real growth rate of the Portuguese GDP (at 2010 prices) and growth rate of the Portuguese public debt-to-GDP ratio, 1974–2014



Source: AMECO (2015) and the authors' own calculations.

**Figure A.2** Real growth rate of the PIIGS' average GDP (at 2010 prices) and growth rate of the PIIGS' public debt-to-GDP ratio, 1974–2014

Source: AMECO (2015) and the authors' own calculations.

**Table A1** Estimation of Equation (1) by OLS

Dependent variable: $yPI_t$				
Explanatory variables	Coefficient	Standard Error	<i>t</i> -stat	<i>p</i> -value
Constant	3.42002	0.300356	11.39	5.71e-014***
Growth rate of the PIIGS' public debt-to-GDP ratio	-0.220433	0.0331688	-6.646	6.59e-08***
<b>R-Squared: 0.531062; Adjusted R squared: 0.519038</b>				
<b>Durbin-Watson statistic (d)<sup>17</sup>: 0.779747,</b>				
<b><i>p</i>-value of LM test (order 1)<sup>18</sup>: 5.08664e-005</b>				
<b><i>p</i>-value of white test<sup>19</sup>: 0.160163</b>				

Source: Output provided by GRETL (2014).

Note: \*, \*\* and \*\*\* represent the statistical significance of the regressor at the 10%, 5% and 1% levels, respectively.

<sup>17</sup> If  $d < d_L$ , the error terms are positively auto-correlated. If  $d > d_U$ , there is no evidence that the error terms are positively auto-correlated. If  $(4-d) < d_L$ , the error terms are negatively auto-correlated. If  $(4-d) > d_U$ , there is no evidence that the error terms are negatively auto-correlated. Taking into account that  $d_L = 1.4493$  and  $d_U = 1.5490$ , this means that the model has problems of serial correlation.

<sup>18</sup> Null hypothesis: no serial correlation. Alternative hypothesis: serial correlation. The *p*-value obtained shows that we reject the null hypothesis.

<sup>19</sup> Null hypothesis: homoscedasticity. Alternative hypothesis: heteroscedasticity. The *p*-value obtained shows that we cannot reject the null hypothesis.

**Table A2** Estimation of Equation (2) by OLS

Dependent variable: $yP_t$				
Independent variables	Coefficient	Standard Error	<i>t</i> -stat	<i>p</i> -value
Constant	3.18901	0.476490	6.693	5.68e-08***
Growth rate of the Portuguese public debt-to-GDP ratio	-0.154270	0.0401687	-3.841	0.0004***
<b>R-Squared: 0.274416; Adjusted R-squared: 0.255812</b>				
<b>Durbin-Watson statistic (d)<sup>20</sup>: 0.811849</b>				
<b><i>p</i>-value of LM test (order 1)<sup>21</sup>: 3.59804e-005</b>				
<b><i>p</i>-value of white test<sup>22</sup>: 0.11638</b>				

Source: Output provided by GRETL (2014).

Note: \*, \*\* and \*\*\* represent the statistical significance of the regressor at the 10%, 5% and 1% levels, respectively.

<sup>20</sup> Taking into account that  $d_L = 1.4493$  and  $d_U = 1.5490$ , this means that the model has problems of serial correlation.

<sup>21</sup> The *p*-value obtained shows that we reject the null hypothesis of no serial correlation.

<sup>22</sup> The *p*-value obtained shows that we cannot reject the null hypothesis of homoscedasticity.

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## Gospodarska rast in javna zadolženost v zadnjih štirih desetletjih: je Portugalska drugačna od drugih PIIGS-gospodarstev?

### Izvleček

Portugalska je članica skupine držav, investorjem poznane kot PIIGS, ki jo označujeta visok javni dolg in šibka gospodarska rast. V tej raziskavi smo v razširjenem obdobju 1974–2014 empirično preverili povezavo med ekonomsko rastjo in javnim dolgom v gospodarstvih PIIGS in na Portugalskem. Na osnovi ocene linearnih regresijskih modelov ugotavljamo, da je v zadnjih štirih desetletjih v obeh primerih povezava med ekonomsko rastjo in javnim dolgom negativna, kar je skladno z literaturo. Negativna povezava je bila celo bolj izrazita v gospodarstvih PIIGS kot na Portugalskem.

**Ključne besede:** ekonomska rast, Portugalska, PIIGS, javni dolg

# Tax Policy and Income Inequality in the Visegrad Countries

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## Abstract

The financialisation of economies is believed to be the primary cause of the increase in income inequality in the world, occurring on a scale unseen for more than 30 years. One can hypothesise that it is the state that is responsible for the widening inequality, as the state has not sufficiently used the redistributive function of taxation. The purpose of this paper is to study the impact of tax policy on income inequality in Poland, the Czech Republic, Slovakia and Hungary. These so-called Visegrad countries have, in the last several years, carried out some controversial experiments with tax policy, specifically in terms of the flattening of tax progressivity or its replacement with a flat tax, which led to the weakening of the income adjustment mechanism. The imbalance between income tax and consumption tax has contributed to perpetuating income inequality. The verification of tax systems carried out during the recent financial crisis has forced the countries included in this research to implement tax reforms. The introduced changes caused various fiscal and redistributive effects. Analyses show that the changes in income taxation and an increase in the consumption tax rate had the most negative impact on the income and asset situation in Hungary.

**Keywords:** tax, tax policy, income inequality, Gini coefficient

## 1 Introduction

The issue of income inequality is holistic in nature. It can be seen in the context of social justice, equality or dignity. Galbraith's (1999) *The Good Society: The Humane Agenda* understands the title "good society" as achievable conditions in which all its citizens must be afforded personal freedom and be provided with basic material existence requirements, racial and ethnic equality and a chance for a dignified life. According to Galbraith (1999, p. 13), "nothing more effectively limits freedom as the total lack of money, or restricts this freedom as the scarcity of money." By no means is the author an advocate of equality of income distribution, as it is incompatible with human nature and the motivation of the modern economic system. However, he claims that "the modern market economy allocates wealth and divides income unequally using socially perverse and functionally harmful methods" (p. 55).

In recent years, the phenomenon of social stratification has intensified throughout the world. The OECD report shows that the disparity between rich and poor reached the highest level in 30 years (OECD, 2011). The financialisation of economies and bad tax policies are considered to be the reasons for this phenomenon. In the United States, which has the greatest income inequality among developed countries, the Congressional Budget Office (CBO, 2011) found that the main

cause of widening income inequality was the increase in the concentration of income before taxes and social transfers; but it also indicated that it was the tax policy that has led to a deepening of these inequalities by favouring wealthy taxpayers. In the EU, the phenomenon of social stratification affects mostly post-communist countries and those countries that follow the Anglo-Saxon model (i.e., Spain, Portugal, Great Britain and Greece).

Bridging the gap between rich and poor requires an effective mechanism for income adjustment. Taxes, especially progressive income tax, as well as social transfers can serve this purpose. Weakening the redistributive function of tax, a tendency seen in the Visegrad countries, motivated us to write this paper. The purpose of this paper is to study the impact of tax policy on income inequality in Poland, the Czech Republic, Slovakia and Hungary. The analysis of this phenomenon considers data back to 2003, as an attempt was made to capture all relationships before the studied countries had entered the EU and to track changes which occurred due to the membership. In the research on verification, an argument was made that the tax policies of the Visegrad countries involved the weakening of the redistributive function of tax, resulting in the intensification of income inequalities in society.

## 2 Redistributive Function of Taxation

Tax is usually first considered in the fiscal context. This approach is justified, because in the modern market economy tax revenues are the primary source for meeting the financial needs of the state. This paper focuses on the economic importance of tax, which stems from the fact that taxation leads to a change in the income and asset situation of taxpayers which affects their behaviour, business decisions, consumption decisions, saving decisions, etc. (Owsiak, 2005). Hence, fiscal policy goes far beyond collecting taxes; it affects social and economic spheres. Income inequality in a society is a phenomenon determined by fiscal policy. The state has the means (e.g., fiscal instruments) to intervene in order to reduce excessive disparities in income. One should note, however, that views on state intervention expressed in literature are divided. For example, the liberal doctrine considers income inequality as a factor conducive to economic growth. For this reason, Smith (1776, as cited by Blaug, 1994) was opposed to the introduction of laws governing the privilege of the poor, seeing them as a restriction of competition and labour mobility. The relationship between privileges of the poor and economic growth has not been proven, yet the experience of many countries shows that excessive income inequality causes social conflicts and political turmoil.

According to Galbraith (1999), progressive income tax plays a crucial role in the implementation of reasonable and civilised distribution of income. The empirical verification of the relationship between income redistribution and income inequality has been carried out for many countries, including Japan (Kitamura & Miyazaki, 2014), Norway (Thoresen, 2004), Finland (Riihelä, Sullström, & Suoniemi, 2008), Romania (Voinea & Mihaescu, 2009), and the EU15 (Verbist & Figari, 2014). One should also take into account the experience of Japan, where between 1985 and 2000, the Gini coefficient<sup>1</sup> rose by 13% while the OECD average was 7%. Two reasons for this phenomenon have been identified: an increased proportion of low-paid non-regular workers and a decrease in income tax progressivity. The number of tax rates was reduced from 15 in 1986 to 4 in 1999, and the highest rate was reduced from 70% to 37% (OECD, 2008). Within the framework of the next reform of the tax system, the highest income tax rate was increased to 50% (Hein, 2010). In 2009,<sup>2</sup> the Gini coefficient (before tax) stood at 0.488; after taking into account taxes and transfers, it decreased to 0.336.

Theoretical and empirical studies support the conclusion that income tax based on progressivity is an essential instrument of income redistribution function (OECD, 2012; Verbist & Figari, 2014). Meanwhile, the evolution of tax systems in the Visegrad countries has led to a significant flattening of tax progressivity (Poland) or its replacement by a flat tax (Czech Republic, Slovakia, Hungary) and an increase in the indirect tax burden. The lack of resilience of public finances and economy to the shock caused by the financial crisis forced recent tax reforms, which resulted in a move away from flat tax. In the Czech Republic, although a flat tax is officially maintained, as of 2013 a solidarity surcharge of 7% was introduced for income in excess of four times the average annual salary, which has the hallmarks of a progressive tax. Meanwhile, Slovakia abandoned the flat tax, returning to progressivity in 2013 with two tax rates of 19% and 25%.

## 3 Phenomenon of Social Stratification in the Countries Studied

In order to identify income inequality, the following indicators were used: the quintile share ratio (S80/S20), the Gini coefficient, the at-risk of poverty and social exclusion rates

<sup>1</sup> Gini coefficient, the indicator of income concentration, has a value between 0 and 1 (or if it is multiplied by 100, between 0 and 100). This indicator would reach a value of zero (uniform distribution) if all people had the same income and a value of 1 if all people except one had zero income.

<sup>2</sup> Last year of available data (OECD, 2015).

(RP-SE) and the material deprivation rate (MDR). Based on the data collected (see Table 1), it can be concluded that during the period considered the highest level of income inequality was seen in Hungary. Despite the fact that the Gini coefficient (before social transfers, excluding pensions) decreased by 1.7 percentage points (pp) between 2005 and 2013, it is close to 35%. The sharpest decrease in inequality took place in Poland (by 7.2 pp), but still the Gini coefficient is only 0.9 pp lower than in Hungary. In Slovakia it is approximately 28%; in the Czech Republic, where income disparity is also consistently getting smaller, it is approximately 29%. The opposite was true in Hungary, where between 2010 and 2013 the Gini coefficient increased by 1.9 pp. In this country we can see a strong correlation between changes in the distribution of income of the population and the introduction of a 16% flat tax in 2011.

The research based on income quintile share ratio (S80/S20)<sup>3</sup> shows that in Hungary in 2010 the sum of income received by the 20% of people with the highest income was 3.4 times higher than the sum of the income received by the 20% of the population with the lowest income. Moreover, in 2013, it was already 4.2 times higher. This ratio is also unfavourable for Poland, because the sum of the income of the highest quintile is nearly five times the sum of the income of the lowest quintile. In the Czech Republic and Slovakia, the income quintile share ratio is approximately 3.5. Levels of income disparities in the Czech Republic and Slovakia are among the lowest in the EU and are similar to those in countries that follow the Nordic model (e.g., Sweden, Finland, the Netherlands). Looking at the data from 2013, one can see a move away from the flat tax in Slovakia and the Czech Republic, combined with a decrease in the Gini coefficient and the level of social stratification. In addition, in an earlier period, abandonment of the progressive tax system coincided with an increase in the level of income inequality in Slovakia and Hungary (Table 1). This relationship did not occur in the Czech Republic due to the consideration of the “super gross” salary, defined as gross salary plus social security contributions and health insurance paid by the employer, as the tax base.

Another measure that will allow identification of the living conditions of the studied societies is the at-risk-of-poverty and social exclusion rate, which is defined as the share of people with an equivalised disposable income (after social transfers) below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalised annual disposable income. The data collected in Table 1 indicate that Poland, the Czech Republic and Slovakia, to a greater extent

than Hungary, are coping with poverty reduction. From 2005 to 2013, the biggest changes took place in Poland and Slovakia, where the at-risk-of-poverty and social exclusion rates decreased by more than 19 pp. It should be mentioned that the problem of poverty in the Czech Republic was much smaller to be with in the initial year (i.e., 2005).

The equivalent income of 19.6% of the population was below the poverty line. In 2013, Slovakia got close to this level, but Poland and Hungary are still way above it. Despite the fact that the scope of poverty in Poland has decreased in recent years, as the above indicator shows, approximately 25% of the population still remains below the poverty line. The situation is even worse in Hungary, where the problem of poverty or social exclusion has intensified since 2009; in 2013, it already concerned every third person. In this context, a survey conducted by Eurostat (2014) regarding material deprivation, understood as the inability to afford several of the nine items considered in European conditions to be basic (CSO, 2011), due to the low income, is particularly interesting. The assessment of material deprivation varies depending on the adopted limit. If we define the deprivation rate as the proportion of people who cannot afford at least three items due to financial reasons, then Hungary's situation is significantly different than that in the other Visegrad countries. The rate, which in 2013 stood at 44.1%, was 28.2 pp higher than in the Czech Republic. Unlike the other countries, Hungary has not been successful in improving living conditions. Indeed, since 2011, the situation has further deteriorated.

#### 4 Assessment of Tax Policy According to Actual or Effective Tax Rate

The variability and complexity of tax systems impede a comparative analysis of countries as well as an analysis of one country in a time period. Hence, the research method used in the remainder of this paper is based on the starting point for identifying the impact of tax policy on income inequality. The method relies on an analysis of the implicit tax rates on consumption and labour as well as changes in the development of the effective tax rate in the Visegrad countries. This approach will enable us to compare the countries and draw conclusions.

The implicit tax rate (ITR) is a measure of the actual or effective tax burden imposed directly or indirectly on different tax bases (Eurostat, 2014). ITR on consumption is defined as all consumption taxes divided by the final consumption expenditure of private households on the economic territory (domestic concept). ITR on labour is the sum of all direct and indirect taxes and employees' and employers' social

<sup>3</sup> S80/S20: ratio of total income received by the 20% of the people with the highest income (top quintile) to total income received by the 20% of the people with the lowest income (lowest quintile).



**Table 1** Income Inequality and Poverty Indicators in the Visegrad Countries against Income Tax Rates

Item	2005	2006	2007	2008	2009	2010	2011	2012	2013	Difference 2013 - 2005
<b>Czech Republic</b>										
Income tax rates	15,20,25,32	12,19,25,32	12,19,25,32	15	15	15	15	15	15 (22) <sup>a)</sup>	
Gini coefficient	32.5	31.7	31.3	30.5	30.0	29.8	29.6	29.1	28.8	-3.7
S80/S20	3.7	3.5	3.5	3.4	3.5	3.5	3.5	3.5	3.4	-0.3
RP-SE	19.6	18.0	15.8	15.3	14.0	14.4	15.3	15.4	14.6	-5.0
MDR	22.7	19.7	16.4	16.2	15.6	15.1	16.1	16.8	15.9	-6.8
<b>Hungary</b>										
Income tax rates	18, 38	18, 36	18, 36	18, 36	18, 36	17, 32	16	16	16	
Gini coefficient	36.5	41.2	34.4	34.7	33.5	32.9	35.5	34.4	34.8	-1.7
S80/S20	4.0	5.5	3.7	3.6	3.5	3.4	3.9	4.0	4.2	0.2
RP-SE	32.1	31.4	29.4	28.2	29.6	29.9	31.0	32.4	33.5	1.4
MDR	39.7	37.4	38.6	37.1	40.3	39.9	42.2	44	44.1	4.4
<b>Poland</b>										
Income tax rates	19, 30, 40	19, 30, 40	19, 30, 40	19, 30, 40	18, 32	18, 32	18, 32	18, 32	18, 32	
Gini coefficient	41.1	38.7	37.3	36.3	35.1	34.7	34.5	34.2	33.9	-7.2
S80/S20	6.6	5.6	5.3	5.1	5.0	5.0	5.0	4.9	4.9	-1.7
RP-SE	45.3	39.5	34.4	30.5	27.8	27.8	27.2	26.7	25.8	-19.5
MDR	50.8	44	38.2	32.3	29.5	28.4	26.4	27.8	25.5	-25.3
<b>Slovakia</b>										
Income tax rates	19	19	19	19	19	19	19	19	19, 25	
Gini coefficient	31.7	32.3	28.2	27.3	28.3	30.0	29.9	29.1	28.3	-3.4
S80/S20	3.9	4.1	3.5	3.4	3.6	3.8	3.8	3.7	3.6	-0.3
RP-SE	32.0	26.7	21.3	20.6	19.6	20.6	20.6	20.5	19.8	-12.2
MDR	42.6	35.7	30.2	27.8	24.5	24.9	22.0	22.7	23.4	-19.2

<sup>a</sup> From 2012, a 7% solidarity surcharge applies. Indications in the text.

Source: Eurostat (2015).

**Table 2** Implicit Tax Rates on Consumption on Labour in the Visegrad Countries, 2003–2012

Implicit tax rate	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Difference 2012 - 2003
<b>Consumption</b>											
Czech Republic	18.8	20.8	21.1	20.3	21.3	20.5	20.7	20.9	21.8	22.5	3.7
Poland	18.3	18.5	19.8	20.6	21.6	21.4	19.3	20.5	20.8	19.3	1.0
Slovakia	20.3	20.8	21.5	19.5	19.9	18.3	17.0	17.4	18.3	16.7	-3.6
Hungary	25.6	27.0	26.1	25.4	26.3	26.0	27.2	27.4	26.8	28.1	2.5
EU 27	19.7	19.8	19.7	19.8	20.0	19.6	19.1	19.7	19.9	19.9	0.2
<b>Labour</b>											
Czech Republic	41.7	41.5	41.3	41.1	41.7	39.9	37.6	38.4	39.0	38.8	-2.9
Poland	32.7	32.3	33.8	35.4	34.0	31.7	30.8	30.3	32.0	33.9	1.2
Slovakia	36.1	34.5	32.9	30.5	31.1	32.7	31.4	32.2	31.6	32.3	-3.8
Hungary	39.3	38.3	38.4	38.9	41.0	42.3	40.2	38.4	38.2	39.8	0.5
EU 27	35.6	35.4	35.4	35.6	35.8	36.0	35.4	35.4	35.8	36.1	0.5

Source: Eurostat (2014, pp. 255–257).

contributions levied on employed labour income divided by the total compensation of employees working in the economic territory. The estimates in Table 2 indicate an upward trend in the consumption tax in the Czech Republic, Poland and Hungary. Only in Slovakia did the tax rate in the studied period decrease by 3.6 pp. Since 2006, this rate was the lowest compared to the other countries.

During the studied period, the highest implicit tax rate on consumption was recorded in Hungary which, from 2007, also showed an upward trend. In 2012, the ratio of consumption taxes to the final consumption expenditure of households in Hungary (28.1%) was 11.4 pp higher than the same ratio calculated for Slovakia (16.7%). Since 2004, Slovakia has been the only Visegrad country with an implicit tax rate on consumption which fell below the EU average.

A relationship between recent changes in the consumption tax and poverty is also evident. In Hungary, where taxes on consumption increased, the material deprivation rate and the at-risk-of-poverty and social exclusion rate have also increased. It is worth mentioning that VAT in this country was characterised by high volatility. In 2003–2005, a 25% rate applied. In the subsequent two years, 2006–2007, the rate was reduced to 20%. From 2010 onwards, it returned to 25%. Since 2012, a 27% VAT rate has applied in Hungary, the highest not only in comparison with other Visegrad countries, but also in comparison with other EU countries. The change of rates was accompanied by changes in the catalogue of goods and services taxed at a specific rate. Moreover, in 2011 and subsequent years, other taxes on goods and services were introduced in Hungary, including a public health product tax, telecommunications tax, culture tax, tax on the above-ground and underground network components, tax on car accidents and tax on insurance (Moździerz, 2015). A different situation can be seen in Slovakia, where the decreasing rate of taxation on consumption was accompanied by improvement in the living conditions of the population.

Between 2003 and 2012, the implicit tax rate on labour decreased in Slovakia and the Czech Republic, but increased in Poland and Hungary. Since 2004, the ITR on labour in Poland and Slovakia has been below the EU27 average (36.1%). In 2012, the tax on labour in the Czech Republic and Hungary was higher than the EU27 average at 38.8% and 39.8%, respectively.

The weakening of the income adjustment mechanism can also be seen in the analysis of the upper marginal tax rates (UMTR), adjusted for the impact of tax credits. The 2003–2012 tax policy resulted in a decrease in UMTR: from 28% to 20.1% in the Czech Republic, from 31.46% to 20.93% in Poland, from 38% to 16.45% in Slovakia and from 55.87% to 20.32% in Hungary (OECD, 2015).

Limiting the role of the state in using fiscal instruments leads to excessive income inequalities in society, which in turn contributes to deepening poverty. This situation leads to an increase in social spending—one of the causes of budget deficits and the expansion of the public debt. The hypothesis of the beneficial effects of a reduction in income taxes on the economy and society is difficult to prove. The presented analysis shows that the opposite is true. The largest increase in public transfers occurred in Slovakia and the Czech Republic. In 2003 in Slovakia, the share of social expenditure in GDP was 15.3%, whereas in 2009–2012 it was approximately 19%. In the Czech Republic, the change was smaller: from 18.5% in 2003 to 19.9% in 2012. In 2012, cash benefits amounted to 16.4% of the GDP in Poland and 17.8% of the GDP in Hungary (Eurostat, 2015).

## 5 Conclusions

The analyses conducted in this article confirmed the thesis put forward in the introduction. The tax policy implemented in the Visegrad countries in the last decade was flawed for at least two reasons. First, the problem of income inequality has intensified. Second, it resulted in a decrease in tax revenues during a period of increased social spending. In 2003, cash benefits (excluding benefits in kind) were lower than the total tax revenue in all studied countries. The relationship between these categories was as follows: 93.6% in the Czech Republic, 95.8% in Poland, 80.1% in Slovakia and 65.8% in Hungary. In 2012, cash benefits were covered by tax revenues in Hungary (69.2%) and Poland (81.7%). As for the other two countries, the changes were so detrimental that social spending outweighed the tax revenues by 4.2% in the Czech Republic and by 20.7% in Slovakia, which experimented with the flat tax for the longest period.

Income inequality is strengthened by the imbalance between income tax and consumption tax, as seen in the countries of the studied group. One can believe that the return to tax progressivity in Slovakia and the introduction of solidarity surcharge in the Czech Republic were not only ways to increase the fiscal efficiency of tax, but were also caused by the acknowledged redistributive function of tax. Hungary changed its tax system the most in response to the crisis, introducing several new taxes and fees and significantly reforming the existing ones. Radical and controversial tax changes allowed Hungary to keep its public finances in check, which in 2013 resulted in the Council of the European Union lifting the excessive deficit procedure against the country.<sup>4</sup> This unfor-

<sup>4</sup> Council decision of 21 June 2013 abrogating Decision 2004/918/EC on the existence of an excessive deficit in Hungary (2013/315/EU), Official Journal of the European Union, L 173/43.

unately has been done at the expense of an increased risk of poverty and social exclusion of the Hungarian society.

Multidirectional changes in the tax systems of the Visegrad countries attest to the fact that tax policies were and are conducted by trial and error, which results in positive and negative social and economic consequences. The limited availability of certain data on

income disparities and the implicit tax rates at the time of writing this article did not allow me to conduct long-term analyses. For this reason, this article is an attempt to capture the relationship between tax reforms and income inequalities in a selected group of countries. The monitoring of the social and economic spheres' reaction to the changes in tax policy will remain a research challenge in the coming years.

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## Davčna politika in dohodkovna neenakost v državah Višegrajske skupine

### Izvleček

Financionalizacija gospodarstev naj bi bila poglavitni vzrok za povečanje dohodkovne neenakosti v svetu. Predpostavljamo lahko, da je za širitev neenakosti odgovorna država, ki ni zadostno uporabljala redistributivne funkcije davkov in obdavčitve. Namen tega prispevka je proučiti vpliv davčne politike na dohodkovno neenakost na Poljskem, Češkem, Slovaškem in Madžarskem. Te države, države tako imenovane Višegrajske skupine, so na področju davčne politike izvedle nekaj kontroverznih poskusov. To se nanaša predvsem na izravnavanje davčne progresivnosti ali nadomeščanje te z linearnim obdavčenjem, kar je vodilo do slabitve mehanizma dohodkovnega prilagajanja. Neuravnoteženost davka na dohodek in davka na potrošnjo je prispevala k ohranjanju dohodkovne neenakosti. Verifikacija davčnih sistemov, izvedena med zadnjo finančno krizo, je prisilila proučevane države k uvedbi davčnih reform. Predstavljene spremembe imajo različne fiskalne in prerazdelitvene učinke. Analize kažejo, da imajo spremembe v davkih na dohodek in dvig stopnje davka na potrošnjo najbolj negativne vplive na dohodkovni in premoženjski položaj na Madžarskem.

**Ključne besede:** davek, davčna politika, dohodkovna neenakost, Ginijev koeficient

# The Influence of Employees' Values on the Acquisition of Knowledge in Organizations

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## Abstract

In this paper, we focus on the importance and influence of employees' values as an essential element of organizational culture in the acquisition of knowledge. Based on empirical research, we studied the influence of employees' values in Slovenian organizations on the acquisition of knowledge, enabling us to identify the core values that exert the greatest effect on the acquisition of knowledge. The results of the analysis confirmed the positive impact of employees' values on the acquisition of knowledge. We found that the more employees are dedicated to personal development and the more they feel connected and loyal to the organization, the more they are inclined to the development and acquisition of knowledge.

**Keywords:** organizational culture, employee values, developing knowledge, acquiring knowledge.

## 1 Introduction

Global competition, shorter life cycles of products and services, and users' increasingly complex and subjective requirements require organizations to continuously develop new and update existing knowledge. Organizations must take into account a number of new scientific findings about learning, thereby benefiting from the support of the learning offered by new information and communication technologies. In such an environment, as Nonaka (1991) pointed out, only those organizations that constantly develop new skills by spreading them throughout the organization and quickly transforming them into new products, services, and technologies can be successful. The process of developing knowledge consists of extracting, encoding, storing, transmitting, and applying knowledge (Davenport & Prusak, 1998), including its protection (Schultze & Leidner, 2002). The successful advancement of knowledge in organizations is largely dependent on many factors, such as appropriate organizational culture and structure, information technology, and organizational behavior, referring in particular to the motivation of employees, mutual communication, and management style (Conley & Zheng, 2009; Davenport, DeLong, & Beers, 1998; Zheng, Yang, & McLean, 2010). Many authors (Alavi, Kayworth, & Leidner, 2006; DeLong, 1997; DeLong & Fahey,

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2000; DuPlessis, 2006; Leidner, Alavi, & Kayworth, 2006; McDermott & O'Dell, 2001; Zheng et al., 2010) have highlighted the organizational culture as a fundamental priority or obstacle to the successful advancement of knowledge. An organizational culture is commonly defined as a set of beliefs, values, assumptions (Schein, 2004), symbols, heroes, and rituals (Deal & Kennedy, 2000; Hofstede, 1991) that are shared by members of an organization indicating "how we deal with things" (Deal & Kennedy 2000). Employees' values represent the specific element of organizational culture that determines the extent to which employees are willing to acquire, transmit, and apply knowledge (Alavi et al., 2006; DuPlessis, 2006). Researchers have generally focused on the study of the impact of organizational culture on the process of developing knowledge while relatively little empirical research focuses directly on the study of the impact of employees' values on the acquisition of knowledge.

Therefore, in this paper we focus on in-depth research examining the importance and influence of employees' values on the acquisition of knowledge. To this end, we first present the theoretical starting points, followed by an empirical survey of Slovenian medium and large organizations, thereby providing a response to the following fundamental research questions: (1) Do employees' values affect the acquisition of knowledge? (2) What are the key values that exert a largely positive or negative impact on the acquisition of knowledge within an organization? The results of the empirical research will allow us to test the null hypothesis ( $H_0$ : The values of employees do not affect the acquisition of knowledge) and the research hypothesis ( $H_1$ : The values of employees affect the acquisition of knowledge), thereby providing a critical opinion on the importance and role of employees' values in the acquisition of knowledge while enabling us to develop guidelines for further research of the issues addressed.

## 2 Theoretical Background and Literature Review

Organizations gain knowledge through internal development and the acquisition or rental of necessary knowledge whereas a sustainable competitive advantage is achieved in particular through the internal development of knowledge. Davenport and Prusak (1998) underscored the importance of the following types of internal development of knowledge: (1) fusion or unification of knowledge, which refers to the pooling of employees with different knowledge and skills, thus leading to the "creative chaos" necessary to induce new ideas, knowledge, and solutions; (2) adaptation or adjustment, which refers to the continuing changes in the market (new products, new services, new technologies, etc.) that

are forcing organizations to adapt through the acquisition of new knowledge; and (3) knowledge networks, which involves the integration of individuals who share common interests—as they interact, the networking of skills occurs, leading to the creation of new knowledge. Whether the mentioned forms of knowledge occur is largely dependent on employees' beliefs and values.

Musek (1993) defined values as the value categories to which we strive that represent a kind of goal or ideal. According to DeLong (1997), values indicate what organization believes is worth doing or having. They indicate preferences for specific outcomes or behaviors or what the organization aspires to achieve. With the aim of categorizing values based on groups' and individuals' interests, experts (e.g., Denison, 1990; O'Reilly, Chatman, & Caldwell, 1991; Rockeach, 1973; Schwartz & Blisky, 1987) have developed various questionnaires. Although Hofstede (1991) noted that answers to questionnaires should not to be taken too literally as people will not always act as they have scored on the questionnaire, they are still a good indicator of the prevailing values of an organization. They largely determine whether the advancement of knowledge will be successful or unsuccessful (Alavi et al., 2006). Research confirms that the values of an organization, such as trust (Al-Alawi, Al-Marzooqi, & Mohammed, 2007; DeLong & Fahey, 2000; DuPlessis 2006; Lee & Choi, 2003; Machuca & Martinez Costa, 2012; Park, Ribière, & Schulte, 2004), transparency (DuPlessis, 2006; Machuca & Martinez Costa, 2012), sharing of information freely, ability to work closely with others, friends at work (Park et al., 2004), flexibility, commitment, honesty, professionalism (Machuca & Martinez Costa, 2012), collaboration (DeLong & Fahey, 2000; Lee & Choi, 2003; Machuca & Martinez Costa, 2012), and learning (Lee & Choi, 2003) have a statistically significant impact on the advancement of knowledge. On the other hand, Davenport et al. (1998) warned that the lack of such values may lead to the inhibition of the advancement of knowledge, as the employees do not want to develop and—above all—share it because it is associated with their own competitive advantage and, consequently, to employment security. A specific characteristic of knowledge is that it can only be evaluated in conjunction with the implementation of other values, yet it is also a value in itself—namely, an epistemic value (Weiner, 2009).

Pascale (1984) carried out a somewhat different research of values, wherein the importance of values is linked to the process of socialization, and found that the more (new) employees familiarize and identify themselves with the values of the organization through the process of socialization, the easier it is for them to make the necessary effort and be included in the working environment in order to achieve their goals. For the purposes of research, Pascale drew up a questionnaire with 16 claims that primarily measure the

strength of the organizational culture; however, the claims are formed in a way to reflect certain values that can be linked to the acquisition of knowledge. Therefore, we summarized the questionnaire, adapted it to our research objectives, and used it for primary data acquisition.

### 3 Methodological Background of Empirical Research

#### 3.1 Data Collection

For the purpose of data collection, we performed quantitative research and used a structured questionnaire containing semi-closed and closed types of questions, which were related to three areas: (1) general information about the participants and the organizations that participated in the study (gender, age, level of education, current employment status of the respondents, place of employment, working period in the organization, size of the organization, status or legal organizational form, and ownership structure of the organization), (2) a set of statements about the values of the organizational culture, and (3) a set of claims on the acquisition of knowledge.

Development of the questionnaire was carried out in several stages: (1) review of the literature in the field of research, (2) formation of the questionnaire, (3) pilot testing of the questionnaire in five organizations, (4) completion of the questionnaire, and (5) conversion of the questionnaire to a web form.

During the first phase of developing the questionnaire, we thoroughly studied a variety of established qualitative and quantitative methods for obtaining data on the existing organizational culture and process knowledge development. We used Pascale's (1984) questionnaire for measuring organizational culture. We did not find a measurement instrument applicable to the acquisition of knowledge, which would fully meet our research objectives, in the relevant literature; therefore, we developed our own set of arguments related to the acquisition of knowledge based on theoretical considerations. All claims were formulated in such a way that respondents express the degree of agreement or disagreement with each statement. To this end, we used a five-step Likert scale, where 1 indicates strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 partly agree, and 5 completely agree. In the next stage, which occurred in November 2014, the questionnaire was pilot tested in five selected organizations. Based on recommendations to ensure clarity, some statements were only partly changed and customized. The finalized structured questionnaire was converted to a web format to allow simpler and faster completion of the document using

the LimeService online tool. Data collection took place in November and December 2014.

#### 3.2 Statistical Population, Sampling, and Sample

The statistical population consisted of medium and large Slovenian organizations. The number of organizations that met our criteria in 2013, according to the latest data from the Statistical Office of the Republic of Slovenia, was 2,318, of which 1,988 were medium and 330 large organizations. Questionnaires were submitted to 300 medium and 300 large organizations. We used stratified sampling because we wanted the sample to include a sufficient number of medium and large organizations as well as the appropriate relationship between the legal-organizational and ownership structure. Within the planned deadline, 144 survey questionnaires were submitted to the LimeService online database, of which three were incomplete and had to be eliminated from further research. The realized sample included 141 companies, resulting in a 23.5% response rate. The obtained answers from the LimeService online database were then entered into the IBM SPSS and Excel computer programs, whereupon they were appropriately processed and analyzed.

#### 3.3 Data Analysis

The statistical data processing was performed using IBM SPSS version 20.0. For this purpose, we performed univariate analysis through frequency distribution for the analysis of general data and descriptive statistics for the analysis of data related to a set of statements about employees' values and the process of acquiring knowledge. Checking the hypothesis was performed using factor analysis and multiple regression. Employees' values were expressed in the form of 16 statements. We carried out a factor analysis in the first stage to identify some factors that would enable us to further verify the hypothesis using multiple regression. The rationale for the use of factor analysis was verified with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

To carry out the factor analysis, principal axis factoring was used, which is not sensitive to the abnormalities, while the rotation of factors was implemented using the Equamax method. In this way, we managed to obtain a simpler and more comprehensible insight into the structure of employees' values. Once we identified the variables describing the same construct, based on the factor analysis, we were able to combine/reduce them into new variables—the main components—by using principal component analysis (PCA). Consequently, we reduced the number of tests, because the result obtained on the main component is the same as the

result that would be obtained if we analyzed each variable separately. In addition, we assumed that the interpretation of the main components would be simpler and more sensible. The advisability of the method of the main components was also monitored by the KMO measure of sampling adequacy and Bartlett's test of sphericity.

In the last step, we tested the hypothesis using multiple regression analysis, which measures the relationship between the dependent and several independent variables. In the context of multiple regression, a stepwise regression was used. The advantage of this method is that it takes into account only those variables that have a statistically significant effect, while variables that have no effect are not included.

## 4 Main Findings

### 4.1 Brief Analysis of the Studied Organizations

The realized sample included 85, or 60.28%, of medium and 56, or 39.72%, of large organizations. In regard to the legal form, limited liability companies prevailed, with 55, or 39.01%, of all the organizations, while 37, or 26.42%, represented joint stock companies; furthermore, 42, or 29.79%, were public institutions, and 1 organization, or 0.71%, was a company with unlimited liability. Six organizations, or 4.26%, were labeled as limited partnerships. The structure of organizations according to ownership showed that the realized sample included 62 organizations with state ownership, or 43.97%, 52 organizations with private ownership, or 36.88%, and 27 with mixed ownership, or 19.15%.

The structure of respondents according to gender shows that, out of 141 respondents, 84, or 59.57%, were women and 57, or 40.43%, were men. Most of the respondents were between 31 and 40 years old, while in regard to the level of education, university education, or the second cycle Bologna study program, prevailed. Most of the respondents were employed as independent professional associates, and they had predominantly worked in an organization for 15 to 25 years. Respondents were employed in human resources, administration, or management of the organization.

### 4.2 Influence of Employees' Values on the Acquisition of Knowledge

Hypothesis testing used factor analysis and multiple regression. Before implementing factor analysis, we assessed the normal distribution of variables, determining the method to use for factor analysis. With all the variables, the

characteristic proved less than 0.05 (sig. = 0.000); thus, the hypothesis of normal distribution was rejected. Principal axis factoring (PAF) is the most appropriate for performing the factor analysis because it is not sensitive to the abnormalities. The factor analysis included all 16 variables, which expressed employees' values. The KMO measure of sampling adequacy was 0.883, which shows the optimal adequacy of the data for the implementation of the factor analysis. The values of KMO measure have the following meaning: (1)  $KMO > 0.80$  optimal adequacy of the data, (2)  $KMO > 0.70$  average adequacy of the data,  $KMO > 0.50$  sufficient suitability of the data, and  $KMO < 0.50$  inadequacy of the data for the implementation of factor analysis (Hair, Black, Babin, Anderson, & Tatham, 2006). The rationale for using a factor analysis was verified with the Bartlett's test of sphericity, which was less than 0.05 ( $p < 0.05$ ), thereby confirming that the matrix is not a unit and that the information is relevant for the implementation of factor analysis. The results are shown in Table 1.

**Table 1** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.883
Bartlett's Test of Sphericity	Approx. Chi-Square	970.981
	df	120
	Sig.	.000

Source: author's research, data obtained via the IBM SPSS program.

Using factor analysis, we wanted to specify a smaller number of factors, such as the number of variables. When selecting factors, we took into account the intrinsic value and proportion of explained variance. The first factor was too strong (intrinsic value of 6.062, 37.89% of the variance); therefore, it was necessary to introduce rotation, after the implementation of which the value of variance was evenly distributed (Table 2). We obtained three factors (latent variables) that might reasonably be understood as follows: (1) selecting the best employees—careful selection of new employees by trained recruiters using standardized procedures to look for specific features of the new employees, which contributes to the success in an organization and enables individuals to identify with the values of the organization (Pascale, 1984); (2) personal development—the willingness of individuals to pursue personal development through additional learning, education, and training; and (3) integration and loyalty to an organization—the involvement of employees in achieving the objectives of the organization and belonging to the organization through the acquisition of common organizational values.

The next step for each of the factors was to carry out the method of unifying using the PCA, a statistical technique



**Table 2** Rotated Factor Matrix

Items	Factor		
	1	2	3
In our organization, the new employees must undergo at least one week of additional training.	.748	.102	.112
In our organization, the new employees are included in an intensive training program or they are granted undemanding tasks during their first month.	.697	.205	.238
In our organization, the potential candidates for employment undergo at least four very detailed interviews	.629	.218	.129
In our organization, we actively accelerate the selection procedure during the process of recruiting in a way that reveals its good and bad side.	.594	.287	.171
When selecting new staff in our organization, we pay special attention to those characteristics of the employees that are important for the success of the organization.	.525	.210	.160
In our organization, remuneration systems, incentives for the efficient execution of work, criteria for promotion, and other important benchmarks reflect a high degree of compliance.	.355	.727	.239
In our organization, the remuneration system is designed in a way to consider promotions within the raise of the remuneration.	.168	.626	.199
In our organization, all experts in individual fields start as new employees in a particular position at the input level regardless of previous experience or promotions.	.147	.595	.234
In our organization, the career path for professionals is relatively consistent over the first five to ten years of their employment in the organization.	.214	.583	.228
In our organization, we encourage mentoring.	.268	.476	.206
In our organization, in the event that conflicts arise from the discrepancy between short-term and long-term interests of the organization, we make decisions that emphasize the strengths of the organization.	.194	.124	.643
In our organization, there are only a few cases in which the instructions of the top managers are contrary to the values of the organization.	.096	.314	.595
In our organization, all employees are able to express values that are accepted within the organization.	.181	.207	.568
In our organization, employees often relinquish their own personal values, in favor of those that are common in the organization.	.108	.169	.533
In our organization, it is possible to notice numerous details among the capable employees in each area.	.288	.105	.498
In our organization, the range of experience necessary to be included in specific groups creates cohesion (integration) among colleagues in each of these groups.	.182	.149	.494

\*Extraction Method: Principal Axis Factoring. Rotation Method: Equamax with Kaiser Normalization. a. Rotation converged in 7 iterations  
Source: author's research, data obtained using the IBM SPSS program.

that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables that represent most of the information in the original set of variables. Its goal is to reduce the dimensionality of the original data set. A small set of uncorrelated variables is much easier to understand and use in further analyses than a large set of correlated variables (Duntzman, 1989, p. 7). The results of PCA show the relevance of the factors generated by the factorial method. Even after the implementation of the PCA, three main factors dominated, which are stored as (1) the selection of the best employees, (2) personal development, and (3) integration and loyalty to the organization.

Questions related to the acquisition of knowledge consisted of three variables; therefore, we re-implemented PCA. It makes sense to implement this method if variables are correlated. Bartlett's test of sphericity ( $p < 0.005$ ) and the KMO measure of sampling adequacy ( $KMO = 0.657$ ) confirmed that the data were relevant for the implementation

**Table 3** Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	2.181	72.683	72.683
2	.574	19.119	91.802
3	.246	8.198	100.000

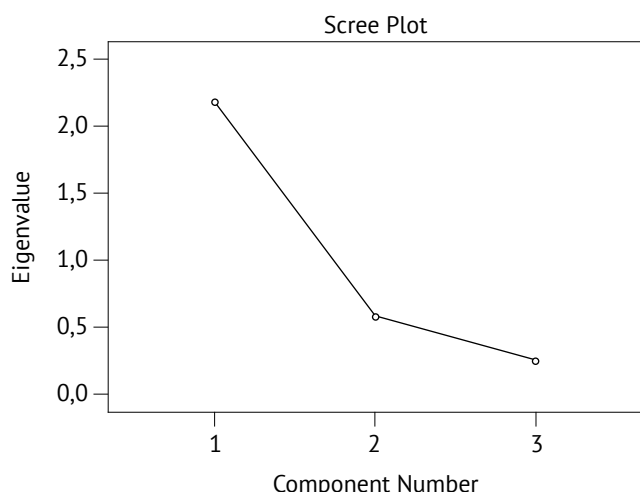
\*Extraction Method: PCA

Source: author's research, data obtained using the IBM SPSS program.

of the PCA. The number of main components included in the survey was defined based on the calculation of eigenvalues and a screen plot diagram. The calculated eigenvalues confirm that we managed to obtain one main component explaining 72.683% of the total variability in the underlying variables (Table 3). In addition, the diagram of eigenvalues (Figure 1) shows that the choice of one of the main

components is correct, as the break occurs at  $k = 2$ . The line is almost horizontal from the breakpoint onward, which means that further factors contribute very little to clarifying the underlying variables variance.

**Figure 1** Scree Plot



Source: author's research, data obtained using the IBM SPSS program.

Data were prepared to carry out the multiple regression, enabling us to examine both the null and research hypotheses.

- Null hypothesis  $H_0$ : The values of employees do not affect the acquisition of knowledge.
- Research hypothesis  $H_1$ : The values of employees affect the acquisition of knowledge.

The regression model is shown in Figure 2. The dependent variable in the regression model is represented by the variable obtained from the PCA, which we called the acquisition of knowledge, while the independent variables are the three main components acquired from the factor analysis: (1) selecting the best employees, (2) personal development, and (3) integration into and loyalty to an organization.

In the last step, we performed a multiple regression analysis using the method of gradual integration (i.e., stepwise). In stepwise multiple regression, the predictor variables are entered one variable at a time, or step, according to particular statistical criteria. The first predictor to be considered for entry at the first step is the predictor that has the highest correlation with the criterion. This predictor on its own will explain the most variance in the criterion. The second predictor to be considered for entry on the second step is the one that explains the second highest proportion of the variance. The process of integration of variables is complete when none of the other variables are significantly associated with the dependent variable (Norris, Qureshi, Howitt, & Duncan, 2014).

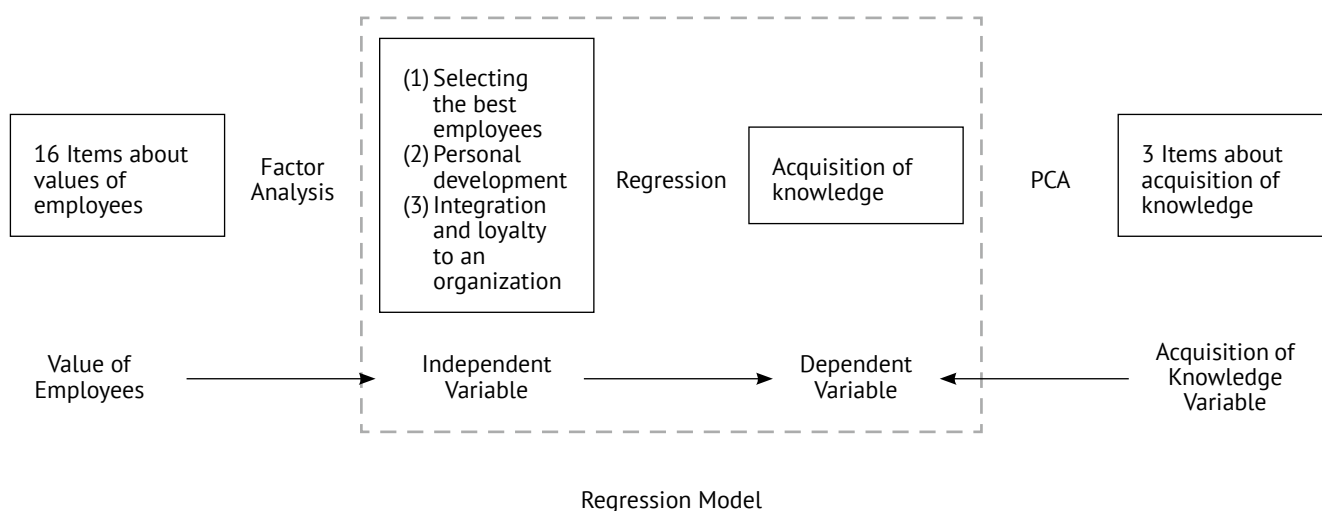
**Table 4** Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.686	.470	.466	.73052875
2	.779	.607	.602	.63112696

\*Independent variables: personal development, integration and company loyalty

Source: author's research, data obtained using the IBM SPSS program.

**Figure 2** The regression model



Source: author's research

**Table 5** Coefficients

Coefficients <sup>a</sup>						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			VIF
(Constant)	5.685E-17	.053		.000	1.000	
2 Personal development	.453	.063	.453	7.187	.000	1.395
Integration and loyalty to an organization	.438	.063	.438	6.945	.000	1.395

<sup>a</sup> Dependent variable: Acquisition of knowledge

Table 4 shows that the clarification of the model is very good, as 60.2% is explained by the dependence of the variability of the dependent variable (i.e., the acquisition of knowledge), and a higher proportion of 46.6% is represented by the contribution of personal development, while the contribution of cohesion and loyalty to the organization is smaller, at 13.6% (0.602–0.466). The third component, selecting the best employees, is excluded from the model because it does not have a statistically significant effect.

Next, we were interested in whether the influence of values on the acquisition of knowledge is positive or negative. Table 5 shows that both coefficients were positive; therefore, it can be concluded that the more employees are dedicated to personal development and the more they feel connected and loyal to the organization, the greater the influence on the acquisition of knowledge.

The analysis results confirm our assumption that employees' values influence the acquisition of knowledge; therefore, we were able to reject the null hypothesis and accept the presumption of research.

## 5 Discussion and Conclusion

In this study, we dealt with examining the importance and influence of the values of employees as an essential element of organizational culture on the acquisition of knowledge. The theory confirmed the importance of the organizational culture for the successful acquisition of knowledge in organizations. Based on this, we have come to the conclusion that the stronger, more flexible, and more accepted by the majority of other organizations that the organizational culture is, the greater impact it can exert on the acquisition of knowledge. Researchers prioritize values and beliefs of employees as an element of the organizational culture, with largely positive or negative impact on the acquisition of knowledge (Alavi et al., 2006;

DuPlessis, 2006). Only values such as trust, transparency, free information sharing, close work with others, flexibility, commitment, honesty, collaboration, and learning will create an environment in which employees are willing to acquire knowledge.

The empirical research conducted in the Slovenian medium and large organizations confirmed the influence of employees' values on the acquisition of knowledge. Using multiple regression analysis, we examined the influence of individual factors/values—(1) selecting the best employees, (2) personal development, (3) integration into and loyalty to the organization—on the acquisition of knowledge. Results of the analysis showed that employees' values affect the acquisition of knowledge because the more the employees are dedicated to personal development and the more they feel connected and loyal to the organization, the greater the influence on the acquisition of knowledge.

In empirical research, we were faced with substantive time and methodological limitations. Within the process of developing knowledge, we only studied the impact of employees' values on the acquisition of knowledge as an input stage in the process of developing knowledge. We used data from questionnaires that were returned within the agreed time period. The data obtained reflected the current state in the Slovenian organizations and were dependent on respondents' subjective perceptions; therefore, they do not necessarily reflect the objective situation in the analyzed organizations. The methodological limitation was conditioned by the choice of instrument, research sample, and data analysis.

This paper also provides opportunities for further research, as it would be advisable to explore the influence of values of employees on the other stages of advancement of knowledge and to apply other forms of analysis in addition to the factor and regression analysis (e.g., canonical correlation analysis).

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# Vpliv vrednot zaposlenih na pridobivanje znanja v organizacijah

## Izvleček

V prispevku se osredotočamo na raziskovanje pomena in vpliva vrednot zaposlenih kot bistvene sestavine organizacijske kulture na pridobivanje znanja. Na podlagi empirične raziskave smo proučevali vpliv vrednot zaposlenih na pridobivanje znanja v slovenskih organizacijah in ugotavljali, katere so ključne vrednote, ki najbolj vplivajo na pridobivanje znanja. Rezultati analize so potrdili pozitiven vpliv vrednot zaposlenih na pridobivanje znanja. Ugotavljamo, da so zaposleni bolj naklonjeni razvoju in pridobivanju znanja, če se bolj posvečajo osebnemu razvoju ter če čutijo večjo pripadnost organizaciji in močnejšo povezanost z njo.

**Ključne besede:** organizacijska kultura, vrednote zaposlenih, razvijanje znanja, pridobivanje znanja.

# Relationships among Store Image and Store Loyalty in Slovenia

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## Abstract

Image has become one of the most important factors of stores' survival and development. In this paper, a model of relationships among the multidimensional variables of store image, positive affect, satisfaction with the store, trust and commitment to the store is formed and tested with a sample of 209 customers in three stores in the Pomurje region of Slovenia. The important conclusion of the research is that several interrelations among store image, positive affect, satisfaction, trust and store commitment exist. The results also show significant gender differences in perceptions of store image. These results provide several important insights for managing supermarkets in the Slovenian market and are also important for future research.

**Keywords:** store, image, loyalty, satisfaction

## 1 Introduction

The world's economy is rapidly becoming intensely service-oriented—a trend reflected in the vast number of marketing research projects (Carrillat, Jaramillo, & Mulki, 2007). The commercial sector also represents an important part of the economy in Slovenia. Statistical data show that the number of enterprises in the wholesale and retail trade sector (together with the repair of motor vehicles and motorcycles) increased from 23,662 in 2008 to 26,883 in 2013. Turnover in this sector is also increasing: Since the 15.8% drop in 2009 compared to 2008, (the drop by 15.8%) turnover has been increasing, and in 2013 it represented 107.48% compared to 2009. In the retail trade sector itself the number of enterprises increased by 17.51% from 2008 to 2013, while the turnover increased by 14.17% in 2013 compared to 2008 (Statistical Office of Republic of Slovenia, 2015).

Dealing with a store's information on a daily basis, whether consciously or unconsciously, helps us formulate an opinion of the store's image. Store image also contributes to the positive or negative image of the company in society. The image has become a means of achieving economic value and today is one of the most important factors of stores' survival as well as their further development.

Customer loyalty represents a competitive advantage of the store (Oliver, 1997; Thomas, 2013), and research results in the past have proved that loyalty is an

outcome of the process based on the net of relationships among customers' satisfaction, trust and commitment to the store; relationships among loyalty, store image and the positive effect of store satisfaction, store trust and store commitment have also been demonstrated (Bloemer & De Ruyter, 1998; Bloemer & Odekerken-Schröder, 2002; Koo, 2003; Macintosh & Lockshin, 1997; Oliver, 1997; Osman, 1993; Thomas, 2013).

However, it has remained unclear what the exact relationship between store image and store loyalty means in supermarkets. Furthermore, the store's image impact on store loyalty has not yet been empirically investigated in the Slovenian market. Therefore, the main research question of this paper is as follows: Is it possible to determine the nature of relationships among multidimensional variables (i.e., store image, positive affect, satisfaction with the store, trust and commitment to the store) based on a sample of Slovenian supermarkets? The main objectives of the research are (i) to obtain multidimensional variables—namely, store image, positive affect, store satisfaction, trust and commitment to the store; (ii) to perform an analysis of interrelations among these multidimensional variables; (iii) to study some aspects of gender differences; and (iv) to provide some managerial implications. Therefore, in this study we take a closer look at the relationship among store image, positive affect, store satisfaction, store trust and store commitment in three stores (Mercator, Spar and Tus) in Slovenia in the Pomurje region.

This paper is structured as follows. In the next section, we provide a theoretical framework for relationships among store image, positive affect, store satisfaction, store trust and store commitment, followed by a description of the research design, with results and conclusions.

## 2 Literature Review

A loyal customer is a source of a competitive advantage through repeat purchase and positive word of mouth (Thomas, 2013). Thus, the ultimate goal of most traders is to have loyal customers. As Oliver (1997) pointed out, loyalty is an outcome based on customers' satisfaction, trust and commitment to the store.

Numerous authors (Bloemer & de Ruyter, 1998; Bloemer & Odekerken-Schröder, 2002; Koo, 2003; Macintosh & Lockshin, 1997; Thomas, 2013) have closely examined the relationship between store image and store loyalty, but only Bloemer and Odekerken-Schröder (2002) examined the relationship between store image and store loyalty indirectly through the positive affect of store satisfaction, store trust and store commitment. Store image is also recognized as an

important antecedent of store satisfaction and store loyalty (Bloemer & de Ruyter, 1998). Furthermore, Osman (1993) found some evidence that store loyalty may be related to store image.

This net of interrelations is, on the other hand, important in other aspects of the marketing field as well, such as customer–company identification and the relationship between the customer's experience and customer's loyalty (Brunner, Stöcklin, & Opwis, 2008; Haumann, Quaiser, Wieseke, & Rese, 2014).

### 2.1 Store image

A number of definitions of store image can be found in the literature. Thang and Tan (2003) indicated that store image has been regarded as an important antecedent in retail studies of store preference. Martineau (1958) defined store image as the way in which the store is defined in the consumer's mind, partly by its functional qualities and partly by an aura of psychological attributes. Similarly, Keaveney and Hunt (1992) and Newman and Cullen (2002) consider store image to be a combination of an individual's cognitive and emotional responses and stress that customers' previous experience is very important for store image. Some authors (Bloemer & de Ruyter, 1998; Bloemer & Odekerken-Schröder, 2002) have found that store image is expressed as a function of the salient attributes of a particular store that are evaluated and weighted against each other. Therefore, Bloemer and de Ruyter (1998) defined store image as the complex system of a consumer's perceptions of a store on different attributes. This definition is in line with Houston and Nevin's (1981) definition. However, over the years different authors have distinguished different store attributes or characteristics that are part of the overall image towards the store (Bloemer & de Ruyter, 1998). Various authors have given different definitions of store image; a few established ones are mentioned in Table 1, where the main differences in definitions are also evident.

Extensive available literature identifies the elements of store image. For example, Lindquist (1974), in his study of store image, combined models from 19 studies to come up with nine different elements: service, clientele, merchandise, comfort, promotion, physical facilities, store atmosphere, institutional and post-transaction satisfaction. Doyle and Fenwick (1974) suggested only five elements: product, price, assortment, styling and location. Bearden (1997) conceptualized the shopping center image into seven different dimensions: price, quality of the merchandise, atmosphere, assortment, parking facilities, location and friendly personnel. Lewison (1997) provided a list of store image dimensions, service, price, including product, place and

**Table 1** Definitions of Store Image

Martineau (1958)	(...) the way in which the store is defined in the shopper's mind partly by its functional qualities and partly by an aura of psychological attributes.
Aron (1960)	(...) a complex of meanings and relationships serving to characterize the store for people.
Kunkel and Berry (1968)	(...) discriminative stimulus for an action's expected reinforcement. Specifically, retail store image is the total store image is the total conceptualized or expected reinforcement that a person associates with shopping at a particular store.
Barr and Field (1997)	(...) multi-sensory, multidimensional and subject to fading without reinforcement.
Oxenfeld (1974)	(...) it represents interaction among characteristics and includes extraneous elements.
James et al. (1976)	(...) a set of attitudes based upon evaluation of those store attributes deemed important by consumers.
Engel et al. (1986)	(...) one type of attitude, measured across a number of dimensions, hopefully reflecting salient attributes.
Steenkamp and Wedel (1991)	(...) the overall attitude towards the store, an attitude which is based on the perceptions of relevant store attributes.
Bloemer and De Ruyter (1998)	(...) the complex of a consumer's perceptions of a store on different attributes.

Source: adapted from Saraswat, Mammen, Aagja, and Tewari (2010)

promotion. Bloemer and de Ruyter (1998) adopted Ghosh's (1990) view and considered store image to include the following elements: location, merchandise, store atmosphere, customer service, price, advertising, personal selling and sales incentive programs.

The elements of store image are therefore a combination of the functional and psychological attributes, and the interplay between the two creates the identity prism (Saraswat et al., 2010; Kapferer, 1986). Thus, definitions of store image have evolved over time and cover both the quality of services as well externally visible features of stores and products.

## 2.2 Positive affect

Affect is characterized in terms of two independent dimensions: positive and negative (Havlena & Holbrook, 1986; Westbrook, 1987). Clark and Isen (1982) argued that people strive to experience positive affect while avoiding negative affect. Some authors (Bloemer & Odekerken-Schröder, 2002; Watson & Tellegen, 1985) have defined positive affect as the extent to which an individual affirms a zest for life.

Positive affect contributes to satisfaction judgments (Westbrook, 1987). Moreover, Westbrook and Oliver (1991) revealed that the affective content of consumption experiences is strongly related to satisfaction. Furthermore, Evrard and Aurier (1994) found that satisfaction is a function of positive affect. In this light, Bloemer in Odekerken-Schröder (2002) considered positive affect to be a person-within-situation antecedent of satisfaction because the positive affect a person experiences is elicited by a particular store's situation or environment. Therefore, we focus on positive affect in this paper.

## 2.3 Store satisfaction

Satisfaction has been considered a central concept in the marketing literature (Oliver, 1997). In addition, satisfaction has often been regarded as an antecedent of store loyalty (Bitner, 1990; Bloemer & Ruyter, 1998; Tse & Wilton, 1988). Different types of store satisfaction have been identified. The basis for the definition forms the disconfirmation paradigm (Oliver, 1980; Oliver & DeSarbo, 1988; Tse & Wilton, 1988). According to this paradigm, store satisfaction is believed to occur through a matching of expectations and perceived performance. However, dissatisfaction occurs when a customer's expectations disconfirm the perceived store performance.

Many other definitions of satisfaction have been put forth in the literature. Store satisfaction is often defined as the outcome of the subjective evaluation that the chosen alternative meets or exceeds expectations (Bloemer & de Ruyter, 1998). Giese and Cote (2000) defined satisfaction as a summary response of varying intensity, with a time-specific point of determination and limited duration, directed towards focal aspects of product acquisition or consumption.

## 2.4 Store trust

The trust concept has become one of the key variables in discussions of marketing relationships. Dwyer, Schurr, and Oh (1987) stressed the need for more attention on the trust concept. Two definitions of trust often cited are those by Moorman, Zaltman, and Deshpande (1992) and Morgan and Hunt (1994). Moorman et al. (1992) defined trust as a willingness to rely on an exchange partner in whom one



has confidence. An important aspect of their definition is the concept of trust as a belief, feeling or expectation about an exchange partner which can be judged from the partner's expertise, reliability and intentions (Čater, 2008). According to Morgan and Hunt (1994), trust is defined as one party's confidence in an exchange partner's reliability and integrity. Their definition is similar to the one proposed by Moorman et al. (1992) except that Morgan and Hunt left out willingness. Morgan and Hunt's (1994) definition is also consistent with a number of other points of view in the marketing literature (Schurr & Ozanne, 1985; Swan & Nolan, 1985).

Furthermore, relationships based on trust are built on numerous positive exchanges. Previous cooperation and personal relationships are the foundation of mutual trust, in which the partners are willing to share key information. Thus, Bloemer and Odekerken-Schröder (2002) defined trust as a consumer's confident belief in a retailer's honesty towards the consumer, which is consistent with Morgan and Hunt's (1994) definition.

## 2.5 Store commitment

In the marketing literature, store commitment has been described in many different ways. Dwyer et al. (1987) defined commitment as an implicit or explicit pledge of relational continuity between exchange partners. Moorman et al. (1992) similarly defined commitment as an enduring desire to maintain a valued relationship. Commitment is also considered a key construct in marketing relationships (Morgan & Hunt, 1994). According to Gruen (1995), the concept of commitment is similar to the concept of long-term orientation that comprises the desire and utility of a buyer to have a long-term relationship with a seller; authors have suggested that commitment implies a willingness to make short-term sacrifices to realize longer-term benefits.

## 3 Research Design

### 3.1 Hypothesis development and research model

Several authors (Bloemer & Odekerken-Schröder, 2002; Yoo, Jonghee, & MacInnis, 1998) have closely examined the relationship between store image and positive affect. The results of their research show that higher store image is related to higher positive affect. In addition, Donovan and Rossiter (1982) asserted that consumers who perceive a positive store image reveal more positive affect. A consumer who perceives a positive image of a particular store is more likely to be satisfied with a store than a consumer who perceives a less positive store image (Bloemer &

Odekerken-Schröder, 2002). Thus, Bloemer and Odekerken-Schröder's (2002) research showed that positive store image is related to a higher level of satisfaction.

Some researchers have documented strong interrelationships between product-elicited positive affect and product satisfaction (Evrard & Aurier, 1994; Westbrook, 1987; Westbrook & Oliver, 1991), and it appears that satisfaction is naturally tied to affective reactions elicited in consumption (Bloemer & Odekerken-Schröder, 2002). Therefore, we expect a positive relationship among store image, positive affect and store satisfaction. In light of these arguments, the following hypotheses will be tested:

H<sub>1</sub>: The more positive the store image, the higher the positive affect to the store.

H<sub>2</sub>: The more positive the store image, the greater the satisfaction with the store.

H<sub>3</sub>: The higher the positive affect, the greater the satisfaction with the store.

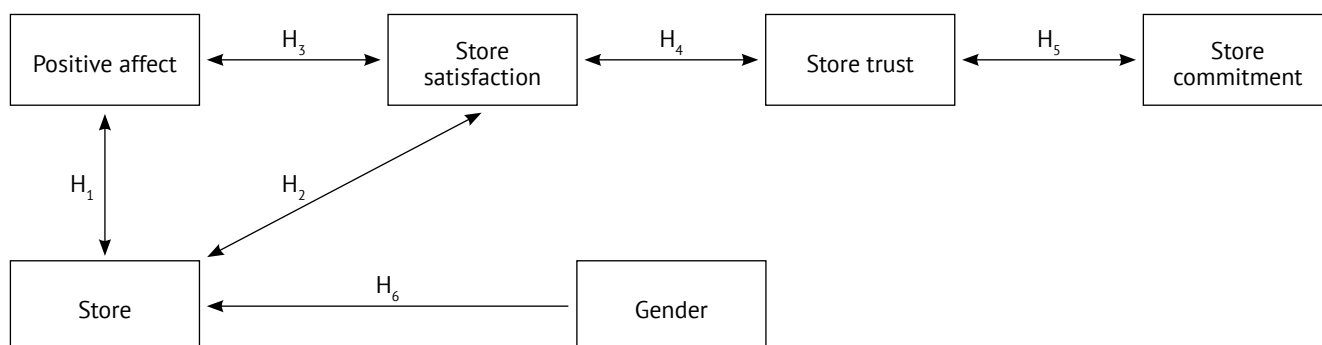
Store satisfaction is defined as the customer's overall evaluation of the store experience and is expected to be related to the customer's loyalty to the store (Macintosh & Lockshin, 1997). Bloemer and de Ruyter (1998) also examined department store relationships in terms of store image, satisfaction and store loyalty. Similar results were identified by Bloemer and Odekerken-Schröder (2002), whose study showed a relationship between satisfaction and trust. Therefore, the following hypothesis is formed:

H<sub>4</sub>: The greater the satisfaction with the store, the higher the trust in the store.

Trust is an indicator of a growing relationship that tends to foster higher levels of commitment (Morgan & Hunt, 1994) and cooperation (Schurr & Ozanne, 1985). Empirical evidence supports the notion that satisfaction and trust are related with commitment (Doney & Cannon, 1997; Morgan & Hunt, 1994). Bloemer and Odekerken-Schröder, (2002) explored the relationship between trust and commitment to stores and proved that trust is positively related to commitment to stores. Thus, the following hypothesis is set:

H<sub>5</sub>: The higher the trust in the store, the higher the commitment to the store.

The literature reviewed indicates that gender differences regarding customers' loyalty and its influential factors exist (Bloemer & de Ruyter, 1998; Melynk, van Osselaer, & Bijmolt, 2009). As it can be expected that store image might vary across different consumer segments (Joyce & Lambert,

**Figure 1:** Research model

Source: Authors

1996), we investigated the impact of gender on consumers' perceptions of store image. Thus, the following hypothesis for testing gender differences regarding store image was formed:

H<sub>6</sub>: The perception of store image between men and women differs.

The overall conceptual model is presented in Figure 1.

### 3.2 Data and methodology

The data were collected using a face-to-face survey on 2–5 January 2015. The study included a total of  $n = 209$  (the response rate was 82%) customers in the three stores (supermarkets) in the Pomurje region of Slovenia using convenient sampling. All questionnaires were fully completed. In the total sample, 50.7% were females, and 49.3% were males. In terms of participants' age, 12% were 18 to 30 years old, 16% were 31 to 45, 56% were 46 to 60, and 16% were 61 to 79.

The survey questionnaire was prepared based on the measurement scales found in the literature. The "store image" construct was measured using a scale adapted from Bloemer and Odekerken-Schröder (2002), the "satisfaction" construct using a scale adapted from Bloemer and de Ruyter (1998), and the "positive affect" construct using a scale from Bloemer and Odekerken-Schröder (2002). For the "trust" measurement, Moorman et al.'s (1992) measurement scale was used. The "commitment" construct was measured using a measurement scale adapted from Mittal and Lee (1989) and Bloemer and Odekerken-Schröder (2002). The questionnaire included eight items for store image, five items for satisfaction, positive affect and trust and three items for commitment. All items were assessed using a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The questionnaire also included a demographic variable (i.e., gender).

To test hypotheses H<sub>1</sub> – H<sub>5</sub>, correlation coefficients at the  $p < 0.05$  significance level were used to establish the strength as well as the sign of the relationship. To test H<sub>6</sub>, an independent samples *t*-test was used to test differences between the two subsets of individuals. For hypothesis testing, we used the 0.05 significance level.

Before hypothesis testing, an exploratory factor analysis was performed in which the principal component analysis and Varimax method were used to form construct variables. Bartlett's test of sphericity (BTS), Kaiser-Meyer-Olkin statistics ( $KMO > 0.5$ ) (Hair, Black, Babin, & Anderson, 2010) and the significance level ( $p < 0.05$ ) were calculated. In the context of the factor analysis, we examined factor loadings ( $\eta \geq 0.7$ ), communality of variables ( $h > 0.5$ ) and eigenvalues of factors ( $\lambda \geq 1.0$ ). The reliability of measurement scales was tested using Cronbach's alpha.

## 4 Results

Factor analysis results which revealed the constructs used in the hypothesis testing procedures are presented in Table 2. To obtain at least 55% of variance explained by a single factor, items with lower factor loadings and communalities were excluded. The second and third iteration of the factor analysis led to the 5-item "store image" construct, 3-item "positive affect", "store satisfaction" and "store trust" and 2-item "store commitment" construct. All 5 obtained constructs proved high reliability (Cronbach alpha  $> 0.7$ ), except for the "store commitment" construct, indicating that "commitment" is the multidimensional variable calling for further research. Nevertheless, we maintained this construct in the present research.

Constructs obtained by the factor analysis demonstrate that using the factor analysis is meaningful and that the construct factors explain a sufficiently high proportion of the variance

**Table 2:** Basic Descriptive Statistics, Communalities and Factor Loadings for “Store Image”, “Positive Affect”, “Store Satisfaction”, “Store Trust” and “Store Commitment” Constructs

Items of store image	Mean	Std. Error	Std. Dev.	Comm.	Factor loading	Cronbach's alpha
Supermarket X provides excellent customer service	3.80	0.061	0.88	0.639	0.800	0.83
Supermarket X has attractive promotions in the store	3.90	0.053	0.77	0.587	0.766	
Supermarket X offers an attractive loyalty program	3.98	0.067	0.98	0.574	0.758	
Supermarket X offers an extensive assortment	4.10	0.057	0.83	0.547	0.739	
Supermarket X offers value for money	4.01	0.059	0.85	0.512	0.715	
K-M-O measure: 0.827; BTS: Approx. Chi-Square = 313.767, $p = 0.000$ ; Total variance extracted: 57.170%						
Items of positive affect	Mean	Std. Error	Std. Dev.	Comm.	Factor loading	Cronbach's alpha
I feel pleased in supermarket X	3.77	0.061	0.88	0.766	0.875	0.78
I feel happy in supermarket X	3.66	0.054	0.78	0.690	0.830	
I feel comfortable in supermarket X	3.86	0.060	0.87	0.612	0.782	
K-M-O measure: 0.672; BTS: Approx. Chi-Square = 175.407, $p = 0.000$ ; Total variance extracted: 68.92%						
Items of store satisfaction	Mean	Std. Error	Std. Dev.	Comm.	Factor loading	Cronbach's alpha
In general, I am satisfied with the service I get from supermarket X	3.89	0.057	0.82	0.714	0.845	0.76
In general, I am satisfied with supermarket X	3.79	0.055	0.80	0.711	0.843	
I am satisfied with the price-to-quality ratio of supermarket X	3.83	0.065	0.94	0.632	0.800	
K-M-O measure: 0.691; BTS: Approx. Chi-Square = 164.487, $p = 0.000$ ; Total variance extracted: 68.55%						
Items of store trust	Mean	Std. Error	Std. Dev.	Comm.	Factor loading	Cronbach's alpha
Supermarket X enjoys my confidence	4.04	0.064	0.92	0.712	0.895	0.84
I have faith in supermarket X	3.98	0.067	0.97	0.775	0.881	
Supermarket X gives me a feeling of confidence	3.92	0.057	0.82	0.802	0.844	
K-M-O measure: 0.717; BTS: Approx. Chi-Square = 262.995, $p = 0.000$ ; Total Varimax extracted: 76.31%						
Items of store commitment	Mean	Std. Error	Std. Dev.	Comm.	Factor loading	Cronbach's alpha
If supermarket X is not nearby, then I go to another supermarket (r)	3.37	0.076	1.10	0.608	0.780	0.42
If products are cheaper at another supermarket than at supermarket X, then I go to the other supermarket (r)	3.27	0.073	1.06	0.608	0.780	
K-M-O measure: 0.500; BTS: Approx. Chi-Square = 9.900, $p = 0.002$ ; Total variance extracted: 60.82%						

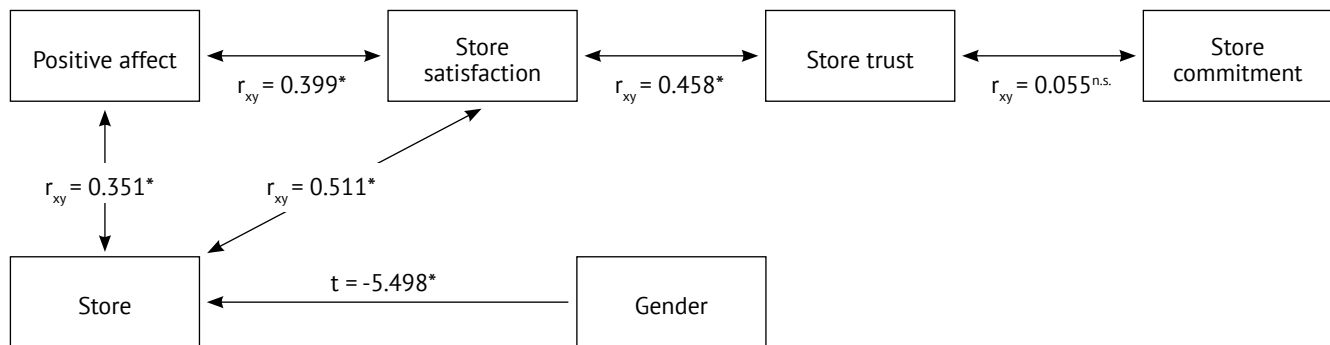
Source: Authors

of variables. The only exception was the store commitment construct which showed a low level of reliability for the store commitment construct and requires further analysis in the future. Nevertheless, all constructs obtained with the factor analysis were used in the hypothesis-testing procedures based on a correlation analysis. The results are presented in Figure 2 and Table 3, which provide an overview of the estimated effect relationships within the model with regard to the hypotheses tested.

Research results indicate that the linear relationships between constructs, as hypothesized by  $H_1$  through  $H_4$ , exist.

All correlation coefficients were significant and positive ( $p < 0.05$ ). The relationship hypothesized by  $H_5$ —namely, that the higher the trust to the store, the higher the commitment to store—was not confirmed ( $p > 0.05$ ).

The relationship between store image and positive affect is statistically significant and relatively weak ( $r_{xy} = 0.351$ ;  $p < 0.05$ ). In addition, store image and satisfaction with the store are positively related ( $r_{xy} = 0.511$ ;  $p < 0.05$ ), as proposed by  $H_1$  and  $H_2$ . According to these findings, we found support for  $H_1$  and  $H_2$ .

**Figure 2:** Hypothesis testing results.

Notes: \*Result is significant at the 0.05 significance level; n.s. = non-significant

Source: Authors

The relationship between positive affect and the satisfaction with the store as well as between satisfaction with the store and trust in the store is significant and positive ( $r_{xy} = 0.399$  and  $r_{xy} = 0.458$ , respectively; both  $p < 0.05$ ). Therefore,  $H_3$  and  $H_4$  are also confirmed.

For the path between store trust and store commitment the relationship, cannot be confirmed as the correlation coefficient is very low and not significant ( $r_{xy} = 0.055$ ;  $p > 0.05$ ). According to these findings, we cannot confirm hypothesis  $H_5$ .

To test  $H_6$ , the independent samples  $t$ -test was used. The results revealed that, regarding store image, a significant gender difference exists ( $t = -5.498$ ,  $p < 0.05$ ). As already described, the store image construct consists of 5 items (see Table 2). Significant gender differences are also found regarding all 5 items, as presented in Table 3. Women on average assessed store image items significantly lower, but with higher standard deviations compared to men.

The results of testing hypotheses  $H_1 - H_6$  are summarized in Table 4.

**Table 3:** Gender Differences in Store Image Items

Items of store image	Men		Women		Independent samples $t$ -test	
	Mean	Std. dev.	Mean	Std. dev.	$t$ -value	Sig.
Supermarket X provides excellent customer service.	3.99	0.693	3.62	1.001	-3.097	$p < 0.05$
Supermarket X has attractive promotions in the store.	4.12	0.449	3.70	0.948	-4.095	
Supermarket X offers an attractive loyalty program.	4.31	0.672	3.65	1.104	-5.223	
Supermarket X has an extensive assortment.	4.37	0.594	3.84	0.937	-4.890	
Supermarket X offers value for money.	4.18	0.668	3.85	0.974	-2.911	

Source: Authors

**Table 4:** Results of Testing Hypotheses  $H_1 - H_6$ 

Hypothesis	Result
$H_1$ : The more positive the store image, the higher the positive affect to the store.	$H_1$ is not rejected
$H_2$ : The more positive the store image, the greater the satisfaction with the store.	$H_2$ is not rejected
$H_3$ : The higher the positive affect, the greater the satisfaction with the store.	$H_3$ is not rejected
$H_4$ : The greater the satisfaction with the store, the higher the trust in the store.	$H_4$ is not rejected
$H_5$ : The higher the trust in the store, the higher the commitment to the store.	$H_5$ is rejected
$H_6$ : The perception of store image between men and women differs.	$H_6$ is not rejected

Source: Authors

## 5 Discussion

The first and most important conclusion of our research is that the constructs formed—store image, positive affect, store satisfaction, store trust and store commitment—are interrelated, except for store trust and store commitment. The relationship between store trust and store commitment was not significant, but this may be due to the low level of reliability for the store commitment construct. As we already pointed out, the reason may lie in the limitation of our research, which is that “commitment” is the multidimensional variable with low reliability. Thus, further research is necessary. The improvement of the measurement scale for this variable represents the necessary extension of our research.

Our results provide several managerial implications. Our results are generally consistent with previous findings in the literature (Bloemer & de Ruyter, 1998; Osman, 1993), showing that store loyalty is a complex and multidimensional research phenomenon. As already pointed out (Thomas, 2013), customer loyalty has become a major concern for retail stores across the globe. A loyal customer may be a source of competitive advantage through the highest likelihood for repeated purchase and highest likelihood of increasing the number of customers through positive word of mouth. These results provide several important insights for managing supermarkets in the Slovenian market, although we are aware of research limitations arising from the fact that our sample can only be partially generalized to the Slovenian context.

Another important result is that gender differences regarding the store image are significant. This shows that understanding the “store image” concept and the indicators between

men and women is not congruent. Another managerial implication arises from these results: The store should build its image on a carefully analyzed gender structure of its customers.

Our research results suggest that a net of relationships among the constructs analyzed exists. The research results offer a very promising basis for the further research of relationships as well as dependencies among the multidimensional variables.

Several extensions of our research are possible (besides the already mentioned extension related to the store image construct). Consistent with the literature, the structural equation model could be applied. Bloemer and Odekerken-Schröder (2002) presented a structural model that combines the sub-system of store image, positive affect, store satisfaction and store affection with their impact on store trust and, further, store commitment. Thomas (2013) also used structural equation modelling to analyze the dependencies among customer loyalty, customer satisfaction, and store image based on the data collected from customers with leading supermarkets in India. We believe that this validated model would be interesting to apply to the Slovenian market. The measure of purchase intentions is also worth including in the analysis. As Macintosh and Lockshin (1997) pointed out, customers’ attitudes influence the relationship among store satisfaction and purchase intentions as well as store trust and purchase intentions.

Our research results refer to supermarket customers. The research model should be tested for other store types as well as different specialized stores (stores with technical goods for example) as it is likely that modified models of store image and customer loyalty are applicable.

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## Povezave med podobo prodajalne in zvestobe do prodajalne v Sloveniji

### Izvilleček

Podoba prodajalne je postala eden najpomembnejših dejavnikov preživetja in nadaljnega razvoja trgovin. V prispevku predstavljamo model povezav večdimenzionalnih spremenljivk podoba prodajalne, pozitivna čustva, zadovoljstvo s prodajalno, zaupanje v prodajalne in zavezanost prodajalni. Model je bil preverjen na vzorcu 209 odjemalcev v treh različnih prodajalnah v pomurski regiji v Sloveniji. Pomemben rezultat naše raziskave je, da obstajajo številne medsebojne povezave med podobo prodajalne, pozitivnimi čustvi, zadovoljstvom s prodajalno, zaupanjem v prodajalne in zavezanostjo prodajalni, poleg tega pa tudi, da obstajajo pomembne razlike v zaznavanju podobe prodajalne med spoloma. Rezultati so pomembni za poslovno prakso v supermarketih v Sloveniji in za nadaljnje raziskave na tem področju.

**Ključne besede:** prodajalna, podoba, zvestoba, zadovoljstvo









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*Navedbe virov v tekstu*

- Primer 1a: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995).
- Primer 1b: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995, p. 36).
- Primer 2a: Engle and Granger (1987) present critical values also for other cointegration tests.
- Primer 2b: Engle and Granger (1987, p. 89) present critical values also for other cointegration tests.

*Navedbe virov v seznamu virov*

Primer 1 – Knjiga: Gujarati, D. N. (1995). *Basic Econometrics*. New York: McGraw-Hill.

Primer 2 – Članek v reviji: Engle, R. F., & Granger, C. W. J. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55(2), 251-276.

Primer 3 – Poglavlje v knjigi, prispevek v zborniku: MacKinnon, J. (1991). Critical Values for Cointegration Tests. In R. F. Engle & C.W. J. Granger, (Eds.), *Long-Run Economic Relationships: Readings in Cointegration* (pp. 191-215). Oxford: University Press.

Primer 4 – Elektronski vir: Esteves, J., Pastor, J. A., & Casanovas, J. (2002). Using the Partial Least Square (PLS): *Method to Establish Critical Success Factors Interdependence in ERP Implementation Projects*. Retrieved from <http://erp.ittoolbox.com/doc.asp?i=2321>

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Some elementary directions:

*References in the text*

Example 1a: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995).

Example 1b: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995, p. 36).

Example 2a: Engle and Granger (1987) present critical values also for other cointegration tests.

Example 2b: Engle and Granger (1987, p. 89) present critical values also for other cointegration tests.

*References in the list of references*

Example 1 – Book: Gujarati, D. N. (1995). *Basic Econometrics*. New York: McGraw-Hill.

Example 2 – Journal article: Engle, R. F., & Granger, C. W. J. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55(2), 251-276.

Example 3 – Book chapter or article from conference proceedings: MacKinnon, J. (1991). Critical Values for Cointegration Tests. In R. F. Engle & C.W. J. Granger, (Eds.), *Long-Run Economic Relationships: Readings in Cointegration* (pp. 191-215). Oxford: University Press.

Example 4 – Web source: Esteves, J., Pastor, J. A., & Casanovas, J. (2002). Using the Partial Least Square (PLS): *Method to Establish Critical Success Factors Interdependence in ERP Implementation Projects*. Retrieved from <http://erp.ittoolbox.com/doc.asp?i=2321>

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