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Review article

THE ROLE OF THE TAX SYSTEM AND SOCIAL SECURITY TRANSFERS IN REDUCING INCOME INEQUALITY: THE CASE OF THE REPUBLIC OF CROATIA

The purpose and research objective of this paper are to provide an insight into the role and efficiency of the tax system and social security transfers in reducing income inequality in Croatia. The conception of analysis is based on the explanation of the tax system, pension insurance and the welfare system in Croatia and a comparison of these systems to similar ones in other EU member-states. The main finding is that the system of social security transfers in Croatia is efficient enough but there is still a need to improve its impact. The underlying ideas of this research are manifold. Firstly, the idea of this research is that by using exiting previous surveys and available data, one can compare the effect of the tax and social policies in Croatia. Secondly, by dividing the government effort into taxation and transfer payment, this research contributes to a better understanding of the effect of each specific policy. Thirdly, the discussion in the paper of the optimal policy is used to help examine the effect of the government actions, which is an important step in the amelioration of the government policies.

Key words: income inequality, social security, welfare system, social transfers, Croatia

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1. Introduction

Increasing income inequality is commonly believed to be a world-wide phenomenon, in the minds of many people, linked to growth and globalization and capabilities of nation-states (Derviş and Özer, 2005). There is a constant question on the importance of income inequality and its influence on the economic development. Alan Krueger (2012) has showed that societies with higher levels of income inequality are societies with lower levels of social mobility. As society has grown less economically equal, a citizen's ability to move upward has fallen behind that of citizens in other post-industrial democracies with lower level of income inequality. Thus, current generation's inequities will be easily perpetuated into the next generation and opportunities for upward social mobility will be additionally diminished (Greenstone et al., 2013). Inequality also distorts a country's political system. Greatly concentrated wealth leads to huge political power in the hands of the few - even in a democratic system with free and fair elections - which motivates the government to create rules that favour the rich. Such decision-making rulings give ordinary citizens the strong suspicion that the process is unfair. Democratic institutions are no longer considered legitimate when they constantly produce obviously biased results. Reducing inequality is worth achieving because greater equality is likely to increase the overall welfare of all citizens.

The empirical literature on economic development and inequality can be divided into two broad strands. One, following the pioneering work of Kuznets (1955), is motivated by the pessimistic conjecture that the process of growth and development somehow requires increasing inequality, at least in the early stages. This has led to many efforts to identify a relationship between the level of development and inequality (Anand and Kanbur, 1993), or to determine whether faster growth causes or requires higher or lower inequality. The second strand has sought to identify the causal factors influencing the evolution of growth and inequality independently. This research has looked either at growth, for example, (Barro and Sala-i-Martin, 1995) or at inequality (Li et al., 1997), but has not tried to identify those factors that might simultaneously influence both growth and inequality. Milanovic (2003) found strong evidence that at the low average income level, it is the rich who benefit from an economic growth, openness, increased trade and foreign investment.

This text is dedicated to the analysis of the role of the tax system and social security systems in reducing income inequality in Croatia. After the introduction (Section 1), Section 2 provides a literature review on social transfers and redistribution. It is followed by the third part oriented to the situation with income inequality and analysis of social transfer efficiency in Croatia. Section 4 describes the tax situation, pension and welfare systems and their impact on inequality. Sec-

tion 5 is devoted to the conclusion and recommendations with priority of better adjustment of social transfers towards most vulnerable groups.

2. Literature review on inequality and redistribution

The first question is: equality of what? In principle the answer is easy - individuals are equal if they face identical opportunity sets - that is, face the same full income. But full income cannot be measured, so matters in practice are more complex. Thus, Firebaugh (2003) defines inequality as the absence of equality. The human development paradigm (UNDP, 2003) defines inequality as inequality of opportunities and choices for individuals to lead full and healthy lives. Income inequality is only one dimension of this broad conception of inequality, while other dimensions include health, education, access to services, and political participation. The literature (Aronson, Johnson, Lambert, 1994; Duclos, Jalbert, Araar, 2003, Duclos and Araar, 2006) provides a number of alternative measures of inequality in the distribution of consumption expenditure or income, as appropriate proxies for the standard of living and hence the welfare of individuals or equality of opportunity.

Ordinary people quite often believe that income inequality threatens democratic deliberation, decision, and the balance of political power because rich citizens can more influence political process than those that are not well-off. Thus, the reason for progression in taxation is based on equalizing incomes, particularly with the exemption of an appropriate amount of income from any tax. Blum and Kalven (1953), after analysed the reasons for progressive taxation based on benefit, sacrifice, ability to pay, and economic stability and concluded that each is insufficiently justifiable, deemed that "the case has stronger appeal when progressive taxation is viewed as a means of reducing economic inequalities". They further stated that much of the uneasiness regarding progressive taxation linked to the reduction of economic inequalities is caused by too often use of the tax code as the primary or sole means of gaining fairness, leaving radical change in the other fundamental institutions of society alone. Thurow (1971) also liked the idea of reducing income inequality and reckoned it as a type of a public good because people willing to maximize their own utility may find it necessary to redistribute their income to some other person. That leads to consideration of Rawls' arguments in favour of just political systems in which the "maximin" criterion of income distribution prevails, where social welfare increases no more than increases in the welfare of the poorest individual (Rawls, 1999).

Taxpayers, burdened by higher taxes, respond with substitutions for what they were able to do when they were taxed less. With higher income taxes on the

work, they work less and enjoy more leisure time. They work also less intensely, producing less. They work more often for barter in the underground economy that the tax authorities cannot reach. They work less and do more in professions and/or positions with large benefits not related to money. They also constantly search for tax loopholes, using part of their remaining assets to find and pay tax experts and advisors. Briefly, taxpayers substitute efforts that they do not prefer for efforts they prefer, reducing their “utility” and, by some measure more often than not, reducing the productivity of the economy (Auerbach and Rosen, 1980; Ballard and Fullerton, 1992; Goulder and Williams, 1999). Finding that behaviour changes, taxable income changes, revenue collections fall below that predicted, and tax rates must increase, creating a spiral downwards. Hager (2016) stresses that possible declining tax progressivity means greater income and assets inequality. That increased savings for those at the top of the wealth and income hierarchy and they have more money to invest in the growing financial market which, thanks to its “risk-free” status, becomes particularly attractive in times of crisis. But with reduced amount of collected taxes there are smaller possibilities to finance welfare programmes and help those that are really in need.

Various authors using different methods and approaches found different causes of the increase of inequality. Cornia and Court (2001) believed that the increase in inequality is linked to liberal economic policy regimes and the way in which economic reform policies have been carried out. A series of papers actually discusses both the theory and empirics of growth and inequality in one place and as functionally related to each other through several interdependent factors. Acemoglu (2002a) underlines technical change and related innovations that favour skilled workers as particularly important factors for the increase of inequality, because new tasks are more complex and generate a greater demand for skills. Acemoglu (2002b) deems that the 20th century has been characterized by skill-biased technical change because the rapid increase in the supply of skilled workers has induced the development of skill-complementary technologies. recent technological developments have affected the organization of the labour market including firm organisation production, labour market policies, and the form of labour market institutions.

The cross-country research by Bacha (1979) on the relationship between levels of income per capita and the degree of inequality confirms the hypothesis that as income per capita increases the bargaining power of the poorer part of population will increase and the income inequality declines. Using the median voter theorem, Alesina and Rodrik (1994) analysed the relationship between income distribution and growth. In the circumstances of the more equitable distribution, the more capital that the median voter is endowed with, the lower is equilibrium level of capital taxation and the higher is the economic growth. According to the results of a simple political-economy model of growth and the present cross-country evidence consistent with it, they conclude that inequality is conducive to the

adaptation of the growth-retarding policies. Davies (1986) examining the influence of various taxes on inequality, shows that efficiency of redistribution is better if it depends less on taxing inheritances and more on taxing earnings. This success is sensitive to the relative size of mean earnings and inheritances.

There is a growing quantity of research which attempts to explain the rise in income inequality during transition. Many existing studies try to figure out the possible factors behind the changes in the distribution of income using either theoretical models of transition (Aghion and Commander, 1999; Ferreira, 1999; Milanovic, 1999, Leitner and Holzner, 2008) or a Gini decomposition analysis (by income component or recipient) applied to a single country or a set of countries (Milanovic, 1998; Garner and Terrell, 1998; Yemtsov, 2001). Urban (2014a) developed new methodology to evaluate the contributions of different tax and benefit instruments to vertical, horizontal and redistributive effects using Kakwani's (1984) decomposition of the redistributive effect and Lerman and Yitzhaki's (1985) decomposition of income inequality into marginal contributions of taxes and benefits.

3. Income inequality and analysis of social transfer efficiency in Croatia

3.1. Income inequality in Croatia

Income or expenditure inequality is usually presented with a Lorenz curve and expressed in Gini coefficient. Gini coefficient is bounded between 0 and 1, with 0 indicating absolute equality and 1 indicating absolute inequality. It is important to note that there exist a number of alternative measures of inequality in the specialized literature but none of these measures are used as often in studies of income and wealth distribution. The quintile share ratio (S80/S20) is an indicator of the income inequality and it measures the ratio of the fifth and first income distribution quintiles.

For Croatia, inequality and poverty indicators from 2003 to 2009 were obtained from the Household Budget Survey (HBS), while those from 2010 to 2014 were calculated from the Statistics on Income and Living Conditions (SILC) by Croatian Bureau of Statistics. In view of the methodological differences between the two sources of data, the indicators from 2010 to 2014 were not directly comparable with the indicators for the previous years, but they are completely comparable with the data from the EU countries.

Nestić's (2003) calculations based on the household budget surveys show that the Gini coefficient for the period 1978-1998 was in the range from 0.30 in 1978 to 0.27 in 1983. A moderate increase in inequality in Croatia over the transition

period, as follows from this research, is rather surprising. The general perception was that inequality went up strongly, although there was no empirical evidence either for or against such expectation. Even the World Bank study (World Bank, 2011), which shows a relatively high level of inequality in Croatia in 1998, does not provide any data on the changes in inequality over the transition period. Income inequalities mostly stagnated until 2009, with mild oscillations in certain years. In 2009, the Gini coefficient (0.27) was lower than in the period from 2001 to 2008 (between 0.28 and 0.29). According to the 2010 data, the Gini coefficient in Croatia was 0.32, which is slightly above the EU27 average (0.31). After the peak in 2010, the Gini coefficient in Croatia dropped to 0.29 in 2011 which was below the average for EU-25, EU-15 and EU-10. According to the latest available data for 2014, the Gini coefficient in Croatia was 0.30, which is exactly as the EU-25, EU-15 and EU-10 average. The quintile share ratio (S80/S20) in 2010 was 5.5 (in 2009 the ratio dropped in relation to 2008). It decreased in 2011 and increased in 2012, but again decreased in 2013-2014 (Table 1).

Table 1.

INEQUALITY INDICATORS FOR THE REPUBLIC OF CROATIA (2003-2012)

Year	RC 2003	RC 2004	RC 2005	RC 2006	RC 2007	RC 2008	RC 2009	RC 2010	RC 2011	RC 2012	RC 2013	RC 2014
Quintile ratio (S80/S20)	4.4	4.5	4.5	4.2	4.3	4.6	4.3	5.5	4.8	5.4	5.3	5.1
Gini coefficient	0.29	0.29	0.29	0.28	0.28	0.29	0.29	0.32	0.29	0.30	0.31	0.30

Source: CBS

Income inequality measured by the Gini coefficient varied by around 10 percentage points across Europe in 2012, with the lowest levels of inequality seen in Norway and Slovenia and the highest in Spain and Latvia. Only two countries (France and Croatia) had an income inequality level around the EU-28 average (30.6). In twelve countries, income discrepancies were above the EU-28 average, ranging from 31 in Cyprus to 35 or more in Spain and Latvia.

As general government expenditures have a dampening effect on inequality, Croatia is trying to reduce inequality primarily through the tax system and the system of social insurance and welfare, which is explained in the further text.

3.2 Redistribution as a means to reducing inequality

Each country incorporates its specificity in its systems of social security and welfare, depending on the capabilities, traditions, practices and requirements of the population. Therefore, many countries vary considerably in form and scope of programmes aimed at reducing poverty and income inequality. Today in the world there are two fundamental approaches: Bismarck or Prussian model of insurance and finance, which is prevalent in continental Europe where rights are achieved thanks to the payment of contributions, and the second, Beveridge model in which these rights are mostly financed by collected taxes. Esping-Andersen (1990) distinguishes three basic models of social and tax policy. The first is *the neoliberal*, in which the emphasis is on the effectiveness of the market, a restrictive assistance policy in which there is great social stratification (e.g., in the UK). The second is *the corporate model*, in which there is also high stratification, while government intervention is provided via market regulation or financial assistance (like in France and Germany). The third is Scandinavian model with relatively high tax rates, where the public welfare system is very developed and the state provides direct protection or financially assists members of society at risk and attempts to enable them to participate fully in the labour market or to have security during times of unemployment. Regarding tax system, in many countries around the world, flat-tax is more and more used. Its main characteristic is one rate (or just few rates) for personal income tax (PIT), company income tax (CIT) and value added tax (VAT) almost without exemptions and deductions with the goal to insure the simplicity of the tax system and improve the tax compliance of the taxpayers.

In general terms, the redistributive effect (RE) represents a change in the distribution of income (or some other measure of welfare) caused by a certain public policy. The redistributive effect of personal income tax, measured as a difference between the pre-tax and post-tax Gini coefficients, is decomposed into vertical, horizontal and re-ranking effects. The vertical effect is a measure of the reduction in inequality that would occur if equals were treated equally (i.e. if taxpayers with an equal income pay equal tax). In other words, it measures the progressivity effect of personal income tax. The horizontal effect is a measure of the loss of redistributive effect due to unequal treatment of equals (i.e. taxpayers with an equal income). It is a direct measure of classical horizontal inequity (unequal treatment of equals). Re-ranking represents an additional loss of redistributive effect arising from the difference in the pre-tax and post-tax rankings of taxpayers.

Čok and Urban (2007) explain that vertical equity achieved through progressive taxation is income-equalising and generally considered 'just', while horizontal inequity is deemed 'unjust' and detrimental. Therefore, one can differentiate between actual and potential RE, with the latter describing the RE that would oc-

cur if the system were horizontally equitable. The difference between actual and potential RE is then our measure of horizontal inequity. High horizontal inequity of the current system relative to overall RE should be a signal to policy makers that some elements of the tax system must be changed in order to achieve a better balance of distributive justice.

Due to different designs, various tax and benefit instruments have different consequences for vertical equity and horizontal inequity of the overall tax and benefit systems. The means-tested social benefits are particularly designed to help the poorest individuals or households, while the non-means-tested social benefits are dispensed irrespectively of the recipient's personal or household income. One could expect that the contribution of means-tested social benefits to vertical equity is relatively larger than the contribution of non-means-tested social benefits, while the latter will contribute relatively more to horizontal inequity. While social security contributions are typically proportional to their tax base, personal income tax systems are usually designed to create larger relative burden on higher income earners. However, social security contributions may also achieve inequality reduction due to their usual payers - employed people - receiving on average higher incomes than non-active people that do not pay social security contributions

3.3. Tax system and social security contributions in income redistribution

At the beginning of the transition, the tax systems in Croatia relied heavily on direct taxation, so that tax revenues were significantly reduced with the fall in output due to the Homeland War (1991-1995) and transition from planned to market economy. A stabilisation of revenues was obtained with the cessation of the war and the introduction of value added taxes (VAT), which made up a much larger share in total tax revenues compared to Western Europe countries. Although it is well known that indirect taxes like VAT have a regressive effect, this does not influence the dispersion distribution of disposable income but only welfare levels (Leitner and Holzner, 2008). The effect of the VAT on welfare differences of income groups, however, is not considered in the literature on income inequality.

Croatia is among the group of transitional countries that shifted the tax burden from enterprises towards individuals. The main features of its current tax systems were introduced in the first half of the 1990s based on the 'consumption-based tax' concept, while later modifications transformed this into a 'normal' (i.e. conventional) personal income tax system. The new personal income tax law replaced the previous income tax system, under which only some categories of taxpayers (mostly the self-employed) had to submit tax returns. Income from employment,

domestic pensions and income from self-employment is subjected to progressive tax schedule with three tax brackets of 12%, 25% and 40%.

In Croatia, the main source of income and also the largest source of total income inequality are wages. According to Čok and Urban (2007) in Croatia in 1997 wages contributed to overall inequality 0.3245, and their share decreased to 0.3157 in 2001. The second most important income source are pensions. Because of transitional problems and widespread early retirement in the period between 1997 and 2001, the number of pensioners in Croatia almost doubled and the share of pensions in total income increased. Although the concentration coefficient remains unchanged, the contribution of the pensions to inequality more than doubled. At the beginning of a new Millennium in 2001 income from property represented around 2% of the total income in Croatia, which is mostly due to the fact that capital gains were not taxed, and dividends were only captured by income taxation in 2001 (effectively in 2002). Čok *et al.* (2013) concluded that the Slovenian tax and benefit system created much larger horizontal inequity than the Croatian tax and benefit system, while the redistributive effect was only slightly higher in Slovenia. This could be enlightened by the fact that in Slovenian (Croatian) taxes made 33.3% (26%) of pre-fiscal income, against the share of benefits equal to 2.7% (2.5%) of pre-fiscal income. The reason for this disproportion is clear; social security contributions were used to finance the expenditures of not only the pension system, but also the health system, whereas the respective benefits that the households obtained from the latter were not covered by the analysis, except some forms of social security contributions.

It could be briefly concluded that the tax system is the most important element in reducing income inequality in Croatia. The results by the research by Čok *et al.* (2013) showed how approximately 80% of redistributive effect is achieved by taxes and only 20% by benefits. This is mostly in contradiction with other studies. So, Wang and Caminada (2011) calculated that only 15% of redistributive effect can be attributed to taxes. Caminada *et al.* (2012) found that within rising overall redistribution, the public old age pensions and the survivor scheme attributed 60% to the increase of redistribution during the period from 1985 to 2005. Social assistance accounted for 20%, and the benefits for sickness, occupational injury and disease, and disability account for around 13% of the total increase in redistribution. Due to these effects, there is a need to analyse redistribution role of other factors, primarily the pension system in reducing income inequality.

3.4. Redistribution in pension system

As mentioned, pensions in Croatia are the second most important income source and significant factor in the reduction of the income inequality. According to Nestić (2003), during the 1980s, concentration coefficients for wages and income from handicrafts and individual farming were relatively stable, with the concentration for wages being considerably lower than for income from handicrafts and farming. During this period, the concentration of property income and transfers from abroad, as well as reduction in savings were relatively great. Towards the end of the 1980s, concentration of pensions turned downwards, while the concentration of other social transfers decreased, as suggested by their negative sign.

The pension system in the modern society has multiple functions: equal distribution of income of individuals and families throughout the life cycle, encouraging individual and national saving, and alleviating poverty during old-age and inactivity. An essential function of old age pensions is to redistribute inter-temporally over the life cycle but there is also intergenerational and intra-generational redistribution.

The intergenerational redistribution is quite obvious and is linked with the nature of the pension system; the younger generation is paying pension contributions for those that currently receive pensions. Here is usually intergenerational redistribution, because the older generations (retired in first 30 years from the establishing of the pension system) obtain positive transfers because they paid relative lower rates of pension contributions and receive pensions financed by higher rates of pension contributions that burden the current employees. Current and future generations realised negative life transfers because they pay higher rates of pension contributions and will receive lower amounts of pensions in comparison with previous generations (expressed in the replacement rate - the share of pension in the wages). The intergenerational redistribution will continue in the future mostly because of the demographic reasons: shrinking younger generations have to finance pensions of a relatively large number of retirees and will face a more and more unfavourable relationship between their pension contributions and future pensions.

Furthermore, there is also an intra-generational redistribution achieved by those who were paid better and thus contributed more to the pension fund. While the highest amount of salaries are usually not limited, generally there is a strict limitation of the maximum amount of pension in the public pension system. Except for the minimal wage there is no limitation on the smallest amount of salary, while almost all countries have some kind of determined minimum amount of pension. There are some other different forms of redistribution in the pension system: from men (that live shorter) to women (that live longer), from various social groups to

others, for example from better educated and paid to those with lower education attainment and lower salaries.

Redistribution from those who die early to those who live longer, is the fundamental nature of any pension scheme. Longevity, however, is not indifferent to gender and social status. Women live longer than men and higher-income, better educated people live longer than less skilled individuals with low-income. Thus, as it is often argued, redistribution according to longevity is directed from men to women and “perversely”, from the poor to the rich. Usually PAYG systems are blamed for such “perverse” redistribution, but it is important to understand the same is true for mandatory funded schemes if they are prohibited from handpicking their customers, for example if they are barred from discriminating against women.

Redistribution by individual longevity - which is often gender-, status- and cohort-specific - is mostly inherent, in the notion of a risk-sharing, pension insurance scheme, irrespective of management and the mode of finance, and we may call it endogenous redistribution. There exists, however, another type of redistribution in most public schemes, which should not necessarily be a task of the pension system, which we shall refer to as exogenous redistribution. Public systems, although their objectives have seldom been explicitly stated, are typically called upon to perform - in addition to the role of social insurance - the additional role of social assistance, identified as solidarity.

Croatian pension insurance system contained two mandatory pillars: inter-generational solidarity Pay-As-You-Go (PAYG) pension insurance and private funded “capitalized accounts” with personal account. Majority of the insured were participating in both pillars, paying 15% of the gross wage to the former and 5% to the latter. The most important redistribution in Croatian pension system is a minimum pension (*najniža mirovina*) - a pension to which the insured person is entitled if his or her average salary was significantly lower than the average wage. The minimum pension is not set as the absolute amount. It depends on the number of qualifying years multiplied by the minimum actual pension value. In the analysis of the Croatian pension system there is also a problem with regard to how to treat contributions for the second pillar: as the social security contribution (as some kind of mandatory tax) or as personal savings?

Income redistribution of the pension system is induced by pension formulas, but its strength depends on the macroeconomic and demographic factors such as the size and distribution of gross wages, rates of return of pension funds and life expectancy. Since long periods are involved, the final effects are uncertain. In the research by Urban et al. (2011) micro-simulation model was developed, which converts the input data and parameters into wages, benefits, pensions and taxes typified individuals. Based on the lifetime amounts of these variables, the indica-

tor “pension tax” is obtained, as the difference between the present value of all pension contributions paid by the individual and the expected present value of pensions to be received. If the contributions of some individual exceed her pensions, she actually “finances” the pensions of other pensioners and in this way income redistribution comes into existence. Analysis showed that the pension system causes a redistribution of income from individuals with higher incomes to those with lower incomes. This increases progressivity of the overall fiscal system. The effect of intra-generational redistribution increases with the growth of average gross wages and decreases with the rate of return of pension funds. If the life expectancy of persons of the same generation increases with income, the redistribution effect is reduced. The pension taxes increased the progressivity of the entire tax system in which the maximum role has the income tax.

The Croatian pension system is highly redistributive between the lowest and highest income cohorts. The PAYG system awards pension points for each year based on individual’s earned income. The average wage equals one point, which was 0.76 percent of the average gross wage. According to the World Bank (2011) the minimum pension per year of service is 0.825 percent of the 1998 average gross wage indexed annually (as pension point value is), which due to indexation dropped to 0.734 percent of average gross wage in 2009. Minimum wage earners with 40 years of service would earn a minimum pension higher than their last net wage (the net individual replacement rate is over 100 percent); and average wage earners with 40 years of service would receive some 3 percent higher pension benefit. A minimum pension in Croatia is also comparatively quite high, even for 30 years of service. On the other hand, the maximum pension is limited to 3.8 annual points, i.e. the pension formula is proportional up to 3.8 times the average wage, while contributions are proportional up to 6 times the average wage. As a result, the net replacement rate for someone earning 6 times the average wage would be less than 33 percent. In the following text the redistribution effects of the welfare system in Croatia will be examined.

3.5. Redistribution in the welfare system

Due to demographic changes, new economic and political circumstances, the social care reform over time, changed significantly. The current social protection system in Croatia is a mix of old and new programmes that are continuously being reformed in response to changing social needs and opportunities to provide social transfers or services more efficiently. A basic overview of the Croatian social welfare system consists of three components: cash transfers, benefits in kind and a range of residential and foster-care programmes. According to the statistics main-

tained by the Ministry of Social Policy and Youth there are different cash transfers as well as various types of in-kind assistance provided. In addition, almost all local government bodies and many non-governmental organisations provided help for particular categories of needy families like poor, the elderly and so on. Cash transfers are provided on a much larger scale than in-kind benefits although there are a relatively large number of recipients of the latter. In fact, this is misleading; by far the largest in-kind programme involves assistance in paying for public and communal services. This is classified as an “in-kind” benefit because the local welfare office pays the bills of those who receive help of this type directly. Hence it does not formally constitute a cash transfer.

By far the greatest share of social assistance in Croatia took the form of cash transfers. The largest of these - both in terms of resources paid out and number of beneficiaries was the so-called subsidy for the subsistence benefit, what is a means-tested benefit intended for households whose income is below the “means of subsistence”. This level represents the amount of money necessary to satisfy the basic needs of the particular household. The total amount of the benefit for a household is obtained as a sum of individual contributions depending on household members’ characteristics. When calculating means of subsistence, children, the elderly and people unable to work are automatically accounted; working-able individuals between 18 and 65 are not taken into account unless they satisfy the conditions for being characterised as unemployed. This benefit was introduced in 1998 under the name “subsistence support” (*pomoć za uzdržavanje*). In the period from 08/2007 to 05/2011 it was called “permanent support” (*stalna pomoć*). However, in the whole period from 01/1998 to 12/2013 there were no important changes in the benefit design. In 01/2014 subsistence support was replaced by “guaranteed minimum benefit” (*zajamčena minimalna naknada*), which introduces the following changes: (a) the contribution of children in the calculation of the “means of subsistence” is significantly lowered; (b) additional conditions for working-able individuals, (c) the wealth test is tightened, etc. It unifies what was the basic social assistance scheme (*pomoć za uzdržavanje*) with two much smaller benefit schemes: a benefit scheme for war veterans and their families and a scheme for prolonged unemployment benefits. This benefit is entirely financed through the central state budget. Since the determination of entitlement involved assessment by social workers (who enjoyed a fair amount of discretion) it was probably quite costly to administer. According to Nestić (2003) towards the end of the 1980s concentration of other social transfers decreased, as suggested by their negative sign. In other words, other social transfers (excluding pensions) were well targeted towards lower income population groups.

This was confirmed by Šućur (2005) who stressed that Croatia at that time had a very efficient social welfare system and forms of monetary aid. The Croatian social transfer system was in fact even more effective than the average transfer

system in the EU (measured according to the poverty rate reduction, not according reduction in inequality). Only Sweden, Poland and Hungary had much more effective social transfer systems. In fact, if restricted only to social transfers and excluding old-age and survivor pensions, then this social security system was more effective in Croatia than in any other country. This means that it is necessary to take with caution the often-expressed unprepared opinion that Croatian transfer system is ineffective, although it is necessary additionally to check the information about the high effectiveness of social transfers not including old-age and survivor pensions (there is a need to have in mind only the low level of social assistance benefits or unemployment benefits).

The Gini coefficients in EUROMOD (Urban and Bezeredi, 2016) and external statistics for 2011 were 29.2 and 30.9, respectively. The difference of 1.7 percentage points or 6% between EUROMOD and SILC is caused by the coverage of social assistance benefits, particularly the Subsistence and Unemployment benefits, which significantly impact the bottom income decile. Furthermore, the amounts of these benefits are notably larger in EUROMOD for given income data.

As Croatia became an EU member state only recently, there are no analyses of the social transfer efficiency and comparisons with other EU states in reducing income inequality, but there are some valuable studies on international comparison on the small scale, with Slovenia. Thus, for example results by Čok et al. (2013) indicated that Croatia experienced a significantly higher pre-fiscal income inequality and a lower redistributive effect than Slovenia. The results showed noteworthy differences between the two countries in almost every aspect. Croatia had a higher level of post-fiscal income inequality than Slovenia, which was a consequence of higher inequality of pre-fiscal income, as well as of a less redistributive tax and benefit system. The results revealed that the Slovenian tax and benefit system created a much larger vertical effect than the Croatian tax and benefit system. However, the former system also induced a much more horizontal inequity, which cancelled the advantage in the vertical effect, with the final result that the redistributive effect was only slightly higher in Slovenia. In both countries, the overall size of taxes was much higher than the size of benefits. The empirical analysis using the new decompositions indicated that Croatian personal income taxes and non-pension social benefits reduce the average income distance by 15.6 percent. The redistributive effect could be 6.4 percent higher if horizontal inequities were eliminated. Benefits have an overwhelming role in achieving horizontal inequity, while taxes have a higher contribution in achieving vertical equity (Urban, 2014b).

4. Conclusion and recommendations

Different welfare systems and different social policies lead to various outcomes in changes of income inequality. This paper does not analyse the causes of inequality but investigates income distribution and redistribution attributed to social security transfers and taxes in Croatia. The problem is therefore not wealth but rather persistent poverty, because the average period of welfare scheme usage is very long: 7.3 years for users without education, around 3.5 years for persons with college and university education; 2.5 years for the younger welfare recipients (between the age of 19 and 29) and 7.6 years for those older than 60 years of age (Bejakovic, 2004). And the right way to solve income inequality is not by punishing the rich, but by doing more to help the poor become richer, mostly by increasing their social capital. This means not simply strengthening the bonds of trust and mutual respect among citizens, but also equipping citizens – particularly the poor – with the knowledge, skills, values, and habits that will allow them to be successful.

Public pension system is a huge apparatus of income redistribution. Some characteristics of the Croatian pension system which have important influence on the amount of income redistribution are: (a) different pension calculation formulas for the “old” and the “new” pensioners, i.e. those who have retired before and after different changes in the pension system; (b) the rules of “minimum” and “maximum” pension; (c) the formula which adjusts pensions according to growth of the average wage and price index; (d) different contribution bases for various groups of insured people (for example, employed and self-employed). The aim of this study was to recognize different sources of income redistribution caused by the public pension system in Croatia, and to quantify their influence on different groups of people. Briefly, winners of the public system in Croatia are those with a short insurance period and relatively low wages, while losers were people that had worked full legally required period and/or those with high salaries. Around 10 percent of contributors reported minimum or very low wages. There is much anecdotal evidence of (mainly small) entrepreneurs registering employees at the minimum wage and paying wages above that in cash. Sometimes the employees are either not aware of their employer’s practice or agree to receive a higher net wage now rather than a marginally higher pension in the future.

Substantial poverty and inequality reduction could be achieved in Croatia by careful reallocation of expenditures and improvement of coordination among existing social programmes. Also there is a need constantly to monitor and survey the implementation of particular programmes. In future research it will be necessary to study the effectiveness of each transfer programme by itself. In the paper the main hypothesis is that the system of tax burden and social transfers in Croatia is efficient in reducing income inequality, but still there is a need to improve its impact.

BIBLIOGRAPHY

- Acemoglu, D., (2002a). "Directed Technical Change", *The Review of Economic Studies*, 69 (4), pp. 781-809, Available at <http://www.jstor.org/stable/1556722>
- Acemoglu, D., (2002b) Technical Change, Inequality, and the Labor Market, *Journal of Economic Literature*, 60 (3), pp. 7-72, Available at <http://economics.mit.edu/files/4124>
- Aghion, P., Commander, S. (1999). "On the Dynamics of Inequality in the Transition". *Economics of Transition* 7(2), pp. 275-98.
- Anand, S., Kanbur, R. (1993). "The Kuznets process and the inequality - development relationship", *Journal of Development Economics*, 40(1), 25–52. [http://dx.doi.org/10.1016/0304-3878\(93\)90103-T](http://dx.doi.org/10.1016/0304-3878(93)90103-T)
- Aronson, R.J., Johnson, P., Lambert, P. J. (1994). Redistributive Effect and Unequal Tax Treatment, *Economic Journal*, 104(204), 262-270. Available at <http://dx.doi.org/10.2307/2234747>
- Alesina, A., Rodrik, D. (1994). "Distributive Politics and Economic Growth", *Quarterly Journal of Economics*, 109(2), 465 – 490, Available at <https://www.mtholyoke.edu/courses/epaus/econ213/rodrikalesina.pdf>
- Auerbach, A.J., Rosen, H.S. (1980). Will the real excess burden please stand up? (Or, seven measures in search of a concept). *National Bureau of Economic Research Working Paper No. W 495*. Cambridge, MA: National Bureau of Economic Research.
- Bacha, E.L. (1979). "The Kuznets Curve and Beyond: Growth and Changes in Inequalities", in Malinvaud, E., (ed.), *Economic Growth and Resources*, Vol. I. *Major Issues*. New York: St. Martin's Press.
- Barro, R., Sala-i-Martin, X. (1995). *Economic Growth*, New York: McGraw-Hill.
- Ballard, C.L., Fullerton, D. (1992). "Distortionary taxes and the provision of public goods". *Journal of Economic Perspectives* 6, 117–131.
- Bejakovic, P. (2004). *Poverty and Social Exclusion in EU and Croatia*, in Kott, K., (ed). *Croatian Accession to the European Union: Institutional Challenges*, Zagreb: Institute of Public Finance and Friedrich Ebert Foundation, pp. 79-104.
- Blum, W.J., Kalven, H., Jr. (1953). *The Uneasy Case for Progressive Taxation*. Chicago: University of Chicago Press.
- Caminada, K., Goudswaard, K., Wang, C. (2012). Disentangling Income Inequality and the Redistributive Effect of Taxes and Transfers in 20 LIS Countries over Time, *Working Paper Series Luxembourg Income Study (LIS), No. 581*, Luxembourg: Cross National Data Centre.
- Čok, M., Urban, I. (2007). "Distribution of Income and Taxes in Slovenia and Croatia", *Post-Communist Economies*, 19(3), 299-316. Available at <http://dx.doi.org/10.1080/14631370701503406>
- Čok, M., Urban, I., Verbič, M. (2013). "Income Redistribution through Taxes and Social Benefits: The Case of Slovenia and Croatia", *Panoeconomicus*, 60(5), 667-686.

- Davies, J. B. (1986). "Does Redistribution Reduce Inequality?", *Journal of Labor Economics*, 4(4), pp. 538-559.
- Derviş, K., Özer C. (2005). *A Better Globalization: Legitimacy, Governance, and Reform*, Washington, D.C.: Center for Global Development.
- Duclos, J-Y., Jalbert, V., Araar, A. (2003). Classical Horizontal Inequity and Reranking: An Integrating Approach, *CIRPÉE, Working paper 03-06*, Québec: Université Laval.
- Duclos, J-Y., Araar, A. (2006). *Poverty and Equity Measurement, Policy and Estimation with DAD*, New York / Heidelberg: Springer.
- Esping-Andersen, G., (1990). *The Three Worlds of Welfare Capitalism*. Cambridge: Polity Press."
- Ferreira, F. H. G. (1999). "Economic Transition and the Distributions of Income and Wealth, *Economics of Transition* 7(2), pp. 377-410.
- Firebaugh, G. (2003). *The New Geography of Global Income Inequality*, Cambridge: Harvard University Press. Available at <http://dx.doi.org/10.4159/9780674036895>
- Garner, T. I., Terrell. K., (1998). "A Gini Decomposition Analysis of Inequality in the Czech and Slovak Republics during the Transition". *Economics of Transition* 6(1), pp. 23-46.
- Goulder, L.H., Williams, R.C. III. (1999). The usual excess burden approximation usually doesn't come close, *National Bureau of Economic Research Working Paper No. W7034*, Cambridge, MA: National Bureau of Economic Research.
- Greenstone, M., Looney, M., Patashnik, J., Yu, M. (2013). *Thirteen Economic Facts about Social Mobility and the Role of Education, The Hamilton Project Policy Memo*, Washington, DC: the Brookings Institution, Available at <http://www.brookings.edu/research/reports/2013/06/13-facts-higher-education>.
- Rawls, J. (1999). *A Theory of Justice* (rev. ed.). Cambridge, MA: Harvard University Press.
- Holzner, M. (2010). Inequality, Growth and Public Spending in Central, East and Southeast Europe, *WIIW Working Papers 71*, Vienna: The Vienna Institute for International Economic Studies. Available at <http://wiiw.ac.at/inequality-growth-and-public-spending-in-central-east-and-southeast-europe-dlp-2202.pdf>.
- Ivaschenko, O. (2002). Growth and Inequality: Evidence from Transitional Economies, *CESifo Working Paper No. 7461*, Available at SSRN: <http://ssrn.com/abstract=322740>
- Ivaschenko, O. (2003): "Growth and Inequality: Evidence from Transitional Economies in the 1990s", in: Eicher, Theo S., Turnovsky, S., J. (eds.), *Inequality and Growth: Theory and Policy Implications*, Cambridge, MA: MIT Press, pp. 155–198.
- Kakwani, N.C. (1984) "On the measurement of tax progressivity and redistributive effects of taxes with applications to horizontal and vertical equity". in Rhodes G.F., Basmann, R.L. (ed) *Economics inequality, measurement and policy*, pp 149–168.
- Korpi, W., Palme, J. (1998). The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries, *American Sociological Review*, 63(5), 661-687. <http://dx.doi.org/10.2307/2657333>

- Krueger, A. B. (2012). *The Rise and Consequences of Inequality in the United States*, Washington D.C.: Council of Economic Advisers, Available at https://www.whitehouse.gov/sites/default/files/krueger_cap_speech_final_remarks.pdf
- Kuznets, S. (1955). "Economic Growth and Income Inequality", *The American Economic Review*, 15(1) 1-30.
- Leitner, S., Holzner, M. (2008). *Economic Inequality in Central, East and Southeast Europe*, The WIIW Balkan Observatory Working Paper 74, Vienna: The Vienna Institute for International Economic Studies, Available at <http://www.wiiv.ac.at/economic-inequality-in-central-east-and-southeast-europe-dlp-3223.pdf>
- Lerman, R., Yitzhaki, S. (1985). "Income inequality effects by income source: a new approach and applications to the United States". *The Review of Economics and Statistics*, 67 (1), pp. 151–156. doi:10.2307/1928447
- Milanovic, B. (1998). *Income, Inequality and Poverty during the Transition from Planned to Market Economy*. Washington D.C.: The World Bank.
- Milanovic, B. (1999). "Explaining the Increase in Inequality during Transition", *Economics of Transition* 7(2), pp. 299-343.
- Milanovic, B. (2003). *Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Surveys. Policy Research Paper No. 2875*, Washington DC. World Bank.
- Nestić, D. (2003). *Inequality in Croatia in the period from 1973 to 1998, Occasional Paper No. 17*, Zagreb: Institute of Public Finance.
- Perugini, C., Pompei, F. (ed.) (2015). *Inequalities During and After Transition in Central and Eastern Europe*, Houndmills: Palgrave Macmillan.
- Šućur, Z. (2005). "Poverty and Social Transfers in Croatia", *Financial Theory and Practice*, 29(1), 17-38.
- Thurow, L. (1971). "The Income Distribution as a Pure Public Good", *Quarterly Journal of Economics*, 85(5), pp. 327-336.
- Urban, I. (2014a). Contributions of taxes and benefits to vertical and horizontal effects, *Soc Choice Welf* (2014) 42:619–645, DOI 10.1007/s00355-013-0747-x, Available at <http://link.springer.com/article/10.1007%2Fs00355-013-0747-x#/page-1>
- Urban, I. (2014b). Impact of Taxes and Benefits on Inequality Among Groups of Income Units, *Review of Income and Wealth 2014*, DOI: 10.1111/roiw.12158, Available at <http://onlinelibrary.wiley.com/doi/10.1111/roiw.12158/abstract>
- Urban, I., Mundžar, D., Bejaković, P. (2011). *Mirovinski sustav i preraspodjela dohotka*, Zagreb: Institut za javne financije.
- Urban, I., Bezeredi, S., (2016). *EUROMOD Country Report*, Available at https://www.euro-mod.ac.uk/sites/default/files/country-reports/year6/Y6_CR_HR_Final_25-02-2016.pdf.
- Wang, C., Caminada, K. (2011). Disentangling Income Inequality and the Redistributive Effect of Social Transfers and Taxes in 36 LIS Countries. *Luxembourg Income Study Working Paper 567*. Luxembourg: Cross National Data Centre.

World Bank, (2011). *Croatia: Policy Options for Further Pension System Reform*, Zagreb and Washington DC: World Bank.

Yemtsov, R. (2001). Inequality and Income Distribution in Georgia, *Discussion Paper No. 252*. Washington D.C.: World Bank, Bonn: IZA.

ULOGA I EFIKASNOSTI POREZNOG SUSTAVA I SUSTAVA SOCIJALNIH TRANSFERA NA SMANJENJU DOHODOVNE NEJEDNAKOSTI: PRIMJER REPUBLIKA HRVATSKA

Sažetak

Cilj i svrha ovog rada je pružiti uvid u ulogu i efikasnosti poreznog sustava i sustava socijalnih transfera na smanjenju dohodovne nejednakosti u Hrvatskoj. U članku se objašnjavaju porezni sustav, mirovinsko osiguranje i sustav socijalne skrbi u Hrvatskoj i uspoređuje ih se sa sličnim u drugim zemljama članicama EU-a. Glavni je nalaz da je u cjelini sustav socijalnih transfera u Republici Hrvatskoj dovoljno učinkovit, ali još uvijek postoji potreba za poboljšanjem njegovog djelovanja. Polazne ideje ovog istraživanja su višestruke. Prvo, na temelju ranijih istraživanja i dostupnih podataka, mogu se usporediti učinci porezne i socijalne politike u Hrvatskoj. Drugo, podjelom javnih politika na oporezivanje i transferna plaćanja, istraživanje pridonosi boljem razumijevanju utjecaja svakog pojedinog oblika politike. Treće, razmatranja o optimalnoj politici služe kako bi se ispitali utjecaji javnog djelovanja, što je važan korak u unapređenju javnih politika.

Ključne riječi: dohodovna nejednakost, mirovinski sustav, sustav socijalne skrbi, socijalni transferi, Hrvatska