TAX POLICY AND ECONOMIC GROWTH*

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1 INTRODUCTION

In this paper we shall try to describe how taxes affect economic growth. This area is of significant importance for modern trends in public finance and macroeconomics. Many economists have tried to explain lower growth rates and unemployment in mid-seventies with a growing tax burden in many developed countries. However, many dilemmas have remained open and the empirical relation between taxes and growth seems to be much more complex than theoretical findings suggest.

Although the impact of taxes on growth can be observed both from the aspect of efficiency and aspect of changes in equity that taxes introduce to economy, in this paper we shall primarily focus on the impact that taxes have on growth by changing efficiency of the economy.

The paper is set up in the following way. First we shall present theoretical aspect of the relation between taxes and growth, that is, loss of efficiency as a result of introduction of taxes, as well as channels through which taxes affect accumulation of two basic factors of production: capital and labor. We shall continue with a review of the latest empirical research. Some implications of the established theoretical and empirical relations for defining and pursuing tax policy in Croatia are presented in the fourth section of this paper.

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* *This paper was originally published in* ***Economic Trends and Economic Policy (Privredna kretanja i ekonomska politika)****, 1999, No. 73, 62-121.*

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2
THEORETICAL RELATIONS BETWEEN TAXATION AN GROWTH

2.1 Tax distortions and growth

One of the central questions in macroeconomics and public finance is how changes in tax policy affect economic activity and social welfare. In theory, it is usually considered that taxes are in a negative correlation with growth - so higher taxes mean lower growth rates of economy. This is explained with the fact that taxes introduce distortions to economy, that is, they do not have neutral effect on the behavior of individuals. All taxes except lump sum tax (being the only neutral tax, although impossible to carry through in practice) introduce distortions to an economic system. Tax distortions change the system of incentives for individuals, so their decisions on, for example, work and leisure or saving and consumption are different than they would be in a world without taxes. The distortions that taxes introduce to economy result in loss of efficiency, which is called dead weight loss or excess tax burden. Therefore, higher taxes mean higher rates of distortion, which leads to higher loss of efficiency and, consequently, lower growth. Further in this paper we shall briefly explain this established theoretical relation between higher taxes and lower growth.

Consequently, taxation leads to inefficiency in economy. Taxes stimulate people to change their behavior: for example, they could either work as much as before introduction of taxes and reduce their spending, or work more and spend less time at leisure, thus not needing to reduce spending substantially. Whichever way they choose to come to terms with taxes, they will be worse off than in a world without taxes and the balance in the market will be established on a lower level of output and higher level of prices. The allocation of resources is not Pareto optimal any more and the inefficiency that leads to lower growth has entered the system.

The inefficiency caused by taxes, will be presented with a simple supply and demand diagram. In other words, taxes have impact on the amount of supply and demand for goods. Taxation puts both consumers and producers in a worse position: the price that consumers pay after introduction of taxes is higher and the price that producers get is lower than before taxation. The market has narrowed because lower quantity of goods is being exchanged. The decrease in consumers' and producers' welfare turns into tax revenue of the state. Thus, for the

purpose of full understanding of the impact of taxes on welfare, the decrease in welfare of consumers and producers should be compared with the tax revenue collected by the state. Such an analysis will show that the decrease in consumers' and producers' welfare exceeds the tax revenue collected by the state. The loss of welfare that takes place after introduction of taxes (a part of which belongs to no one - neither to a consumer or producer, nor to the state) represents a dead weight loss or excess tax burden, or a degree of inefficiency that taxes introduce to economy. However, full understanding of dead weight loss requires a detailed analysis of its generation.

To this end, we shall use supply and demand curves and consumer and producer surplus shown in the Figure 1. Firstly, we will explain the terms "consumer and producer surplus" in a market without taxes, so that later we could see what happens when taxes are.

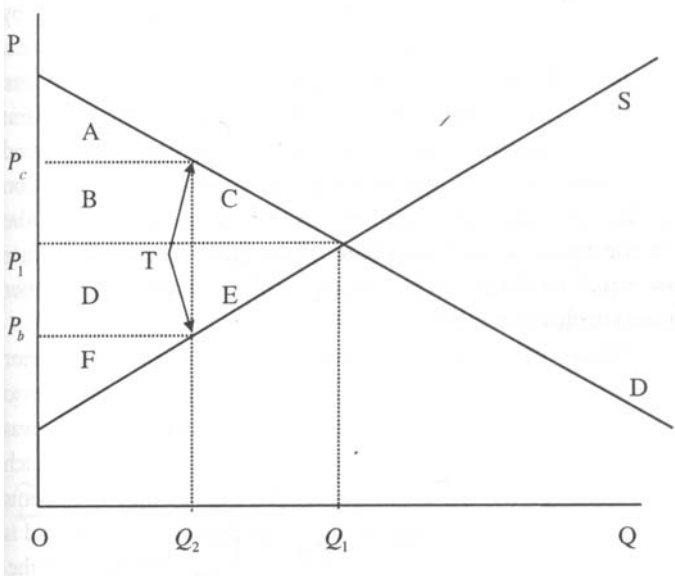

Figure 1

DEAD WEIGHT LOSS

Source: Mankiw (1997).

The equilibrium in a market without taxes is established at the intersection of the supply curve and demand curve, where price of goods equals P1 and quantity equals Q1. Consumer surplus then represents a benefit that a consumer gains in the market. It is defined as a value that a consumer is willing to pay for goods minus the price that he actually pays for these goods in the market. In Figure 1, it is the surface between the demand curve and the price in the

point of equilibrium: A+B+C. On the other hand, producer surplus is a benefit that a producer gains in the market. It is defined as a value that the producer gets for his goods in the market, minus cost of production of these goods. It is the surface between the supply curve and the price in the point of equilibrium: in our figure, it is the D+F+E surface. Being the sum of consumer surplus and producer surplus, the total surplus of welfare is represented with the surface between the supply curve and the demand curve, extending all the way to the equilibrium point: this is the A+B+D+F surface.

But when the state introduces taxes (T), the price that consumers pay grows and the price that producers get drops. The price that consumers pay has now grown to P_c and the price that producers get after paying taxes to the state is now only P_b. The quantity exchanged on market is now only Q_2, which is lower than Q_1, which was exchanged in the market before introduction of taxes. Thus, by reducing the quantity of goods being exchanged, taxes have narrowed the market, while the price paid by consumers has grown and the price that producers get has dropped. Besides, taxes have lead to a change in consumer surplus and producer surplus. Consumer surplus is not represented with the surface A+B+C any more, but has been reduced to the surface A only. Producer surplus is not represented with the surface D+E+F any more, but only with the surface F. The state, on the other hand, has collected taxes equal to ($0Q_2$*T), represented with the surface B+D in the figure. It shows welfare of the state. The total welfare surplus is now equal to A+B+C+D+E+F, that is, it comprises consumer surplus, producer surplus and state taxes.

Now, by comparing the welfare before and after introduction of taxes, we can analyze the effects of introduction of taxes to the market. The total surplus of welfare before introduction of taxes was A+B+C+D+E+F, but after the introduction it dropped to A+B+D+F, which means that it has been reduced by the surface C+E. This surface represents reduction of the total welfare in the market after introduction of taxes and is called dead weight loss[1]. In other words, introduction of taxes has reduced the consumer and producer surpluses more than it has increased the state welfare. A part of this welfare belongs to no one: it is neither a part of state income, nor a part of total surplus. It is lost forever. Thus, a part of the welfare in the economy is lost, because the consumers and producers have lost more than the state has gained through the taxes - the dead weight loss has occurred.

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[1] *The triangle C+E is also called Harberger Triangle, after famous economist Arnold Harberger, who graphically represented the dead weigh loss. (Mendoza, Milesi-Feretti and Asea, 1995).*

What determines the size of the dead weight loss? First, we have price elasticity of supply and demand, which measures the change in quantity of the supplied and demanded goods, depending on the change of price. The surface of C+E triangle, that is, the rate of dead weight loss, is defined with the slopes of supply and demand curves that reflect different values of price elasticity of supply and demand. It can be shown that under the conditions of the same rate of taxes, a higher price elasticity of demand curve, or a higher price elasticity of supply curve can lead to a higher dead weight loss. The more elastic the curves are, the higher is the inefficiency that taxes introduce to the market. The fact is, taxes introduce dead weight loss to the economy because they stimulate people to change their behavior. Since elasticity of supply and demand is a measure of change in the behavior of consumers and producers in relation to change of prices, it also determines the rate of market distortion. The more elastic supply and demand curves are, the higher is the dead weight loss.

Another important determinant of the size of dead weight loss is the tax rate. When price elasticity of supply and demand is the same, dead weight loss is low when taxes are low and it grows when they grow. Indeed, dead weight loss grows faster than most taxes: the size of dead weight loss grows with the second power of the tax rate. We can say that the size of dead weight loss (provided that production costs are constant) is equal to 1/2 (Et^2 PQ), where t is tax rate, E is price elasticity of demand, P is price and Q is quantity of goods[2]. Obviously, if the tax rate increases twofold, the dead weight loss increases fourfold. In case when supply and demand can only be presented with curves and not with straight lines, the basic logic remains: the growth of dead weight loss is exponential with the tax rate growth.

2.2 Taxation of savings and investment

Taxes can reduce economic growth by affecting savings and investment. The higher the proportion of income that is being saved and invested, the higher will be the future income level. In other words, through its impact on the amount of the income being saved or invested, taxation policy has a crucial effect on the future level of income per capita. The impact of taxes on saving (of individuals and companies), investment in fixed capital and investment risk is briefly presented below.

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[2] *See in Stiglitz (1998, p. 454).*

Impact of taxes on savings of individuals

The gross savings in private sector are accumulated in households and companies. However, a large part of the gross savings is used for covering depreciation and is needed for the maintenance of the existing capital. The net savings, consisting of savings in households and retained earnings of companies, represent the real potential, available for new investments. The major part of these savings is accumulated in households, while the retained earnings account for only a small part of them.

If all households would save the same proportion of income, then the impact of income tax on the total savings would be the same, regardless of the pattern of the distribution of tax burden to individuals. But, wealthy individuals save more than poor citizens, so it is expected that the taxes collected from higher tax brackets create more burden on savings than the ones collected from lower tax brackets. Consequently, a more progressive income tax seems to be creating a heavier burden on savings than a less progressive tax system. This claim suggests that a less progressive income tax system would be favorable to the increase in savings of individuals. However, research has established that the impact of income progressiveness on level of savings is much less important than it could be expected: replacement of progressive income tax with a proportional one could increase household savings by not more than 10 percent (Musgrave and Musgrave, 1988). The propensity to save also varies during a life cycle: in youth and in old age it is much lower than in middle age when income is highest and when people save for education of their kids, for a house or a flat and for the old age.

Income tax also affects savings by lowering the net return from savings, that is, by lowering the interest rate on savings. In such conditions, savings are expected to drop. However, the savings of individuals are motivated with various other reasons and their final amount does not have to depend on interest rate trends only. For example, many households will not save less when interest rates are lower, because they are in that part of life cycle when they have to save for retirement.

Besides income tax, consumption tax also affects savings of individuals. While income tax is generally progressive, consumption taxes are mostly regressive, that is, they are mostly paid by lower-income households. Since these households have a higher marginal propensity to consume than the households with higher income and since their marginal propensity to save is lower than the one of wealthy individuals, consumption taxes burden total consumption

more and savings less. This is why it is often recommended to the countries with low level of savings that they should direct their tax systems to taxation of consumption much more, because this will boost savings and growth, too.

Impact of tax on gross savings of companies

Retained earnings and depreciation reserves account for the predominant part of company savings. Since profit is taxed after deduction of depreciation, income tax does not reduce the depreciation reserves. But if profit taxation law allows accelerated depreciation, then depreciation reserves and company savings will increase in the first years following the purchase of fixed assets. Profit is divided in the dividends distributed to company owners and undistributed profit remaining in the company. Different taxation of the dividends and retained profit has an impact on savings, too. Harder taxation of the retained profit will stimulate its distribution to dividends, while lower taxation of the retained profit will increase the company's savings. The amount of savings also depends on whether profit taxation system and income taxation system are reconciled. If they are, double taxation of the dividends on company level and again on the level of individuals is thus avoided.

Impact of tax on investments

Savings are a necessary condition for accumulation of capital, but not the sufficient one. In order to accumulate fixed capital, savings must turn into investments, which means that entrepreneurs must be ready to invest in capacity building.

Taxes can influence the level and allocation of domestic investments. However, in the conditions of integration of international financial markets, domestic investments are not necessarily constrained with domestic savings. Thus, the measures stimulating the growth of domestic savings do not necessarily mean growth of domestic investments. Increased domestic savings can leave the country in search of investments with better return. Also, tax incentives for increasing return on domestic investments can increase investing without increasing domestic savings if free foreign capital inflow is allowed.

In closed economies, investors will invest up to a point where the value of the output realized by an investment is equal to the costs of the that investment (Musgrave and Musgrave, 1988). This means that the realized output must be large enough to cover the depreciation f the purchased fixed assets and the

interest on the credit granted for this purchase (for the sake of simplicity, we presume that the investment is financed with the credit only). In terms of rates, this means that the investment return rate must be high enough to cover the depreciation rate and market interest rate. Or, expressed with the following equation:

(1) $r_g = i + d$,

where r_g is a gross profit rate, i is interest rate, while d is depreciation rate. After introduction of tax, the equation changes:

(2) $r_n = r_g - (tr_g - t_d) = i + d - c$,

where r_n is a net profit rate, t is a tax rate, t_d is a rate of tax saving (being a result of depreciation by rate d), while c is the rate of investment relieves.

The left side of the equation (2) shows net profit rate r_n, or after-tax rate, which is lower than the gross profit rate for the amount of tax shown in the brackets. Consequently, the tax has reduced the rate of investment return, thus making investments less attractive to investors. The tax is expressed in two ways: as tr_g , indicating what the tax would be if the depreciation would not be taken into account, and t_d, representing tax saving as a result of depreciation by the rate d.

The equation also shows that the state can have impact on investment either by lowering the tax rate t, or by increasing the depreciation rate d, or by introducing tax relieves c that decrease the cost of capital. We can also see from the above that it is very hard to determine what impact will taxes have on investments. The income tax rate itself is not a good enough indicator of this relation, because a higher rate does not necessarily mean lower investments. The impact of tax on investments depends not only on the rate, but also on other characteristics of income tax system. The depreciation rate and investment relieves are just a couple among these.

Taxation and risk

It is usually considered that taxation of capital income decreases the tendency of individuals to undertake risky investments. In other words, individuals are willing to undertake risky investments only if they receive appropriate compensation in return. It is a widespread opinion that taxation of the return on capital actually means taxation of the risk premium that the individuals

receive because of additional risk. As a result, the tendency of the individuals to enter risky investments will be lower. This is important because it is considered that entrepreneurship is crucial for the vitality of a market and entrepreneurs are these individuals that act as key initiators of major investments. The investors' unwillingness for new risky undertakings will have devastating impact on the rate of growth. But it does not have to be that way. We can show that taxation of return on capital in the conditions of risk does not have to mean a decrease in risky investments - on the contrary, they will be stimulated.

This can be shown on a plain example, with rather simplified assumptions (but the same result is obtained in a more complex approach, see e.g. Musgrave and Musgrave, 1988). An entrepreneur invests in a safe investment and in a risky investment. Let us assume that a tax rate is introduced, together with a possibility of full transfer of losses to future income. The tax reduces the expected rate of the return on risky investments, so it looks less attractive than the safe investment. But, besides reducing the return on investment, the tax also reduces its level of risk. The state becomes a partner in the investment. If the investment is successful, the state shares the profit. But, if the investment fails, the state will share its loss because it has allowed full transfer of losses to future income. The individual is willing to increase risky investments after introduction of taxes, because the state is willing to share the risk. This thesis is hard to prove because of a number of reasons (Krelove, 1995). But the fact that wealthier individuals (who also face higher tax rates) invest a larger part of their assets in the shares of companies which are considered relatively risky compared to other investments, can be taken as a rational empirical argument supporting the hypothesis that taxation can actually encourage risk-taking (Krelove, 1995).

2.3 Taxation of labor

In this section we shall briefly present the mechanisms through which taxation has impact on the growth of an economy.[3]

Impact of income tax and social security contributions on wages and employment

Economic theory and empirics show that taxation of labor reduces employment, thus lowering potential output. Here, labor taxes mean all

[3] *For impact of tax on labor market, see Nestić (1997).*

direct dues on labor, regardless whether they are collected in a form of income tax or social security contributions. Taxation of labor introduces a difference between real gross cost of labor for a company and real net wage that employees receive. Thus, taxes create a difference between the cost of labor and net wage that is called tax wedge in economic theory. Tax wedges are the basic value with which impact of tax on labor market, that is, on the amount of supply and demand for labor is analyzed. The amount of real gross cost of labor determines the amount of labor demand, while the amount of real net wage determines the amount of labor supply. What part of tax wedge will be distributed on the entrepreneur, thus determining the labor demand, and what part of tax wedge will be distributed on the employee, thus influencing the amount of labor that he can supply to the market, depends on the possibility of tax incidence[4]. In analyzing the impact of tax on employment rate and growth, it is essential therefore to analyze tax incidence. It depends on the elasticity of supply and demand in labor market, as well as on other factors that determine flexibility of wages (e.g. negotiating skills of unions, minimum wage etc.).

Thus, for example, in markets where negotiating skills of unions are not strong, or where labor supply is not flexible to change of wages, an entrepreneur will be able to shift taxes on the worker, which will result in a lower net wage and the same gross cost of labor for the employer. In a real situation, workers will eventually react on reduction of their net wages, i.e. reduction of their income. Are they to offer a higher or lower amount of labor to the market now? If substitution effect prevails, they will offer less labor, expanding their leisure time. If income effect prevails, the workers will want to work more, in order to compensate for the lost income, which will result in a higher amount of labor in the market. This means that workers' reaction on taxes can be to work more or to work less, depending on what will prevail - substitution effect or income effect. Only empirical research can help finding out which of the effects prevails in a given market, that is, will introduction of taxes and reduction of real net wage encourage people to offer more or less labor.

In markets where negotiating skills of unions are strong and where labor supply is flexible to changes of wage, an entrepreneur will not be able to shift taxes on workers. The workers will react to introduction of taxes with demands for increased net wages. This will make the cost of labor higher for the

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[4] *We should note here that a difference should be made between legal tax incidence and economic tax shifting. For example, legal distribution of income to employer and employee does not necessarily represent the real, economic distribution of the burden of social security contributions.*

entrepreneur and he will reduce the demand for labor. Such reduced demand for labor results in reduced employment rate and, with constant use of capital, could lead to lower growth.

Empirical research indicates that labor markets are mostly rigid, that is, entrepreneurs bear higher tax burden than workers (Leibfritz, Thornton and Bibbee, 1997). So, when conditions in labor market are rigid, workers will oppose paying labor tax, thus initiating a negotiating process and pressure for wage increase. This will increase the cost of labor for entrepreneurs. For its part, higher cost of labor for entrepreneurs reduces demand for labor; by changing relative costs of labor and capital, it stimulates capital-intensive production. Thus, reduction of tax burden on labor, as well as reduction of rigidity in a labor market (reviewing the amount of minimum wage; unemployment benefit; increased mobility of labor force) would lead to a higher supply and demand for labor. This would result in increased employment rate on the one hand and increased output on the other hand.

Impact of taxes on consumption on wages and employment

Beside direct taxes, indirect taxes (that is, consumption taxes) also have impact on the supply of labor by reducing the purchasing power of net wage. However, workers seem to be reacting somewhat slower to a change in the consumption taxes, and the impact of the consumption taxes on labor supply also appears within a longer period of time than normally is the case with direct taxes. Social transfers that determine the quantity of labor supply in the market, also bring additional distortions to labor market.

This brief overview of the relations between taxes on labor and growth indicates the complexity of the mechanism through which taxes form labor income can reflect on economic growth.

3
OVERVIEW OF EMPIRICAL RESEARCH

Empirical research of the impact of taxes on growth mostly does not show such a clear relation as the theory suggests. Different empirical studies yield very different results, making it hard to make unequivocal conclusions on negative impact of taxes on growth. The difficulties that impede unequivocal

conclusions on the basis of empirical researches mostly include the following: (1) different definitions of state in different countries and periods (whether it is a central government or general government with extra-budgetary funds and local governments), which means different levels of taxation; (2) problems of measuring of individual tax variables, such as marginal tax rates (Easterly and Rebelo, 1993; Engen and Skinner, 1996); (3) difficulties in sorting out the impact of individual tax variables on growth, because of complex interactions of fiscal variables (tax increase does not have to reduce growth if such increased taxes are used for financing those forms of public investments that will increase productivity of private investments, thus stimulating growth); (4) difficulties in separating the impact on growth of other economic variables from the impact of fiscal variables only; (5) it has turned out that quantitative results are very sensitive to the parameters the values of which have still not been estimated reliably (e.g. elasticity of intertemporal substitution, labor supply elasticity, depreciation rate of human capital etc) (Xu, 1994); (6) lack of empirical data enabling unambiguous acceptance or rejection of a conclusion of some theoretical model.

Further in the text we shall tackle the research on the relation between taxes and growth that took place in the nineties and that is predominantly based on endogenous models of growth. Since the goal of this study is not to present historical development of the idea on the impact of taxes on growth, but rather to present those studies which are important for building a foundation for an efficient tax policy, we have decided to present only the studies made recently.

The impact of taxes on growth is one of the disciplines of economics of which the lengthiest research was undertaken. Until mid-eighties, the relation between taxes and growth was established in neoclassic models where growth depends on the natural growth rate and rate of technological progress. The taxes in these models only have impact on the income level, but not on growth rate, except when shifting from one to another income level. But, since late eighties, endogenous models have been developed, where it is possible for the growth to be based on optimizing decisions of economic subjects, instead of on exogenous variables, such as technical progress or population growth. When long-term growth rate acquired endogenous characteristics, a theoretical base for research of the role of economic policy in determining of an economic growth rate was established. In endogenous models, economic subjects stimulate growth with accumulation of physical and human capital. The motivation variable is real rate of the return on capital. Taxes in endogenous models affect growth in such way that they reduce it with taxation of factor incomes, because they reduce the real rate of return on physical and human capital.

In the beginning we should mention Arnold Harberger. In the sixties, he dedicated a major part of his influential work to research of the key issue of public finance: the relation between taxation policy and growth[5]. He believed that taxation policy, i.e. structure of direct and indirect taxes, was a very important determinant of investments and growth in theory, but that its effect on growth was negligible in practice. Harberger assessed that changes in taxes could not increase the national income growth rate by more than 0.1 to 0.2 percentage points (according to Mendoza, Milesi-Ferretti and Asea, 1995). In his opinion, changes in taxation policy have no significant impact on economic growth in practice. In other words, taxation policy seems to be "superneutral".

Using endogenous models of growth, Mendoza, Milesi-Ferretti and Asea (1995) tried to test Harberger's thesis. Their research confirms Harberger's assertion that the effect of taxes on growth is very small. It means that big changes in a taxation system are required for any visible changes in economic growth to take place. Nevertheless, they do not think that Harberger's superneutrality means that tax reforms are useless. The fact is, reduction of tax distortions contributes to a substantial increase in welfare (Mendoza and Tesar, 1995).

In their study of impact of fiscal policy on growth, Engen and Skinner (1992) develop a theoretical model which comprises the effects of government spending and the distorting effects of taxes in an output growth model. By using a sample of 107 countries in the period from 1970 to 1985, they have established a strong negative effect of the fiscal activity of the state on growth rates, both long-term and short-term. It is anticipated that a budget-balanced surplus of the government spending and taxes of 10 percentage points leads to a long-term reduction of growth rate of 1.4 percentage points.

Engen and Skinner (1996) are oriented only towards exploration of the effect of taxes on economic growth. They underline the negative relation between taxes and growth. They take Solow's approach to economic growth rate as their starting point. According to this approach, economic growth rate depends on available physical and human capital and on the changes in their productivity. Put more formally:

$$(3)\quad y_i = \alpha_i k_i + \beta_i m_i + \mu_i \ ,$$

where y_i is the rate of growth of real GDP in country i, k is the rate of growth of capital funds in time, m_i is the rate of growth of effective labor force in time, μ_i is

[5] *See e.g. Harberger (1964).*

the growth of overall productivity in an economy, while α_i measures marginal productivity of capital and β_i is the elasticity of labor/output ratio.

Within this theoretical frame, the authors give five ways in which taxes can affect the growth of output, that is, they observe the impact of taxes through the variables on the right-hand side of the above equation. First, higher taxes can discourage investment, i.e. decrease net capital growth (the symbol k in the above equation) in cases of high statutory rates of income tax and profit tax, high taxation of capital gains or low depreciation deductions. Second, taxes can weaken labor supply growth m, in such way that they discourage staying at work and distort the choice between work and leisure, or between education and lower qualification. Third, taxation policy can lower the productivity increase μ, in order to discourage investment in research and development, or in high technologies, that is, in the activities with large positive externalities which can thus stimulate an increase in the productivity of the existing fund of labor and capital. Four, taxation policy can have impact on the marginal productivity of capital, if it redirects investments to sectors with lower taxes and lower overall productivity. Five, high taxation of labor can distort efficient use of human capital in such way that it can discourage working in sectors with high productivity and high tax burden. In other words, countries with high tax burden can have lower values α and β, which is a presumption of slower economic growth, provided that human and physical capital is constant.

On the basis of the above impact of taxes on the variables that determine economic growth, we could conclude that that the impact of large tax distortions on growth is huge. Engen and Skinner conclude their study by claiming that, although taxation policy does have an impact on economic growth, that impact is modest. They claim that "bottom up" analyses, made on a micro level, and "top down" analyses, made by using *cross country* regressions, are close to a conclusion that a large-scale tax reform, by which all marginal tax rates are decreased by 5 percentage points and average tax rates are decreased by 2.5 percentage points, would contribute to an increase in the long-term economic growth rate of between 0.2 and 0.3 percentage points. But even such a modest effect on growth has substantial consequences on standard of living. The authors have calculated what would be the negative consequences that inadequate taxes cause to standard of living. They have established that, if there were an inefficient tax structure in the USA between 1960 and 1996, which decreases growth rate by 0.2 percent per year, cumulatively in a period of 36 years, GDP in 1996 would be 7.5 percent lower. This would mean a net output lower for over 500 million USD per year. So, although they are hard to establish by means of regression analyses,

potential effects of taxation policy do have large long-term consequences. Consequently, taxes have a modest, yet cumulatively significant impact on economic growth in a long run. The authors think that, besides the absolute taxation level, the structure of taxation system is equally important for economic growth. The countries that manage to collect taxes by means of a wide tax base and efficient tax administration will probably realize faster growth rates than the countries with a narrower tax base and inefficient tax administration.

The goal of Easterly and Rebelo (1993) is to show a connection between different measures of fiscal policy, level of development and rate of economic growth. As a part of their studies of the impact of fiscal policy on growth, they examine the impact of taxes on growth and conclude that the impact of tax is empirically hard to isolate. On the basis of a large amount of analyzed data[6], the authors make a series of conclusions on the relation between fiscal variables and growth, of which we shall single out here the ones that talk about the relation between taxes and growth:

1. Of fiscal variables, only public investment in transport and communications and budget surplus are correlated with the growth in a robust manner. The relation between the remaining fiscal variables and growth is statistically unstable. One of the reasons for such instability is the multi-collinear character of fiscal variables: they are highly correlated among themselves, so it is hard to single out the impact of each of them on the dependent variable. Therefore, the effects of an increase in public investments financed with increased taxes do not always have perfectly clear consequences for the growth.
2. Of all the tax variables observed, the marginal rate of income tax (measured by regression on the basis of time series) is the only one that is correlated with the growth. This confirms the theory that income tax reduces the return on investment, thus acting as a disincentive for private investments and growth.
3. The share of the government revenues in GDP grows with the increase in income per capita, in the group of cross-section data and in the group of historical data. This increased importance of government in economy is often mentioned in literature and is called the Wagner Law.[7]

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[6] *The authors have used cross-section data for around 100 countries in the period 1970-1988, as well as historical series of data for 28 countries in the period 1870-1988.*

[7] *After a 19th century economist Alfred Wagner, who formulated this law.*

4. As income grows, the share of customs duties in overall government revenues drops and the share of income tax grows.

On the basis of annual data for 20 industrial countries in the period 1970-1995, Mcdermott and Wescott (1996) analyze the increase in budget deficit and public debt that has appeared because public expenditure has grown much faster than tax increase. They believe that further increase of taxes for the purpose of spanning this gap is not possible, because, besides creating political resistance, it would also introduce additional distortions to economy. This is why they think that a fiscal consolidation is necessary. This fiscal consolidation would lead to reduction of budget deficit and public debt and would be based on reduction of public expenditure. But, the economists of Keynesian beliefs claim that reduced deficit leads to reduced demand and slower growth. In the author's opinion, fiscal consolidation will not reduce the growth. Quite contrary - a well-prepared consolidation can lead to increased demand and accelerated growth even in a period of contraction. Two conditions should be met so that fiscal consolidation could really accelerate growth. First, it has to be of a large scale (the average amount of a successful fiscal contraction was 4 percent of potential GDP). A large-scale adjustment stands much better chances to increase confidence in the government economic policy, thus stimulating growth. Second, only a well-structured fiscal consolidation can lead to a drop in interest rates, increase in investments and economic growth. A budget contraction oriented towards the expenditure side, i.e. reduction of the transfers and wage-and-salary fund in the state sector, stands much more chances of succeeding in reduction of public debt than tax increase. This is an indirect way of reaching a conclusion that is important to us in this study - that fiscal consolidation should not be carried out by increasing taxes, because it is not certain that such a process will be successful and lead to a higher growth.

Alesina and Perotti (1996) have reached the same conclusions by studying the OECD countries. They think that the fiscal adjustments based on reduction of transfers and the wage-and-salary fund have a better chance to succeed and lead to a growth. Research has shown that the adjustments based on increased taxes not only do not last long, but they also additionally inhibit the growth.

In his review-study on the impact of taxation policy on growth in various endogenous models, Xu (1994) concludes that neither empirical, nor theoretical studies do not provide an unambiguous answer to a partial negative correlation between the rate of economic growth and tax variables. However, this correlation is not strong.

In theoretical models, positive, neutral or negative impact of taxes on growth depends on special conditions such as the growth-stimulating mechanism, the process that accumulates human capital and the way tax assets are spent. But, regardless to lack of consensus over the impact of taxes on growth, the papers that deal with this relation can provide an insight into the way in which alternative tax policies affect the rate of growth of a country. Thus, choosing direct taxes (on income and investments) or indirect taxes (on consumption) can have certain consequences for the economic growth.

It seems that direct taxation of income or investments has a negative long-term impact on growth. Growth can only be sustained if the key incentive that directs individuals to invest in real capital (physical or human) is present. In most of the endogenous growth models, this incentive is expressed with the rate of real return on capital. Since income taxes or investment taxes lower the rate of real return on capital, they also reduce the incentive for individuals to behave in a way which stimulates growth, i.e. to invest in fixed assets or to educate themselves. This is why income taxes and investment taxes have negative impact on growth in a long run.

But, besides direct impact, income taxes and investment taxes can also have indirect impact on growth. This indirect impact can either be positive or negative. If tax receipts are used for investing in public infrastructure, then an income tax or an investment tax can have positive impact on growth to a certain extent. Up to the point where investments create optimal dimensions of infrastructure in an economy, the positive indirect impact on growth which is generated by increased investments in public infrastructure is higher than the negative direct impact derived from taxation of income. In turn, the net impact that taxation of income has on the growth becomes negative when investing in infrastructure in an economy is continued beyond an optimal point.

On the other hand, it is believed that the direct impact of taxes on consumption is negligible in the long term. The reason for this is the fact that consumption taxes do not affect the decision in the moment of spending (whether spending will take place today or later). Therefore, consumption taxes do not affect the incentive for capital accumulation, including return on capital, which is considered as the basic generator of growth in the endogenous growth models.

As theoretical models suggest that there is a different impact of taxes on growth in different economic conditions, it is not surprising that the results of empirical models also fail to provide unambiguous answers. Economic conditions in different countries are very different.

Milesi-Ferretti and Roubini (1995) have also used an endogenous growth model, examining what would be the effects on growth of the transformation of the current taxation system in the USA, which is mostly based on taxation of income, into a system mostly based on consumption taxes[8]. The authors conclude that taxation of factor income (from human and physical capital) reduces growth. This happens because introduction of taxes lowers the rate of return from factor input, which discourages accumulation of labor and capital. On the other hand, the authors believe that the impact of consumption taxes on growth is not negligible, but that it largely depends on the elasticity of labor supply. The more elastic the labor supply is, the more consumption taxes stimulate workers to substitute their work and education with leisure. This way, accumulation of labor factors is lower and economic growth is reduced. Still, the authors conclude through their model that this is the only distorting impact that consumption taxes have on growth, while income taxes not only affect the relation between work and leisure, but they also lower the accumulation of capital and economic growth by means of other mechanisms (e.g. by lowering the rate of return). These considerations indicate that optimal tax structure should be more based on consumption taxes than income taxes.

In his Ph.D. thesis, Cashin (1994) examines the impact of public investment, public transfers and distorting taxes (all taxes except lump sum taxes) on the growth rate, by using an endogenous growth model. The model that the author uses indicates that distorting taxes have a strong negative impact on growth. Theoretical implications of the model were tested on a sample of 23 developed countries in the period from 1971 to 1988, where the share of current budget revenue in GDP was used as a tax variable. The econometric results confirmed the theoretical findings. Same as Xu, Cashin concluded that taxes reduce the marginal return on private capital, thus reducing the economic growth. On the other hand, a productive public spending in a form of public investments and transfer payments stimulates the growth. The author further concludes that, in countries with a small-scale state (low share of public spending in GDP), a positive impact of public investments on economic growth is predominant, whereas in the case of large-scale states a reducing impact of distorting taxes on growth is predominant.

Tanzi and Schuknecht (1995) also studied the size of the government (measured by the share of public spending or overall taxes in GDP) in

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[8] *In the USA, these discussions have been going on for years. They become particularly fierce when introduction of VAT to the tax system is discussed (see Milesi-Ferretti and Roubini, 1995).*

industrial countries. In a study that attracted great attention, they show that, in the period from the end of the 19th century to present day, the state in industrial countries has grown, on average, from 8.3 percent of GDP to 47.2 percent of GDP. However, the authors show that this significant increase in public spending and taxes needed for their financing has not lead to a substantial economic and social progress. Hence their conclusion that the state should be downsized to around 30 percent of GDP and that its role should be limited to establishing "the rules of the game" in the market competition.

And, finally, the latest regression research made for the OECD countries (Leibfritz, Thornton and Bibbee, 1997) for the period 1980-1985, suggest that there is a negative relation between tax rates and growth rate. The authors anticipate that the growth of an average (weighted) tax rate by 10 percentage points would lower the annual growth rate in the OECD countries for around 0.5 percentage points.

On the basis of the overview of empirical research (a summary of which is shown in Table 1). we can conclude that a large number of channels through which tax impacts are transferred, as well as the complexity and entwined nature of fiscal and other economic variables, is what makes empirical research particularly complex. This research has thus provided somewhat disappointing support to theoretical conclusions.

But even without robust empirical results, most of the researchers will agree that tax reforms which stimulate neutrality in taxation by lowering tax rates, increasing tax base, decreasing tax exemptions and building such tax structure that distorts incentives for accumulation of labor and capital to the least extent, can stimulate the growth of output and employment.

Table 1

**IMPACT OF TAXES ON GROWTH:
EMPIRICAL RESEARCH SUMMARY**

Authors, year	Results	Consequences for economic policy
1. Harberger (1964)	- impact of taxes on growth negligible	- taxation policy is "superneutral"
2. Mendoza, Milesi-Ferretti and Asea (1995)	- impact of taxes on growth negligible	- growth requires substantial changes in tax system
3. Engen and Skinner (1992)	- increase in G and T for 10 percentage points leads to a drop growth rate for 1.4 percentage points	- growth rate drops when increase in public spending is financed with higher taxes
4. Engen and Skinner (1996)	- lowering of marginal tax rate by 5 percentage points and lowering of average tax rate by 2.5 percentage points would contribute to increase of long-term growth rate by 0.2-0.3 percentage points	- tax reforms do not increase growth substantially, but they improve standard in the long run
5. Easterly and Rebelo (1993)	- the impact of taxes on growth is hard to isolate empirically - only marginal income tax rate significantly explains differences in growth	- only changes in income tax rates have impact on growth
6. McDermott and Wescott (1996)	- increase in taxes does not lead to fiscal consolidation and growth	- budget gap should be closed by lowering wages and transfers, not by raising taxes
7. Alesina and Perotti (1996)	- a consolidation based on taxes inhibits growth	
8. Xu (1994)	- direct taxes – negative impact on growth - indirect taxes – negligible impact	- tax structure should rely more on consumption taxes
9. Milesi-Ferretti and Roubini (1995)	- taxation of factor incomes suppresses growth - the impact of taxes on consumption is not negligible, but they are less distorting than income taxes	- tax structure should rely more on consumption taxes
10. Cashin (1994)	- strong negative impact of taxes on the growth in "large-scale government " countries	- to reduce the size of government
11. Tanzi and Schuknecht (1995)	- a large-scale government does not substantially contribute to economic and social progress	- to reduce the size of government
12. Leibfritz, Thornton and Bibbee (1997)	- growth of average (weighted) tax rate of around 10 percent points would lower annual growth rate in the OECD countries by around 0.5 percentage points	- to reduce the size of government

4
IMPLICATIONS OF THEORETICAL AND EMPIRICAL RESEARCH FOR TAX POLICY IN CROATIA

4.1 Croatian tax reform

After gaining its independence, Croatia launched a reform of its inherited tax system. That was a unique opportunity to build a tax system applicable to a market economy. The main objective of the reform was to build a neutral tax system, i.e. a tax system that would interfere in economic behavior of economic subjects to the least possible extent, thus ensuring economic efficiency and growth[9].

Such a tax system should be based on a wide tax base, the least possible number of tax exemptions and the least possible number of tax rates (which should be reasonably low - see Box 1 for details). It ensures more efficient allocation of resources (because it distorts prices to the least possible extent), improves labor supply, stimulates private savings, reduces unofficial economy and, finally, ensures economic growth.

BOX 1.

PRINCIPLES OF TAX REFORM

The concrete recommendations of the majority of tax experts (The World Bank, 1991) for a tax system reform are the following:

- *reduced number of tax rates for all sorts of taxes,*
- *abolition of tax relieves,*
- *widening of tax base,*
- *simplified tax structure,*
- *lower tax rates.*

A tax system based on these recommendations is not suitable for pursuing social policy. Social welfare for specific categories of the population, or assistance to companies or sectors, is much more efficiently achieved with direct subsidies than with lower tax rates or tax exemptions.

[9] *In this section we shall mostly address those aspects of the tax reform that are related to economic growth.*

Indirect taxes

Sales tax

It is believed that the most efficient means of taxation of consumption is value added tax, which is based on a wide tax base, with the least possible exemptions and zero rates and with a reasonably low tax rate. Besides, in a modern VAT system, export and gross investments are not taxed. If possible in any way, all goods and services should be taxed with a single rate, ranging from 10 to 20 percent. Such a VAT system optimally reflects its good characteristics: neutrality, simplicity and tax abundance. VAT should not be used for ensuring an egalitarian distribution. Such problems should be solved with other types of taxes or with direct transfers.

Excise taxes

Higher fairness of a tax system can be achieved by taxing luxurious consumer goods with high income elasticity of demand. This soothes regressive effect of a single-rate VAT. Higher efficiency can be achieved by introducing excise taxes on the goods the demand for which is non-elastic in terms of price and which represent negative externalities. Excise taxes should be applied with an equal rate for domestic and foreign producers.

Duties

In a tariff system, tariff base should be introduced by abolishing exemptions and applying equal tariff burden in all sectors of economy. Tariff rate could be reduced this way. Export duties should be avoided because they shift resources to sectors with lower efficiency, thus threatening the growth. Quantity restrictions of export and import should be replaced with duties and protection should be realized with duties alone.

Direct taxes

Income tax

It is usually believed that a good income tax is based on low number of tax brackets (not more than three), lowering upper marginal tax rate (not exceeding 40 percent), widening tax base by abolishing exemptions, taxing farmers and self-employed and taxing various wage supplements (hot meals, transport). Equity is achieved by introduction of progressiveness by means of establishing sufficient level of personal allowances (up to the level of one GDP per capita, or, in countries with poor tax administration, up to two GDPs per capita). Such an income tax has a wide tax base and is mildly progressive. Ideally, tax should be collected from sources of income and under identical conditions for domestic and foreign taxpayers.

Profit tax

A good profit tax should have a single proportional tax rate, equal to the upper marginal income tax rate, in order to make transfer of taxpayers from one tax form into another less probable. Less exemptions and differential treatment of individual activities or sectors means more efficiency. If some tax incentives are introduced nevertheless, they should be of limited range and duration and defined as clearly as possible. Tax incentives should be limited to market failures that cannot be resolved with direct methods.

But, in addition to all these generally accepted commitments in Croatian tax reform, one new principle has been applied, too. For although the World Bank proposes taxation of income of physical persons, one hybrid form of taxation of personal consumption has been introduced as a part of the Croatian tax system reform. This form has been extended to taxation of profit, too (interest, dividends and capital gains are not taxed). Taxation of consumption has been supplemented by introduction of value added tax in it's consumption version. The purpose of introduction of the principle of consumption in the tax system was neutrality in making economy-related decisions. The principle of neutrality is based on a concept that maximum prosperity is achieved with market allocation of resources. In such process, non-neutral taxation can lead to inefficient allocation of resources. In tax theory, tax neutrality can be achieved by taxing only the spent part of current income of a taxpayer. Discrimination of savings and investments is thus avoided. Neutrality between present and future period is particularly important in the transition countries, suffering from lack of capital. In such cases, the traditional way of taxation of overall income in which heavy tax burden lies on income (double taxation) does not yield favorable results (Schmidt, Wissel and Stöckler, 1996).

It should be noted that, in other transition countries (Czech Republic, Poland and Hungary), taxing of overall income is applied instead of consumption version of taxation of income. This means that interest, dividends and capital gains are also taxed (IBFD, 1997). Although the impact of the tax system on growth is hard to isolate (see the theoretical part of this paper), it would be interesting to analyze the impact of these two ways of taxation on macroeconomic trends, that is, to establish the extent to which capital (relatively cheap, in terms of taxes and compared to labor) has had impact on domestic savings and investments and foreign investments.

Although Croatia's tax reform has been continual, it can be divided in two phases. The first phase was characterized with a reform of direct taxes, while radical modification of indirect taxes took place in the second phase. The first part of the reform was in 1994, when new income tax and profit tax acts came into effect, when consumption taxes were introduced and when sales tax system was simplified. The second part of the reform was prepared in 1995, when value added tax act was passed, but it did not start before January 1998, when the act was first enforced.

4.1.1 Reform of direct taxes

The reform of direct taxes started in late 1993, when Income Tax Act and Profit Tax Act were introduced (Official Gazette No. 109/93). They became effective as of January 1, 1994. An unconventional profit tax that came into effect at that time was accompanied with a tax on the income of physical persons, based on consumption principle (Martinez-Vasquez and Boex, 1996) (see Box 2). This is why tax on income of physical persons is special when compared to the systems existing elsewhere in the world, because it mostly takes consumption and not income as its base. Detailed presentation of income tax and profit tax systems is given below.

Income tax

One of the fundamental characteristics of the reform of Croatian tax system, which makes him unique, is that income tax is based on taxation of consumption. It should be noted that the form applied in taxation of income is not a clean consumption form, but a hybrid consumption tax (sometimes it is called personal consumption tax or personal expenditure tax). Specifically, instead of deducting net savings from the earned income, the unearned income (interest, dividends, capital gains) is taxed. The goal of the tax reform was to create a tax system that would stimulate saving. If income is the sum of consumption and savings, taxation of the overall income means taxation of both consumption and savings. But, in the consumption tax system, taxation of the consumption part of current income of a taxpayer does not include taxation of savings. This is a way to avoid discrimination of savings: consumption today or consumption tomorrow (i.e. savings) are taxed at the same rate (Owens and Whitehouse, 1996). This is particularly important in the transition countries where capital is relatively scarce and the rate of national saving is low, so taxation of the overall income within which accumulation of capital is also taxed is not easily accepted.

Income tax is paid for an income from employment and self-employment and property income. Some types of income are exempt from taxation (the ones related to social benefits). Dividends and interest are also tax exempt. Dividends are considered as taxed already, because they are paid out of a profit after taxation, while interest on savings represents a deferred consumption, which is also going to be taxed some time in future. By exempting from tax base the interest on bank deposits and other financial assets, as well as the dividends on

which profit tax was paid earlier, the consumption approach to taxation of individual income is observed. Most of capital gains are also not taxed.

The introduction of Income Tax Act was accompanied with the introduction of two rates: 25 percent (on the tax base up to the triple amount of personal allowance) and 35 percent (on the tax base over the triple amount of personal allowance). However, amendments of the Act in December 1996 (Official gazette No. 106/96) reduced the lower rate to 20 percent, applicable as of January 1, 1997. These amendments also increased personal allowance from 700 to 800 kuna (2,000 kuna for pensioners).

This plain tax with a wide tax base and only few exemptions allows application of a moderate rate of income tax (see Table 2). However, the introduction of exemptions started with the amendments of the Act at the end of 1996, when, in contrast to the original version of the Act, the agricultural income was exempted from taxation. Exemptions are not carried out only by amending Income Tax Act. Specific tax exemptions are also approved under other acts that regulate other fields. Thus, tax relieves for the areas liberated in the war were introduced as a part of Areas of Special State Concern Act (Official Gazette No. 44/96) (personal allowance and protective interest on capital were increased). Furthermore, Rights of Free-lance Artists and Stimulation of Culture and Art Act (Official Gazette No. 43/96) also introduced some relieves for free-lance artists. For instance, donations to artists (to a certain extent) are not considered as income and are thus not included in the base for taxation of income, either for receivers of a donation, or for donors. Under Sports Act (Official Gazette No. 111/97), donations of physical persons of up to 50,000 kuna per year are considered as the expenditures that reduce the tax base. Introduction of a growing number of exemptions affects the consistency of an income tax system, narrows the tax base (which can later lead to increase in tax rates) and opens up a space for new pressure by specific interest groups for approving a more favorable position as regards to taxation of income, depending on their lobbying power.

This move has been facing frequent criticism, claiming that it has to few tax rates compared with other countries and that personal allowance of 800 kuna is too low. However, the experience of the OECD countries tells us that the number of tax rates has been dropping in most countries, slowly and persistently. Income tax is collected by means of decreasing number of tax rates (with their less and less differing levels), while the upper marginal income tax rate is also decreasing (Owens and Whitehouse, 1996). Table 2 shows that the number of rates has dropped in 19 countries (except in Denmark, Switzerland and Turkey, where it has increased) and that the upper marginal income tax rate has dropped in all the monitored countries except Turkey.

In this respect, our income tax with two rates, of which the upper marginal one is 35 percent, should not be considered as a deviation from the trends in the income taxation in market economies.

Table 2

TAX RATES IN SELECTED COUNTRIES

	Income tax							
	Upper marginal income tax rate		Number of income tax rates		Profit tax rates		VAT rates	
	1986	1995	1986	1995	1986	1995	At introduction	1996
Australia	57	47	5	4	49	33	-	-
Austria	62	50	10	5	30	34	16	20
Belgium	72	55	12	7	45	39	18	21
Canada	34	31.3	10	4	36	29	7	7
Denmark	45	34.5	3	4	50	34	10	25
Finland	51	39	11	6	33	25	17	22
France	65	56.8	12	6	45	33	13.6	20.6
Greece	63	40	18	3	49	35/40	18	18
Iceland	38.5	38.15	3	2	51	33	24.5	24.5
Ireland	58	48	3	2	50	40	16.3	21
Italy	62	51	9	7	36	36	12	19
Japan	70	50	15	5	43	38	3	3
Luxembourg	57	50	21	17	40	33	8	15
Netherlands	72	60	9	3	42	35	12	17.5
New Zealand	57	33	6	2	45	33	10	12.5
Norway	40	13.7	8	2	28	19	20	23
Spain	66	56	34	16	35	35	12	16
Sweden	50	25	10	1	52	28	11.1	25
Switzerland	13	11.5	6	13	4 to 10	4 to 10	6.5	6.5
Turkey	50	55	6	7	25	25	10	15
UK	60	40	6	3	33	33	10	17.5
USA	50	39.6	14	5	35	35	-	-
Czech Rep.	-	49	-	5	39	39	-	22
Hungary	-	48	-	6	18	18	-	25
Poland	-	45	-	3	40	40	-	22
Croatia	-	35	-	2	35	35	-	22

Source: Owens and Whitehouse (1996); Jurković (1998); OECD (1997a).

Personal allowance of 800 kuna (i.e. 9,600 kuna per year) can be considered as a rather low one. Its increase to a level of one GDP per capita (see the recommendations in Box 1), that is, approximately 23,000 kuna, would introduce additional progressiveness in taxation of income, which would neutralize the regressivity of VAT.

BOX 2

PERSONAL CONSUMPTION TAX

The discussion on whether income or personal consumption is a better base for taxation has been going on for many years, since John Stuart Mill at least. Some economists still propose that the tax on the income of individuals should replace the tax on the profit of individuals. A personal consumption tax or personal expenditure tax is a direct tax on the consumption of individuals, in contrast to a value added tax which is an indirect tax on consumption. Since

income = consumption + savings,

the level of consumption can be calculated by deducting overall savings from overall income. Thus, unlike a universal income tax by which both consumption and savings are taxed, consumption tax exempts savings from taxation.

However, measuring consumption as a tax base is a problem. A few methods are proposed for this purpose, of which personal cash flow method is the most frequent one. Specifically, consumption is obtained by deducting net savings from income. This essentially means that all cash inflows, such as wages, transfers and any reduction of savings (e.g. selling of property), should be added up. All investment in savings or investments is then deducted from this sum. In order to do that, personal accounts in all banks, pension funds or brokers should be controlled: depositing of assets on these accounts reduces tax base. Personal consumption would thus be measured on the basis of cash flow.

As income tax, consumption tax can also be progressive, so that average tax rates grow with the increase in consumption. However, some economists, like Robert Hall and Alvin Rabushka of Stanford University, propose a flat-rate consumption tax, with a single marginal tax rate for all levels of consumption. Progressiveness would be insured by recognizing tax exemption for consumption below certain margin, beyond which consumption tax would be paid. Thus, an average tax rate grows with the increase in consumption, although marginal tax rate is constant.

Economically, consumption taxes are considered as more efficient than income taxes, because double taxation is avoided if they are applied. Within an income tax system, the income is taxed two times: first, when it is earned and second, when the interest on the part of income that is being saved for some future consumption is taxed. It is therefore believed that income tax "punishes" savings, thus reducing the funds available for investing. For their part, lower rates of savings and investments threaten economic growth. The advantage of consumption taxes is that it does not tax savings, so it is recommended to the countries with the lack of capital. But, in its pure form, consumption tax carries along a series of administrative problems, which inhibits its wider use. Instead, its hybrid forms are used - not taxing all income, but rather exempting the income from capital (interest, dividends, capital gains). And yet, in practice, taxes that have consumption as their tax basis are more frequently applied in a form of sales taxes, such as value added tax. However, since these taxes are indirect ones, they cannot be adapted to personal conditions of a taxpayer. It is therefore harder to achieve the principle of tax equity by using them.

Profit tax

Profit tax was introduced in late 1993 and it acts as a supplement of the income tax based on the principle of consumption. It has a few characteristics that have never been used in other countries as such (Martinez-Vasquez and Boex, 1996). For example, the tax basis is not defined on the cash-flow principle, as is common when the standard consumption system of income taxation is applied. In such case, the tax basis for companies is determined as the difference between overall receipts and overall payments for salaries, supplies and the full cost of capital investment (defining depreciation and protective interest is thus not required) (World Bank, 1997). In other words, it is not the difference between overall receipts and overall payments that constitutes the tax basis, i.e. the entrepreneurial profit in a business year. The tax basis is the difference between one's own capital invested in the taxpayer's business at the end and at the beginning of the year, reduced and enlarged for expenditures and receipts allowed by the law, respectively. Such definition of the tax basis refers to determining capital expenditures, i.e. depreciation and protective interest. Protective interest represents another peculiarity of the Croatian profit tax system. The protective interest is calculated by compounding one's own capital with protective interest rate. The protective interest rate is fixed in such a way that the growth rate of producer prices of industrial products is increased by 5 percent (at the beginning of the application of the act it was 3 percent) of the real annual interest. The possibility of reducing the tax basis for the protective interest is adequate for countries lacking in capital, because accumulation of capital is thus not encumbered by taxes. Actually, the protective interest rate represents a tax protection of a part of the real rate of return on capital, thus representing an incentive for capital investment. Such a reduction of the tax basis for opportunity cost of capital has been introduced in order to ensure equal treatment in financing by means of one's own capital and by borrowed capital.

The profit tax that burdened entrepreneurial profit of domestic and foreign taxpayers was a flat rate of 25 percent. However, in late 1996, the tax rate was increased to 35 percent, so that it could be adjusted with the upper income tax rate (Official Gazette No. 106/99). As a result of the difference between profit tax rate (25 percent) and the highest income tax rate (35 percent), some taxpayers escaped from the income tax system to the profit tax system. In order to avoid a significant increase of the taxpayers' tax liability, the protective interest was increased from three to five percent and the possibility of accelerated depreciation was introduced. The originally fixed tax rate was relatively low and it meant a

certain advantage for foreign investments in relation to other countries of the region. Increasing the rate to an extent reduced this advantage, because, with a rate like this, we now fit well among most of the countries listed in Table 2, where rates mostly range between 30 and 35 percent. However, other amendments of the Act ensured low taxation of profit.

As in the taxation of income, other legal provisions here also introduce certain exemptions. Thus, in addition to relieves in taxation of income, the Areas of Special State Concern Act also introduces relieves in taxation of profit, in such way that protective interest is increased to 15 or 20 percent, depending on the scale of damages in the liberated areas. Under the Sports Act, donations of legal persons of up to HRK 500,000 per year are deducted from the profit tax basis. Equally, under the Rights of Free-lance Artists and the Stimulation of Culture and Art Act, donations of up to a certain level reduce the tax basis for profit tax.

Besides stimulating investments in fixed capital, low taxation of capital also has its adverse side in countries like Croatia, where unemployment rates are high. Compared to highly-taxed labor with a high unemployment rate, relatively low-taxed capital can hardly lead to a substantial increase in employment in a short period of time. Same as when income is taxed, introduction of new exemptions (liberated areas, sports, artists) affects the tax basis, stimulates increased tax rates (in order to generate equal revenues) and creates the opportunity for new pressure by various interest groups for privileged status. Besides, the adopted income taxation of a consumption type has not been implemented in its pure form. This means that the need for defining capital expenditures (protective interest and depreciation) introduces a complexity in the system, which makes it quite probable that distortions in taxation of capital will not be fully eliminated (World Bank, 1997).

Table 3

SOCIAL SECURITY CONTRIBUTIONS IN CROATIA IN 1998

Contributions	Contribution rate (in percent of gross wage)
Contributions assessed on personal incomes:	
- pension and disability insurance contribution	10.75%
- health insurance contribution	9.00%
- children's allowance contribution	2.20%
- employment contribution	0.85%
Contributions assessed on salaries – total	22.8%
Contributions on wages and salaries:	
- pension and disability insurance contribution	10.75%
- health insurance contribution	9.00%
- employment contribution	0.85%
Contributions on salaries – total	20.6%

Source: Sirovica (1998)

Contributions

In a larger sense, the system of contributions, or social insurance system, is a part of the tax system of the general government. Contributions are used for financing expenditures of pension and disability insurance, health insurance, children's allowance and employment. This is part of the taxation system that has yet not undergone substantial changes in Croatia. The problem is in the large number of privileges inherited from the socialist system. Since these rights are typically not elastic downwards, reforming social insurance systems in all countries primarily becomes a social and political problem. The overall taxation through contributions in Croatia is among the highest in the world (see Table 7) and it certainly represents a heavy burden for the labor factors, thus reducing the international competitiveness of Croatian products. Nestić (1997) proposed their reduction, or transferring part of them to the state budget, or even a full reform of the system of social expenditures. But only a systematic rationalization of social insurance will bring along a long-term final relieve from excessive contributions. As of 1 February 1998, the contributions on wages and salaries and contributions assessed on personal incomes have been paid on salaries at the total rate of 43.4 percent (Sirovica, 1998).

4.1.2 Reform of indirect taxes

Value Added Tax

The reform of indirect taxes was implemented gradually, by means of repeated amendments of the existing sales tax system, which was based on single-stage sales tax in retail trade. The goal of these reforms was to prepare the ground for the VAT system by simplifying the existing Sales Tax on Goods and Services Act (Official Gazette No. 36/91):

a) tax rates were gradually reduced, so that overall tax rate for products was reduced from its maximum of as high as 50 percent in 1992[10] to 26.2 percent (15 percent plus 10 percent of sales tax in retail trade), as it was when VAT was introduced in early 1998,

b) the number of tax brackets was reduced from eight for products and six for services down to only four for products and one for services,

c) taxation of raw material and equipment was abolished in order to reduce the cascade effect and bring the taxation system nearer to modern taxation of final consumption. Although the goal was to bring sales tax closer to the single-phase final consumption tax, full correction of the tax distortions caused by tax cascading actually failed[11],

d) excise taxes on tobacco and oil products, alcohol and non-alcohol beverages, beer and motor vehicles were introduced in July 1994.

Although these changes were important in the modernization of the taxation of consumption, the enactment of the Value Added Tax Act (Official Gazette No. 47/95) on 12 July 1995 was nevertheless the most important pillar of the reform of indirect taxes. The Value Added Tax Act was supposed to replace the single-phase sales tax system as of 1st January 1997, but its application

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[10] *The so-called war tax was introduced the same year. In addition to the existing rates of turnover tax on goods and services, the whole retail trade was taxed at a rate of 10 percent.*

[11] *The cascade effect is hard to estimate: some authors (Dalić, Madžarević and Nestić, 1996) estimate it was 1 percent, while others (Krelove, Temprano-Arroyo and Schenone, 1997) believe it amounts around 4.6 percent. The cascade effects occurred because taxpayers still had to purchase passenger vehicles, office furniture, stationery and liquid fuels and lubricants at retail prices.*

was postponed for a year, that is for 1st January 1998. The gradual approach and caution in the implementation of the reform are understandable if we keep in mind that they represent the most important revenue of the central government budget (in 1993, as much as 72 percent tax revenues of the state budget came from sales tax).

By the introduction of VAT, a sales tax with five tax rates (four for products and one for services) has been replaced by a flat rate of taxation of 22 percent on all products and services in the final consumption. By the introduction of VAT, overall sales tax rate was thus reduced from 26.5 percent to 22 percent, at which all products and services are taxed. According to the Value Added Tax Act, zero rate of VAT is not applied in Croatia (except for products for export) and only a few usual exemptions are envisaged: lease of housing space, services of banks and savings banks, insurance and re-insurance, medical and dental services, social welfare and child welfare and services in education, religion and culture. Besides these exemptions, government administration bodies, unions, political parties and chambers are also exempt from the VAT system; VAT is also not paid for transactions in securities and shares in a business. VAT is based on a consumption type (gross investments are not taxed), on a destination principle (export is taxed at zero rate and is thus fully exempt from VAT, while imported goods are taxed on the basis of the place of spending, that is, with the domestic VAT), and on a credit method of calculation of VAT, which actually never calculates value added, but rather calculates the amount of VAT based on incoming and outgoing invoices.

These fundamental determinants of the Croatian VAT Act tell us that this solution fully complies with the recommendations for a successful tax reform. Neutrality of the tax, its economic nature and simplicity of collecting and the range of exemptions are all reduced to a minimum, while a zero rate is applied to export only.

Strong as it is, the pressures for introduction of several tax rates in order to relieve regressivity of VAT has failed so far. In modern fiscal systems, regressivity of VAT is relieved by increased progressiveness of other tax forms or direct transfers to vulnerable categories of the population. Such method of achieving vertical equity is much more efficient than achieving the same goal with a larger number of VAT rates: fewer distortions are introduced to the system, assistance goes to those who really need it, indirect subsidizing of the rich is avoided, the costs of tax collection for both tax administration and taxpayers are reduced and the pressure of individual interest groups for introduction of a lower rate is avoided (Kesner-Škreb, 1996).

It should be noted that, due to the above reasons, all pressures for the introduction of several rates will be resisted. The real proportion of the regressive effect of VAT should be examined and put in relation to other tax forms and social transfers[12]. Only then will competent evaluation of regressivity of the tax system in Croatia be possible. But it does not necessarily have to be as big as some of its critics think it is. Regressivity should be observed in terms of dynamics and in a long-term sense, not just statically and in a short-term sense. First, dynamically, VAT is a consumption tax that, in its consumption form, stimulates investment and growth. A faster growth brings along increase in salaries and employment rate, which also makes the incomes of the poor to grow. Second, regressivity can also be observed in the long-term. At the moment when its spending starts in a flat-rate VAT system, the part of the income that was saved proportionally encumbers the spending of wealthy or poor citizens. Since saving is merely a postponed spending, it means that it will be taxed sooner or later - that is, it will become subject to VAT once it turns into spending. This way, the wealthy are not exempt from sales tax eventually, although they save more than the poor. They pay it when they turn their savings into spending. They will probably turn their savings into spending not before the end of their lives or their heirs will do it; however, at that moment, their spending will be taxed at the same rate as the spending of the poor. This is why regressivity has a different meaning when observed with respect to an income of one's lifetime or of future generations and not just with respect to current income. In such case, VAT does not seem to be regressive, but fully balanced with respect to a lifetime income, if we presume zero savings at the end of life (Wagner and Schmidt, 1996). In contrast to a short-term observation, which only considers the household budget of one wealthy and one poor citizen at one moment, this long-term observation fully changes the concept of regressivity of VAT.

The first months of application of VAT have shown that, after all initial disagreements, this tax has become more and more accepted, the inflow to the budget has been growing beyond any expectations, price increase has not been dramatic and their reduction is expected in the following months, the underground economy has been gradually entering the VAT system, so a decrease in tax evasion is expected. These trends will probably allow imminent reduction of the relatively high (compared to other countries) rate of 22 percent (see Table 2). This would lead to additional tax relieves and reduction of tax distortions.

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[12] *An analysis of household budgets, that is to be carried out in Croatia soon, will enable this type of research.*

The Croatian tax system is often criticized on the grounds that it relies on indirect taxes too much (in 1995, in the OECD countries, 6.6 percent of GDP accounts for sales tax without expenditure tax; in Croatia, it is 13 percent (see Table 6)). However, this situation has a few advantages for Croatia. That is, higher taxation with VAT allows export products to be stripped off domestic taxes to a larger extent, thus becoming more competitive in the international market. Same as contributions, income taxes and profit taxes cannot be deducted from the value of an export product and so they "move" to the international market, thus making a domestic product more costly. Income taxes and profit taxes in the Croatian system are relatively low. However, extremely high social security contributions (in 1995, they were 9.8 percent of GDP in the OECD countries and 18.5 percent in Croatia (see Table 6)) make it a large burden for export products (and not only them), because they cannot be excluded from their price.

Excise taxes

Excise taxes on oil derivatives, tobacco products, beer, non-alcoholic beverages, alcohol and automobiles were introduced in July 1994 (Official Gazette No. 51/94). It should be noted that expenditure excise taxes on coffee have been in place since 1993 (Official Gazette No. 66/93). At the end of 1997, excise taxes on beer, non-alcoholic beverages, automobiles (Official Gazette No. 139/97) were changed, as well as on oil derivatives (Official Gazette No. 51/94). These changes abolished the increased excise taxes on imported beer and non-alcoholic beverages, which equalized the tax status of imported and domestic products. However, excise taxes on tobacco have not been changed yet, so the imported tobacco has almost double excise tax than the domestic one. This practice should change, so that domestic industry is not protected by taxes (see Box 3.1). Excise taxes have also been extended to aircraft and vessels, which increased the number of products subject to excise taxes. Taxation of luxurious products adds to the progressivity of a tax system with a flat rate of VAT. Therefore, the number of luxurious products subject to excise tax should not be reduced. Although, taxation of negative externalities (oil derivatives, tobacco and alcohol) should not be changed because it reduces their spending. However, it should be re-examined whether excise taxes on non-alcoholic beverages are justified.

4.2. Analysis of Croatia's tax revenues

In the beginning, a few notes about the information on tax revenue should be made in order to ensure easier comprehension of this section. In Croatia, the overall tax revenue is collected on three levels: they include taxes in the central government budget, taxes of the budgets of local government and contributions of extra-budgetary funds. When contributions of the extra-budgetary funds are added up to the central government budget taxes, we obtain the overall tax revenue (taxes and contributions) of the central government. The overall tax revenue can be presented on both the consolidated and the unconsolidated basis. On the third level, taxes are collected in local government units. So, when taxes on the local level are added up to the overall taxes of the central government (taxes of the central government budget and contributions of extra-budgetary funds), this gives us the information on the overall tax revenue of the general government. It can also be consolidated or unconsolidated. In the text, as well as in the tables, we will always indicate what information we refer to.

Tax revenues of central government budget

The economic truism says: a government needs to collect budgetary revenues if it wants to finance budget expenditures. Taxes are the main form of collecting budgetary funds. They account for over 90 percent of the central government budget in Croatia, while non-tax revenues, capital revenues and grants representing other budget sources account for the remaining 10 percent of funds.

The past years have seen a fast growth of the tax burden, as measured by the share of tax revenues of the central government budget in GDP (Table 4 and Figure 2). While 26.6 percent of GDP was allocated by means of taxes in 1997, it was only 14.8 percent of GDP in 1991. This means that the tax burden had almost doubled in five years. However, the data from the period 1991-1993 cannot be considered as reliable, because of the disintegration of Yugoslavia, a large-scale war, economic instability and hyperinflation, and unreliable fiscal statistics and statistics of gross domestic product. Besides, similar to expenditure taxes, the laws on income tax and the profit tax did not start to apply before 1994. Thus, the data can be considered as reliable for analyses only as of 1994.

Table 4

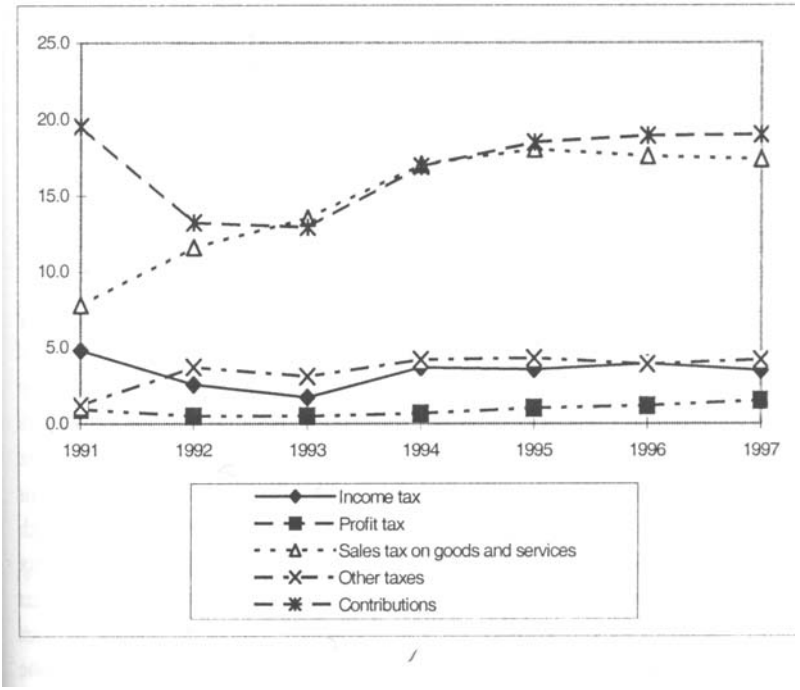
TAX REVENUES OF CENTRAL GOVERNMENT BUDGET AND GDP

	1991	1992	1993	1994	1995	1996	1997
Tax revenues (mil. HRK, current prices)	62.80	502.09	7,891.85	22,377.48	26,505.35	28,530.43	31,338.17
Increase compared to the previous year (mil. HRK)	-	439.29	7,389.76	14,485.63	4,127.87	2,025.08	2,807.74
Rate of change (%)	-	540.64	1,433.90	109.12	12.51	9.02	9.90
GDP (mil. HRK. current prices)	425.51	2,725.99	41,814.00	87,441.20	98,382.00	107,255.30	117,873.60
Increase compared to the previous year (mil. HRK)	-	2,300.48	39,088.01	45,627.20	10,940.80	8,873.30	10,618.30
Rate of change (%)	-	540.64	1,433.90	109.12	12.51	9.02	9.90
Share of tax revenues in GDP (%)	14.76	18.42	18.87	25.59	26.94	26.60	26.59
Marginal tax rate (%)	-	19.10	18.91	31.75	37.73	22.82	26.44
Tax elasticity	-	1.29	1.03	1.68	1.47	0.85	0.99

Source: Ministry of Finance of the Republic of Croatia.

Figure 2

SHARE OF CENTRAL GOVERNMENT BUDGET TAX IN GDP (in %)



A sudden leap of the share of taxes in GDP takes place in 1994 - of as much as 6.7 percentage points (from 18.9 percent in 1993 to 25.6 percent in 1994). This leap of tax revenues can be explained by a number of reasons. First, 1994 was the first year of the stabilization program when prices dropped without notice (retail prices were 2.98 percent lower than in 1993). This was the time of the inverse Olivera -Tanzi effect, that is, the time of real increase of tax revenues.[13] Second, the implementation of the Income Tax and Profit Tax Act started at the beginning of that year, so tax revenues from this source grew by 2.2 percentage points. Third, in the middle of the same year, excise taxes[14] were introduced. Fourth, the financial police, established in 1992 (Financial Police Act, Official gazette No. 89/92), became organized by that time, which led to more regular collection of tax revenues. Fifth, a large number of taxpayers were included in the sales tax system, although tax rates were lowered and tax brackets within a tax were reduced (Fabijančić and Barac, 1996).

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[13] *If tax liability is settled within a certain period of time elapsing between the time when a tax was generated and the time of payment, the real value of collected taxes will be higher at the time of collection than at the moment the liability was generated (Švaljek, 1995, page 68).*

[14] *They have turned out to be a particularly abundant source of revenues; therefore, they were more than doubled between 1994 and 1997.*

The increase in the share of tax revenues in GDP continued in 1995, when it reached its maximum of 26.9 percent. After the maximum reached in 1995, the share of taxes in GDP slowly started to drop (by 0.3 percentage points compared to the previous year when it was at its maximum). This drop was a result of the lowering of the basic sales tax rate from 20 percent to 15 percent, which also caused reduction of the average burden of the turnover in the ultimate consumption from 32 percent to 26.5 percent. The same tendency continued in 1997, i.e. the share of tax revenues stabilized at the level of 26.6 percent of GDP.

The dynamics of taxes and GDP can also be analyzed by means of tax elasticity, which is measured as the percentage of change of taxes divided by the percentage of change of GDP over a period of time (in this case - one year). Tax elasticity over 1.0 indicates that the growth of tax revenues is faster than the growth of GDP. Tax elasticity was over 1.0 in the period 1992-1995, with its maximum of 1.68 in 1994 (Table 4). This means that taxes in this period grew faster than GDP, with the fastest growth recorded in 1994, as compared to 1993. After 1995, the proportions of tax elasticity fell below 1.0, which indicates that the growth of GDP was faster than the growth of tax revenues. Similar trends also have marginal tax rates that measure absolute tax growth compared to absolute GDP growth in one period (in this case - one year). The marginal tax rate reached its highest level in 1995. In that year, 37.7 percent of GDP growth was allocated for taxes, unlike in 1992, when the percentage of GDP allocated for taxes was almost half less, i.e. only 19.1 percent. After 1995, marginal allocation for taxes dropped in 1996 and grew again in 1997, when tax growth exceeded GDP growth, which also made the marginal tax rate higher.

Taxes and social security contributions

In order to perceive the overall tax burden in addition to taxes, the amount of contributions to extra-budgetary funds[15] should also be taken into account. After the drop from 19.5 percent in 1991 to 12.9 percent in 1993, the share of the contributions in GDP continued to grow once more and again reached the level of 19 percent in 1997 (see Table 5). Taxes after all are a dominant way of financing the central government: after 1992, some 60 percent of revenues have continually been collected through taxes and 40 percent through contributions. The overall tax and contribution burden on the central government after a sudden

[15] *Pension and disability insurance fund, health insurance fund, employment fund, children's allowance assets and* ***Hrvatska vodoprivreda*** *(Croatian Water Resources Management Company).*

increase from 31.8 percent of GDP in 1993 to 42.5 percent of GDP in 1994 continues to grow, reaching 45.6 percent of GDP in 1997 (unconsolidated data). The overall tax and contribution burden was thus almost 14 percentage points of GDP higher than in the early nineties. Defense expenditures during the war, numerous displaced persons and refugees and wide-ranging social rights inherited from the abandoned socialist system are only some of the budget expenditures that caused great pressure on tax and contribution growth in those years. An extenuating circumstance was the stabilization of prices, which ensured the functioning of the inverse Tanzi-Olivera effect and growth of real tax revenues without major interference in the tax system.

So far we have analyzed the data on the central government level. This means the data that include the state budget taxes and extra-budgetary funds contributions. All these data were unconsolidated. But if we observe the data for the general government which, besides the state budget and extra-budgetary funds, also contain the tax revenues of local government units, and if the data are consolidated, the situation is very similar. Thus, the allocation of GDP on the general consolidated state level by means of taxes and contributions was as follows: 43.19 percent in 1994, 44.40 percent in 1995 and 44.72 percent in 1996 (Ministry of Finance, 1998)[16].

Compared levels of tax revenues of Croatia and some other countries

The level of burden of tax revenues in Croatia should be compared with the same level in other transition countries, as well as in countries with a market economy. This could answer the question whether Croatian citizens pay relatively high taxes. The tax burden in Croatia will be compared with the burden in the advanced transition countries: the Czech Republic, Hungary and Poland (they also have similar levels of income per capita) and the neighboring countries that are, at the same time, Croatia's main trading partners: Austria, Italy and Germany. The data are shown in Table 6.

[16] *The Ministry of Finance has been providing these data since 1994. The local government budgets make up around 3 percent of GDP on a consolidated basis and around 7 percent of GDP on a unconsolidated basis.*

Table 5

TAXES AND SOCIAL SECURITY CONTRIBUTIONS (UNCONSOLIDATED CENTRAL GOVERNMENT)

Current prices (mil. HRK)	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Taxes and contributions	145.98	862.80	13,304.09	37,183.32	44,702.80	48,837.60	53,732.53
Contributions	83.18	360.71	5,412.24	14,805.84	18,197.45	20,307.17	22,394.36
Taxes	62.80	502.09	7,891.85	22,377.48	26,505.35	28,530.43	31,338.17
Structure							
Taxes and contributions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Contributions	57.0	41.8	40.7	39.8	40.7	41.6	41.7
Taxes	43.0	58.2	59.3	60.2	59.3	58.4	58.3
Share in GDP							
Taxes and contributions	34.3	31.7	31.8	42.5	45.4	45.5	45.6
Contribution	19.5	13.2	12.9	16.9	18.5	18.9	19.0
Taxes	14.8	18.4	18.9	25.6	26.9	26.6	26.6

Source: Ministry of Finance of the Republic of Croatia.

The level of taxation (including taxes and contributions) in transition countries was high at the beginning of the transition process in 1989. In almost all of these observed countries, the share of taxes and contributions in GDP largely exceeded 50 percent, except for Poland, where the taxation level was the lowest (41.5 percent of GDP) (IMF, 1996).

When data on tax revenues in 1995 are compared, it is obvious that the tax burden was mostly reduced in Hungary, bringing it down to the level of the tax burden in Germany. Poland and the Czech Republic are less successful in this process and their tax burden only slightly differs from the burden in Croatia. These countries also have similar GDP per capita and similar transition costs as Croatia, which also makes their tax burden similar. The basic difference is in the direction of movement: while these transition countries have continually been lowering the share of taxes in their GDP, the share of taxes in GDP in Croatia has been continually growing.

Table 6

SHARE OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS IN GDP IN SELECTED COUNTRIES IN 1995 (percent)

	Total	Income tax	Profit tax	Contributions	Sales tax	Excise taxes	Other taxes
Czech Rep.	44.3	5.5	5.4	18.1	7.6	5.9	44.3
Hungary	39.2	6.5	1.9	12.0	8.6	8.9	39.2
Poland	42.7	9.8	3.3	13.0	7.3	7.5	42.7
Average	42.1	7.3	3.5	14.4	7.8	7.4	42.1
Austria	42.4	8.8	1.6	15.4	7.7	3.4	42.4
Italy	41.3	10.8	3.6	13.1	5.7	4.6	41.3
Germany	39.2	10.7	1.1	15.4	6.8	3.7	39.2
Average	41.0	10.1	2.1	14.6	6.7	3.9	41.0
EU	41.8	11.3	2.9	12.3	7.3	4.8	41.8
OECD	37.4	10.4	3.0	9.8	6.6	4.7	37.4
Croatia	45.4	3.6	1.0	18.5	13.0	5.0	45.4

Source: OECD (1997); Ministry of Finance of the Republic of Croatia

If the tax burden in transition countries is compared with the burden in the developed market economies, it can be concluded that it is still high in the former. Thus, the overall tax burden in the OECD countries in 1995 was 37.4 percent of GDP on average, while the burden of the overall budgetary revenues

in the observed transition countries was 42.1 percent on average. In countries of the European Union the tax burden (41.8 percent) is higher than in the OECD countries and is close to the burden in transition countries. Most of the European Union members are prosperous countries where social standards are high. For this reason, the rights that are financed by taxes and contributions are of a relatively wide range. However, when the levels of taxation in the OECD and the EU countries are observed during a longer period, it can be noticed that they also grow. Thus, the average tax burden in the OECD in 1980 was 34.1 percent (37.4 percent in 1995); in the EU it was 37.7 percent (41.8 percent in 1995). This means that it increased by three to four percentage points in both groups of countries (OECD, 1997).

Croatia left Yugoslavia with a relatively low share of taxes in GDP, so that in 1991 it was by far the lowest[17] (34.3 percent of GDP) when compared to other transition countries. But, while the share of taxes in GDP in other transition countries was dropping, in Croatia it was growing. Such a trend of the share of tax revenues in GDP was relatively atypical, as compared to other transition countries that continually kept reducing their shares. However, this should not be surprising, since the social and economic conditions in Croatia were also atypical. With its share of taxes in GDP of 45.5 percent in 1995 (unconsolidated central government) and 44.4 percent (consolidated general government), Croatia can be considered as a country with a relatively high tax burden. It is the highest among the observed countries and groups of countries: around 2.3 percentage points higher than in transition countries; 2.6 percentage points higher than in the countries of the European Union; and as much as 7 percentage points higher than in the OECD countries (see Table 6).

The overall tax burden in Croatia is certainly high, which places it among the countries with an above-average tax burden: of the OECD countries, only Denmark (51.3 percent), Sweden (49.7 percent), Finland (46.5 percent), Belgium (46.5 percent) and France (44.5 percent) allocated higher percentage of GDP for tax purposes than Croatia (see Table 7). All the remaining 24 countries were allocating less GDP for tax purposes, although they have relatively higher levels of GDP per capita.

However, the countries that allocate a percentage of taxes similar to Croatia's (such as France or Belgium), also allocate much higher absolute amount of taxes per capita than Croatia (France - 6.7 times higher; Belgium - 7 times higher). Naturally, these countries are much wealthier and have much higher

[17] *We have already mentioned that the data from the early nineties are not fully reliable, so they are only used for orientation here.*

gross domestic products. This way, the same percentage of the allocation of GDP through taxes can actually mean very different amounts of taxes per capita, which also means a different volume and quality of public services.

Table 7

SHARE OF TAXES AND SOCIAL SECURITY CONTRIBUTIONS IN GDP IN THE OECD COUNTRIES IN 1995

	Taxes and contributions	Taxes	Contributions	Taxes per capita (US$)	GDP per capita (US$)
Denmark	49.7	35.2	14.5	12,968	23,750
Sweden	46.5	33.6	12.8	11,376	20,580
Finland	46.5	31.1	15.4	12,339	24,710
Belgium	44.5	25.2	19.3	11,762	24,990
France	44.3	26.3	18.1	2,024	3,870
Czech Rep.	44.0	32.2	11.8	18,607	41,210
Luxembourg	44.0	25.6	18.4	11,253	24,000
The Netherlands	42.7	29.7	13.0	1,304	2,790
Poland	42.4	27.1	15.4	12,166	26,890
Austria	41.5	31.8	9.8	13,977	31,250
Norway	41.4	27.5	13.9	3,700	8,210
Greece	41.3	28.2	13.1	7,842	19,020
Italy	39.2	27.2	12.0	1,695	4,120
Hungary	39.2	23.8	15.4	11,573	27,510
Germany	38.2	38.2	-	6,369	14,340
New Zealand	37.2	31.0	6.2	7,147	19,380
Canada	35.3	29.0	6.3	6,659	18,700
Great Britain	34.0	21.7	12.3	4,850	13,580
Spain	33.9	21.3	12.7	14,673	40,630
Switzerland	33.8	24.7	9.1	3,512	9,740
Portugal	33.8	28.9	4.9	6,082	14,710
Ireland	31.2	28.6	2.5	8,154	24,950
Iceland	30.9	30.9	-	6,131	18,720
Australia	28.5	18.1	10.4	11,789	39,640
Japan	27.9	20.9	7.0	7,614	26,980
USA	22.5	19.8	2.7	619	2,780
Turkey	22.3	20.5	1.8	2,267	9,700
S. Korea	16.0	13.3	2.7	484	3,320
Mexico					
Croatia (consolidated general government)	44.4	25.9	18.5	1,750	3,250

Source: OECD (1997); World Bank (1997a); Ministry of Finance of the Republic of Croatia

However, if we break down the overall tax burden into a tax burden and a contribution burden, the situation becomes somewhat different. The tax burden is found to be even below the level of an average tax burden in the OECD and EU countries. What makes Croatia distinctive is its high contribution burden, which is almost twice as high as in the OECD countries and around 50 percent higher than the average burden in the EU countries. This indicates that problems lie in restructuring of the extra-budgetary fund expenditures. This could be used for reducing the overall tax burden to a reasonable level.

It is interesting to show to what extent the tax burden in Croatia is higher than its potential for tax collection. To this end, we will quote the work of Barbone and Polack (1996), who tried to use a model in order to establish tax capacities of specific transition countries (including Croatia) and compare them with the real tax burdens. In a regression model they used the data for 47 countries during the 1993/94 period. The independent variables in the regressions that are supposed to explain the capability of tax collection are: GDP per capita (based on purchasing power), the share of industry in GDP, the share of export in GDP, the share of urban population, the share of the population with secondary education, the share of public debt in GDP, gross domestic savings and investments. They then applied the model to transition countries. By comparing regressive anticipated tax revenues and real tax revenues, they obtained the tax strain index. If this index is higher than one, it warns that the tax capacity of a country is overstrained. According to their calculations, the share of the anticipated taxes in GDP in Croatia in the 1993/94 period was 30.7 percent. According to the same source, Croatia was actually collecting much more taxes, i.e. 41.6 percent of GDP. For this reason, the tax strain index (the share of the taxes actually collected divided by the share of the anticipated taxes in GDP) is 1.36. This means that Croatia collects 36 percent of taxes more than can be afforded by the potentials of its economy. At the same time, Hungary was collecting 75 percent, the Czech Republic 34 percent and Poland 59 percent of taxes above the tax capacity anticipated by the model.

Tax distortions

In the theoretical part of the paper it was established that a high tax burden with which high budgetary expenditures are financed leads to tax distortions, i.e. inefficient economy. In this way, the "large" government that requires high taxes also brings large distortions into the system. The result of such distortions is inefficient allocation of resources and, finally, lower growth. The question is: what is the size of these tax distortions that a "large" government like

in Croatia brings into its economy.

Measuring tax distortions is a complex job that requires familiarity with the stimulating effects of the overall tax system, not just individual kinds of taxes. In order to do it accurately, one should know marginal tax rates of all kinds of taxes for all income categories of the population. A model of tax shifting would also be needed, in order to establish the impact of taxes on the general balance. Since such an accurate calculation of tax distortions is a complex task burdened with a series of technical problems, some estimates of their size could be used. Thus, a much simpler but also less accurate approach could be used as an approximation of tax distortions: calculation of the tax burden of labor, as Sachs and Warner did in their work (1996). It is calculated in such way that the tax wedge between labor cost of a company and the real net wage of a worker with average income is established.

Four components are important for calculating this tax wedge: payroll tax paid by the company, payroll tax paid by the worker, income tax and value added tax (which increases the price of goods in the ultimate consumption). Let the price before taxation be P and the wage before taxation W. The nominal net wage of a worker is $W(1-\tau\gamma)(1-\tau\rho\omega)$, where $\tau\gamma$ is marginal income tax rate and $\tau\rho\omega$ is payroll tax paid by the worker. Since P is the price level before taxation and the level of consumer prices is $P(1+\tau\upsilon)$, where $\tau\upsilon$ is consumption tax rate (or value added tax rate), we can express the net real wage with $W(1-\tau\gamma)(1-\tau\rho\omega)/P(1+\tau\upsilon)$. The cost of labor for the company, deflated by the price level P, is $W(1+\tau\rho f)/P$, where $\tau\rho f$ is the rate of payroll tax paid by the company. For example, if taxes are of such amount that the company pays twice as much as the net real wage, we say that the tax wedge is 100 percent, because the cost of labor is 100 percent above the real net wage. More precisely, tax wedge is defined as 100 * ((cost of labor)/ (real net wage) - 1). Thus, tax wedge is:

$$(4)\quad T\omega = [((1+\tau\rho f)(1+\tau\upsilon)/(1-\tau\gamma)(1-\tau\rho\omega))-1] * 100$$

Table 8 shows tax wedges for some transition countries, for a group of fast-growing countries[18] and for Croatia. The fast-growing countries have low tax wedges, which means that they also have low tax distortions in the labor

[18] *The authors define fast-growing countries as developing countries with medium income and population over 1 million and whose income per capita grows at an annual rate of 4 percent or higher, in two periods: 1985-90 and 1990-94. As Table 8 indicates, these are mostly so-called Asian tigers, which experienced a major crisis in 1997. This indicates the complexity of the process of growth. Low tax burden of an economy is not the only factor that ensures accelerated growth.*

market. Since we have approximated the size of the overall tax distortions with the tax distortions in the labor market (not having a better method), we can assume that the overall tax distortions in these countries are also low. In these countries, a low tax burden (which is indicated by tax rates in Table 8) has lead to low distortions in the market allocation of resources.

Table 8

TAX WEDGES IN 1994

	Income tax rate for average income[a]	Profit tax rate[b]	Payroll tax (contribution) rate[c]	VAT rates[d]	Tax wedge[e]
Fast-growing countries					
Chile	5.0	35.0	9.0	18.0	35.7
Hong Kong	2.0	17.0	0.0	0.0	2.0
South Korea	9.0	35.0	8.0	10.0	31.4
Malaysia	10.0	40.0	23.0	10.0	53.8
Mauritius	n.a.	n.a.	9.0	n.a.	n.a.
Singapore	15.0	27.0	0.0	1.0	18.8
Taiwan	6.0	25.0	6.0	5.0	18.9
Thailand	5.0	30.0	5.0	7.0	18.4
Transition countries					
Czech Republic	20.0	41.0	42.0	23.0	128.5
Poland	21.0	40.0	48.0	22.0	128.5
Hungary	35.0	36.0	61.0	25.0	223.8
Croatia[f]	35.0	35.0	43.4	22.0	193.2

a Marginal income tax rate of the tax bracket representing GDP per capita.
b Normally it is a single rate. If there are more than one, the maximal one is used.
c The sum of contribution rates for the company and for the worker, that finance unemployment, health care system, insurance and pensions.
d The rate at which most of the goods and services are taxed.
e Cost of labor for the company as a percentage of the real net wage of an average worker, calculated by the formula in the text above.
f Calculated by rates in effect since 1998.

Source: Sachs and Warner (1996, p. 14) and the author's calculation.

In transition countries, distortions in the labor market are much higher. For example, in the extreme cases of Hungary and Hong Kong - the distortion in Hungary is almost one hundred times higher than in Hong Kong. High distortions discourage the labor market in many ways: higher unemployment, lower attendance record, temporary withdrawal from the labor market, early

retirement and growth of the underground economy. It is therefore not surprising that unemployment rates in fast-growing countries are low.

The distortion in Croatian labor market before the introduction of value added tax was as much as 204 percent, while after the introduction of value added tax in 1998 it dropped to 193.2 percent. Compared with other countries, it is a very high distortion - higher even than in the Czech Republic and Poland, but lower than in Hungary[19]. In Croatia and in the majority of transition countries, profit tax rates and sales tax rates are relatively high as compared to fast-growing countries. Payroll tax rates and payroll contribution rates are particularly high. In fast-growing countries these rates are much lower, so tax distortions are also lower.

The World Bank (1996) also estimates that the excess tax burden in transition countries is high and is drawing closer to the burden in developing countries. According to the World Bank, high tax distortions in transition countries are the result of a number of factors:

a) Tax rates are often high. In countries with a large number of emerging small companies and with mostly inefficient tax administration, high taxes encourage tax evasion and transition to unofficial economy. For example, recent research indicates that tax evasion in Croatia in 1996 was between 9 - 15 percent of the estimated GDP, whereas the share of unofficial economy was as much as 25 percent (Madžarević, 1997). Since an unofficial market below 10 percent of GDP can be considered to be small and the one above 30 percent large (Sachs and Warner, 1996), Croatia with 25 percent certainly belongs to a group of countries with a large unofficial economy. Since income tax rate and profit tax rate are relatively low, it was mostly the high sales tax that induced taxpayers to evade taxes and that created an excess tax burden. Introduction of the VAT reduced the tax distortions.

b) High payroll taxes in the form of social security contributions for social expenditures are high. The heavy burden of these tax payments makes entrepreneurs employ fewer people, invest less and move to the gray zone. The reform of the pension system, which usually means transition to a system in which

[19] *Hungary has very high contributions, which include employer's contributions to social security fund (44 percent), unemployment fund (7 percent), re-training fund (1.5 percent), as well as workers' contributions to social security fund (10 percent).*

contributors pay for their future pensions, should relieve the entrepreneurs' burden. The burden of contributions is comparatively high. This is why evasion of contributions for employees is the second highest, next to evasion of sales tax.

c) There are pressures for the introduction of tax relieves and tax rate benefits for specific activities and sectors. This creates the need for increased taxation of other activities. Such a diverse treatment of the taxpayers lowers the tax revenues of the budget, complicates tax administration and distorts the allocation of resources. The introduction of tax relieves to the Croatian tax system in 1996 (liberated areas, free-lance artists, sportsmen, war veterans) and the pressure to increase the number of value added tax rates (instead of statutory flat rate for all goods and services) have threatened its initial good aspects.

In the case of Croatia, we can say that the introduction of VAT has increased economic efficiency and that income tax rate and profit tax rate are relatively low. The highest distortions are thus the result of high contributions. The efficiency of the tax system is additionally affected by the introduction of new tax relieves benefits.

Tax revenue structure

The structure of taxation in Croatia has undergone substantial changes. A few tendencies in the movement of the main categories of tax revenues can be seen (see Table 9).

First, relative importance of indirect taxes (sales tax, consumption tax and customs duty) in the government budget is growing. Indirect taxes have more than tripled its share in GDP: from 9 percent in 1991 to 21.4 percent in 1997. While 60.9 percent of total tax revenues of the central government budget were collected by means of these taxes in 1991, this percentage grew to as much as 80 percent in 1997. As compared to other countries, relatively large amounts of tax revenues are collected by means of indirect taxes, i.e. sales tax and consumption taxes. The amount of tax revenues collected by means of sales tax and consumption taxes in 1995 was 18 percent of GDP; at the same time, it was 11.3 percent of GDP in the OECD countries and an average of 15.2 percent of GDP in the observed transition countries. This ratio does not have to be that unfavorable. As has been said in the first part, export products can be largely tax-exempted by taxation of consumption, particularly after introduction of VAT.

Specifically, in the case of export products, the tax paid on inputs can be deducted and they can reach the international market free of domestic consumption tax. However, it is not possible to exempt export products from direct taxes, i.e. income tax, profit tax and contribution. In this way, these taxes are included in the price of an export product.

As regards to indirect taxes, the sales tax in the 1991-1997 period was the most dynamic category and its share grew from 7.8 percent to 17.4 percent of GDP. With the introduction of VAT and a good realization of budget at the beginning of 1998, it can be expected that the relative importance of this tax will grow even more. Since the cascade effect was annulled by switching from the single -phase tax in retail trade to the multi-phase VAT and since VAT is of a neutral character, the tax distortions that existed until the end of 1997 have been reduced. VAT therefore leads to the reduction of dead weight loss and brings into an economic system a higher level of efficiency in the allocation of resources. This way, the prevailing part of the budget is filled by means of the least distorting tax, which can only have a positive effect on growth.

Second, direct taxes have a relatively small role in Croatia. Profit tax is almost negligible in the central government budget: its share in GDP was in the region of 1 percent throughout the nineties. After the application of the new Income Tax Act in 1994, the share of income tax in GDP stabilized at around 3.6 percent of GDP. The totaled share of income tax and profit tax in GDP in Croatia is still almost three times lower than such a share in the OECD countries and half as much as the average in the transition countries. Given the small share of these taxes in GDP, we can say that their distorting effect is also relatively small. This particularly refers to profit tax, which has a really small share in GDP. This also indicates a very low effective profit tax rate[20], which stimulates investments and growth. The same can also be said for income tax. For this reason, it is possible to undertake measures to increase equity and decrease regressivity of VAT by means of income tax. This primarily means an increase of personal allowance and a possibility to introduce an additional marginal tax rate. This would improve the equity of the tax system without substantially affecting the efficiency, while the state budget would lose relatively small revenues.

[20] *Due to unavailable data from national account the amount of the effective profit tax rate cannot be specified with certainty.*

Table 9

STRUCTURE OF TAXES OF CENTRAL GOVERNMENT (UNCONSOLIDATED)

	1991	1992	1993	1994	1995	1996	1997
Share in GDP							
Taxes and contributions	34.3	31.7	31.8	42.5	45.4	45.5	45.6
Tax revenues	14.8	18.4	18.9	25.6	26.9	26.6	26.6
Direct taxes	25.3	16.4	15.3	21.4	23.2	24.2	24.2
Contributions	19.5	13.2	12.9	16.9	18.5	18.9	19.0
Income tax	4.8	2.6	1.7	3.7	3.6	3.9	3.5
Profit tax	1.0	0.5	0.5	0.7	1.0	1.2	1.5
Property tax	0.0	0.1	0.2	0.1	0.1	0.2	0.2
Indirect taxes	9.0	15.3	16.5	21.1	22.2	21.3	21.4
Sales tax on goods and services	7.8	11.6	13.5	17.1	18.0	17.6	17.4
Sales tax	-	-	-	15.0	13.0	12.6	12.8
Excise taxes	-	-	-	2.1	5.0	5.0	4.6
Tax on international trade	1.2	3.6	2.9	4.0	4.0	3.7	4.0
Other taxes	0.0	0.0	0.0	0.1	0.2	0.0	0.0
Structure of tax revenues							
Taxes and contributions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Direct taxes	73.8	51.8	48.2	50.4	51.1	53.2	53.1
Contributions	57.0	41.8	40.7	39.8	40.7	41.6	41.7
Income tax	14.0	8.1	5.4	8.6	7.8	8.6	7.6
Profit tax	2.8	1.6	1.6	1.6	2.3	2.6	3.3
Property tax	0.0	0.3	0.5	0.3	0.3	0.4	0.5
Indirect taxes	26.2	48.2	51.8	49.6	48.9	46.8	46.9
Sales tax on goods and services	22.8	36.7	42.6	40.1	39.7	38.6	38.2
Sales tax	0.0	0.0	0.0	35.2	28.6	27.7	28.2
Excise taxes	0.0	0.0	0.0	4.9	11.1	11.0	10.0
Tax on international trade	3.4	11.5	9.2	9.4	8.8	8.1	8.7
Other taxes	0.0	0.0	0.0	0.1	0.4	0.1	0.1

Source: Ministry of Finance of the Republic of Croatia.

Third, after lowering their share in GDP in the 1991-1993 period, the contributions to extra-budgetary funds started to grow again and they accounted for 19 percent of GDP in 1997. The pressure of the expenditure side of the funds budget does not allow any essential modifications of contribution rates. The contributions in Croatia are twice as high (18.5 percent of GDP in 1995 as opposed to 9.8 percent) than in the OECD countries (Table 6). Besides the sales tax, contributions are the most important source of revenues of the central government. Sales tax and contributions account for almost 70 percent of the

central government budget (unconsolidated). Pressure for more abundant financial support to social needs and war-affected areas is neutralized by high contribution rates which are very inelastic in a downward direction. The suggestions that part of the expenditures of the funds that do not contribute to redistribution of revenues should be shifted to the central government budget, thus lowering the contribution rate and cost of labor, can only be a short-term solution. The only long-term solution can be found after the reform and restructuring of the funds, as well as after the revision of social rights.

4.3 Analysis of income tax revenues

The analysis of income tax revenues has been made on the basis of the data provided by the Central Office of Tax Administration of the Ministry of Finance. Two groups of processed data have been used as the sources of information about income tax.

a) summary information obtained by the annual processing of the data contained in personal tax files in the tax returns of the taxpayers, where information on income and taxes and contributions from salaries and pensions, i.e. from employment, are shown (statistic processing of the ID form). This information includes the incomes in all sectors, including military and police. The information is available for the period from 1994 to 1997.

b) summary information contained in the annual income tax declarations of the taxpayers, where (besides salaries and pensions) incomes from crafts, self-employment, leases and rents and foreign incomes are reported. The information is available for the period from 1994 to 1997. Only a detailed classification of data obtained by processing the crafts sector and self-employment has been elaborated. Therefore, it will be mostly used for further analysis. Detailed information on the crafts trade and self-employment is available only for 1996 and 1997.

In order to obtain aggregate information on the overall income and overall taxes paid, the data from the statistic processing of the ID forms and the data from the processing of annual income tax reports have been summed up, but only for the crafts trade and self-employment, which are processed separately.

For this reason, the information on leases and rents and foreign income has been left out in the analysis. However, since this information makes up only around 2 percent of the overall reported income, we consider that the conclusions obtained by this analysis can be applied to the overall income and overall taxes.

It should be noted that in our analysis we could not use only the data from the processing of annual tax reports, because they contain the income from salaries and pensions (that is, from employment) only for those taxpayers who are obliged to submit tax declarations (because they have received other types of income besides their salaries and pensions) and not for all taxpayers. The data on all incomes realized through salaries and pensions (both for the taxpayers who have to submit tax declarations and for those who do not) are obtained from processing of the ID forms. As mentioned above, the data on the crafts sector and self-employment are added to them, in order to obtain information on all incomes and taxes, both for the tax payers who have to submit tax reports and for those who do not (because they only receive income from their salary or pension). But, since detailed data on crafts sector and self-employment are available only for 1996 and 1997, our data on the overall income and pertaining taxes refer to these years only.

The data point at a number of interesting facts:

1) The incomes from salaries and pensions make up a major part of the overall income, i.e. 92 percent in 1996 and 93 percent in 1997 (see table 10). Consequently, income from the crafts sector and self-employment account for the remaining 8 percent and 7 percent, respectively, of the overall income. This is why the largest portion of taxes is collected from salaries and pensions: 87 percent and 89 percent, respectively, of the overall collected taxes in the years of reference. Thus, taxes collected from the income from the crafts sector and self-employment account for only 10 to 12 percent of the overall collected taxes. This indicates that the tax administration should pay increased attention to the very tax on the income realized through employment. On the other hand, the prevention of tax evasion in the crafts sector and self-employment has a certain pedagogical and media function, rather than financial effects.
2) Incomes from salaries and pensions grow continually by high nominal and real rates, which reflects high growth of the wage bill in the 1994-1997 period. The taxes collected from such growing incomes show more volatility. So, while incomes in specific years grow, the collected taxes drop. On the other hand,

the incomes from the crafts sector and self-employment dropped in 1997 by around 8 percent, while the taxes collected were even 16 percent lower. This can indicate two things: either economic activity in the crafts sector dropped, or the taxpayers adapted to the new tax system and found ways of evading income tax.

3) The movement of the income and tax from employment, the crafts sector and self-employment presented here also determines the tendencies of overall movements. Thus, although the overall income in 1997 grew by 14 percent, the overall collected income tax was lower by around 3 percent.

4) It is particularly interesting to observe the movement of tax rates for specific types of taxes. A distinction should be made among statutory tax rate (the rate determined by law), average tax rate (the one determined as the share of tax in the tax basis) and real or effective tax rate (the share of tax in the overall income, i.e. the pre-tax income that has not yet been transferred to the tax basis according to the provisions of tax law). Average and effective tax rates were calculated for salaries and pensions in the 1994-1997 period; the same tax rates were calculated for the crafts sector and self-employment for 1996 and 1997; overall average and effective rates for 1996 and 1997 were calculated as well (Table 11). A drop of all rates for all types of income for all periods can be noticed. In 1997 this drop was particularly noticeable, because as of 1st January of that year the bottom marginal tax rate was reduced from 25 to 20 percent and the basic personal allowance was increased from HRK 700 to HRK 800 per month. This reflected in a drop of the average tax rate for overall incomes of around 2 percentage points and in a drop of the effective tax rate for as much as 4 percentage points. The drop of tax rate on salaries and pensions was the major contributor to the drop of tax rates on overall incomes, because this category includes the lowest incomes, i.e. the ones subject to the 20 percent rate only.

Table 10

SOURCES OF INCOME AND INCOME TAX (IN MILLIONS OF HRK)

	Employment*		Crafts Sector and Self-employment**		TOTAL		SHARES	
							Shares of income in total income	
	Income	Chain index	Income	Chain index	Income	Chain index	Employment	Crafts Sector and Self-employment
1994	24,948.13	-	-	-	-	-	-	-
1995	32,293.19	129.44	-	-	-	-	-	-
1996	38,729.16	119.93	3,338.83	-	42,067.99	-	92.06	8.62
1997	44,806.81	115.69	3,149.11	94.32	47,955.92	114.00	93.43	7.03
	Tax + local tax	Chain index	Tax + local tax	Chain index	Tax + local tax	Chain index	Shares of taxes in total tax	
							Employment	Crafts Sector and self-employment
1994	4,315.83	-	-	-	-	-	-	-
1995	4,155.22	96.28	-	-	-	-	-	-
1996	5,376.84	129.40	775.11	-	6,151.95	-	87.40	12.60
1997	5,325.69	99.05	650.44	83.92	5,976.13	97.14	89.12	10.88

**Salaries and pensions. Source: ID Form, Ministry of Finance, Tax Administration - Central Office.*
***Crafts Sector and Self-employment.*
Source: Processing of annual tax reports, Ministry of Finance, Tax Administration - Central office.

Although statutory income tax rates are 35 percent and 20 percent, respectively (25 percent until 1st January 1997), the average tax rate for overall incomes was formed on the level of 29 percent and 25 percent for years 1996 and 1997, respectively. This means that it is closer to the lower than to the upper statutory tax rate. This indicates that lower incomes are predominant in the distribution of incomes. Average tax rates are higher for the crafts sector and self-employment than for salaries and pensions. This, in turn, indicates that higher incomes are predominant in the crafts sector and self-employment, while the lower ones are predominant in salaries and pensions.

Effective tax rates are of the lowest level, as compared both to statutory and average tax rates. They show the real burden that a taxpayer carries, because they are part of the overall realized income that goes for taxes. In Croatia, 14 and 12 percent of the overall income, respectively, was paid for taxes from the overall incomes in 1996 and 1997. This data are hard to interpret. Only similar data for other countries could provide a basis for an international comparison of the tax burden in Croatia. However, some conclusions can be drawn on the basis of the tax rate movement. Only 11.9 percent of the income realized from salaries and pensions was spent on taxes in 1997, unlike in 1994, when 17 percent was spent for the same purpose. Consequently, the real tax burden of salaries and pensions was reduced by 6 percentage points. The taxes for craftsmen were also lower in 1997 - by 3 percentage points. Effective tax rates for craftsmen are substantially higher than for those employed in companies, because higher income in the craft sector also fall in the category to which a higher rate is applied.

Table 11

AVERAGE AND EFFECTIVE TAX RATES OF INCOME TAX

	Employment		Crafts Sector and Self-employment		Total income	
	Effective rates	Average rates	Effective rates	Average rates	Effective rates	Average rates
1994	17.30	30.45	-	-	-	-
1995	12.87	29.18	-	-	-	-
1996	13.88	29.09	23.22	31.51	14.62	29.37
1997	11.89	25.20	20.65	28.44	12.46	25.43

Note: Effective rates are calculated as a share of taxes and local taxes of the overall income. Average taxes are calculated as a share of taxes and local taxes in the tax basis (i.e. of the overall income adapted to tax regulations).
Source: Ministry of Finance, Tax Administration - Central Office.

5
CONCLUSION

The distortions that taxes bring into the economy lead to reduced efficiency and lower income growth. Taxes affect economic growth through various channels: they affect the amount of savings and investments and the amount of supply and demand of labor. By reducing the return on human and physical capital, they distort incentives for capital accumulation and inhibit growth.

Although theory mostly underlines the negative connection between taxes and growth, empirical research does not provide unambiguous answers. Numerous channels through which impact of taxes is distributed and the complexity and interrelation between fiscal and other economic variables make conducting of empirical research particularly complicated. It has therefore provided a somewhat disappointing backup to theoretical conclusions. But even without enough robust empirical results, most of the researchers will agree that growth of output and employment can be stimulated by tax reforms that encourage neutrality in taxation. Also by lowering tax rates, extending the tax basis, reducing tax exemptions and building such a tax structure that can at least distort incentives for the accumulation of labor and capital to the least possible extent.

In recent years, the Croatian tax system had the following characteristics:

1. Tax reform. The tax system was reformed in two phases: in 1994, when income tax, profit tax and excise taxes were introduced and in 1998, when the 1995 Value Added Tax Act was applied. The goal of the reform was to create a tax system which is neutral to economic measures. Such a system was achieved by designing taxes on the consumption principle in the taxation of income, profit and added value.
2. The overall tax burden has been continually growing. The highest growth of the overall tax burden of the central government was in 1994, when the share of taxes and social security contributions in GDP grew by almost 11 points. The total burden of taxes and social security contributions on the general government level has been continually growing ever since: from 43.19 percent in 1994 to 44.40 percent in 1995 and to 44.72 percent of GDP in 1996.
3. The overall tax burden is high. Compared to the countries with similar GDP per capita and with similar transition costs (such

as Hungary, the Czech Republic and Poland), the Croatian tax burden is still higher by around 3 structural points. But, while the tax burden in these countries is dropping, in Croatia it is rising. Compared to the average tax burden in the OECD countries, the share of taxes in GDP is higher by around 7 structural points. In the case of our main economic partners (Italy, Austria, Germany), the difference is around 4 structural points. Particularly disturbing is the high burden of social security contributions, which is among the highest in the world and which indicates that the main problem lies in restructuring of the expenditures of the extra-budgetary funds. The tax burden (without social security contributions) is even lower than the average tax burden in the OECD countries.

4. A high tax burden brings along high tax distortions, the loss of efficiency in allocation and lagging behind in economic growth. Lowering of high social security contributions can reduce the overall tax burden and increase efficiency. Other types of taxes are mostly adjusted in such way as to cause the least possible distortions. Reduction of the tax burden can also be achieved by lowering a relatively high VAT rate. These reductions depend on the dynamics and extent of the reforms of other parts of the fiscal system.
5. The most important revenues in the structure of overall taxes are sales tax (with excise taxes) by means of which 17.4 percent of GDP was distributed in 1997, and social security contributions, which accounted for 19 percent of GDP collected in the same year. Profit tax and income tax are relatively modest revenue of the central government budget revenues. The taxation structure differs substantially from the one in the selected countries and groups of countries. Compared to other countries, the sales tax and social security contributions in Croatia are relatively more important, while income tax and profit tax represent relatively a small source of budget revenues.
6. The largest portion of income taxes is collected on the basis of salaries and pensions. Namely, incomes from salaries and pensions make up the major part of the overall gross earnings of the population (92 percent in 1996 and 93 percent in 1997). Consequently, the income from the crafts sector and

self-employment cover the remaining 8 and 7 percent of the overall income, respectively. This is why the largest portion of income taxes is collected from salaries and pensions. This suggests that the tax administration, when collecting taxes, should pay additional attention to the tax on the income that is realized by employment in a company. On the other hand, the prevention of tax evasion in the crafts sector and self-employment has a certain pedagogical and media function, rather than financial effects.

7. The incomes from salaries and pensions grow continually and at high nominal and real rates. The taxes collected from these growing incomes show more volatility. Thus, while incomes in specific years grow, the collected taxes drop. This is a reflection of the modification of the statutory income tax rates and the growth of personal allowances.
8. The average and effective income tax rates from employment were continually dropping in the period 1994-1997. The average rate was reduced from 30.5 percent to 25.1 percent and the effective rate from 17.3 percent to 11.9 percent. The rates of taxes on income from the crafts sector and self-employment were also dropping, although these rates were higher than those of the employment income. This is in conformity with higher average incomes in the crafts sector and self-employment.

Although the Croatian tax system is mostly based on modern tax principles, there is still place for some changes (more in the amount of the tax burden, less in the system itself) estimated as potentially stimulating for economic growth:

a) in line with the restructuring of the expenditure side of the budget, lowering of the VAT rate to 18-20 percent should be considered;
b) reducing the number of luxury products subject to consumption tax is not necessary; also, taxation of negative externalities (oil derivatives, tobacco and alcohol) by means of consumption taxes should not be changed, because taxing them means reducing their consumption. However, revision of consumption taxes on non-alcoholic beverages should be made;
c) in line with the restructuring of the expenditure side of extra-budgetary funds, the social security contributions with the

share in GDP among the highest in the world should be reduced;

d) consider increasing personal allowances and introducing additional income tax rate in order to reduce the regressivity of VAT; preserve the consumption type of income taxes, but monitor its advantages against comprehensive taxation of income;

e) if possible, define the tax basis for profit income as a cash flow. Thus it would become compatible with the consumption type of income tax;

f) reduce the volume of relieves in profit tax and income tax and not allow introduction of new relieves either for specific categories of the population, or for specific sectors of the economy, or specific areas. In respect of allocation, direct transfers are more efficient than indirect transfers within the tax system.

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