Silviya Nikolova, Nikolay Markov, Boyko Nikolov and Nasko Dochev

Inequality and Public Policy: A Country Study for Bulgaria
Shortly after the end of the Kosovo war, the last of the Yugoslav dissolution wars, the Balkan Reconstruction Observatory was set up jointly by the Hellenic Observatory, the Centre for the Study of Global Governance, both institutes at the London School of Economics (LSE), and the Vienna Institute for International Economic Studies (wiw). A brainstorming meeting on Reconstruction and Regional Co-operation in the Balkans was held in Vouliagmeni on 8-10 July 1999, covering the issues of security, democratisation, economic reconstruction and the role of civil society. It was attended by academics and policy makers from all the countries in the region, from a number of EU countries, from the European Commission, the USA and Russia. Based on ideas and discussions generated at this meeting, a policy paper on Balkan Reconstruction and European Integration was the product of a collaborative effort by the two LSE institutes and the wiw. The paper was presented at a follow-up meeting on Reconstruction and Integration in Southeast Europe in Vienna on 12-13 November 1999, which focused on the economic aspects of the process of reconstruction in the Balkans. It is this policy paper that became the very first Working Paper of the wiw Balkan Observatory Working Papers series. The Working Papers are published online at www.balkan-observatory.net, the internet portal of the wiw Balkan Observatory. It is a portal for research and communication in relation to economic developments in Southeast Europe maintained by the wiw since 1999. Since 2000 it also serves as a forum for the Global Development Network Southeast Europe (GDN-SEE) project, which is based on an initiative by The World Bank with financial support from the Austrian Ministry of Finance and the Oesterreichische Nationalbank. The purpose of the GDN-SEE project is the creation of research networks throughout Southeast Europe in order to enhance the economic research capacity in Southeast Europe, to build new research capacities by mobilising young researchers, to promote knowledge transfer into the region, to facilitate networking between researchers within the region, and to assist in securing knowledge transfer from researchers to policy makers. The wiw Balkan Observatory Working Papers series is one way to achieve these objectives.
Global Development Network Southeast Europe

This study has been developed in the framework of research networks initiated and monitored by wiiw under the premises of the GDN–SEE partnership.

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The GDN–SEE programme is financed by the Global Development Network, the Austrian Ministry of Finance and the Jubiläumsfonds der Österreichischen Nationalbank.

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Inequality and Public Policy: A Country Study for Bulgaria

by
Silviya Nikolova
Nikolay Markov
Boyko Nikolov
Nasko Dochev

Centre for Economic and Strategic Research

March 2011
Abstract

This paper is an attempt for measuring the impact of public policy on the inequality in Bulgaria. An analysis based on the Bulgarian Household Budget Surveys shows that the tax burden in Bulgaria, nevertheless increasing in the upper quintiles, declined between the beginning of the transition period and the year before the EU accession. Using different inequality measures we have found that despite the limited possibilities of the data, taxation policies also contribute to some extend to inequality reduction in Bulgaria. As regards the social transfers, unemployment benefits and child allowances are found to be the main social payments reducing the inequality among Bulgarian households. Using quantile regression is found that the coefficients of the effective tax rates increase across the quintiles for the entire period. The coefficients associated with the share of VAT expenditures in the total income decrease as one moves from the lowest to the highest quintile of the consumption distribution.

1. Introduction

Bulgaria started its transition from planned to market economy in 1989, when the country began long political and economical transformation. There have been made different amendments towards opening up the economy and approaching market economy model. Prices and trade were liberalised, floating exchange rates of the foreign currencies were introduced. In line with these changes different tax and fiscal reforms were implemented (introduction of VAT, amendments of the corporate and income taxations). In 1997, a currency board was introduced, imposed as a precondition for further IMF funding.

The study aims to draw a picture of the inequality dynamics in Bulgaria during the period between 1992 and 2006, and particularly to underline the influences of the public polices on this phenomenon. After the initial dynamic years of economic instability and the serve hyperinflation crisis, since 1999 the Bulgarian economy has begun to recover. As many studies show, the economic growth is linked to an increase in the inequality levels. The research team looks for an answer of the question what
were the implemented reforms during the Bulgarian transition in the area of income and welfare distribution policies and redistribution and to what extend they influenced the development of the inequality in Bulgaria.

2. Literature review

Bulgaria, like the other transition economies, has experienced a rise in income inequality (Milanovic, 1998a). The Gini coefficient increased from 0.2277 in 1992 (Bogdanov, 1998) to 0.292 in 2003 (United Nations, 2006) and to 0.304 in 2006 (NSI, 2007). The main contributors to inequality in Bulgaria are found to be the incomes from employment (Kotzeva, 1998). However, in respect of the impact of the social transfers Kotzeva (1998) demonstrated that while in 1992 social transfers reduced inequality, in 1996 they were not found to be inequality equalizers. The reason was that the share of the social transfers in the total income was rather small to make any difference in the Gini coefficient (Milanovic, 1998). Hassan and Peters (1995) also proof that the social safety net in Bulgaria was not well targeted – most social benefits were found to be pro-poor, in the sense that they improve income distribution, but many benefits accrued to better-off households too.

As seen above, larger attention is paid on the social transfers and their impact on the inequality. However, the redistribution impact of the taxes and social insurances in Bulgaria stay somehow uncovered. In their study, based on 1992 household data, Hassan and Bogetic (1996) have found that in 1992 the effective progression is rather modest, indicating significant tax evasion.

A research conducted by Deziner at al. (2000) has found that saving rates in Bulgaria strongly increase with relative income, suggesting that increasing income inequality may play a role in their determination. Saving rates are found to be significantly higher for households not owning their homes or owning few of the standard consumer durables.
3. Tax and insurance policy in Bulgaria

During the years of dynamic transition Bulgaria went through significant changes in the income tax policy and Bulgarian income tax system become less progressive (see table 1 in the Annex).

The taxable base is the gross wage reduced by the obligatory and voluntary insurance payments (the obligatory insurance payments include transfers for Fund “Professional Qualification and Unemployment”, Pension Fund, Universal Pension Fund, Health-Insurance fund, General disease and maternity). Between 2001 and 2007 the proportions of the obligatory insurance was equalized between the employer and the employee. In 2001, 80% of the obligatory insurance was paid by the employer and 20% by the employee. During the next 6 year these proportions were equalized (by decreasing the employers’ share by 5% and increasing the employees’ share by 5% each year) and since 2007 each of them pays 50% of the insurance.

Table 1 presents the changes in the income tax rates in Bulgaria during the transition period. One could notice that Bulgarian income tax system changed towards less progressive\(^1\) during the period between 1992 and 2006 with decreasing number if the income intervals and decreasing progressivity of the tax rates. While in 1992 there were 10 income intervals with a tax rate for the highest – 46%, the number of the income intervals decreased to three in 2006 with a tax rate for the highest interval 24% which shows almost double reduction in the tax rates for the highest income groups.

Although the progressivity of the tax income decreases, the total tax-insurance burdens remain pretty high varying for 2005 - between 33% and 45% with highest levels in the middle of wage distribution (Angelov, 2006).

4. Income and expenditure inequality during the Bulgarian transition

In this section is presented the dynamics of the inequality in Bulgaria during the transition period. As measures for the inequality levels are used Gini coefficient, Theil entropy measure and Theil mean log deviation measure. The inequality is calculated

\(^1\) This trend continued during the years after the EU and since 2008 there is a flat income rate – 10%
based on different types of income and expenditures. In order to gain initial idea about the impact of tax and insurance policy in Bulgaria, the inequality indices for the gross and net income are calculated. As could be seen from table 2, taxes and insurance paid reduce the levels of income inequality in Bulgaria during the entire period. This initial finding is observed by both total and current equalized income of the households.

Table 2: Inequality measures based on the total household equalized income

<table>
<thead>
<tr>
<th></th>
<th>Gross total income</th>
<th>Net total income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gini</td>
<td>Theil entropy measure</td>
<td>Theil mean log deviation</td>
</tr>
<tr>
<td>1992</td>
<td>0,2723</td>
<td>0,1187</td>
<td>0,1140</td>
</tr>
<tr>
<td>1994</td>
<td>0,2905</td>
<td>0,1468</td>
<td>0,1389</td>
</tr>
<tr>
<td>1996</td>
<td>0,2898</td>
<td>0,1407</td>
<td>0,1366</td>
</tr>
<tr>
<td>1998</td>
<td>0,2880</td>
<td>0,1309</td>
<td>0,1308</td>
</tr>
<tr>
<td>2000</td>
<td>0,2701</td>
<td>0,1167</td>
<td>0,1153</td>
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<tr>
<td>2002</td>
<td>0,2701</td>
<td>0,1330</td>
<td>0,1263</td>
</tr>
<tr>
<td>2004</td>
<td>0,2960</td>
<td>0,1336</td>
<td>0,1255</td>
</tr>
<tr>
<td>2006</td>
<td>0,2701</td>
<td>0,1272</td>
<td>0,1133</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Gross current income</th>
<th>Net current income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gini</td>
<td>Theil entropy measure</td>
<td>Theil mean log deviation</td>
</tr>
<tr>
<td>1992</td>
<td>0,2628</td>
<td>0,1155</td>
<td>0,1124</td>
</tr>
<tr>
<td>1994</td>
<td>0,2905</td>
<td>0,1462</td>
<td>0,1380</td>
</tr>
<tr>
<td>1996</td>
<td>0,2885</td>
<td>0,1396</td>
<td>0,1356</td>
</tr>
<tr>
<td>1998</td>
<td>0,2807</td>
<td>0,1298</td>
<td>0,1301</td>
</tr>
<tr>
<td>2000</td>
<td>0,2619</td>
<td>0,1158</td>
<td>0,1148</td>
</tr>
<tr>
<td>2002</td>
<td>0,2753</td>
<td>0,1319</td>
<td>0,1253</td>
</tr>
<tr>
<td>2004</td>
<td>0,2792</td>
<td>0,1394</td>
<td>0,1318</td>
</tr>
<tr>
<td>2006</td>
<td>0,2539</td>
<td>0,1114</td>
<td>0,1064</td>
</tr>
</tbody>
</table>

Source: Author’s computations based on NSI HBS database.

---

2 Household total and household current income are equalized using the OECD scale.
5. Effective tax rates

Table 3 presents the effective income tax rates of the different quintiles and how they changed between 1992 and 2002. The effective income tax rates are calculated as percentage of all payments to the State in the total income. However, as could be seen from the table, effective tax rates calculated on the base of household budget data for Bulgaria do underestimate significantly the real share of the taxes paid by the households. Actually, only for the group of self-employed there is comparative data about the income tax and social insurances paid by the households which leads to very low effective tax rates.

From table 3 one could notice that the effective tax rates for both lower quintiles and for upper quintiles decreased over time indicating a reduction in the tax burden for all income groups. It is interesting the greater reduction is for the lowest and for the highest quintile.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8,8</td>
<td>8,0</td>
<td>6,7</td>
<td>6,3</td>
<td>7,1</td>
<td>7,6</td>
<td>6,2</td>
<td>7,3</td>
</tr>
<tr>
<td>2</td>
<td>9,7</td>
<td>8,8</td>
<td>8,0</td>
<td>8,0</td>
<td>8,9</td>
<td>8,8</td>
<td>7,7</td>
<td>9,0</td>
</tr>
<tr>
<td>3</td>
<td>10,7</td>
<td>9,9</td>
<td>9,3</td>
<td>9,1</td>
<td>9,7</td>
<td>10,1</td>
<td>9,0</td>
<td>10,2</td>
</tr>
<tr>
<td>4</td>
<td>12,3</td>
<td>10,7</td>
<td>10,2</td>
<td>9,7</td>
<td>11,0</td>
<td>10,8</td>
<td>10,4</td>
<td>11,2</td>
</tr>
<tr>
<td>5</td>
<td>14,2</td>
<td>13,0</td>
<td>12,0</td>
<td>11,9</td>
<td>13,2</td>
<td>13,1</td>
<td>12,3</td>
<td>12,9</td>
</tr>
</tbody>
</table>

Source: Author’s computations based on NSI HBS database.

6. Redistribution and social payments

Another part of the redistribution policy of the State are the social payments directed towards the low income households. Table 7 shows increase in the share of low-income support benefits and in group of “other social benefits” in the GDP.
Table 7 Social protection expenditures, low-income support benefits and other social benefits as percent of GDP, Bulgaria 1992 - 2006

<table>
<thead>
<tr>
<th>Year</th>
<th>Social protection expenditures as % of GDP</th>
<th>Pensions as % of GDP</th>
<th>Low-income support benefits as % of GDP</th>
<th>All other social benefits as % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>14.1</td>
<td>9.9</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>1994</td>
<td>12.9</td>
<td>9.7</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>1996</td>
<td>9.0</td>
<td>6.9</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>1998</td>
<td>11.3</td>
<td>7.9</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>2000</td>
<td>14.1</td>
<td>9.4</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>2002</td>
<td>13.4</td>
<td>9.0</td>
<td>0.7</td>
<td>3.1</td>
</tr>
<tr>
<td>2004</td>
<td>13.8</td>
<td>9.2</td>
<td>0.6</td>
<td>3.0</td>
</tr>
<tr>
<td>2006</td>
<td>14.2</td>
<td>9.5</td>
<td>0.7</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: NSI data

Pensions are the largest payment scheme in Bulgarian social security system. There are different types of pensions in Bulgaria – personal old age pension, social old age pension, social invalidity pension, personal invalidity pension due to general disease, personal invalidity pension due to work injury and occupational disease, inherited pension, military invalidity pension, civil invalidity pensions, civil invalidity pensions. The main form of pension is for retirement. Pensions are not pure social transfer as the largest share of them is related to the individual work history. However, in Bulgaria there is still upper limit of the pensions and they were kept very low during the transition period. Therefore this payment is included in the analysis of the social payments’ impact on the inequality.

Up to 2001 child allowances in Bulgaria were payable were not income-tested benefit, however since this year they are directed mainly to children living in low income households.

The unemployment benefit system has been modified several times since the early 1990s. In the beginning of transition period the resources for unemployment benefits
were unified in the Vocational Training and Unemployment Fund, which was financed mainly by payroll contributions amounting 7 per cent of the gross wage bill. The fund provided unemployment benefits as well as unemployment services (such as vocational training and other active labour market policies). Still, a problem was that the rules for granting unemployment benefit did not encourage unemployed to look for a job. Later on, successive reforms have resulted in a tightening of requirements regarding previous employment spell and lowering of the duration of their receipt.

Most social assistance programmes were introduced in 1991 in a “social safety net” system. Financing comes from the state budget and includes financial support for households and individuals without other sources of income or such who are below certain poverty line. Social assistance is means-tested and comprises a monthly cash benefit as well as a range of in-kind benefits (free goods or services, access to health care system etc), occasional or emergency (one time lump sum) cash assistance. Social assistance (in cash and in-kind) is funded by the State and the municipal budget. Many municipalities have been facing acute financial difficulties and as a consequence they were often not in position to address effectively all those in need of social assistance, to ensure full-payment of the benefits or to pay them on time. Eligibility for social assistance is determined on the basis of the Guaranteed Minimum Income (GMI) adjusted to the household size and the situation of its members (age, health etc). There is a prescribed subsistence level of income, with payment made to eligible households to bring them up to this level. Between years 1992 – 1996, prices rose nearly 5-fold, while the prescribed subsistence level rose less than 3-fold (Robert Ackrill, Rumen Dobrinsky, Nikolay Markov and Stephen Pudney; 2001).

To examine the contribution of the different social payments to the overall inequality, the Rao (1969) decomposition of the Gini coefficient is used. Table 8 presents the shares in total income and the concentration coefficients of the main types social payments n Bulgaria.

Nevertheless their low shares in the total income, unemployment benefits and child allowances had positive impact towards inequality reduction (their concentration coefficients were negative during almost the entire period indicating they were directed mostly to those with lower incomes).
The concentration coefficients of social assistance payments during the most of the years show they were not well targeted during most of the period. Only in 1996, 1998, 2000 and 2006 this type of State transfer was with low concentration coefficients indicating inequality reduction.

As regards pensions, they were in the role of inequality reducing payment during the first transition years (up to 1994) and after the hyperinflation crisis in 1997. A reason for this is that they are the main income source for most of the pensioners in Bulgaria and their low levels

Table 8: Importance of the social payments on the income inequality in Bulgaria

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unemployment benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in the total income</td>
<td>0.0044</td>
<td>0.0049</td>
<td>0.0029</td>
<td>0.0035</td>
<td>0.0093</td>
<td>0.0076</td>
<td>0.0036</td>
<td>0.0031</td>
</tr>
<tr>
<td>Concentration coefficients</td>
<td>-0.0713</td>
<td>0.0017</td>
<td>-0.0079</td>
<td>-0.0311</td>
<td>0.0038</td>
<td>-0.0168</td>
<td>-0.1424</td>
<td>-0.0352</td>
</tr>
<tr>
<td><strong>Child allowances</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in the total income</td>
<td>0.0225</td>
<td>0.0139</td>
<td>0.0119</td>
<td>0.0090</td>
<td>0.0086</td>
<td>0.0072</td>
<td>0.0077</td>
<td>0.0089</td>
</tr>
<tr>
<td>Concentration coefficients</td>
<td>0.0593</td>
<td>-0.0722</td>
<td>-0.0102</td>
<td>0.0587</td>
<td>-0.0132</td>
<td>-0.1268</td>
<td>-0.1665</td>
<td>-0.0770</td>
</tr>
<tr>
<td><strong>Social assistance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in the total income</td>
<td>0.0077</td>
<td>0.0053</td>
<td>0.0112</td>
<td>0.0117</td>
<td>0.0112</td>
<td>0.0147</td>
<td>0.0279</td>
<td>0.0320</td>
</tr>
<tr>
<td>Concentration coefficients</td>
<td>0.2106</td>
<td>0.1400</td>
<td>-0.0098</td>
<td>0.0440</td>
<td>-0.0090</td>
<td>0.0874</td>
<td>0.1309</td>
<td>0.0382</td>
</tr>
<tr>
<td><strong>Pensions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in the total income</td>
<td>0.1839</td>
<td>0.1879</td>
<td>0.1782</td>
<td>0.2007</td>
<td>0.2450</td>
<td>0.2255</td>
<td>0.2563</td>
<td>0.2566</td>
</tr>
<tr>
<td>Concentration coefficients</td>
<td>-0.1794</td>
<td>-0.0363</td>
<td>0.0066</td>
<td>-0.0502</td>
<td>0.0798</td>
<td>0.1056</td>
<td>0.1702</td>
<td>0.0844</td>
</tr>
</tbody>
</table>

Source: Author’s computations based on NSI HBS database.
7. Quantile regression

Value added tax in Bulgaria was introduced in 1994 and since then it is a significant income source for the State. In this section is investigated if the changes in the value added tax rate have affected the inequality in Bulgaria. The value added tax in Bulgaria was introduced at a rate of 18%, than between 1996 and 1998 it was 22% and since 1999 the VAT rate has been 20% with no reduced rates nor any goods that are zero rated. An analysis of the impact of VAT changes in Bulgaria on the welfare function was made by Pudney, Markov and Acrill (2001) and they found that these changes do not affect negatively the welfare distribution in Bulgaria.

Table 8 in the Annex includes several inequality measures calculated on the equalized\(^3\) household consumption (with and without VAT expenditures). All the coefficients show increase in the consumption inequality when calculated without the VAT expenditures which could be a sign that the impact of VAT is towards reducing the inequality in the country.

Still, the analysis presented so far is rough and does not show the link between the position of the household in the consumption distribution and the different types of payments to and from the State. Therefore we investigate the consumption distribution during the entire period using quantile regression in order to assess whether the consumption distribution is affected uniformly by tax variables, social payment variables and demographic characteristics of the households. The dependent variable in the model is logarithm of the household equivalent consumption.

As independent variables are included:

- effective tax rate – as share of all direct taxes paid in the total income of the household
- share of VAT expenditures in the total household income
- share of pensions in the total household income
- share of unemployment benefits in the total household income
- share of social protection payments in the total household income

\(^3\) The consumption is equalized using the original OECD scale
• share of child allowances in the total household income

Studying the households’ distribution one should control also for some socio-demographic characteristics of the household which could influence the place of the household in the distribution ranging. Previous research shows that the most vulnerable groups for living in poverty are unemployed, households with young household head, those living in villages and those with lower education of the household head, female headed households (Bogdanov et al., 2003). Therefore the other independent variables in the model are:

- dummy for a household head below age of 30
- dummy for a household head above age of 65
- dummies for the type of settlement
- dummies for the type of employment of the household head
- dummy for a female household head
- dummies for the education of the household head

The empirical results are presented in tables 9-13 in the Annex. The estimation results show that the coefficients of the effective tax rates increase across the quintiles for the entire period. The coefficients associated with the share of VAT expenditures in the households’ income decrease as one moves from the lowest to the highest quintile of the consumption distribution, indicating that in the lower part of the distribution they influence to a greater extent households’ consumption.

The share of pensions in total income appears to be significant determinant for the consumption of all quintile groups except of the lowest one. While significant and positive in 1992 for the first quintile, its importance for the households in this group declines over the period. In the same way, the coefficients for unemployment benefits show significant influence on households’ consumption only in the first year of the period. However, they decline between 1994 and 2006 in all quintiles with the greatest decline in the upper quintiles, confirming again that this type of benefit becomes more directed towards the poorer households. In contrast to them, the shares of family allowances and social transfers in total income have negative impact on the
consumption of all quintile groups and appear to be a significant variable (except for the lowest quintile group where family allowances are significant up to 1996).

While negative in the beginning of the period, the coefficients of the share of food expenditures in the total households’ income change to positive for all quintile groups later on. For the lowest quintile, they remain negative up to 2002 (with exception to 1998) indicating inverse relationship between with the consumption of the household. In the last two years of the period they appear to be significant and positive in this group. For the second quintile group, these coefficients are significant for almost all the years. The coefficient of the share of food expenditures was negative only in 1992 and since then it is positive and steadily increasing. For the upper quintile groups, the impact of the food expenditures increased up to 1998 and since then has declining values indicating decreasing impact on households’ consumption.

The age of the household head has positive impact on the consumption of the households, if he/she is below 30 years. While negative in the beginning of the period, coefficients for this variable become positive and significant by the end of the period (except for the first quintile group). In contrast, if the household head is above 65 years, the age of the household head has negative significant impact on the households’ consumption in all quintile groups (again insignificant only in the first quintile group in 2006). For the first quintile group, a negative significant impact on the consumption has also the type of place of living. Living in a village influenced positively households’ consumption of all but highest quintile groups in the initial years of the period. Later on living conditions in Bulgarian villages worsened due to the closure of many of the factories and cooperatives which were the main employment source for their residents. As result, unemployment rates grew, many of the younger people migrated to the towns, and during the period investigated living in a village in Bulgaria was mainly associated to living in poverty (Bogdanov et al., 2003).

While the activity of the household head appeared to be insignificant between 1992 and 2006 in the middle quintile groups, for the first quintile they appear to have significant impact on the households’ consumption in the beginning of the period and for the highest quintile - in the end of the period.
The coefficients of the dummy about a female household head are negative for all quantile groups. However, these coefficients appear to be significant only in the beginning and in the end of the period. For the first quintile group, a female household head had significant negative impact on the consumption of the households in this group only in 1992 and to some extend in 1998 (the year after the hyperinflation crisis). For the second and third quintile group these coefficients were significant in the beginning and in the end of the period, while in the upper quintile groups the negative influence on the households’ consumption increased and the coefficients are found to be significant in the last years of the period.

In 2006, the tertiary education of the household head tends to be significant determinant on increasing households' consumption and the coefficients are increasing across the quintile groups.

7. Discussion

Household budget surveys for Bulgaria allow for studying the impact of social transfers on poverty and income inequality. Still, a research directed towards the impact of income taxation policy in the country should be done carefully as the data do not include full records on the taxes and insurances paid. Under these restrictions, in this paper is found that tax burden in Bulgaria, nevertheless increasing in the upper quintiles, declined between the beginning of the transition period and the last year before the EU accession. Also an analysis of the inequality measures based on different types of incomes (current and total incomes before and after tax payments) demonstrated that nevertheless the limited possibilities of the data, taxation policies also contributed to some extend to inequality reduction in Bulgaria. Among the social transfers from State those most decreasing the inequality among Bulgarian households between 1992 and 2006 are unemployment benefits and child allowances.

The quantile regression results show that effective tax rates increase across the quantiles for the entire period, while the importance of the impact of VAT expenditures declines across the quintile groups. The share of pensions in total income appears to be
significant determinant for the consumption of all but the last quintile group. The share of social transfers appears to be significant for the middle quintile groups in 2006, while the share of unemployment benefits in total households’ income was significant for all quintile groups only in the beginning of the period. Other significant determinant on the consumption of all quintiles groups appears to be the share of food expenditures in total households’ income.

8. References


Available at: http://www.warwick.ac.uk/russia/BGREP.DOC


## Table 1: Income tax rates in Bulgaria

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<th>Yearly income</th>
<th>Duty</th>
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Source: State Gazette, Law for Taxation of the Income of Physical Persons
Table 8: Consumption inequality with and without VAT expenditures

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Level of significance: +p<0.10; * p<0.05; ** p<0.01
Source: Author’s computations based on NSI HBS database.
Table 10: Quantile regression results – second quintile

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Level of significance: +p<0.10; * p<0.05; ** p<0.01
Source: Author’s computations based on NSI HBS database;
Table 11: Quantile regression results – third quintile

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<td>-0.050*</td>
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Level of significance: +p<0.10; * p<0.05; ** p<0.01

Source: Author’s computations based on NSI HBS database;
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Level of significance: +p<0.10; * p<0.05; ** p<0.01
Source: Author’s computations based on NSI HBS database;
Table 13: Quantile regression results – fifth quintile

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<td>-0.047*</td>
<td>0.022</td>
<td>-0.037</td>
<td>0.030</td>
<td>-0.048**</td>
<td>0.016</td>
<td>-0.025</td>
<td>0.027</td>
<td>-0.084**</td>
<td>0.028</td>
<td>-0.075**</td>
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<tr>
<td>capital</td>
<td>0.032</td>
<td>0.037</td>
<td>0.111**</td>
<td>0.034</td>
<td>0.076*</td>
<td>0.033</td>
<td>0.095**</td>
<td>0.035</td>
<td>0.060**</td>
<td>0.020</td>
<td>0.079*</td>
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<td>0.039</td>
<td>0.018</td>
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<td>0.027</td>
<td>-0.031</td>
<td>0.031</td>
<td>-0.043*</td>
<td>0.019</td>
<td>0.061+</td>
<td>0.037</td>
<td>-0.033+</td>
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<td>-0.046*</td>
<td>0.020</td>
<td>-0.082**</td>
<td>0.026</td>
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<td>0.051</td>
<td>-0.014</td>
<td>0.046</td>
<td>-0.004</td>
<td>0.043</td>
</tr>
<tr>
<td>hsh head employer</td>
<td>0.272**</td>
<td>0.072</td>
<td>0.011</td>
<td>0.093</td>
<td>0.182+</td>
<td>0.093</td>
<td>0.226</td>
<td>0.082</td>
<td>0.107</td>
<td>0.083</td>
<td>0.191+</td>
<td>0.105</td>
<td>-0.063</td>
<td>0.100</td>
<td>-0.096*</td>
<td>0.042</td>
</tr>
<tr>
<td>hsh head self-empl</td>
<td>0.138**</td>
<td>0.051</td>
<td>0.053</td>
<td>0.165</td>
<td>0.202**</td>
<td>0.049</td>
<td>0.054</td>
<td>0.063</td>
<td>0.030</td>
<td>0.060</td>
<td>0.080*</td>
<td>0.040</td>
<td>0.027</td>
<td>0.057</td>
<td>0.110</td>
<td>0.083</td>
</tr>
<tr>
<td>hsh head nonpaid</td>
<td>-0.090</td>
<td>0.072</td>
<td>-0.384**</td>
<td>0.080</td>
<td>-0.075</td>
<td>0.063</td>
<td>-0.516*</td>
<td>0.244</td>
<td>-0.157</td>
<td>0.159</td>
<td>0.055</td>
<td>0.060</td>
<td>0.176**</td>
<td>0.061</td>
<td>0.129</td>
<td>0.066</td>
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<tr>
<td>female hsh head employed in a cooperative</td>
<td>-0.323</td>
<td>0.292</td>
<td>-0.203</td>
<td>0.184</td>
<td>0.346</td>
<td>0.312</td>
<td>-0.536+</td>
<td>0.300</td>
<td>-0.631*</td>
<td>0.297</td>
<td>-0.050</td>
<td>0.032</td>
<td>-0.232</td>
<td>0.164</td>
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<tr>
<td>primary or less education of hsh head</td>
<td>0.002</td>
<td>0.020</td>
<td>0.077+</td>
<td>0.043</td>
<td>0.052**</td>
<td>0.019</td>
<td>0.002</td>
<td>0.026</td>
<td>-0.028</td>
<td>0.022</td>
<td>-0.031</td>
<td>0.020</td>
<td>-0.030</td>
<td>0.022</td>
<td>-0.045*</td>
<td>0.022</td>
</tr>
<tr>
<td>females hsh head</td>
<td>-0.029</td>
<td>0.048</td>
<td>0.004</td>
<td>0.032</td>
<td>0.086*</td>
<td>0.034</td>
<td>0.170+</td>
<td>0.093</td>
<td>0.058</td>
<td>0.037</td>
<td>0.060</td>
<td>0.065</td>
<td>0.158</td>
<td>0.141</td>
<td>0.129</td>
<td>0.166</td>
</tr>
<tr>
<td>primary or less education of the hsh head</td>
<td>0.075*</td>
<td>0.029</td>
<td>-0.023</td>
<td>0.046</td>
<td>0.035</td>
<td>0.032</td>
<td>0.076*</td>
<td>0.037</td>
<td>0.072**</td>
<td>0.024</td>
<td>0.082**</td>
<td>0.020</td>
<td>0.114**</td>
<td>0.044</td>
<td>0.120**</td>
<td>0.022</td>
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<tr>
<td>cons</td>
<td>12.111</td>
<td>0.069</td>
<td>6.502</td>
<td>0.284</td>
<td>7.500</td>
<td>0.280</td>
<td>8.231</td>
<td>0.447</td>
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<td>4.996</td>
<td>0.260</td>
<td>5.866</td>
<td>0.158</td>
<td>5.865</td>
<td>0.134</td>
</tr>
</tbody>
</table>

Level of significance: +p<0.10; * p<0.05; ** p<0.01;
Source: Author’s computations based on NSI HBS database;