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AN ANALYSIS OF CONSUMPTION TAXES REGRESSIVE EFFECTS

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Abstract

Indirect taxes such as value added tax (VAT), excises and duties have big significance for every country. With their assistance, countries can collect enough funds for financing everyday social needs. The share of consumption tax revenues in total tax revenues is high, because consumption taxes are applied to many products and services and they are resistant to tax evasion. Although they have many positive characteristics they are also very regressive. Low-income households give higher amount of money for basic foodstuff than high-income households. Every new increase of prices can make financial condition worse for poor households.

The aim of paper is to point out on regressive side of consumption taxes. Also, some measures for reducing negative effects of consumption taxes will be presented. These measures can additionally help in reducing poverty rate, which is one of the biggest problems for many countries.

Key words: consumption taxes, regressive effects, saving, living standard, poverty.

АНАЛИЗА РЕГРЕСИВНИХ ЕФЕКАТА ПОРЕЗА НА ПОТРОШЊУ

Апстракт

Индиректни порези попут пореза на додату вредност, акциза и царина значајни су за сваку државу. Држава путем њих прикупи довољно средстава за финансирање различитих друштвених потреба. Учешће прихода од пореза на потрошњу у укупним приходима је високо, што је последица обухватања већег броја предмета, али и веће отпорности на пореску евазију. Без обзира на све позитивне карактеристике, код ове групе пореских облика посебно се истиче њихов регресивни карактер. Становништво са нижим дохотком издваја већу количину новца за основне животне намирнице у односу на богатији део становништва. Свако даље повећање цена ових добара и услуга може додатно погоршати материјално стање сиромашнијих грађана. Циљ рада је да укаже на проблем регресивности који се јавља код пореза на потрошњу, али и да предложи одређене мере којима би били умањени негативни

ефекти пореза на потрошњу, али и смањена стопа сиромаштва, која је један од највећих проблема за многе државе.

Кључне речи: порези на потрошњу, регресивни ефекти, штедња, животни стандард, сиромаштво.

INTRODUCTION

The structure of every tax system depends from general business conditions, economic activity and volume of foreign direct investments. During last three decades big turnover in tax policy of most countries happened. Share of consumption tax revenue has increased in total tax revenues, mostly because of low economic growth rates and stronger international tax competition. These factors have made difficult for tax authorities to collect more direct tax incomes. Consumption taxes have lower costs of introduction, calculation, collection, control and payment than any other form of direct taxes and they also involve more tax subjects. This all makes them attractive for implementation, when they are analyzed from the tax efficiency aspect. The consumption tax is tax on the purchase of goods and services in country of consumption. This form of tax produces indirect effects in tax system or more precisely it has indirect impact on strength of tax payers. Because of their simplicity in the process of implementation, consumption taxes have become basis in collecting public tax revenues. This put consumption taxes ahead of direct taxes such as income or corporate taxes.

In most countries, share of consumption tax revenues in total tax revenues is far over 50% and this is characteristic for developing countries. In developed countries, direct taxes have dominant role in tax system, which is not same in developing countries. Unlike developed countries, developing countries have lower volume of industrial production and living standard so this can create additional obstacles in collecting direct tax revenues. Although indirect taxes can provide huge amounts of revenues, they do not treat all individuals equally and this why regressivity problem occurs.

Paper is structured so beside introduction and conclusion has three more chapters. In first chapter, regressive characteristics of consumption taxes will be present. Since consumption taxes have huge significance for modern tax systems, the causes of their regressivity will be carefully analyzed with strong emphasis on basic tax principles that brought to creation of modern tax systems. In this chapter, ways for tracking regressivity of consumption taxes will be also presented.

Second chapter brings the outcome of consumption taxes regressive effects in EU and Republic of Serbia. Through following the distributional effects of different types of consumption taxes regressivity

problem will be easier to understand. Also, it will be much clear what part of population is really affected by this form of tax. For developing countries, such as the Republic of Serbia, it is important to discover right causes of unequal tax burden because only that way can be stopped further increase of relative and absolute poverty rate.

Third chapter offers concrete measures for solving the regressivity problem of consumption taxes. Without appropriate solution, regressive effects will increase poverty rate and create bigger gap between rich and poor ones. At that point, tax policy should be harmonized with social policy through different coordinate activities for having best possible results.

Conclusion brings short look at paper so it can help in discovering new propositions that will lead to final solution of consumption taxes regressivity problem. Also, it can help in creating new directions that should be considered in future tax policy planning.

REGRESSIVE CHARACTER OF CONSUMPTION TAX

Economic literature is dealing, for a very long time, with two hard choices such as tax efficiency and tax equity. For every country it is important to have tax system that will continuously collect revenues from population and that will use these assets for financing different social needs. An efficient tax system means that country has taxes that cause low administrative costs, which can be accomplished through computerized data analysis and with the implementation of lower rates. In conditions of better tax payments one part of revenues can be used for encouraging dynamic economic activities and for speeding up the economic growth. This dynamic development can be followed with equity problem, because taxes can take more from some people than from the others. Between efficiency and equity there is trade-off, which means that more efficiency brings less equity and contrary. Categories of population, that are unsatisfied with tax burden, are seeking for social justice through tax equity. On the other side, through tax efficiency society is "not looking to divide social cake, but is looking for certain ways to increase that cake". This is maybe good from social welfare aspect, but still tax burden is unequal for all categories of population so there is space for possible social anomalies.

Tax equity has two main requests in front of tax payers: horizontal and vertical equity. Horizontal equity means that all tax payers with same economic ability should pay same amount of tax (Bejaković, 2012, p. 94-96). Horizontal equity should apply to individuals considered equal regardless of the tax system in place. Economic strength should be considered through real estate, income or consumption so it would be much easier to define tax base. Vertical equity seeks to a tax in proportional or progressive way. People with

more ability should pay more tax. For example, individuals that are buying luxury products more than basic foodstuff (bread, milk, meat or eggs), should be taxed under higher tax rates. Low-income households can't afford luxury products, so they should pay less tax than wealthier households. Because there is not appropriate vertical equity, consumption taxes regressivity problem occurs.

For consumption taxes is often said that they are "non-personal taxes" because they do not consider any personal or property characteristic of tax payers during taxation. From tax buyers is expected to pay tax without any exception. This can be better seen at VAT and excises where tax buyers have obligation to pay for certain products and services without considering their purchasing power ability. If some personal characteristics have considered (such as overall number of family members, marriage status or number of persons in family that are employed), tax burden would have been equal addressed. Income and corporate taxes include personal characteristics of tax payers, so equal tax burden is applied to high-income individuals.

Consumption taxes are in a certain way progressive taxes, because they force certain categories of households (low-income households) to pay higher amount of tax than high-income households. Final consumer pays tax in condition of "tax anesthesia", so he doesn't know the real amount of tax that is played (Đurović – Todorović & Đorđević, 2013, p.15). In this kind of circumstances more regressive effects are present so poor households are under big pressure that can be much bigger with additional introduction of new tax forms or with the increase of current ones.

Long term regressivity has different meaning than at short term, because regressive effects are measured by lifetime and not by annual income of an individual. When income is analyzed on lifetime base then the whole concept of regressivity is in question. With assumption that wealthier individuals will spend their income during lifetime, they are facing low tax burden but they are still not free from paying VAT. Wealthier individuals are paying VAT during consumption. The explanation is simple, consumption tax are taxing consumption, not saving. On the other hand, saving is delayed consumption and in one moment it will become consumption so there will be base for taxing. In those conditions, VAT will proportionally tax income so rich and poor individuals will be equally taxed by VAT (Cindori & Pogačić, 2010, p. 232).

Regressivity is today linked very much with annual income of individuals and the result of regressive effects is increased tax burden of poor individuals. A low-income household have huge share of consumption in their incomes and because of that saving is minor or do not exist. From economics side, high-income households can use their funds to buy more basic foodstuffs, but they can also redirect one part of funds into saving. Low-income households direct their overall income into consumption and this is why they have negative saving rate. There is a suggestion that it is

better to tax savings of high-income households, but this will probably decrease future consumption and there is a risk of increasing tax evasion in future.

Methodology of Examining Regressivity

A good base for research is important in process of consumption taxes regressive effects research. Here can be used *input-output* tables that follow impact of VAT on prices of different products and services in linked industries. It is also good to use *Household Budget Survey* (HBS) because it offers some interesting data about incomes and consumption of households. HBS can give much clear picture about consumption, but it can help in analysis of households with different level of income.

For measuring regressivity, gross income, net income and consumption can be used as a base. Gross income includes taxes, contributions and other expenses that make this indicator abstract to use. All these additional factors make gross income hard to use and this is why net income has broad use in examining the regressivity. With net income it is much easier to create appropriate consumption and saving models that can help in further research. Consumption can be used as a base and it can be a good choice since changes in consumption do not change sharply as consumption. This is why consumption is good for calculating approximate long term or "permanent income" of certain individual or household so it can be of use in this situation (Blažić, 2010, p.2).

For better results of the research, net income is used as a base since it excludes tax and other expenses. It is much easier to follow how certain individual spends his income and this can help in bringing some interesting conclusions. In further process of research it is good to use adequate unit of measurement. For this unit, household is usually used. Analysis can be made on the individual base where one household is measured by its specifics (number of member, aging etc.) or on the group base with several households. One-based analysis is usually made, but it can be complex since it requires numerous data collection and analysis. Variables that describe households are (Škarica, 2009, p.264):

1. Number of members and structure of family – household (**p**); **n=p;**
2. Household income $\boldsymbol{I = \sum_{i=1}(In)}$ – sum of available incomes from all household members;
3. Household consumption $\mathbf{C = \sum_{i=1}^{n=p}(Cn)}$ – sum of costs from all household members.

First variable is important from the demographic aspect, because it shows age, level of education and numbers of members that are part of a household with certain income which will be spend in future. This can help in discovering preferences of households. Household income represents

base for measuring regressivity and it gathers all incomes of individuals inside household. This is initial variable in regression research. Consumption is analyzed through purchasing power parity which can help in getting the right view about possible ways of income spending. For consumption is important to be close to equal during lifetime, which is not possible in developing countries and this make research harder to implement.

Time series is limited to period in a same calendar year in case of measuring regressive effects of consumption taxes. At the same time this is a part of research that is a subject to criticism because one year can be used as a representative sample for lifetime period, too. This is a word about illusion that we are fully aware, but since defining right time variable can create many difficulties this is chosen to be right way for further regressivity analysis. It would be ideal to do research during individual lifetime or in certain life period, so that could solve the problem of excluding saving from the VAT system in annual approximations. Saving represents reduced or delayed consumption in some period during lifetime and if it had analyzed during lifetime, it would have become a subject of VAT taxation. This way, saving will have significant impact on regressivity.

Simulation of saving can have multiple options. Household or individual can spend saving part by part during the year on journeys, investment ventures, maintenance of household assets, buying securities and etc. This will go gradually and annual model will become acceptable and sustainable. Saving can be transform into consumption through purchasing or repairing fixed assets (this is typical after one or two decades during household lifetime) or with use of non-term assets that reduce costs of living when some individual retires.

Measuring regressivity based on "permanent income", realistic samples of consumption and lifetime saving is due to many difficulties replaced with annual models. Corrections at measuring income reduce regressive character of VAT and other direct taxes significantly, but they still remain regressive measured in annual income. Caspersen and Metcalf have found that there are four types of individuals in low-income households (Caspersen & Metcalf, 1994, p.732-733):

1. Individuals with variable annual incomes;
2. Younger population with high annual incomes;
3. Older population – pensioners with high annual incomes;
4. Population with long-term problem of poverty.

Identifying households that are really poor demands another view on regressivity problem. This time focus is on long-term income that was earned on a lifetime base, not on annual. Friedman's permanent income hypothesis can solve problem. Annual income is insufficient variable in measuring VAT regressivity because households do not spend equal during long time period. At the right time saving is formed and in some future period it will be spent. At the same way, Modigliani's life-cycle

hypothesis explains that individuals go from one income group to another. In youth and retirement individuals spend the most and that was all earned from period when they were able to work. As a result of income group change, individuals are facing with different VAT rates during lifetime. Overall, if we exclude the effects of inheritances and bequests, the average VAT rate an individual faces throughout his lifetime is exactly equal to the legally prescribed VAT rate – since the individuals assumed to spend all his lifetime earnings, although with certain temporal reallocations (Arsić & Altiparmakov, 2012, p. 5-6).

CONSUMPTION TAX REGRESSIVITY IN EU COUNTRIES

Modern tax systems are reflecting on direct and indirect taxes. Depending on the growth rate, legislature and economic relations inside and outside, appropriate tax system is built. In last few decades, tendencies show that indirect taxes and especially consumption taxes have bigger use in modern tax systems.

Table 1. Share of consumption taxes in total tax revenues in selected EU countries, 1995-2013 (%)

State	Year						
	1995	2000	2005	2010	2011	2012	2013
Bulgaria	39,7	43,8	53,2	54,9	54,2	55,3	54,2
United Kingdom	38,8	37,8	36,0	36,9	37,7	38,5	36,8
Cyprus	42,6	40,6	47,2	43,8	41,9	42,7	43,5
Hungary	42,8	41,8	42,2	45,5	45,8	47,1	48,6
Malta	45,9	44,1	45,6	42,0	42,3	40,7	38,5
Germany	27,2	27,3	28,2	29,7	29,8	29,2	27,8
Romania	33,7	40,2	46,4	45,2	46,9	47,2	46,8
Slovenia	39,5	42,2	40,8	38,7	38,7	38,8	40,2
France	37,5	35,8	35,8	35,5	35,4	34,9	33,0
Czech Republic	32,9	32,1	31,8	34,1	34,2	35,0	37,3

Source: http://ec.europa.eu/taxtrends_2014 (03/07/2015)

Among consumption taxes huge fiscal significance have VAT, and tobacco, alcohol and oil excises. In EU countries share of consumption tax revenues in total revenues is heading from 27,8% in Germany to 54,2% in Bulgaria. Table 1 show that countries like Bulgaria, Cyprus, Hungary and Romania have high share of consumption tax revenues in total revenues and the most of these countries is among last ones that entered EU. Low economic growth and global crisis have influenced on this countries to turn their attention to consumption taxes, since they have low share of direct taxes revenues in total tax revenues. Consumption taxes are very important for developing countries, so every single change in their structure must be carefully planned.

First studies about regressivity problem were made during 1970s. One of the reasons for so late studies was fact that most of countries have adopted reduced rates policy except Denmark that already had zero-rate. Reduced rates were supposed to be above 5% and their introduction was in favor of vertical equity. At the end of seventies VAT structure was various than today and first regressivity study in EU countries showed that VAT is more-less proportional. When consumption was taken as a base, VAT showed slight progression and in case of income progression also existed. Only difference was that low-income individuals were facing with slight progression, while in case of high-income individuals results showed VAT regressivity. With the use of quantitative methods it is hard to compare distributional effects through highest and lowest deciles/quintiles because most of countries used range of income as a primary data (base). Deciles and quintiles divide result of distribution to five or ten parts and each part contain 10 or 20% of distributional result. In consumption taxes regressivity analysis each of these parts represent part of income that households have and it is in range from lowest to highest income.

Table 2. Distributional effects of VAT coefficients for chosen European countries

The end of 1970s	D_{10}/D_1	Q_5/Q_1
Finland	1,05	1,17
United Kingdom	0,92	1,00
1980s		
Denmark	0,21	0,34
Netherlands	0,79	0,77
Sweden	0,67	0,75
United Kingdom[1]	>0,86	>0,89

Source: Blažić, 2010, p.4

Finland and United Kingdom (UK) were first countries to measure regressive effects of VAT and according to table 2 there is a slight progressivity in Finland. This is because VAT share is higher in ninth decile than in last one that comes from regressive effects on high-income individuals. Coefficients in UK are 0.92 and 1,00 which shows existence of proportionality, but like in case of Finland VAT share in ninth decile is higher than in tenth decile.

By the beginning of eighties, regressivity was measured again, but this time it showed opposite results. VAT was regressive, measured by either gross or net income. Study showed that Denmark had coefficient of 0,21 due to higher VAT share in lowest decile. In Netherlands and

[1] Data for United Kingdom refer to gross income. If author had used net income as a base like in other countries, final result would have been much higher.

Sweden coefficients measured in deciles were 0,79 and 0,67, while in UK gross income was again taken as a base and this time showed regressivity in both deciles and quintiles.

By simple rule, VAT is proportional when consumption was used as base during measurement. This heads to low impact of reduced rate and especially zero rate on basic foodstuffs so they can't reduce regressivity in more effective way. The fact is that some products such as books, newspapers, tickets for cultural and sport events do not have more presence in consumption of low-income individuals. All these products are income elastic and they can only contribute to further regressivity increase. Low impact of reduced rates has influenced on bigger convergence of consumption model at different income groups.

Convergence is confirmed with new data for EU countries. Exceptions are cost of food, electric power and heating whose share in lowest quintile is twice bigger than in highest quintile. This is important for food costs, not just because of relatively huge difference in comparison to low-income households, but also because of overall share of food in consumption and its reduction in last quintile. This is the reason for introduction of two reduced rate, which one of them refers to food. There are several simulations that showed different sides of VAT character. First one assumes transition to standard VAT rate, where final result showed regressivity of VAT. Second simulation is looking to include hotels and restaurants under reduced rate, while third include electric power and heating. Both simulations showed same result as first simulation. In fifth simulation all rates below standard rate are reduced to lowest rate, while in fifth simulations restaurants, hotels, electric power and heating were all excluded from further analysis. Both simulations are regressive to the extent where relatively less favorably treated sectors can achieve redistributive purpose (Copenhagen Economics, 2007, p.4).

Table 3. Distributional effects of VAT coefficients for chosen European countries in 2004

Country	D_{10}/D_1	Q_5/Q_1
Belgium	0,73	0,76
Finland	0,27	0,39
France	0,42	0,51
Greece	0,35	0,46
Ireland	0,49	0,53
Italy	0,33	0,45
Luxembourg	0,51	0,60
Netherlands	0,46	0,59
Portugal	0,23	0,33
Spain	0,32	0,43
Sweden	0,18	0,32
United Kingdom	0,42	0,52
Average	0,35	0,47

Source: Warren, 2010, p.47

The study that was made with help of EUROMOD's micro simulation model, where net income was used as a base, showed regressivity in EU countries just before new entries in 2004. On the other hand, results measured by consumption showed slight progression of consumption taxes. This relation implicates impact of reduced rates, especially on food (that leads to slight progression) and significant impact of saving (its negative character) that neutralized positive effects of reduced rates. The ranges of average VAT rates measured by net income showed their significant value and they are 24,3 in first decile compared to 8,4 in tenth decile. By putting these two values in a single relation coefficient of distribution is 0,35 which leads tohigher regressivity. Similar results would have got, if variables had measured in quintiles. Negative saving rate had powerful impact on consumption tax regressivity.

Individually, in UK excises are more regressive than VAT due to implementation of reduced rates on food. Results for VAT, measured by net income, showed 11,4% for lowest quintile in comparison to 6,4% for highest quintile. The value of coefficient is 0,52 and that showed that UK is one of EU members with highest income inequality. UK didn't help zero rate to reduce regressivity of VAT. This outcome is result of high savings rate in high-income households, while consumption in low-income households is far over their incomes so we have presence of negative saving rate.

Similar case was recorded in Ireland and Belgium. Study in Ireland showed regressivity, measured by gross income, where average VAT value is 14,2% for lowest and 6,8% for highest decile. Value of distributional coefficient is 0,49 that leads to conclusion that VAT produces less regressive effects in Ireland than in UK. Regressivity measured by gross income for lowest quintile is 0,63. Ireland implements zero rate on food and if that rate had abolished, share of VAT in income would have increased by 5% in first decile and decreased by 1% in last decile. These changes would definitely increase regressivity. Belgium used both gross and net income for measuring regressivity. Study showed that regressivity measured by gross income gives results of 11,4% for lowest and 8,6% for highest decile. In final, coefficient is 0,73, while measured by quintiles coefficient is 0,76. This study also implemented complex measures of progressivity that are linked with direct taxes and contributions for social insurance. These additions helped in comparing distributional effects of different groups of tax.

During the empirical research of VAT incidence, it is expected that results will show that effective rate value is in range from 0% to standard rate. Only very rich households have that possibility to save whole annual income so they can face with annual effective VAT rate of 0%. On the other hand, poorest household don't have that possibility to save whole annual income. Because they spend whole income, they are facing with maximum effective rate, which is also standard rate in country where they spend their income. Empirical research based on five countries (table 4)

proves basic assumption that VAT is regressive because of high effective VAT rate for poorest households. Based on table, four countries have higher effective VAT rates than standard rates.

Table 4. Effective VAT rates measured by annual income and deciles in 2009

Deciles	Belgium	Hungary	United Kingdom	Greece	Ireland
Poorest	26,7	28,2	16,1	33,2	46,4
2	13,4	20,2	11,2	22,1	16,6
3	13,0	18,1	10,3	19,6	13,6
4	12,4	17,1	9,4	18,5	11,6
5	12,0	16,0	8,8	18,5	12,2
6	11,2	15,6	8,2	16,7	11,4
7	11,0	15,2	8,2	15,3	10,3
8	10,3	14,7	7,5	15,1	9,5
9	10,1	14,3	7,1	13,4	8,5
Richest	8,8	12,5	5,8	11,6	6,3
Legal VAT rate	21	25	17,5	19	21

Source: Decoster et al., 2010

Table 5. Saving rates and corrected VAT rates for chosen countries in 2009

Deciles	Belgium		Hungary		Greece	
	Saving rate	Corrected VAT rate	Saving rate	Corrected VAT rate	Saving rate	Corrected VAT rate
Poorest	-63,4	16,4	-50,4	18,8	-117,3	15,3
2	-17,5	11,4	-14,3	17,7	-62,8	13,6
3	-8,1	12,0	-3,9	17,4	-36,3	14,4
4	-2,1	12,1	1,6	17,1	-33,2	17,9
5	3,8	12,0	6,4	16,0	-26,2	14,6
6	9,3	11,2	10,1	15,6	-14,3	14,6
7	13,3	11,0	12,1	15,2	-8,5	14,1
8	18,0	10,3	14,4	14,7	-5,0	14,4
9	22,7	10,1	17,6	14,3	1,6	13,4
Richest	33,3	8,8	27,1	12,5	15,8	11,6

Source: Decoster et al., 2010

High effective VAT rates are caused by negative saving rates at poorest households. It is well-known that poor households don't save enough, so they spend all their income on basic needs. With the help of HBS it can also be seen that low-income households spend entire amount of their incomes. If negative saving rate is corrected with assumption that incomes are equal to consumption in lowest deciles, VAT incidence would become regressive. Still, it would be less regressive than in some previous studies.

In methodology, impact of VAT exemptions can sometimes be ignored which can cause less significant result of study. That is way distortions of results must be emphasized. In some studies "*hidden VAT*",

which is part of VAT structure, is equal with effects of zero rate, but still is not a part of calculation. When this fact is analyzed through the prism of different incomes share in consumption, results showed higher share of high-income groups in consumption of exempted products. Conclusion can be that regressions lines are slight tolerant and that many countries have to pay attention to exempted products because they can change overall picture of indirect taxation.

Many European countries have started to regressive effects of consumption taxes few decades ago. Late analysis is result of less dominant role of consumption taxes in tax systems. At indirect taxation, there is no any resistance when payment comes to the end and true effects population will feel after some time. Regressivity problem is starting point for solving poverty problem, which has wide presence in EU countries. In 2004 analysis of consumption taxes regressive effects was made in order to see impact of certain tax rates on income distribution just before entries of new members in EU. Last analysis was made in 2009, because it was important to see what changed in five years period. Since then, new analysis hasn't made due to global economic crisis and many problems in public finances of EU countries.

CONSUMPTION TAX REGRESSIVITY EFFECTS IN REPUBLIC OF SERBIA

Republic of Serbia, as a one of developing countries, has tax system where dominant place have indirect taxes such as VAT and excises. Their share in total tax revenues is increasing due to insufficient development of industry, high unemployment rate, and poor living standard, huge presence of grey economy and very low business activity of home companies. Transition process is far from over and it still didn't bring more dynamic development that can help in increasing share of direct taxes in total tax revenues. Under these circumstances, consumption taxes represent the best way for collecting more tax revenues.

Table 6. Share of consumption taxes in total revenues in Serbia, 2008-2014

Year	Total revenues (in mill. of dinars)	Consumption tax revenues	
		In mill. of dinars	In % of total revenues
2008.	1.142.113,5	476.610,8	41,73
2009.	1.146.509,5	479.748,1	41,84
2010.	1.223.402,7	515.821,5	42,16
2011.	1.302.508,3	552.199,5	42,39
2012.	1.405.442,0	584.352,0	41,57
2013.	1.467.850,1	617.889,6	42,09
2014.	1.620.752,1	653.063,5	40,29

Source: http://www.mfin.gov.rs/UserFiles/File/biltenjavnefinansije/bilten-113-web.pdf, (04/07/2015), calculations made by authors

Consumption taxes have share of 42% in total revenues, which means that they bring most of revenues to tax authorities. Among consumption taxes, VAT has a share of 30% in total revenues, while excises have 19%. Share of duties is decreasing due to many contracts about free trade that Serbia signed with EU and other economic partners. From efficiency aspect, taxing consumption is better than direct taxation because it has less impact on all process in domestic economy and behavior of economic subjects. Also it leaves smaller space for tax evasion and it doesn't have huge impact on regional and global competition (Đorđević, 2014, p.1161).

Study about consumption taxes regressivity effects in Serbia was made in 2009. HBS, that includes 4594 households, was a base for creating study where VAT had central place in analyzing regressive effects. It is important to state that study was done with two limitations (Arsić & Altiparmakov, 2012, p.7): First limitations are about sale of food (fruit, vegetables, meat) on greenmarkets that is legally exempt from VAT in Serbia. However, HBS data (and most expenditure surveys in general) does not allow differentiating between purchases of food on greenmarkets (VAT exempt) and purchases of food in grocery stores (subject to reduced VAT rate). Since poor households purchase more food from greenmarkets than rich households, using HBS data as the basis of VAT incidence overstates the actual VAT burden for the poor households. As for second limitation, HBS surveys in general cover household consumption and don't include purchases of newly built apartments, which formally represent investment spending. However, since purchases of newly built apartments are subject to VAT, HBS data understates VAT incidence of rich households – which save for many years in order to afford one-time high cost of buying an apartment.

HBS can provide crucial data about annual income and expenditure for purpose of study. Annual income is used for measuring living standard and for defining annual VAT incidence, while annual expenditure data are used for approximating permanent income in order to define lifetime VAT incidence. HBS ignores household investment expenditures, so total recorded expenditures are used as proxy for current household expenditures. Based on household data, there are: expenditures subject to the standard VAT rate, those subject to reduced VAT rate, expenditures that are VAT exempt and expenditures due to natural consumption. After expenditures, households are sorted by two indicators of living standards. These indicators are registered income and registered expenditures. OECD equivalence scale was used to account for different sizes of households, while results are presented in table 7 and table 8.

Table 7. Expenditure models by annual household income in deciles

Deciles	Standard VAT rate	Reduced VAT rate	VAT Exempt	Natural consumption
Poorest	46,4	40,8	2,4	10,3
2	48,7	39,0	2,6	9,7
3	49,5	40,3	2,1	8,1
4	50,0	38,9	2,1	9,0
5	51,4	39,5	2,0	7,1
6	51,7	39,8	2,0	6,5
7	54,5	39,1	2,2	4,3
8	52,9	39,7	3,5	4,0
9	55,5	36,9	3,8	3,9
Richest	58,1	34,6	3,4	3,9

Source: Arsić & Altiparmakov, 2012, p. 9

Table 8. Expenditure models by annual household expenditures in deciles

Deciles	Standard VAT rate	Reduced VAT rate	VAT Exempt	Natural consumption
Poorest	43,5	42,5	0,6	13,4
2	48,6	38,5	1,0	11,8
3	48,2	39,6	1,0	11,2
4	49,3	41,6	1,4	7,8
5	49,1	41,6	1,4	7,9
6	51,5	40,4	1,9	6,2
7	51,7	40,5	2,6	5,2
8	52,8	38,8	3,1	5,3
9	54,7	38,6	3,0	3,7
Richest	59,5	32,5	5,4	2,5

Source: Arsić & Altiparmakov, 2012, p. 9

Based on featured tables, conclusion can be that current VAT system creates slightly progressive structure of the tax burden when households ranking by expenditures are analyzed. Reduced rate goods have share of expenditures in case of poor households than in for rich ones. Progressive structure is reduced, when VAT exemption for some products and services is considered. Serbian VAT system exempts health and education services. Since Serbia has public health and education system, only high-income households can afford additional expenditures on these services. This has impact on reducing regressive effects, because low-income household can't afford additional services. It is important to mention that natural consumption significantly increases progressivity in VAT system by providing more VAT exemptions to low-income households. This is very unique for Serbia. In most of European countries agricultural production and small scale own-source farming is only marginally present. Agricultural production accounts for only 1,3% of EU GDP, while in case of Serbia is 13% of GDP. On

example of Serbia, higher agricultural employment reduces regressivity of VAT and since prices are controlled by state there is not big pressure on low-income households that are employed in agriculture.

Table 9. Annual VAT Incidence that excludes effects of negative savings in Serbia (in %)

Deciles	Effective VAT rate	Saving	Corrected VAT rate
Poorest	21,2	-73,1	12,3
2	14,9	-25,5	11.9
3	13,9	-15,8	12,0
4	12,3	-4,0	11,8
5	11,2	6,7	11,2
6	11,0	8,6	11,0
7	11,2	9,9	11,2
8	10,0	17,3	10,0
9	9,5	22,4	9,5
Richest	7,9	36,0	7,9

Source: Arsić & Altiparmakov, 2012, p.11

In order to estimate average effective VAT burden for each household, appropriate tax rates to each expenditure category have been applied. Effective 0% VAT is applied to VAT exempt and natural consumption categories. In table 9 VAT incidence is distinctively regressive, especially at low-income households. The main reason for that is negative saving rate and it is same in many European countries. Estimated VAT rate is higher than standard VAT rate, which shows that low-income households higher expenditures than high-income households. After correction of high saving rates, VAT incidence is less regressive.

Table 10. Lifetime VAT Incidence in Serbia (%)

Deciles	Effective VAT rate
Poorest	10,8
2	11,5
3	11,5
4	11,8
5	11,8
6	12,2
7	12,2
8	12,3
9	12,6
Richest	13,0

Source: Arsić & Altiparmakov, 2012, p. 11

In table 10 it can be seen that lifetime VAT incidence is slightly progressive. Study showed that it is also slightly progressive than in other

European countries. Also, effective VAT rates are in range from 10% to 13%, which is less than standard VAT rate. Consumption excludes saving and since high-income households have higher saving rates and low consumption, regressivity problem must be analyzed from different angle. Slight progressivity of lifetime VAT incidence exists because it is compared with household's expenditures and not with household's incomes (Creedy, 1998). During lifetime some poor households will be able to spend more due to higher incomes, while some rich households will spend less. This will reduce negative saving rate at poor households, but it will also reduce saving rate at richest households. Because of these changes, at the end lifetime VAT incidence will be slightly progressive.

METHODS FOR SOLVING REGRESSIVITY PROBLEM

Consumption taxes, among them VAT, are important from fiscal aspect but still they expose some regressive effects on different tax payer. Regressive effects of consumption taxes can increase poverty rate and because of that some actions must be taken immediately. One of methods for reducing regressivity is *VAT exemption*. Most of countries have law that can exempt from VAT many products and services from public interest such as school or health services. Sometimes due to administrative needs VAT exemption is necessary, because tax evidence can be run effectively.

Low-income households can buy more products with VAT exemption, but the real question for tax authorities is on which products should exemption be implemented? Food, medicaments and health services are some of objects that can be exempted in order to reduce consumption tax regressivity. Some studies showed that increase of income will reduce expenditures for food and health services, which in the end means that VAT exempted products and services will lead to reduce of overall regressivity (Acosta, 2011). Lawmakers must decide what products will be included in VAT system, before implementation of new rules. For example all kinds of food, except the one that is prepared for momentary consumption, will be in included in VAT system. More broadly, restaurants, bakeries, grocery stores and companies that utilize food should be a part of VAT system. This way, fresh fruits and vegetables, meat and milk (basic elements in nutrition pyramid) should be tax exempted. These groceries have vital part in population nutrition, but also exemption will reduce regressive effects of consumption taxes. Bread is usually VAT exempted product, but his ingredients such flour, baker's yeast and preparing services that are not VAT exempted. This is why sometimes full price of bread includes VAT. Flour and baker's yeast are ingredients of sweets and cakes that are VAT exempted, so there can be many difficulties in taking right decision about VAT exempted products.

VAT exemption is one of way for reducing regressive effects of consumption taxes, but it can also help in establishing better tax equity. Many inputs can be used in products that are VAT exempted or not, so in the end for lawmakers is hard to decide what inputs they should include in VAT system. Every tax system should leave enough space for possible corrections, because some products and services will be included in VAT system and some will be excluded. VAT exemption can help low-income households to buy more basic foodstuffs and to satisfy their primary needs. VAT exemption has common use in reducing regressive effects of consumption taxes due to simplicity of its implementation.

Some countries are trying to solve regressivity problem with *zero rate VAT*. Zero rate VAT importers and manufacturers don't have obligation to calculate VAT, but they can claim their input VAT deductions on goods or services acquired in the course of making such taxable supplies. On the other hand, VAT exempt sellers can't reclaim their input VAT deductions in respect of goods or services acquired in the course of furtherance of making exempt supplies. This main difference between zero rate VAT and VAT exempt tax payers and for every tax payer it is much better solution to implement zero rate VAT than VAT exemption.

Out of 28 EU members, 8 implement zero rate VAT. These countries are Belgium, Denmark, Finland, Malta, Ireland, Italy, Sweden and United Kingdom. Until 2013 Croatia also has implemented zero rate VAT, but since Croatia became EU member it stopped with further implementation. Products and services that are usually zero rated are: bread, milk, books, daily and monthly newspapers, medical equipment, orthopedic machines, animal food, medicaments, plant seeds etc. Zero rate VAT is acceptable for low-income households, because they spend most of their incomes on basic foodstuffs and buying zero rate products will save some part of household's incomes. Implementation of zero rate policy depends from tax authority's assumption if new policy will improve population living standard or not.

In last few years, EU has implemented "aggressive" policy towards zero rate VAT. The reason for quitting zero VAT rate are low consumption taxes revenues (especially VAT revenues), so countries are forced to accept this unpopular measure. Scandinavian countries are resisting successfully to this trend, because their policies are focused on welfare of individuals and families. Citizens in these countries receive help from authorities and that way is stopped further increase of poverty rate. Zero rate VAT can contribute to welfare improvement because it is implemented on products that low-income households use most. The effects of quitting zero rate policy would be horrible. Prices would jump immediately, if central bank and ministry of finance didn't react properly. It would reduce living standard and caused additional problems. Consumption could be reduced and it would harm trading activities, since many goods and services would be left on market without coming to final consumers. Costs of supplies would increase and

that would become a headache for trading and production companies. The reason for these negative effects on social welfare lies in fact that burden of welfare loss is inversely proportional to overall consumption of household where zero rate products are included in consumption (Švaljek, 2011, p.12).

Another way for solving regressivity problem is introduction of *reduced VAT rate* to tax system. Due to unsustainability of standard VAT rate, reduced VAT rate was introduced and implemented on food, traffic services, and tourism, health and education services. Reduced rates have a special place in EU legislation, where *Directive 92/77/EEC* (approximation of VAT rates) helps in structuring reduced rates. By this directive, every EU member can have one or two reduced rates that shouldn't be below 5%. Although directive strictly tells that EU members should not have reduced rates below 5%, some countries like Ireland, Italy, Luxemburg, France and Spain have exclusive right to implement reduced rates under level of 5%. These rates are known as *super-reduced VAT rates*. Their implementation is limited on food, medicaments, books, newspapers and traffic services. Countries that are implementing super-reduced VAT rate explained in their annexes that social reasons are main reasons for implementing these rates and that quitting will have negative impact on consumption of super-reduced rate products.

The importance of reduced rates lies in fact that high VAT makes goods and services more expensive. That is not good for low-income households and their welfare could be in danger. Reduced VAT rates can improve welfare of poor households through increase of demand for certain reduced rate products and services. Buying reduced rate products can change mentality of low-income households who will start to prefer work time more so they could spend more on other products beside reduced rate goods. They can make more efforts in improving their welfare when they start to buy cheaper products and by the time expenditures will increase so they can something more expensive. In case of food, clothes, shoes and fuel reduced rates have important role in reducing regressivity. Reduced rates allow to increase saving proportionally to income of different categories so they can better choice of buying various products and services. In Serbia, reduced rate is 10% and it is implemented on bread, milk and dairy products, sugar, sunflower oil, corn, meat, personal computers, medical equipment, textbooks and other products and services.

One of alternatives for regressive character of VAT can be *direct VAT refund to low-income households*. This tax loan should be structured to allow effective VAT redistribution from low-income to high-income households. It is important that credit funds should be coordinated with income of low-income households so refund can be directed to households that are classified as poor. By the time, refund will be stopped when income of low-income households increase. This means that low-income households are facing with less regressive effects of consumption taxes and that with

increased purchasing ability they can more products and services so there is no more need for further VAT refund.

Single VAT rate can be one of solutions to consumption taxes regressivity, although it does not hurt all categories of population in same way. One of the arguments for single VAT rate is that many products and services are not treated equally. Reduced rates are implemented on basic foodstuffs such as bread, milk, eggs or meat, but are not implemented on their inputs during production process. Also some fruits and vegetables are taxed differently, so this can have impact on their sale and consumption. Reduced rates don't guarantee lower prices of products and services, because their real prices are formed on the market where supply confronts demand. All households buy bread, milk, eggs and meat but they don't spend them equally. Reduced rates don't make any difference among different categories, so this means that they are not applied strictly for poor households. Due to absence of proper effects regressivity problem remains. Some countries like Egypt, Japan, South Korea, New Zealand, Singapore and Montenegro have accepted single VAT rate without any exemptions.

Progressive taxation of rich household's incomes can reduce regressive effects of consumption taxes. This way, fair distribution of tax burden would be made and poor households would not worry for their existence any more. Countries can help poor households through higher amount of *social transfers*, but to prevent any abuses countries must define which households really need help and which don't. *Investments in human capital* can have impact on reducing regressivity problem, particular investments in education and health services. Improved knowledge and skills can help low-income citizens to find better jobs with high salary, which will in the end help them to pay taxes in much easier way and to secure better future for them.

CONCLUSION

Consumption taxes represent vital part of every country tax system. In developing countries their share in total tax revenues are around 50%, while in developed countries their share is much less than in developing countries. Due to ability to collect more revenues and low administrative costs, consumption taxes have become very attractive for modern tax systems. They have safe future in tax systems until countries reach higher economic growth.

Regressive effects of consumption taxes have made tax burden heavier for low-income households than other categories. Low-income households have higher expenditures for basic foodstuffs and they also have negative saving rate that has impact on regressivity problem.

Before implementation of consumption taxes or any other form of taxation, social maps should be created first. This way, it is possible to

determine the exact number of population that is leaving under absolute or relative poverty rate so authorities would have better view at tax effects on different households. One of problems is non-personal character of consumption taxes, because they don't recognize personal characteristics or nature of tax payers. This is why tax burden isn't distributed equally.

Regressive effects of consumption taxes are present in all EU countries where their intensity differs. Republic of Serbia is not left out due high unemployment rate and poverty. Since poverty has become one of biggest problems for many countries, so this problem request special measures for solving it. Legislature must precise the level of tax burden for different categories in order to achieve proper tax equity. The implementation of tax exemptions represents move forward until final creation of tax equity inside tax system. If system is not structured well, there will be no real effects. It would be better that before taxation authorities know what categories of household's right to be tax exempted, so they could prepare appropriate solutions. This can help less developed regions to receive higher amount of funds from central authorities in order to become competitive force on market. Negative effects of taxation would be reduced and also the poverty rate. Inputs and final products are often not treated equally in modern tax systems. It is necessary to change this habit because with more equitable tax structure economic growth of poor region can increase and poverty rate will be reduced.

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АНАЛИЗА РЕГРЕСИВНИХ ЕФЕКАТА ПОРЕЗА НА ПОТРОШЊУ

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Резиме

Порези на потрошњу имају значајно место у савременим пореским системима. Како порези на потрошњу имају високо учешће у укупним пореским приходима, они могу помоћи у финансирању различитих друштвених потреба. Земље у развоју највише се ослањају на порезе на потрошњу, јер они представљају један од начина да се повећају укупни приходи, а да се држава не задужи код међународних финансијских институција или да прода државну имовину и јавна предузећа. Без обзира на то што порези на потрошњу доста доприносе повећању укупних прихода, њихов регресиван карактер доноси много проблема пореским обвезницима, а нарочито оним сиромашнијим.

Једна од основних карактеристика пореза на потрошњу је управо њихов регресиван карактер. Да би се боље уочили регресивни ефекти пореза на потрошњу, неопходно је анализирати буџете којима располажу домаћинства. Свако домаћинство троши део свог дохотка на основне животне намирнице као што су хлеб, млеко, јаја или купује одећу и обућу. Богатија домаћинства су у стању да приуште већи број добара и услуга од сиромашнијих домаћинстава, међутим, богатија домаћинства карактерише и већа стопа штедње. То им омогућава да део дохотка оставе за неку будућу потрошњу, што сиромашнија домаћинства нису у могућности даураде. За сиромашнија домаћинства карактеристична је тренутна потрошња, што указује на то да постоји негативна стопа штедње код сиромашнијих домаћинстава. Због нешто теже материјалне ситуације, сиромашна домаћинства ограничавају своју потрошњу на основне животне намирнице и свој доходак не могу да распореде за куповину луксузних производа, као што то чине богата домаћинства.

Што се тиче анализе регресивности пореза на потрошњу у Републици Србији, утврђено је постојање благе прогресивности пореза на потрошњу. Порези на потрошњу нису показали регресиван карактер у великој мери, јер је највећи број производа и услуга које су обухваћене истраживањем ослобођен од ПДВ-а. У ове услуге убрајају се и услуге у областима образовања и здравства које се највећим делом финансирају од стране државе. Са друге стране, нешто веће присуство натуралне потрошње утицало је на мању регресивност пореза на потрошњу. Пољопривреда има високо учешће у БДП-у Републике Србије, а како држава путем субвенција и гаранција утиче на кретање цене пољопривредних инпута и готових производа, домаћинства могу по приступачнијој цени да купе различите пољопривредне производе. То свакако у мањој мери утиче на регресивност, али као кључни проблеми и даље остају низак привредни раст и висока стопа незапослености, који би могли да у неком будућем периоду имају израженији утицај на повећање регресивности пореза на потрошњу.

Многе државе покушавају да реше проблем регресивности кроз примену снижених и нултих стопа или путем различитих олакшица. Изузимање одређених добара и услуга од ПДВ-а има за циљ и да утиче на повећање потрошње сиромашнијих домаћинстава која се налазе под високим пореским оптерећењем. За разлику од директних пореза, порези на потрошњу не узимају у обзир личне и имовинске карактеристике пореских обвезника, због чега повећање пореског терета може негативно утицати на сиромашна домаћинства. Зато је важно приступити изради одређене стратегије која би заштитила домаћинства од регресивних ефеката пореза на потрошњу који могу да утичу на повећање стопе сиромаштва у земљи. Проблем регресивности пореза на потрошњу захтева детаљну анализу социјалне структуре једне земље како би се створили услови за динамичнији развој и обезбеђивање адекватне социјалне заштите оним најугроженијима.