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The reduced VAT rate for small business in Croatia*[1]

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Abstract

This paper assesses the potential effects of introduction of the reduced VAT rate for small business, based on the EU VAT legislation development. The analysis includes effects on prices, sales, shadow economy and employment. It starts with the assumption of no substantial effect. Survey for Croatia is done by small business owners' interviews and encompasses descriptive and inferential statistics based on parametric tests. The EU expected existence of a link between VAT reduction, price reduction, sales increase and positive effects on employment (as well as decline in the shadow economy) is proved even in this research. However, the pass-through to prices is very moderate as well as other effects. The reduced VAT rate could have some positive results for the restaurants and bars only. There exists also some possibility for construction of housing and construction services related to housing as well as some other labour intensive services.

***Key words**: public finance, small business, reduced VAT rates, efficiency, Croatia*

***JEL classification**: H25, H32, G38*

1. Introduction

The VAT, as the indirect tax, is assumed to have been borne by the consumers. The reduction of its rates is expected to decrease prices and increase demand, which is especially important for those small businesses with high price elasticity of demand.

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This possibility, along with other tax incentives for small business, is used by the EU since the end of the last century for labour intensive services (offered mostly by the small business). One of the most recent proposed changes is the extension of the reduced VAT rates to the set of locally supplied services in the broader sense. That includes labour intensive services (reduced rate currently being offered temporarily), which are now even broadened, as well as housing and restaurant and catering services. However, this proposal of the European Commission was accepted by the EU Council only concerning restaurant services.

Since the option of the reduced VAT rates will soon be available in Croatia as future EU country, this paper is analyzing and assessing the potential effects of introducing the reduced VAT rate for small business (business units that pay personal income tax) in general as well as for its activities. The research is based on the existing EU rules and last European Commission proposal. The analyses include effects on income/prices, sales, shadow economy and employment in small business. The methodology in the research for Croatia is based on survey (telephone interview) and encompasses descriptive and inferential statistics based on parametric tests.

Although the recent EU research seems to be positively inclined to the effects of reduced VAT rates, no such optimism is expected to be found in Croatia. This hypothesis of no substantial effect was based on our impressions and contacts with small business and some pre-research interviews. Negligible price effect was expected, with the resulting income effect for small business owners being relatively high (no or very slight pass-through) as well as very slight effect on shadow economy and employment. Differences in results per activities were also expected. However, the conducted research has brought a little bit more optimism.

After the introductory chapter, in the theoretical chapter the paper reviews the VAT rates general literature and research. This review does not include specific EU research, since it is presented in the second chapter, which is devoted to the EU policy in that field and its effects. The fourth chapter is dedicated to the possible introduction of reduced VAT rates for small business in Croatia. In the end there are policy recommendations and conclusion.

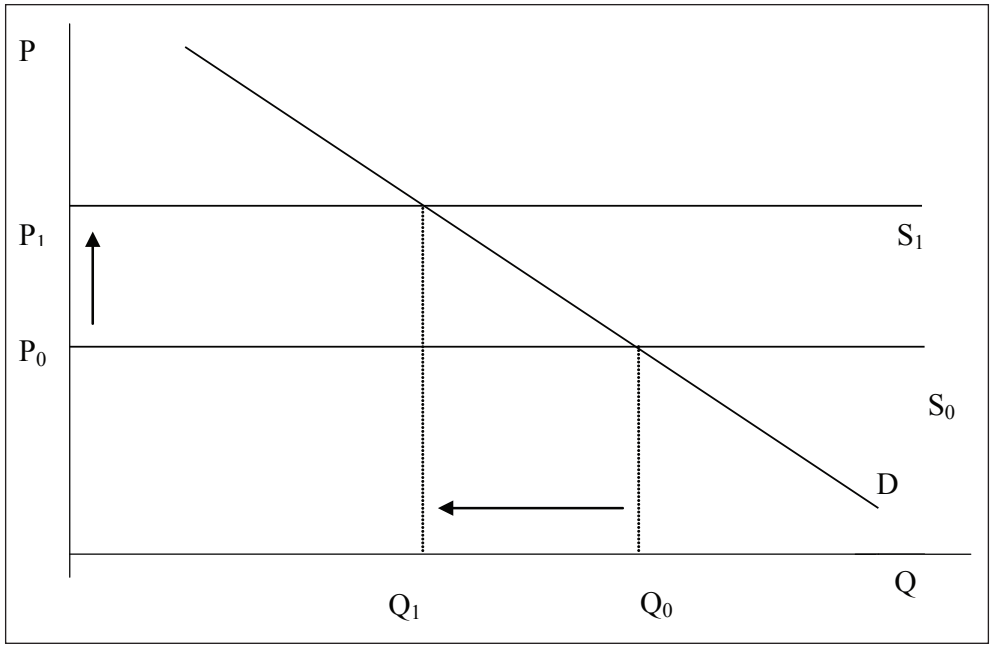
2. Theory and literature

The classical VAT analysis (for instance Musgrave, 1993: 297; Stiglitz, 2000: 112; Sever, 1995: 316; Piffano, 2007: 7) usually starts with the simple case of horizontal (perfectly elastic) supply curve, when the entire tax burden is shifted (passed) to the consumer, as presented in Figure 1.

The tax incidence is simple. Price rises by the amount of tax and quantity falls respectively. This simple framework is often used in other similar analysis (for

instance for customs or monopoly) to indicate the deadweight welfare loss (the triangle in the middle) caused by taxes.

Figure 1: Partial equilibrium analysis of VAT introduction with perfectly elastic supply



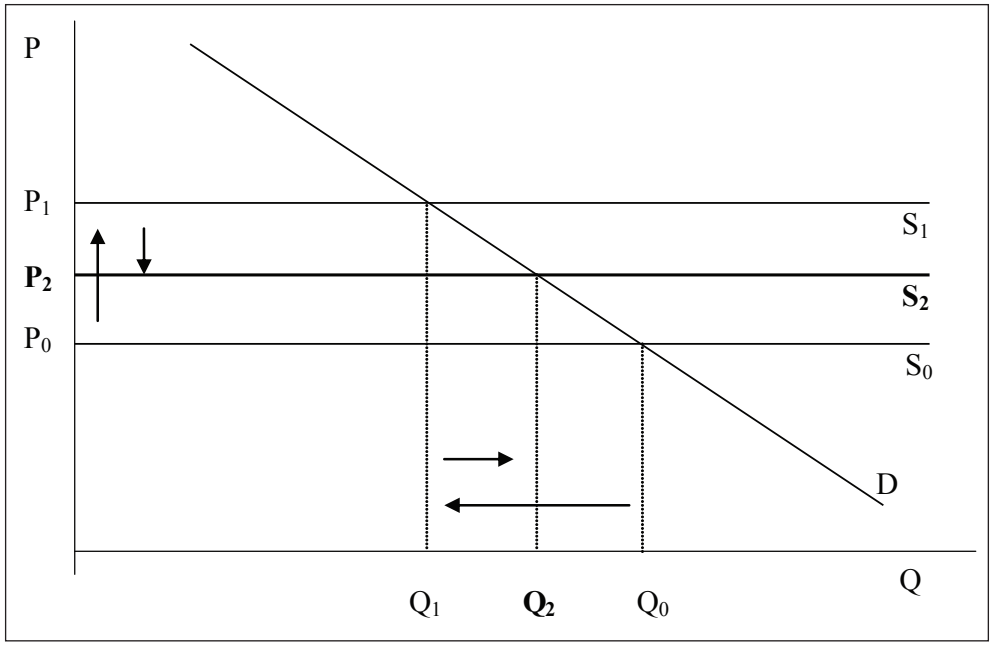
Source: for instance Musgrave, 1993: 297; Stiglitz, 2000: 112; Sever, 1995: 316

Alternative schedules include perfectly inelastic demand (the tax burden is again borne by the consumer), perfectly inelastic supply and perfectly elastic demand (the tax burden is borne by the producer). The "middle case", also often used in the literature, is the situation when ordinary supply and demand curves intercept ("normal" elasticity of both curves) and where the tax burden is shared among both parties. However the above presented case is close to the small business labour intensive case of very elastic supply, reflecting the intended incidence of VAT (in the theory as well as in the EU expectations concerning reduced VAT rates) and seems to be more appropriate for further analysis.

The reduction in the VAT rates implies a little bit different framework for further analysis, which is presented in Figure 2[4].

[4] For the similar presentation, but with both supply and demand curve being "normally" elastic see: Copenhagen Economics, 2007b : 6

Figure 2: Partial equilibrium analysis of VAT reduction with perfectly elastic supply



Source: Authors

It is obvious that the reduction in the VAT rate lowers the price and increases quantity in a way that they partially move to their hypothetical pre-tax values. Such an incidence is crucial to the achievement of the desired EU tax policy goals, presented in detail in the next chapter.

It is also in line with Ramsey taxes philosophy where under simplified situation of horizontal supply schedule (Figures 1 and 2) the tax should simply be inversely proportional to compensated elasticity of demand. Vice versa, the VAT tax reduction is mostly advocated in the situations where demand elasticities are higher. Although this philosophy could be seen as unacceptable in a case of basic necessities (negative equity effects) such an efficiency case could be taken into account in the case of small business labour intensive services.

The chosen figure presenting complete VAT pass-through has its justification in the empirical findings about VAT incidence, which are rather positive, indicating considerable, full pass-through or even over shifting (for instance Harris, 1987; Baker and Brechling, 1992: 57: Poterba, 1996; Besley and Rosen,1999; Kenkel, 2005; Blundell, 2009).

However, the full pass-through is mostly limited to competitive markets, as the theory requires. In imperfectly competitive markets, it is less than full (Ruffle, 2005), but

could be even over-shifted depending on the market structure in more detail, as well as elasticities.[5] It depends also on economic cycles.[6]

The old "warning" with VAT that VAT increases seems to be more shifted to consumers than VAT decreases is also confirmed (Carbonnier, 2005). One could easily links that to the general inflation tendencies, but the author links it with the short- run effects. In the short run, it is easier to decrease than to increase production (based on the demand elasticity expectations). However, such adaptations in capital stock (and new employees) are less likely to occur in the capital intensive sectors and more likely to occur in the labour intensive services (see also next chapter). This asymmetry in shifting is valid for mostly competitive markets, while in monopolistic markets or in a case of collusion another asymmetry is present (Carbonnier, 2005): price increases are relatively weak in order to prevent the fall of the demand, and price decreases are relatively strong in order to take profit of the takeoff of the demand (case study of French VAT reform in oligopoly markets).

The application to locally supplied services market is not completely straightforward. It is mostly labour intensive sector with greater flexibility and supply curves with very high elasticity. Furthermore, the demand for such services seems to poses considerable elasticity, partly due to the fact that great part of the services could be done by the taxpayers themselves. The departure from the perfect competition of the textbooks in the sense of closer relations between service providers and consumers is nevertheless positive, since it could imply high/complete pass-through of VAT reductions. On the other hand, there is some degree of monopoly power of locally supplied service producers due to the transportation or travel costs, which could have opposite effect.

Relatively high differences in quality could characterize locally supplied services. This sector has also relatively high supply side uncertainty (in terms of future prices and demand). Such a high general supply-side uncertainty and demand-side quality uncertainty will also increase the pass-through and the job-creating effects of a VAT reduction (Copenhagen Economics, 2007b: 11-12).

Small business, which is locally restricted and labour intensive, is relatively more inclined to be engaged in a black economy. Main reason is mostly tax evasion. Almost all kinds of tax reductions influence the spread of the black economy (Lemieux et al., 1994). A reduced VAT rate can act directly at the primary source of income.

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[5] Under pure monopoly, impact on prices and quantity is lower but in different oligopoly situations impact is more complicated (Katz and Rosen, 1985; Stern, 1987; Besley, 1989). Taxes could be over-shifted, but this depends heavily on supply and demand elasticities. On the other hand, Delipalla and O'Donnell (2001) argue that extremes of both perfect competition and monopoly can be rejected.

[6] In the depression period prices seem to rise less; for instance by "only" two thirds (Poterba, 1996).

The expected link between reduced rates of VAT and new working places (as well as decrease in black economy) is based on the following link (with intermediate links):

$$< \text{VAT rate} \Rightarrow < \text{price} \Rightarrow > \text{demand} \Rightarrow > \text{job creation} \Rightarrow < \text{black economy} \qquad (1)$$

It is common belief (for instance Commission of the European Communities, 2003a: 4) that the price has to fall sufficiently to generate increased demand for the service. However, high demand elasticity will reduce the measurable effect on prices, i.e. the pass-throughs, but increase the effect on demand (Copenhagen Economics, 2007b: 5 and 7-8). So, the size of pass-through and job-creating effects could be inversely related. The pass-through to prices could generally be lower when demand elasticity is high. On the other hand, in a cases of inelastic demand, the incentive to pass-through the VAT reduction to prices will not exist (this is why EU rules insist of elastic demand cases when applying reduced VAT rates for labour intensive and locally supplied services).

3. EU policy

Besides the use of the reduced VAT rate (Annex III of Directive 2006/112/EC) for equity reasons and for "merit" goods,[7] the EU allows the reduced VAT rates for labour intensive services too for the efficiency reasons[8] (Directive 2006/112/EC, Article 106 and 107). Those services must be labour-intensive, provided largely direct to final consumers, mainly local and not likely to cause distortion of competition. There must be a close link between the decrease in prices resulting from the rate reduction and the foreseeable increase in demand and employment.[9] Positive impact on black economy is also expected. The reduced rates could be applied to services from no more than two (in exceptional cases three) of the following categories (now Directive 2006/112/EC, Annex IV): minor repairing of bicycles, shoes and leather goods and clothing and household linen; renovation and repairing of private dwellings, window-cleaning and cleaning in private households; domestic care services such as home help and care of the young, elderly, sick or disabled and hairdressing. They have been applied for the experimental period of three years, having being prolonged and used now by even eighteen EU countries.

First EU research, that tested the intended overall impact of the reduced VAT rate for labour intensive services for nine countries having implemented it at that time

[7] The "efficiency" reasons in the sense of incentive could be said to be less present here (only tourism (hotels).

[8] In fact, it is accompanied by the equity effect also, since low skilled workers (low income workers) are mostly employed here

[9] It was, however, not specified how that is going to be proved ex ante.

found no significant positive results (Commission of the European Communities, 2003a; Commission of the European Communities, 2003b). Reduced rates of VAT were never fully reflected in consumer prices, because part of the VAT reduction was used to increase the margins of service providers. Renovation and repair of private dwellings as well as hairdressing (but less intensively), seem to be the sectors in which prices were lowered, but mostly only temporarily. In certain cases, most notably that of bicycle repair, service providers refused to apply the reduced rate, arguing that the measure was too complex. The Member States' reports do not allow the effects of growth[10] to be distinguished from the possible effects of VAT rate cuts being partially passed on to prices. The Member States' reports did not identify solid evidence of reduced VAT rates having an impact on employment.[11] The Commission conducted a simulation exercise and concluded that reducing VAT rates is more costly in budget terms than other measures that directly target labour costs (reduce labour taxes/charges), which is consistent with the conclusions of similar previous studies[12]. It was not possible to demonstrate that the measure had contributed to decline in the black economy.

The second most important EU research is the Copenhagen Economics study (Copenhagen Economics, 2007a and 2007b), which came to the more optimistic conclusions. Although the study confirms that uniform VAT rate is the optimal solution, it still claims that there is a strong argument for exceptions for sectors, whose services are easily substituted for do-it-yourself or underground work, such as locally supplied services. Simulations indicated that the gains in welfare, productivity and GDP are sizeable in all member states, even though the largest gains by far will accrue to member states with high tax wedges.

The study also claims that there is a theoretical but not an empirical argument for extending reduced VAT rates to sectors employing many low skill workers in order to boost low skill demand, e.g. hotels, restaurants and locally supplied services.[13] However, simulations indicated that the overall impact on demand for low skill workers was unimpressive because differences in low skill employment between industries are limited. If implemented, reduced VAT rates are not expected to have negative implications for the functioning of the internal market in the former case, but could have some limited implications in the latter case (in particular through tourism).

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[10] particularly vigorous at that time

[11] Only France and Italy attributed the creation of a relatively large number of jobs in the home renovation and repair sector, but their approach failed to take a number of relevant factors into account. The costs of such job creation seem to be very high.

[12] For the previous studies see: Commission of the European Communities, 2003b: 24, 25.

[13] The theoretical argument (higher labour demand and also supply) holds only in member states with rigid and non-flexible labour markets for low skill workers. In the other member states increased demand may just stimulate wages.

The study states (Copenhagen Economics, 2007a: 41 - 45) that "There is ample evidence that lower VAT rates in the industries subjected to lower VAT rates will be translated into lower consumer prices[14] and subsequently higher demand[15], production[16] and employment[17] in those industries. The question is how much and how quickly." It also concludes (Copenhagen Economics, 2007a: 43) that producers are unlikely to respond strongly to VAT rate changes if they are perceived to be only temporary. Permanent reduction of VAT is preferable even to direct subsidies, because they might appear less secure as a permanent solution for the businesses concerned.

The arguments of the study were accepted by the European Commission (Commission of the European Communities, 2007: 5), but it underlines that effects on employment remain limited. It points out a special problem of restaurant services because the study calls, on the one side, for caution as to the cross border effects of a reduced rate, but indicates, on the other side, a rather good potential for a reduced rate to be effective. The final result is the proposal for the new Directive amending Directive 2006/112/EC (Commission of the European Communities, 2008). It includes Annex III into the Annex IV making temporary provisions (reduced VAT rates for labour-intensive services) permanent. The list of labour intensive services is broadened to include other locally supplied services such as gardening; minor repair of movable tangible property (including bicycles and tricycles, but excluding all other means of transport), cleaning and maintenance services of movable tangible property and broader personal care. Lower rates could be applied to all the activities. The general list of reduced rates is also broadened to include the whole housing services (supply and construction, renovation, repair, alteration, maintenance and cleaning) and not only housing services linked to a social policy as well as some services relating to places of worship, cultural heritage and historical monuments. The most important is the inclusion of restaurant and catering services (excluding, alcoholic beverages), which are already taxed at lower rates in some member countries (European Commission - Taxation and Customs Union, 2009: 16, 18).

The EU Council (ECOFIN) seems not to have shared the same optimism. It, however, adopted the option of permanent application of the reduced rate, but limited it to the already existing list of the Annex IV adding to it only restaurant services (Council of the European Union, 2009: 10, 11).

[14] Empirical studies reported pass-through to prices of 134 and 80 percent respectively. Given the uncertainty involved in the estimations, this is close to a full pass-through.

[15] Depending on the price and income elasticity, which mostly coincide.

[16] However, full pass-through and resulting increase in production is affected by the capital intensity of the industry involved. It will only take place as investment picks up sufficiently to bring the stock of capital in line with the increase in demand.

[17] Similar as in the case of prices and increased production, it takes longer time to adjust employment (and capacity and production) in the capital–intensive industries. On the other hand, labour intensive services, with the hairdressing as a prime example (as well as minor repairs and home care) are at the opposite side.

4. Research: Case study of Croatia

4.1. Methodology

In order to assess the possible incentive effects of the lower VAT rate for small business in Croatia, the business units that pay personal income tax were selected (trades and crafts). The telephone interview survey was carried out. Since the questionnaire was relatively short and required some interaction with the interviewer, this was the most applicable technique. It enabled to gather relatively easy the required structure and absolute number of responses as well as more reliable results.

A couple of small business owners and the President of the Chamber of Trades and Crafts of one of the Croatian counties were engaged as a consulting team to correct the questionnaire and to test it on some relevant business units ("the pilot")[18].

At the beginning of the questionnaire there was an introductory explanation concerning the planned new development of the reduced VAT rate in EU, accompanied by a short presentation of the existing (and possible future) rules in the EU concerning reduced VAT rate. The scope of the reduced VAT rates for labour intensive (and locally supplied services) was based on the last European Commission proposal (European Commission - Taxation and Customs Union, 2009).

The introductory question checked the liability of VAT and supply of goods and services to final consumers as well as gathered data about activity and number of employees (besides the owner himself). The core part of the questionnaire consists of only four questions. All the answers are five scale Likert type.

The first one asks whether the introduction of lower VAT rate of 5%[19] would induce the small business in question to reduce the price and at what scope (1 – no price reduction; 5 – full reduction / full shifting of tax onto prices / full pass-through). Those who had given the positive answer for the previous question were also asked about expected influence of that lower price on the increase in sales (1- no increase; 5 – substantial increase).

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[18] The "pilot" confirmed our belief that taxpayers in trades and craft sector somehow regard VAT as just another tax that is put on their back, not accepting the fact that it is not the part of their gross earnings, but the money they just collect from their consumers on behalf of the state. So, the initial small group of them was not ready to lower their prices for the relevant amount of VAT due to the lower rate, pointing out that the "the price already set by market" is the relevant one.
The initial question concerning the possibility of mitigating the tax evasion was also changed, not to reflect the taxpayer in question at all, since the question (as well the entire interview) was otherwise rejected.

[19] The lowest possible VAT rate according to the EU rules was selected to test the incentive effect with the greatest potential.

The remaining two questions test tax evasion and employment effect. The small business owners were asked about their perception of lower VAT rate influencing more sales reporting than previously in their sector of activity (1 – no influence; 5 – full reporting of the previously not reported sales). Although the survey was anonymous, the decision was made to avoid putting this question directly (referring to the interviewee). Two potential problems could have arisen: either a taxpayers would avoid the answer by telling that all their sales have already been reported or such a question could make them suspicious about the entire goal of the survey and they might refuse the cooperation at all.

The last question on employment effect, where the interviewees were asked about possible long standing effects of lower VAT rate on the employment in their small business (1 – no effect on employment; 5 – substantial increase in number of employees)[20], might have been too demanding for the traders and craftsmen, so the results should be interpreted with cautiousness.

In our analysis, each question (1-4) is treated as one variable. So, there are four variables: price (price reduction), sales (increase in sales), reporting (increase in reporting) and employment (increase in employment).

It was decided to perform a small scale survey and interview at around 0.5% of population for the activities in question, since our funds were limited. Sampling was roughly based on the Statistical report of processed annual income tax reports for business entities that pay personal income tax (Croatian Ministry of Finance, Tax Administration, 2007a). The data about interviewees, including their phone numbers were taken through data base on web page of Croatian Chamber of Trades and Crafts (2008a). The share of sub samples in the population was close on 0.5% (from 0.4 to 0.6%)[21] , but those date are quite rough.[22]

[20] 1 – no effect on employment; 2 – only part time / seasonal; 3 – one new employee; 4 – two new employees; 5 – more employees

[21] The only exception being agriculture and fishing with around 0.2 - 1.3%. Due to their specificity in terms of government intervention as well as future expected VAT special schemes, their higher impact on the research data was not perceived as desirable.

[22] The real problem was that the precise data about total income tax paying population potentially covered by the lower VAT rate are not available. The VAT return data for personal income tax payers (Croatian Ministry of Finance, Tax Administration, 2007b) are too synthetic. The number of trades and crafts from the internal data of the Croatian Chamber of Trades and Crafts (2008b) are more detailed, but are based on the entire registration data (one trade/craft could belong to more activities). The chosen personal income tax return data for trades and crafts as well as independent professions (Croatian Ministry of Finance, Tax Administration, 2007a) are more detailed and more reliable, but still not analytical enough to cover all the relevant population as well as to enable the precise separation of the businesses and complete exclusion of the units not belonging to the targeted group. That is the main limitation of the research. However, it was assured that the interviewed businesses do belong to the targeted group.

The difference from Croatian VAT rate structure in comparison with the average EU one should have been taken into account. Since Croatia does not have lower rate on food (only zero rate for bread and milk) the effects of potential introduction of that rate were also assessed (that is why agriculture and fishing as well as food production were included also).

The structure of the sample according to the number of small businesses (trades and crafts) per activity is presented in Table 1.

Table 1: Structure of sample in terms of activities

Activity	Sample – absolute data	Sample – structure (in %)
Agriculture and fishing	22	11.00
Food production	10	5.00
Construction (construction of housing; repair, renovation, alteration, maintenance of housing)	47	23.05
Restaurants and bars	74	37.00
Taxi services	10	5.00
Cleaning services	2	1.00
Hairdressers and beauty services	22	11.00
Other services (repairs of shoes, watches...)	13	6.50
Total	*200*	*100.00*

Source: Authors

It is obvious, that the bars and restaurants as well as construction will have the major impact on the sample. However, the sample has been analyzed not only synthetically, but also per activities in question to get the more reliable results.

Analysis of variance (ANOVA) is presented in Table 2.

Table 2: ANOVA for significant F

Variable	F	Partial eta-squared
Activities		
1. Price reduction	$F(7.192) = 2.6169$; $p<0.05$	$\eta^2 = 0.087$
2. Sales increase	$F(7.142) = 4.9388$; $p<0.05$	$\eta^2 = 0.196$
3. Reporting increase	$F(7.192) = 2.2862$; $p<0.05$	$\eta^2 = 0.077$
4. Employment increase	$F(7.192) = 12.4905$; $p<0.05$	$\eta^2 = 0.313$
Size of small business (number of employees)		
2. Sales increase	$F(3.146) = 3.2591$; $p<0.05$	$\eta^2 = 0.063$

Source: Authors

It is proved that there is a statistically significant effect of the activity for the every of the variables tested (survey questions), while the size effect (measured by the number of employees) is statistically significant only for the increase in sales (variable Nr. 2).[23]

4.2. Results and discussion

4.2.1. Analysis of variables

The descriptive statistics gives the following results per questions/variables presented in Table 3.

Table 3: Means and standard deviation for all variables

Question / variable	Mean	Standard deviation	Variation coefficient
Readiness to price reduction due to the reduced VAT rate	Between slight and partial (*2.54*)	1.19	47%
Expectations of sales increase due to the price reduction (for the interviewees prepared to reduce prices)	Between moderate and substantial (*3.51*)	1.35	38%
Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question	Between slight and moderate (*2.32*)	1.24	53%
Willingness to increase number of employees in the long run	Between No and only part time / seasonal (*1.88*)	1.17	62%

Source: Authors

As it can be seen in Table 3, the general summary results are neither as low as previously expected (based on the pilot), nor high enough to be considered as the general recommendation for the application of the reduced rates to the small business in Croatia due to the efficiency goals.

The first – price effect (readiness to price reduction due to the reduced VAT rate) is far away from the full pass-through. The sales effect (expectations of sales increase due to the price reduction) is higher, mostly due to two effects. The former comes from the fact that this question was put only to the positive respondents to the first question (only for the interviewees that have been prepared to reduce prices – have not given the negative answer). The latter is probably connected with the

[23] The possibility of the application of the parametric tests is proved by the Kolmogorov-Smirnov test for normality of variables (Appendix, Table A1).

(positive) expectations of the respondents. It is the question that reveals their market "optimism" – expectations of the increased demand, and that is not directly linked to their action (however, it presumes their positive response – their possibility to increase their supply)[24].

According to the expectations of the EU harmonisation rules[25] that were additional confirmed by the correlation analysis in our research[26], the last two variables / effects are a direct consequence of the fulfilment of the first two effects (prerequisites).[27]

The further analysis of each variable (question) takes into consideration the distribution of frequencies per each question (Appendix, Table A2) as well as the structure of answers per activities in question (Appendix, Table A3). Multiple comparison test is also performed (Appendix, Table A4).

The answers to the first question (readiness to price reduction due to the reduced VAT rate) reveal very moderate effect (M 2.54; SD 1.19). There is no significant response (Appendix, Table A2). One quarter of the respondents does not want to change their prices at all. Althought the remaining part is responsive to the change in VAT, around one third of them will react only slightly. So, the half of the entire population will not demonstrate almost any pass-through at all. On the other hand, only 7.5% of the population will completely reflect the lower VAT in their prices (full pass-through). Such results are more compatible with the earlier EU research about the effects of the reduced VAT rate on labour intensive services (Commission of the European Communities, 2003a; Commission of the European Communities, 2003b).

The structure of the answers per activities in question (Appendix, Table A3) reveals more detailed results. Taxi services and hairdressers and beauty services have the highest percentage of negative answers and agriculture and fishing as well as restaurants and bars have the highest percentage of the most responsive answers (full pass-through).

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[24] This readiness is partly presented already in the first answer.

[25] See relation (1)

[26] See chapter 4.2.2.

[27] So, this question should have been put also only to the respondents that gave positive answer to the second question; and the first one, of course (see 4.2.2.). However, we have decided to go one step further – to assume that negative answer to the first question (the VAT reduction is not shifted to (lower) prices, but withheld by the small business owner in a way of increased profit) implies some sort of (definitely wrong shaped) subsidy that could also induce small business owners to higher compliance (higher reporting) and employment increase (their higher net incomes could enable them to shift part of their working activities to the new employees). Although such assumption is not in line with the EU and theoretical as well as other legislative expectations in the field of indirect taxation, its existence could be expected in practice. However, such an effect was not achieved. The results are worse than the results of the positive respondents. It seems that the taxpayers not reluctant to react to the lower VAT directly (by reducing their prices) are also reluctant to react by other, indirect measures (authors' data).

More reliable data are given by Fisher LSD (Appendix, Table A4). The most responsive seem to be cleaning services and agriculture and fishing followed by food production, restaurants and bars and construction services. However, all the average responses are moderate, amounting between 2.5 and 3.0. The highest score for cleaning services (3.0) is not statistically significant due to the very small absolute number of respondents. For the first variable, post-hoc LSD test reveals that from 28 tested pairs of activities, statistically significant difference is detected at 10 pairs of activities and it appears most frequently for taxi services and hairdressers and beauty services.

As it can be seen from all the above analyses, the most important variable has in general shown no great effect. Although the individual results vary for almost 50%, this is not reflected so much in the means per activity. Agriculture and fishing, food production, restaurants and bars as well construction services seem to have the greatest (but still moderate) potential.

The results for the second question (expectations of sales increase due to the price reduction) are the highest (M 3.51; SD 1.35). As already pointed out, that question is set only to the positive respondents to the first question. On the other hand, this is the only question, where the results imply the assumption of the small business concerning the response of the third party (consumers) and not of themselves[28].

The highest frequency is for the highest price elasticity of demand (Answer 5 – sales will be increased very much) (see Appendix, Table A2), but the frequencies for the other answers are also relatively high (not below 10%). Still, they fall as the elasticity falls. The general mean reveals relatively positive elasticity perception of small business and their optimism. 51.3% of the respondents expect substantial or very substantial increase in sales.

The structure per activities (Appendix, Table A3) reveals that agriculture and fishing have the highest percentage of negative answers and food production and construction the highest percentage of the most responsive answers.

Means per activity (Appendix, Table A4) vary more than for the first variable. They are highest for construction, other services, restaurants and bars and cleaning services and smallest for agriculture and fishing and taxi services.

It is interesting that, although more inclined to cut their prices, small businesses engaged in agriculture and fishing as well as to a lesser extent food production, are not convinced that this would increase their sales. This could be explained by the

[28] Although is seems that this is the case with the third question also, its intention was to reveal also/mostly the intention of the taxpayers themselves (although their perception of the behaviour of other small business in their activity is also very important).

threat of the enormous import of low priced food as well as lower price elasticity of demand and higher compliance (pass-through).

On the other hand, construction as well as other services are not so willing to decrease their prices. However, they do expect higher increase in sales. This could be explained by the upward trends in the economy at that time, being reflected especially in the results of the construction sector, but also by its high price elasticity of demand. The results confirm that higher demand elasticity could lead to positive effects even with the pass-through not been so substantial, as pointed out in the Copenhagen Economics study (Copenhagen Economics, 2007b: 5 and 7-8).

For the second variable, post-hoc LSD test reveals that from 28 tested pairs of activities, statistically significant difference is detected at 11 pairs of activities and it appears evenly for all the activities.

The results for this question are more optimistic, which could have been expected. The greater potential seems to be for construction services, restaurants and bars (as well as other services and cleaning services).[29]

The results for the third question (assessment of higher reporting - in comparison to the existing situation in the sector in question) are very moderate (M 2.32; SD 1.24). There is no significant response (Appendix, Table A2). Almost 60% of the respondents does not perceive any or only slight increase in reporting of sales (decline in the shadow economy of that kind). The last answer (the most responsive one) has the smallest frequency.[30]

Concerning the answers to the third question per activity, food production has the highest percentage of negative answers and taxi services have the highest percentage of the most responsive answer (decline in shadow economy) (Appendix, Table A3).

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[29] The size of the entrepreneur (measured by the number of employees) turned out to be significant only for second variable (question). The mean rises as the number of employees rises. The results for small businesses with 1-5 employees only (which are mostly represented in the population) are statistically significant (Fisher LSD – author's data).

[30] As already explained, this question was put to all the respondents. It is formally concerned to the entire sector (and not to the taxpayers themselves), although it could be (and probably is) influenced by the taxpayers' own intentions. The expected link between lower VAT rates and lower prices (1) and the decline of shadow economy was not assumed to be the only cause of the higher reporting. The lack of pass-through and the resulting rise in income of the small business should also lead to the same result. However, the slight to moderate reaction was even a little bit worse when only the respondents with negative answer to the first question were taken into account, which gave even more negative answers to the third question (authors' evidence). In general, there was no big difference between two groups indicating that lower VAT rate could slightly decrease shadow economy (at the reporting field) in both cases (whether shifted to prices or not), but that the effects are a little bit lower for the case of non shifting. As already said, the explanation could be that those not prepared to react to the VAT changes in the most direct way (price change) are not prepared to react in other ways also.

More reliable data are given by Fisher LSD (Appendix, Table A4). All the means are low, amounting between 1.0 and 2.8. The highest mean is for taxi services and other services and the lowest for food production and cleaning. The results could be explained by the low reporting and direct cash payments in taxi services sector and sector of other services.

For the third variable, post-hoc LSD test reveals that from 28 tested pairs of activities, statistically significant difference is detected at 11 pairs of activities and it appears – mostly for food production and other services.

The general results of the influence of lower VAT rate to the rise in reporting and decline in the shadow economy seem to be slight, regardless whether lower VAT rate was passed-through to prices or not. It is hard to say whether this is the taxpayer's perception of the compliance of the other small businesses in the sector and sector in general or the confession of their own non-compliance. Maybe it was still their refusal of the existence of the non-compliance in the form of non-reporting in their sector and their own business. However, the results are not encouraging.

The results for the fourth question (willingness to increase number of employees in the long run) do not seem to be great (M 1.88; SD 1.17). Still, they should be interpreted with the great caution. On the one hand, it was maybe too demanding to ask small business owners to predict their long term willingness to increase employment. On the other hand, the low mean is the result of the relatively "demanding" scale (see footnote 27). It indicates that the average owner of small business is ready to employ part-time /seasonal worker[31].

The insight into the structure (Appendix, Table A2) of answers reveals that one half of the respondents gave negative answer and only 5% of them will decide to employ more employees. However, the frequency of employing only part-time workers is substantial (around one fifth).

Concerning the structure per activity (Appendix, Table A3), the hairdressing and beauty services reveal the worst results, while the restaurants and bars the best ones (only one fourth of the respondents with the negative answer), followed by taxi services and food production.

[31] As already explained, this question was put to all the respondents. The expected link between lower VAT rates and lower prices (1) and the rise in employment was not assumed to be the only cause of the rise in employment. The avoidance of pass-through and the resulting rise in income of the small business should also lead to the same result, inducing small business owners to substitute their work for leisure employing one or more additional (or part time) workers. However, almost the same results (even slightly worse) were obtained, when only the respondents with negative answer to the first question were taken into account (authors' evidence). The results indicate that lower VAT rate could slightly increase employment in both cases (whether shifted to prices or not) and that the effects in both cases are not considerable, being even a little bit smaller in the case of non shifting.

For the forth variable, post-hoc LSD test (Appendix, Table A4) reveals that out of 28 tested pairs of activities, statistically significant difference is detected at 13 pairs of activities appearing most frequently for restaurants and bars.

The general conclusion for the last question/variable could be described as very slight and selective optimism. It is only in half of the cases that the increase in employment is possible and should it happen, most likely it would be only seasonal or part-time. The biggest effect is present in a case of restaurants and bars, where employment will increase in three quarter of cases, with the average lying between part-time/seasonal and one new worker. Taxi services and food production could also be taken into account.

4.2.2. Correlations

Two correlation analyses were performed. The first one encompasses only small business that gave positive answer to the first question (150 respondents) and is presented in Table 4.

Table 4: Pearson coefficients - 1. variant

Variable	Variable 2	Variable 3	Variable 4
Variable 1	0,35*	0,11	0,34*
Variable 2		0,20*	0,21*
Variable 3			0,17*

* Statistical significance, $p<0.1$
Variable 1 = Readiness to price reduction due to the reduced VAT rate
Variable 2 = Expectations of sales increase due to the price reduction
Variable 3 = Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question due to the reduced VAT rate
Variable 4 = Willingness to increase number of employees in the long run due to the reduced VAT rate

Source: Authors

As it can be seen from the Table 4, all variables are positively correlated and almost all correlations are statistically significant. The highest correlation is between first and second variable and first and fourth variable (moderate correlation). It means that those small businesses that are prepared to reduce prices to a greater extend (greater or full pass through) do also expect higher increase in demand, which is completely logical. They are also more inclined to increase the employment.

The second analysis encompasses all respondents (200 respondents) and is presented in Table 5.

Table 5: Pearson coefficients - 2. variant

Variable	Variable 2	Variable 3	Variable 4
Variable 1	0,73*	0,18*	0,18*
Variable 2		0,23*	0,10
Variable 3			0,17*

* Statistical significance, p<0.1
Variable 1 = Readiness to price reduction due to the reduced VAT rate
Variable 2 = Expectations of sales increase due to the price reduction
Variable 3 = Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question due to the reduced VAT rate
Variable 4 = Willingness to increase number of employees in the long run due to the reduced VAT rate

Source: Authors

As expected, Table 5 shows smaller, but also statistically significant coefficients. The very high correlation is between first and second variable only, being influenced by the fact that only positive answers to the first question were taken into account in the second question.

The correlation between variables per activities (Appendix, Table A5) shows statistically significant and highest correlation between price reduction and increase in sales for all activities, which is completely logical. High and statistically significant correlation is found between price reduction and higher employment for food production and restaurants and bars. Statistically significant and moderate (or small) correlation is found between price reduction and higher reporting only for construction and restaurants and bars. Furthermore, for restaurants and bars, there is statistically significant correlation between all the variables and higher employment (small to moderate correlation). Other services have statistically significant and high correlation between reporting and higher employment.[32]

4.2.3. Tax proactive and reactive small business clusters

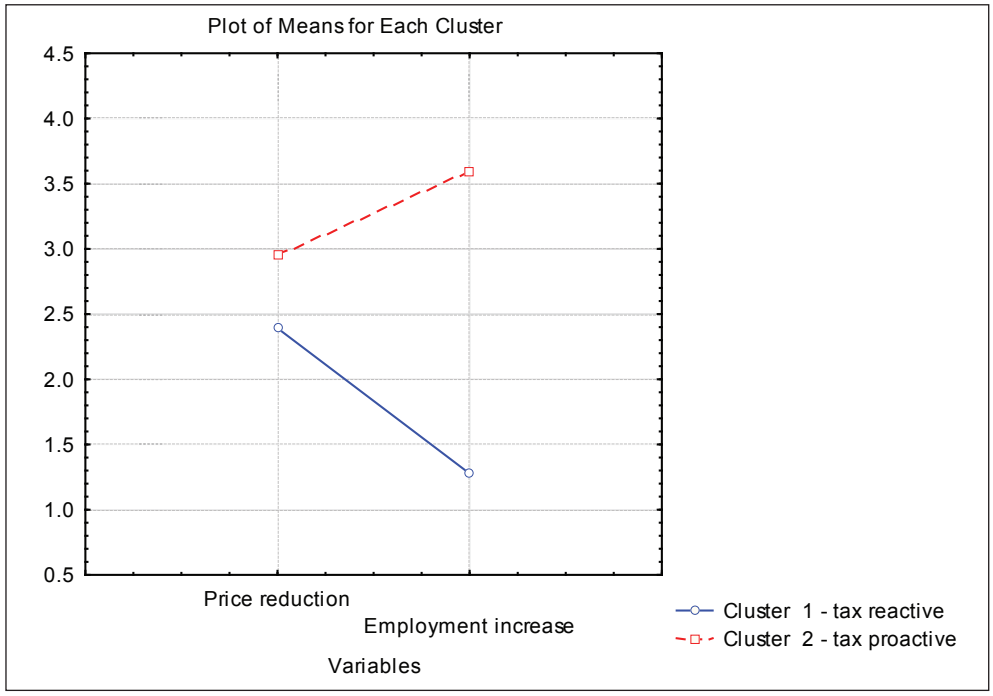
Clustering of small business is done by taking into account two variables: readiness to price reduction and readiness to increase employment. This simplified synthesis has taken only those variables into account, which are dependant on the taxpayers alone.[33] The procedure forms the groups of small business according to the highest differences in selected variables (see Appendix, Tables A6a and A6b).

[32] It is interesting to note, that, besides all those positive correlations, some negative correlations have been found also, but were not statistically significant.

[33] The taxpayers' assessment of shadow economy decline (higher reporting) is based on their current perception of the shadow economy in their sector – its presence as well as its possible decline.

Plot diagram of clusters is presented in Figure 3.

Figure 3: Plot diagram of clusters



Source: Authors

Three quarters of the population belong to the tax reactive cluster and only one quarter to the tax proactive cluster. Tax reactive cluster has very moderate results ($M_{(price\ reduction)} = 2.39$; $SD_{(price\ reduction)} = 1.06$; $M_{(employment\ increase)} = 1.28$; $SD_{(employment\ increase)} = 0.45$) while tax proactive cluster has, of course, better results, but still not extremely high ($M_{(price\ reduction)} = 2.96$; $SD_{(price\ reduction)} = 1.44$; $M_{(employment\ increase)} = 3.60$; $SD_{(employment\ increase)} = 0.82$).

Taking into account differences in activities (Appendix, Tables A6a and A6b) it could be concluded that restaurants and bars as well taxi services are most "tax proactive". Those results are confirmed also by Fisher LSD (Appendix, Table A7). However, this analysis takes into account two selected ("most important") variables only.

In order to assess general responsiveness of small business to reduced VAT rate different variants of the synthetic variable were created and tested (normality test,

application of parametric test). The chosen synthetic variable[34] has been constructed with the following proportions for particular variables: [35]

Price reduction **:** Sales increase **:** Employment increase = 1 **:** 0.6 **:** 0.4 (2)

The results of ANOVA show statistically significant influence of activity on the differences in value of variables ($F(7.192) = 3.3224$; $p < 0.05$; $\eta = 0.108$) and statistically significant influence of the small business size - number of employees also ($F(3.196) = 2.653$; $p < 0.05$; $\eta = 0.039$). As it could be seen, absolute value of partial eta-square is very small for the business size.

Means of tax sensitivity for activities (Appendix, Table A8a), with their theoretical maximum value being 10, range from 3.13 up to 5.78. Fisher LSD post-hoc test reveals that out 28 tested pairs of activities, statistically significant difference is detected at 10 pairs of activities and it appears most frequently for hairdressers and beauty services and restaurants and bars.[36]

5. Policy implications

The general impression from the entire analysis is that there is a possibility for some positive effects of reduced VAT rates for small business in Croatia. However, the entire effect (as well as the particular ones) is very moderate. Furthermore, the evidence seems to be suggesting the selective approach.

The EU expected existence of a link between VAT reduction, price reduction and positive effects on employment (as well as decline in the shadow economy) is proved even in this research. However, the full pass-through will definitely not occur. Moreover, the tax shifting is only between slight and moderate not only in general, but also per activity. Agriculture and fishing, food production, restaurants and bars as well construction services have a little bit better pass-through than other activities, but still only moderate.

The latter two activities (maybe together with the group of other services and cleaning services) had best results for the increase in sales. It is worth pointing out the differences in price elasticity of demand influencing the link between lower

[34] Sales increase was also included, since without the possibility to increase the supply, there is no possibility of sales increase.

[35] K/S Test = 0.079 < 0.115

[36] From the point of view of size (Appendix, Table A8b), means of tax sensitivity rise with the rise in number of employees - from 4.52 to 5.47. Fisher LSD post-hoc test reveals that from 6 tested pairs of activities, statistically significant difference is detected at 1 pair of activities and it appears most frequently for 1-5 employees versus 6-10 employees.

prices and increase in sales. So, agriculture and fishing (as well as food production) have the combination of relatively higher pass-through and lower increase in sales, while construction services (as well as other services) have opposite combination. The relatively "negative" results for former two activities (that are not typical labour intensive or locally supplied services and were included in this research due to the fact that Croatia does not have reduced VAT rate for food) are in line with the EU reasoning. The results indicate that if reduced VAT rate were introduced here (and it probably would be), it should (and would) be introduced primarily due to the equity reasons (decline in regressive effect of VAT) and not the efficiency ones (still the food production has some potential for the increase in employment, which will be elaborated later). On the other hand, the opposite results for construction (and other services) have proven the already stated potential of exploiting the positive effects of sales increase (combating unemployment and shadow economy) even without significant pass-through (reduction in prices). So, even the rate of 10% with only moderate pass-through for that activity could reach some results. The group of "other services" entails typical labour intensive services and offers great potential for the utilization of the reduced VAT rate. However, further research per each of the activity in that group is necessary in order to distinguish particular activities with the greatest potential. The same is true for cleaning services, whose results were good, but however, not reliable due to the small absolute number of respondents. Restaurants and bars seem to be a good candidate for the reduced VAT rate (probably 10% as in the case of hotel accommodation), which is in line with the latest EU assessments and Council decisions.

The further variables support those conclusions, but in a case of the shadow economy particular attention should be devoted to taxi services. Maybe the results for that activity indicate high non-compliance in that sector and need for the other forms of reaction. However, they are not encouraging, so the lower VAT rate does not seem to be a policy measure to rely on to combat the shadow economy.

But, it seems that it could be one of the measures to slightly mitigate the unemployment problem, especially for the restaurants and bars again, where three quarters of small businesses are inclined to employ some additional part time / seasonal or one full time worker. Taxi services show the great potential here again. Since they are not highly positioned in the first two variables, this could indicate that this activity strongly requires additional research in the direction of additional tax incentives / subsidies. Food production, despite the lower price elasticity of demand offers some potential for employment, which is a little bit peculiar, but probably connected with the relatively higher decrease in prices. However, the effects on employment remain limited, as pointed out also in the latest EU assessments.

6. Concluding remarks

The results seem to be more optimistic than our starting hypothesis. It could be concluded that some positive effects of reduced VAT rate for small businesses in Croatia such as price reduction, increase in sales, decline in shadow economy and increase in employment could be expected. It also implies some policy recommendations.

If introduced for the efficiency reasons, the reduced VAT rate could only be recommended without almost any reservation for the restaurants and bars that seem to offer the greatest potential (some moderate increase in sales and employment) among the activities in question. It is reasonably to believe that positive effects found out in this research for small business (in form of business units that pay income tax) could be extended also to other legal forms of business. Probably even the 10% rate (the current level of reduced rate in Croatia applied to hotel accommodation) will gain almost the same positive results, but this research and its results were based on the rate of 5%. Surprisingly, the decision of the EU Council (which was made after this research was performed) in spite of European Commission proposal, supported the extension of the reduced rate for labour intensive services to the restaurant services only, which is in line with our research results.

Some positive results for small business in Croatia could also be achieved for the construction services, even with the higher rate than used in this research (due to the high price elasticity of demand). So, again, a rate of 10% could be appropriate. Reduced rates might also be suitable for some other labour intensive services. However, they cannot be identified precisely, so that the additional research is required. Our research does not provide enough support for the straight policy recommendation for introducing the reduced VAT rate for the mentioned activities. The same is true for cleaning services. Taxi services seem to be a good candidate for other more direct fiscal measures (income tax incentives or subsidies), which, again, requires future research.

No spectacular results for small business in Croatia could be expected based on the reduced VAT rate only. As already pointed out in the latest EU assessment, there are only moderate results that are possible.

Furthermore, research results have the limitation of being related to the small business defined as personal income taxpayers only. Two problems arise because of that: the entire potential reduced rate VAT population has not been covered and the stratification was based on existing personal income tax grouping of businesses and not the precise list of activities that are potential candidates for reduced VAT rate. The further problem is that the research results have been influenced by the taxpayers' perception, assessment and expectation, which is inevitable for such type of methodology.

In the end, the results must be weighted against tax expenditures (VAT revenue loss) for the activities in question. The final policy decision should be made upon such future research.

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Snižena stopa PDV-a za male poduzetnike u Hrvatskoj[1]

Helena Blažić[2], Mira Dimitrić[3]

Sažetak

U ovom se članku procjenjuju potencijalni učinci uvođenja snižene stope PDV-a za male poduzetnike (obrtnike) utemeljene na EU zakonodavstvu o PDV-u. Analiza uključuje učinke na cijene, prodaju, sivu ekonomiju i smanjenje nezaposlenosti. Početna pretpostavka je da nema značajnijeg učinka u vezi navedenih varijabli. Istraživanje za Hrvatsku učinjeno je metodom intervjua obrtnika i obuhvaća deskriptivnu i inferencijalnu statistiku utemeljenu na parametrijskim testovima. Očekivana povezanost između snižene stope PDV-a, sniženja cijene, povećanja prodaje i pozitivnih učinaka na zaposlenost (kao i na smanjenje sive ekonomije) iz harmonizacijskih propisa EU dokazana je i u ovom istraživanju. No, prevaljivanje sniženog PDV-a na cijene vrlo je umjereno, što vrijedi i za ostale učinke. Snižena stopa PDV-a može se preporučiti za ugostiteljstvo i možda građevinarstvo stambenoga tipa (uključujući i razne građevinske usluge), no postoji mogućnost i za neke druge radno intenzivne usluge.

Ključne riječi: *javne financije, mali poduzetnici, snižena stopa PDV-a, efikasnost, Hrvatska*

JEL klasifikacija*: H25, H32, G38*

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Appendices

Table A1: Kolmogorov-Smirnov test for normality

Variable	Kolmogorov-Smirnov d
Variable 1	0.05067
Variable 2	0.03041
Variable 3	0.02958
Variable 4	0.06232

Variable 1 = Readiness to price reduction due to the reduced VAT rate

Variable 2 = Expectations of sales increase due to the price reduction

Variable 3 = Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question due to the reduced VAT rate

Variable 4 = Willingness to increase number of employees in the long run due to the reduced VAT rate

Notes:

$d_{t\ (var.1,3,4)} = 1.63/\sqrt{200} = 1.63/14.14 = 0.11527$

$d_{t\ (var.2)} = 1.63/\sqrt{150} = 1.63/12.25 = 0.13306$

$d_t > d$

- for all variables the $d_t > d$.

Source: Authors

Table A2**:** The structure of the responses by variables

- in percent (%)

Likert scale	Variable 1	Variable 2	Variable 3	Variable 4
1	25.0	10.7	34.5	53.5
2	22.0	12.7	23.0	21.0
3	34.5	25.3	25.5	14.5
4	11.0	18.0	10.0	6.0
5	7.5	33.3	7.0	5.0
Total:	100.0	100.0	100.0	100.0

Variable 1 = Readiness to price reduction due to the reduced VAT rate

Variable 2 = Expectations of sales increase due to the price reduction

Variable 3 = Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question due to the reduced VAT rate

Variable 4 = Willingness to increase number of employees in the long run due to the reduced VAT rate

Table A3: The structure of the responses by the activity

- in percent (%)

	Agriculture and fishing	Taxi services	Food production	Construction services	Hairdressers and beauty s	Restaurants and bars	Other services	Cleaning services
Readiness to price reduction								
1	23	50	10	8	41	34	8	0
2	18	30	30	32	41	4	46	50
3	23	20	40	45	18	39	31	0
4	27	0	20	15	0	5	15	50
5	9	0	0	0	0	18	0	0
	100	100	100	100	100	100	100	100
Expectations of sales increase due to the price reduction								
0	23	50	10	8	41	34	8	0
1	23	0	0	0	18	9	0	0
2	23	0	10	0	18	5	38	0
3	4	20	10	30	4	22	15	50
4	18	10	20	15	5	15	8	0
5	9	20	50	47	14	15	31	50
	100	100	100	100	100	100	100	100
Assessment of higher reporting								
1	45	40	70	30	32	32	8	100
2	23	20	10	28	55	12	31	0
3	14	0	20	25	9	37	38	0
4	9	0	0	13	4	12	15	0
5	9	40	0	4	0	7	8	0
	100	100	100	100	100	100	100	100
Willingness to increase number of employees in the long run								
1	64	40	40	70	91	26	85	100
2	27	20	40	21	9	22	15	0
3	9	40	10	9	0	24	0	0
4	0	0	0	0	0	16	0	0
5	0	0	10	0	0	12	0	0
	100	100	100	100	100	100	100	100

Source: Authors

Table A4: Fisher LSD (Multiple comparison test): Activities / all variables

Activities	Mean	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable 1: Price reduction									
1. Agriculture and fishing	2.8182		**	ns	ns	***	ns	ns	ns
2. Taxi services	1.7000			*	**	ns	**	*	ns
3. Food production	2.7000				ns	**	ns	ns	ns
4. Construction services	2.6596					***	ns	ns	ns
5. Hairdressers and beauty services	1.7727						***	*	ns
6. Restaurants and bars	2.6892							ns	ns
7. Other services	2.5385								ns
8. Cleaning services	3.0000								
Variable 2: Sales increase									
1. Agriculture and fishing	2.5882		ns	**	***	ns	**	***	ns
2. Taxi services	2.6154			*	***	ns	**	***	ns
3. Food production	3.3061				**	ns	ns	***	ns
4. Construction services	4.2222					ns	ns	ns	ns
5. Hairdressers and beauty services	3.3333						ns	**	ns
6. Restaurants and bars	4.0000							ns	ns
7. Other services	4.1860								ns
8. Cleaning services	4.0000								
Variable 3: Reporting increase									
1. Agriculture and fishing	2.1364		ns	ns	ns	ns	ns	*	ns
2. Taxi services	2.8000			**	ns	**	ns	ns	*
3. Food production	1.5000				**	ns	**	***	ns
4. Construction services	2.3404					ns	ns	ns	ns
5. Hairdressers and beauty services	1.8636						**	**	ns
6. Restaurants and bars	2.4865							ns	*
7. Other services	2.8462								**
8. Cleaning services	1.0000								
Variable 4: Employment increase									
1. Agriculture and fishing	1.4545		ns	ns	ns	ns	***	ns	ns
2. Taxi services	2.0000			ns	*	**	**	**	ns
3. Food production	2.0000				*	**	**	**	ns
4. Construction services	1.3830					ns	***	ns	ns
5. Hairdressers and beauty services	1.0909						***	ns	ns
6. Restaurants and bars	2.6757							***	**
7. Other services	1.1538								ns
8. Cleaning services	1.0000								

*** Statistical significance, $p<0.01$

** Statistical significance, $p<0.05$

* Statistical significance, $p<0.1$

ns – Not significant (no statistical significance)

Source: Authors

Table A5: Pearson correlation coefficients: Variables / all activities

Variables	Activity	Variable 2	Variable 3	Variable 4
Variable 1	Agriculture and fishing	*0.59**	-0.17	-0.22
	Food production	0.86*	-0.21	*0.66**
	Construction services	*0.89**	*0.41**	0.01
	Restaurants and bars	0.80*	0.26*	0.25*
	Taxi services	*0.98**	0.59	-0.43
	Hairdressers and beauty services	0.91*	0.03	0.10
	Other services	*0.86**	-0.17	-0.02
Variable 2	Agriculture and fishing	1.00	0.06	0.17
	Food production	1.00	0.00	0.48
	Construction services	1.00	*0.35**	0.12
	Restaurants and bars	1.00	*0.37**	*0.35**
	Taxi services	1.00	0.49	-0.32
	Hairdressers and beauty services	1.00	-0.05	-0.01
	Other services	1.00	0.06	0.12
Variable 3	Agriculture and fishing		1.00	-0.12
	Food production		1.00	0.10
	Construction services		1.00	-0.06
	Restaurants and bars		1.00	*0.34**
	Taxi services		1.00	-0.55
	Hairdressers and beauty services		1.00	-0.15
	Other services		1.00	*0.69**

Variable 1 = Readiness to price reduction due to the reduced VAT rate

Variable 2 = Expectations of sales increase due to the price reduction

Variable 3 = Assessment of higher reporting (in comparison to the existing situation) in sector of activity in question due to the reduced VAT rate

Variable 4 = Willingness to increase number of employees in the long run due to the reduced VAT rate

* significant correlation at $p<0.05$

Source: Authors

Table A6a: Activities structure according to clusters

- in percent (%)

	Agriculture and fishing	Taxi services	Food production	Construction services	Hairdressers and beauty services	Restaurants and bars	Other services	Cleaning services
Tax proactive	9.1	40.0	20.0	8.5	0.0	54.1	0.0	0.0
Tax reactive	90.9	60.0	80.0	91.5	100.0	45.9	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors

Table A6b: Clusters structure according to activities

Activities	Tax proactive (cluster 2)		Tax reactive (cluster 1)	
	Abs. number	%	Abs. number	%
Agriculture and fishing	2	3.8	20	13.5
Taxi	4	7.7	6	4.1
Food production	2	3.8	8	5.4
Construction services	4	7.8	43	29.1
Hairdressers and beauty services	0	0	22	14.9
Restaurants and bars	40	76.9	34	22.9
Other services	0	0	13	8.8
Cleaning services	0	0	2	1.3
Total	*52*	*100.0*	148	100.0

Source: Authors

Table A7: Fisher LSD (Multiple comparison test): Clusters versus activities

Activities	Mean	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Agriculture and fishing	1.09		**	ns	ns	ns	***	ns	ns
2. Taxi	1.40			ns	**	***	ns	**	ns
3. Food production	1.20				ns	ns	***	ns	ns
4. Construction services	1.09					ns	***	ns	ns
5. Hairdressers and beauty services	1.00						***	ns	ns
6. Restaurants and bars	1.54							***	**
7. Other services	1.00								ns
8. Cleaning services	1.00								

*** Statistical significance, $p<0.01$
** Statistical significance, $p<0.05$

Source: Authors

Table A8a: Fisher LSD (Multiple comparison test): Activities/synthetic variable *"Tax sensitivity"*

Activities	Mean	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Synthetic variable: Tax sensitivity									
1. Agriculture and fishing	4.6000		ns	ns	**	**	ns	ns	ns
2. Taxi services	3.7000			**	**	ns	*	ns	ns
3. Food production	5.7800				ns	***	ns	ns	ns
4. Construction services	5.5106					***	**	ns	ns
5. Hairdressers and beauty services	3.1364						***	**	ns
6. Restaurants and bars	5.0730							ns	ns
7. Other services	4.8462								ns
8. Cleaning services	5.8000								

*** Statistical significance, p<0.01

** Statistical significance, p<0.05

* Statistical significance, p<0.1

ns – Not significant (no statistical significance)

Source: Authors

Table A8b: Fisher LSD (Multiple comparison test): Size (number of employees) / synthetic variable "Tax sensitivity"

Number of employees	Mean	(1)	(2)	(3)	(4)
1. 0	4.5200		ns	ns	ns
2. 1-5	4.5703			**	ns
3. 6-10	5.5696				ns
4. 11-30	5.4750				

*** Statistical significance, p<0.01

** Statistical significance, p<0.05

* Statistical significance, p<0.1

ns – Not significant (no statistical significance)

Source: Authors