

# The Distributional Effects of Value Added Tax

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## Abstract

*The article analyzes the incidence of the value added tax on the current money income of the households. For Romania there are evaluated the effects of changing the VAT rates on the regressivity of tax related to the current income, taking into consideration the relation between the expenditures and the incomes of the population, but also the expenditure structure by income deciles.*

**Key words:** tax, income, expenditure, regressive, decile.

**J.E.L. classification:** H2, H3.

## 1. Introduction

When applying a uniform rate of VAT on all money expenditures of the households (others than expenditures which represent direct taxes), the VAT is a regressive tax in relation to the current incomes of the population (the percentage of VAT on income decreases when income increases), because the percentage of money expenditures on incomes is decreasing as incomes is increasing.

In practice, not all money expenditures of the households are taxed, such as some production expenditures (e.g. the labour payment for the household's production) and some investment expenditures (e.g. the purchase of shares). They are also some consumption expenditures which are not taxed like the products acquired from not VAT registered companies. In addition, a number of services are VAT exempted (e.g. health services, education services, financial services, insurances).

For certain goods and services it is used reduced VAT rates which can satisfy a lot of economic and social interests. The reduced rates for some goods that are consumed by low-income population (for example, food products) decrease the regressivity of tax related to the current household income. The usage of diminished VAT rates may ensure an efficient redistribution of the society incomes only if the structure of consumption differs significantly on income ranges.

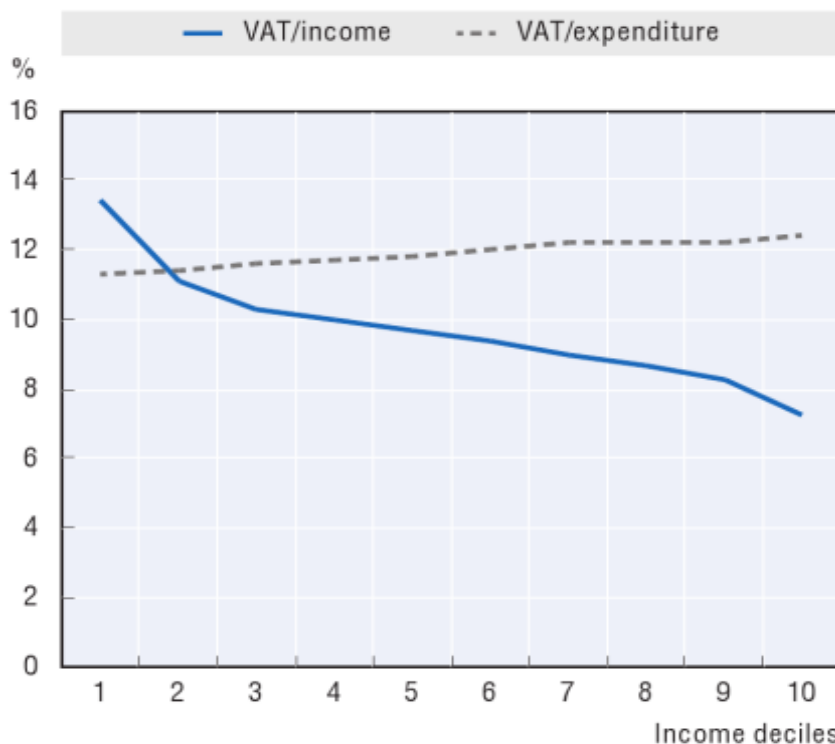
## 2. Literature review

Many scientific papers have analyzed the regressivity of the value-added tax related to the current incomes of the population and the effects of modifying the VAT rates upon the degree of regressivity of the tax.

OECD (2014) studied the redistributive effect of VAT and excises taxes for 20 member countries. The research was based on micro-simulation models of consumption taxes, created for each country, using data regarding the household expenditures (most data are from 2010). The results revealed that VAT is regressive related to the income, the percentage of VAT on income for the last decile (with the highest income) being about half of the percentage of VAT on income for the first decile (with the lowest income). Instead, VAT is slightly progressive in relation to the expenditures. In all studied countries, it can be observed a regressivity of VAT with respect to income. The degree of VAT regressivity is different from country to country; the highest ratio between the first and the last decile is observed for Ireland (2.77) and the lowest for Czech Republic (1.3). Compared to the expenditures, the tax is proportional or slightly progressive; only

for Estonia and Hungary it can be observed a slightly regressivity; the highest ratio between the last and the first decile is found for the UK (1.25).

Figure no. 1. VAT as a percentage of current incomes and expenditures of households, by income deciles



Source: OECD/Korea Institute of Public Finance (2014), The Distributional Effects of Consumption Taxes in OECD Countries, OECD Tax Policy Studies, No. 22, OECD Publishing.

Other relevant studies on the redistributive effects of consumption taxes were performed by: IFS - Institute for Fiscal Studies (2011, for a sample of 9 EU member states), Leahy et al. (2011, for Ireland), Decoster et. al. (2010, for 5 european countries), Ruiz and Trannoy (2008, for France), Warren (2008, for OECD countries), O'Donoghue et al. (2004, for a sample of 12 EU member states). The results of these studies showed that VAT is regressive related to the current income, but this is proportional or slightly progressive in relation to the current expenditures.

Arsic and Altiparmakov (2013) estimated the annual and lifetime VAT incidence in Serbia; their results indicated that the beliefs regarding the inequitable VAT taxation are overstated.

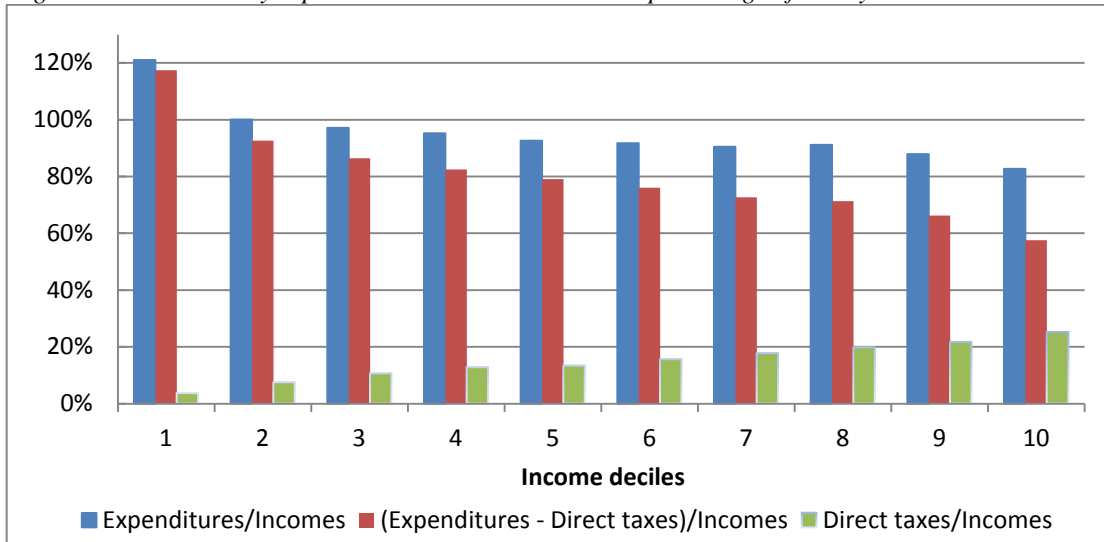
The VAT is considered an antisocial tax, but it is less regressive compared to the lifetime income than compared to current income (Cuceu, 2008).

### 3. Case study for Romania

This research uses the statistical data from 2014 regarding the monetary incomes and expenditures, grouped by decile, based on the average monthly income per person; the data were provided by the National Institute of Statistics (Romania) and obtained through "Household Budget Survey".

The total monetary expenditures (including direct taxes) as a percentage of the money incomes is decreasing while the income is increasing (121.1% for the first decile and only 82.7% for the last decile); the exceptions are only seventh and eighth decile, the percentage of total money expenditures in the money incomes is higher for the eighth decile than the seventh decile. The direct taxes are progressive in relation to the income (only 3.7% for the first decile and 25.2% for the last decile). The money expenditures (excluding direct taxes) as percent of money incomes decrease significantly when income increases (117.4% for the first decile and only 57.5% for the last decile).

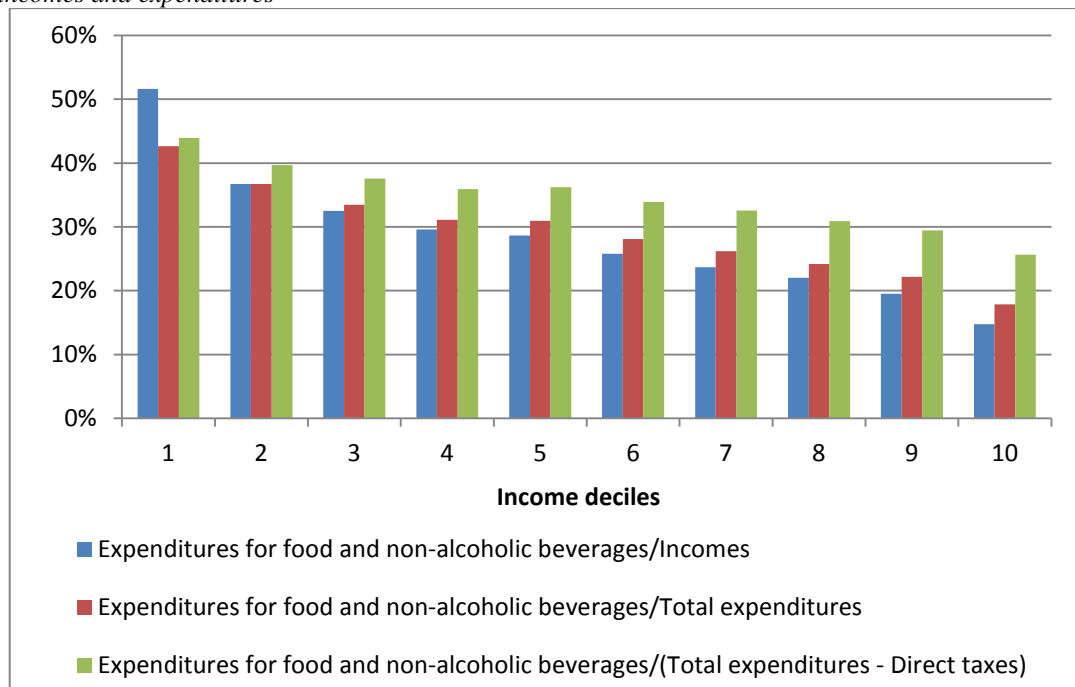
Figure no. 2. The money expenditures and direct taxes as a percentage of money incomes



Source: Based on data from the study *Coordinates of living standard in Romania. Population income and consumption in 2014*.

The structure of monetary expenditures varies significantly among different income households. The percentage of money expenditures for food and non-alcoholic beverages on total money expenditures ranging between 17.8% (for the last decile) and 42.6% (for the first decile). The money expenditures for food and non-alcoholic beverages as a percentage of total money expenditures other than direct taxes ranging between 25.6% (last decile) and 44% (first decile). The households from the last decile (10<sup>th</sup> decile) allocate only 14.8% of money incomes to purchase food products and non-alcoholic beverages, while the first decile of income allocate 51.6% of money incomes.

Figure no. 3. The money expenditures for food and non-alcoholic beverages as a percentage of money incomes and expenditures



Source: Based on data from the study *Coordinates of living standard in Romania. Population income and consumption in 2014*.

The incidence of VAT on current money income of households was analyzed processing the statistical data from 2014 regarding the monetary incomes and expenditures of the population, grouped by income deciles.

The VAT paid by the households was calculated considering that the amounts of money expenditures (provided by statistics) contained indirect taxes, including VAT. It was assumed that all taxable expenditures are related to purchases of goods and services from VAT registered companies.

The regressivity of VAT in relation to the current income of households was analyzed for the following simulations:

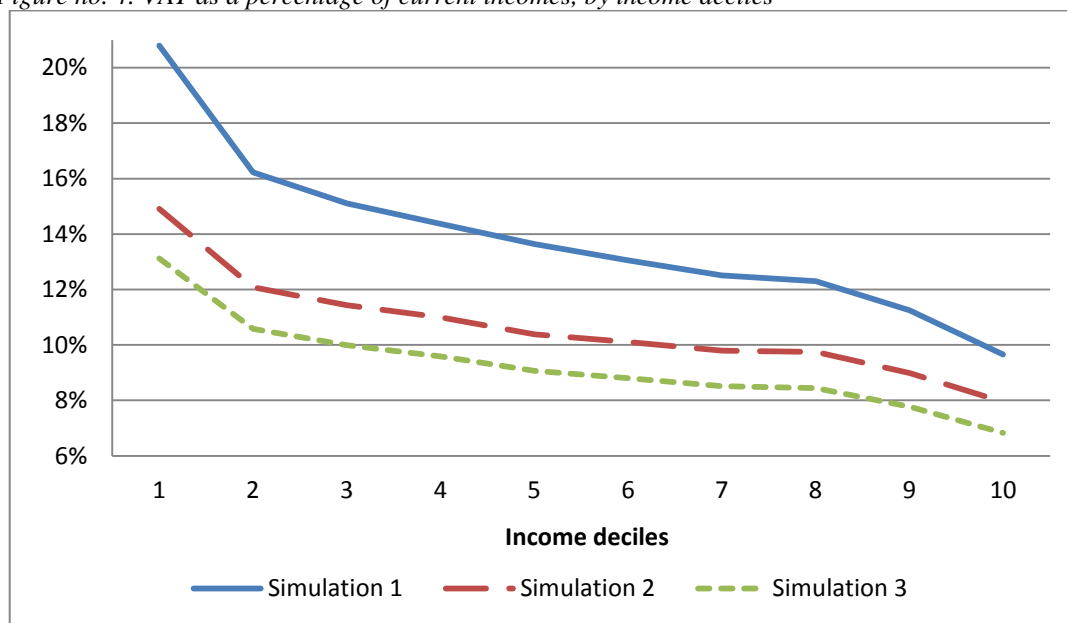
- Simulation 1: a structure of household consumption (by income deciles) and a structure of VAT rates similar to those recorded in Romania in 2014: a standard VAT rate of 24%, with a few exceptions: reduced rate of 9% (for bread and bakery products, medicines, cultural services, books, newspapers and magazines) and exemptions (for rents, health services, public radio and TV subscriptions, gambling, education, insurance);

- Simulation 2: it starts from scenario 1 to introduce the reduced rate of 9% for all food products and non-alcoholic beverages (reducing the rate from 24% to 9%);

- Simulation 3: it starts from simulation 2 to reduce the standard rate from 24% to 20%.

The scenarios 2 and 3 were created under the assumption that the change in VAT rates is fully reflected in the final prices and also that the size and the structure of households expenditures, by income deciles, remain constant.

Figure no. 4. VAT as a percentage of current incomes, by income deciles



Source: author processings.

In the first simulation, the percentage of tax on the households income ranging between 9.7% (for last decile) and 20.8% (for first decile), the VAT being very regressive related to the income (the fiscal pressure is 2.15 times higher for the first decile than the last decile). They are strongly affected low-income households, especially the first decile households for which the expenditures exceed the incomes.

In the second scenario, the VAT ratio to households income is ranging between 7.9% (for the tenth decile) and 14.9% (for first decile), being 1.88 times higher for the first decile than the last decile. Compared to the first simulation, the reduction in absolute terms of tax pressure (difference in percentage points) is more important for the low-income households. The reduction in relative terms of tax pressure is also more important for low-income households; this reduction is approximately 28% for the first decile households and only about 18% for the last decile households. Thus, in simulation 2, compared to the first simulation, it is observed a reduction of tax regressivity in relation to the income.

In the last simulation, the percentage of tax on households income is ranging between 6.8% (for the tenth decile) and 13.1% (for the first decile), being 1.92 times higher for the first decile than the last decile. Compared to scenario 2, the reduction in absolute terms of tax pressure is more important for low-income households. The reduction in relative terms of tax pressure is more important for with high-income households; this reduction is approximately 12% for the first decile households and approximately 14% for the last decile households. Thus, in simulation 3, compared to the simulation 2, it is observed an increase of tax regressivity in relation to income.

#### 4. Conclusions

In Romania, the VAT is very regressive compared to current incomes of households, while the percentage of money expenditures (others than the direct taxes) in money income decreases significantly with increasing of the income.

The introduction of reduced VAT rates for food products and non-alcoholic beverages (predominant in consumption of low-income population) determines a significant reduction of tax regressivity in relation to the income, if the structure of consumption differs significantly among different income households.

The results of simulations performed for Romania are similar to the results obtained in other studies, especially with those of the study made by OECD in 2014 on a sample of 20 countries.

#### 5. References

1. Arsic, M., Altiparmakov, N., 2013. Equity aspects of VAT in emerging European countries: A case study of Serbia. *Economic Systems*, 37, pp.171–186.
2. Cuceu, I., 2008. Taxa pe valoarea adăugată: impozit antisocial?, *Studii și Cercetări economice*, Editura Alma Mater, Cluj-Napoca, pp.390–396.
3. Decoster, A., Loughrey, J., O'Donoghue, C., Verwerft, D., 2010. How regressive are indirect taxes? A microsimulation analysis of five European countries. *Journal of Policy Analysis and Management*, 29, pp.326–350.
4. IFS - Institute for Fiscal Studies, 2011. *A retrospective evaluation of elements of the EU VAT system*, Report prepared for the European Commission, TAXUD.
5. Leahy, E., Lyons, S., Tol, R.S.J., 2011. The Distributional Effects of Value Added Tax in Ireland. *The Economic and Social Review*, Vol. 42, No. 2, Summer, pp. 213–235.
6. National Institute of Statistics (Romania), 2015. *Coordinates of living standard in Romania. Population income and consumption in 2014*.
7. O'Donoghue, C., Baldini, M., Maltovani, D., 2004. Modeling the redistributive impact of indirect taxes in Europe: An application of EUROMOD. *EUROMOD Working Papers*, EM7/01.
8. OECD/Korea Institute of Public Finance, 2014, *The Distributional Effects of Consumption Taxes in OECD Countries*, OECD Tax Policy Studies, No. 22, OECD Publishing.
9. Ruiz, N., Trannoy, A., 2008. Le caractère régressif des taxes indirectes: les enseignements d'un modèle de microsimulation, *Economie et Statistique*, No. 413, pp.21-46.
10. Warren, N., 2008. A review of studies on the distributional impact of consumption taxes in OECD countries. *OECD Social, Employment and Migration Working Papers*, No. 64.