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Distribution of Household Income in the Czech Republic in 1988-1996: Readjustment to the Market

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DISTRIBUTION OF HOUSEHOLD INCOME IN THE CZECH REPUBLIC IN 1988-1996: READJUSTMENT TO THE MARKET[1]

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In the second half of the twentieth century, the country located in the troubled heart of Europe experienced two radical conversions of regimes. In 1948 peaked the communist revolution which continued in its most repressive form until the mid-1950s. In 1990, economic reform involving large privatization and liberalization opened the road "back to capitalism". The first regime change - the communist "revolution" - externally manifested ideology of equality but internally followed the Soviet model of how to feed more workers from a smaller bread. Therefore, wages were equalized and need was asserted as the main criterion of reward. The second regime change - the capitalist "counter-revolution" - aimed to de-equalize earnings, re-introduce market competition and re-create new sources of income, especially from business.

The empirical apprehension of the two political ruptures in income distribution was hardly similar. There are no reliable income surveys from the period before 1948. Thus we can compose the picture only from the mosaic of various data like wages insured in pension funds, branch statistics of wages or non-representative Family Expenditures data. When the first solid wage and household income surveys were launched in late 1950s, the new system of distribution was already in place. In contrast to those from the first regime change, those from the second one are quite sufficient. Three household surveys conducted by the Czech Statistical Office (CSO hereafter) are already available which cover the period 1988-1996.

During this period, the Czech Republic has changed from the most hard line communist country into a very liberal country, with a largely privatized economy. Its GDP in constant price remained the same while the average wage increased quite considerably, concretely speaking from 6719 USD in 1990 to 8761 USD in 1996 annually, adjusted to Purchasing Power Parity, according to *Vienna Institute for Comparative Economic Studies*. Until 1996, the Czech Republic remained at the forefront of transitory countries, regarding basic macroeconomic indicators and the speed of privatization.[2]

In this paper, we concentrate only on the second political change. Available data give us a unique opportunity to investigate changes introduced by political democracy and a market system. In the first part, the growing difficulties of income surveys are reflected upon. In the second part, we ask whether income indicators do not partly reflect political regime and economic situation. In

[2] In the meantime, the Czech Republic has separated as an independent state after the split of former Czechoslovakia in 1993. However, all statistics was since 1918 separated for the Czech lands and Slovakia and since 1968, the Czech and Slovak Republics formally represented two composite parts of the Czechoslovak Socialist Republic (renamed Czechoslovak Federal Republic in 1990).

the third part, change in income distributions and factors is analyzed. In the fourth part, we concentrate on the redistribution of income through taxes and social benefits. And in the fifth part, we try to resume adjustment to the market by using comparative data from Western countries, using mostly the LIS database.

1. Growing uneasiness to uncover income

After four decades of forced uniformity of income sources, "capitalist" profits and yields were once more accepted, alongside the "working class" wages and social benefits. Since 1990, the share of earnings from dependent activities has decreased while the share of income from self-employment and entrepreneurship is slowly rising (Figure 1).[3] Instead of basically one income (provided by the state) and one (wage) tax, we face a broader variety of income sources in which we cannot sometimes clearly distinguish the household (private consumption) part from the business one. A typical transitory combination of dependent full-time employment with independent part-time employment obscures the picture even more.[4]

It is quite obvious that in a free society, the inspection of income is more difficult. Let's remember the advantages of income surveys under the totalitarian regime: 1. the refusal rate was low because even if a survey was not expressly ordered by a decree, people were fearful to decline any official document; 2. the most important sources of income were directly transferred by state administration - wages of individual workers were passed on by their employers and pension benefits were reported by the post offices which distributed them; 3. The communist government was quite generous to pay large surveys which were presented as a form of celebrating the regime's achievements in "increasing the standard of living of the working people".

Consequently, income surveys were highly reliable - at least with regard to officially distributed money.[5] Understandably, incomes in kind and from secondary sources were represented to a far lesser degree, if at all. However after 1989, the method of direct transfer of income information from state organizations had to be abolished and, therefore, to the old deficiencies, new ones were

[3] Data used in the Figure 1 display - among other - change in the method of summarizing income of the population. The aggregate estimate in "communist' statistics was gathered in so-called Balance of Incomes and Expenditures of the Population, which was replaced by standard National Accounts in 1993.

[4] According to the Ministry of Industry and Commerce, 2057 thousand business licenses for physical persons were issued by the end of 1997. But only 578 thousand entrepreneurs and self-employed were declared at the same time by the Labor Force Survey.

added, including the underestimation of earnings from dependent employment (even if declared in taxes) and an even greater underestimation of income from independent activities (often not declared in taxes). Many entrepreneurs report to interviewers the same or even more gloomy stories as they do to the revenue office.

We document the growing obstacles of income inspection on the three Microcensuses we analyze. Although all surveys are nominally the same, their methods and scope differ somewhat. They occurred in March 1989, 1993 and 1997 respectively, each of them reviewing the incomes of the whole previous year.[6] As official names are not consistent, we call them here following the observation years as of 1988, 1992 and 1996. The main characteristics of all three surveys are presented in Table 1. Regarding the size of the sample, the original two percent size was reduced to a mere half percent in 1992 but - after a bad experience with too many empty cells - increased again to one percent in 1996. As we can see, the original very low non-response rate in 1988 increased really considerably: 3.7 times in 1992 and 5.7 times in 1996.[7]

The coverage of surveyed income (after correction) measured as a percentage of income calculated by the National Accounts has decreased substantially, this despite corrections made by statisticians after collection of data. In 1992, correction was derived from the 1976 Microcensus, in which both official and self-reported income was available and from which the underestimation of income in personal declaration was derived. By the regression formula based on this calculation, reported income in 1992 was increased by about 10 percent. Various interventions were imputed by statisticians into the data file of the 1996 survey. Corrections have used branch statistics of wages, panel survey of firms and National Accounts. The percent how much it allowed to increase household income is not officially available.

The result in terms of coverage is far from satisfactory.[8] We must admit, however, that those problems are hardly able to be resolved. One of the attributes of the Czech transformation was a

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[5] This fact was also acknowledged by Atkinson and Micklewright (1992:40ff) who disagree with common opinions at the time that income information is not available and/or of poor quality. If it was valid about USSR, the situation in Central European countries - Czechoslovakia, Hungary Poland was quite different.

[6] The 1988 Microcensus was still made by the Federal Statistical Office in the whole former Czechoslovakia and we use here only its Czech part. The other two surveys occurred after the split of Czechoslovakia but were conducted by the Czech Statistical Office in the Czech Republic and Slovakia simultaneously.

[7] The reasons for non-response in 1992 were a "negative attitude towards the survey" (8.8 percent), "family reasons" (5.7 percent) and "repeated failure to reach family members" (1.2 percent). In 1996, those reasons were 16.2, 2.3 and 5.3 percent respectively.

[8] The figures on coverage released by the CSO differ from our calculation and relate 87, 86 and 93 percent in consecutive years. The CSO reports to deduct some items not included in income surveys (eg. interests) and argues

very liberal approach to payments (no limits for cash), tax declarations (a large liberty of deductions) and rewarding (officially paid minimum wage is often complemented by a bonus paid outside formal accounting). The same is valid for the "lights off" over the financial market and a general unwillingness of the founding fathers of the economic reform to make money and property flows more transparent. The entire climate of non-transparency necessarily reflects itself in the reluctance of people to declare their income properly. We have also bear in mind that all countries have greater or lesser difficulties with unreported incomes.[9]

Despite all of these insufficiencies, income surveys made by the CSO represent the best, if not the only representative source of information about household income in the country.[10] One can only speculate that the amount of unreported income probably increased during transition as a result of the large scale of informal activities and newly emerged sources of income. On the macro-level, the amount of shadow-economy activities is currently estimated to contribute about 10-15 percent to the total GNP. Unlike the macro-level, where some estimations of income from the informal economy are possible, this difficulty can never be adequately surmounted on the micro-level of individual households or social categories.

2. Income indicators as social constructions

If we consider the matter reflectively, income distribution appears not as a given fact but rather as a social construction, similarly to poverty (Rainwater, 1990). The results of surveys and analyses depends largely on the income concept we choose, the selection of which is not completely free of political consideration. Basically, we can take as an indicator income per household, per capita, or something "in between" what means household income calculated per equivalent unit-adult. How much this "in between" depends on voluntary approach was carefully exhibited in the LIS comparative analysis (Buhman et al., 1988; Atkinson, Rainwater and Smeeding, 1995). According to this analysis, the continuum of possibilities is expressed by the elasticity coefficient in the formula:

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that a better result in 1996 is explained by the fact that more items were excluded than in 1992. Unfortunately, no public calculation is available.

[9] According to the LIS study (Atkinson, Rainwater and Smeeding, 1995:34), ratio of survey estimates to National Account estimates ranged between 77 percent (Germany 1981) and 92 percent (Canada 1981) regarding surveys included in the LIS database.

[10] The other available survey - Family Expenditures Survey - is not based on a random but quota sample in the Czech Republic. As one of criteria of selection of households is income category and, therefore, its use for exhibition of change in income inequality is not appropriate.

$W = D / S^{ee}$

where W = economic well-being, D = disposable income, S = size of household and exponent e = elasticity coefficient. The elasticity coefficient varies between 0 (full economies of scale) and 1 (no economies of scale). In communist statistics, no economies of scale were habitually assumed and each person had than the same weight, without regard to life cycle and household context. In contrast to this, in "Western" statistics total disposable household income served as an indicator of the first resort. Figuratively speaking, while Western societies were treated in income statistics as communities of families, Eastern societies were considered as aggregates of individuals.

Before we will hypothesize about reasons of such opposite methods, we will mention briefly the difference among available statistics. In the past, it was quite common to begin any East-West comparative analyses of incomes with the statement that communist societies displayed an extreme equalization of income (e.g. Wiles, 1974; Atkinson and Micklewright, 1992). Such an opinion is certainly well founded if we use the only available indicator in officially published documents which is income per capita. Once we would assess the indicator of income per household (or any equivalent unit acknowledging larger economies of scale), the range of inequality would appear much higher.

Concretely speaking, while the Czech pre-1989 figures regarding income per capita belong among the lowest in the world, figures regarding income per household are close to, if not higher than those in Western countries. We found this for the first time in 1967, when the CSO calculated the distribution of total household income on our request. Such an exercise was not repeated any more in the official statistics but we used this indicator in our own analyses based on income microdata (Vecernik, 1976). There were also other analyses documenting the difference between per household and per capita income between Western and Eastern countries (see Bruinooge et al. 1990 quoted in Atkinson and Micklewright, 1992:70). We bring evidence of this in the comparative section (see Table 8).

Why has distribution in the former Czechoslovakia differed so much from Western countries in income per capita and so little in income per household?[11] In Western countries, the main source of inequality of household incomes is market income, which is rather unequal. In Eastern

[11] Here, we have to avoid generalization. Our and other analyses assert the specific position of the former Czechoslovakia, in comparison especially with Hungary and Poland where the income structure and determination was closer to the West even before 1989 (Vecernik, 1986, Kordos, 1972; Eltoto, 1997).

European countries, especially in the former Czechoslovakia (where earnings and social benefits were extremely equalized), inequality in household income was given by the numbers of active persons and pensioners. Concretely speaking, one-pensioner households occupied the bottom of the income distribution, while peasant families with several active earners almost monopolized the top. Instead of market criteria, variability in composition of households produced about the same results in income inequality (see Table 5).

Once we remove the differences in the number of economically active members by adjusting income to the size of the household (i.e., computing per capita income), those disparities disappear and another factor of income inequality appears instead: the number of dependent children. As the variability in the number of children is far larger than the variability in the number of adult members, the resulting distribution of income per capita corresponds to the number of children. All this fits in the communist arrangement of the household economy, the first task of which is to provide enough laborers for the national economy and the second task is to provide for their reproduction.

We can only speculate whether there was any explicit reason to hide actual income disparities by presenting income statistics only on the per capita base. If it was really the case, it was certainly not originally Czech[12] but transferred from Soviet statistics within an all-encompassing stalinization of our society (when even camels were fervently put in forms of agricultural statistics of this middle-european country). However, we can be almost sure about the broader ideological framework, in which this selection of income indicators fits very well. It is what we call the "need principle," according to which economic life is intended to be organized under communism, against the "market principle," implicitly or explicitly prevailing in capitalist regimes (Vecernik, 1996).

By the "need principle," we mean the primary focus on the basic needs of reproduction of people who are largely understood as individuals - "soldiers of labor". This principle was explicitly formulated by Marx (1965) and was presented as a prominent mechanism for the reward (and exploitation) of hired labor by capitalists. The owners of the means of production do not pay for the labor itself but for the reproduction of the labor force. As capitalism refused to follow this principle, thus going against Marx's prophecies, communist regimes accomplished it tacitly but

[12] In the pre-war presentation of Family Expenditures data (which was the only income survey about households), indicators of income per household, per capita and per equivalent unit were used.

vehemently. Not households but individuals were on the agenda (following the original attempt to remove the family as an institution) and also entire ideas important to health and social protection were derived from their position as workers.

Conversely, we understand the "market principle" as an assertion of links between the work accomplishment of a person and its incomes. Disparities in earned incomes use to be wide enough to prevail over a family's participation in the labor market. During the transition, income hierarchy was reorganized following rising disparities, because also households with one active earner have chance to prosper. The "disengagement" of family income from household composition and its closer association to a person's earnings certainly supports a modern social stratification order which is not based on life-cycle and demographic variables (indicating the needs of households) but on socio-economic status and corresponding variables (indicating a household's economic achievement).

The use of income per capita was also endorsed by a specific structure of consumption under the communist regime. This was dominated by the "need principle" in the sense that the share of individually "divisible items" like food and clothing was higher and the share of common costs of households like housing and furnishings was lower than in Western societies. Moreover, the family budget was petrified given state manipulation with consumer prices (through turn-over tax) and the extremely low and frozen rents in state apartments - housing was cheap (and correspondingly bad) and thus did not burden the family budget very much (about 6-7 percent of net expenditures). Regarding durable goods, their purchase was mostly limited to the first phase of family life and largely supported by the parents of a young couple.

In our understanding, the indicative capacity (or explanatory power) of income measures is not an academic task. It depends on the way family income is collected and utilized in reality, which differs across countries. The elasticity coefficient in Buhman's et al. formula displays a diversity of indicators between the extremes of zero and full economies of scale (not differentiating, however, between children, active earners and pensioners who might also be treated differently in various regimes). Figuratively speaking, from the point of view of income packaging, Czech society is on the road from a "per capita income society" to a "household income society". This is what is to be tested by using microdata from three Czech income surveys.

3. Market adjustment in range and structure

Leaving aside any exaggerated optimism or pessimism, the Czech Republic undertook in 1990-1996 several important steps towards a market economy (Vecernik, 1996). In the income sphere, economic reform allowed for the increase of the formerly frozen differences in earnings through new private business, foreign firms and less strict (if any) wage regulation. In social security, privileges of the ruling class were abolished and valorization rules (non-existent before) were introduced. It also allowed for other sources like income from property and financial speculation and led to the expansion of income from the informal economy. We should be aware of the fact that we never manage to inspect all incomes in surveys or the full range of inequality.

On the road to a market society, inequality of household income has been rising, as Table 2 shows. This rise is slower in per household income and faster in per capita income. Whereas the correlation between income per household and the number of active earners as well as between per capita income and dependent children is weakening, the correlation between the two indicators of income is strengthening. This indicates that disparities in market income are becoming wide enough to prevail over a family's participation in the labor market: even households with a lesser number of active earners have the chance to prosper.[13] The other factor is that less women were employed in 1996 than in 1988 and, consequently, the household income is in more families directly derived from the sole breadwinner.[14]

Disparity between shifts in distribution of income per household and per capita is thus explained by the changing composition of households. While the average size of households in the period 1988-1996 remained the same (2.66 members) and the number of dependent children decreased slightly (from 0.76 to 0.69), the number of economically active members decreased considerably (from 1.48 to 1.24). Two opposite effects have contributed to this: pushing working pensioners to leave the labor force (exerted by heavy taxing of earnings taken in parallel with pension benefit) and pulling those women, who are supported by their better procured husbands to stay at home and/or support them in their business. Both effects have pushed the system toward a one-earning model in which inter-correlations of various income indicators are stronger.

[13] According to the same source, coefficient Gini of wages of all economically active workers rose from 0.19 in 1988 to 0.24 in 1996.

[14] The share of households in their prime age with only one sole active earner has increased from 29.7 to 36.7 percent and the average of economically active members in those households has decreased from 1.86 to 1.82 between 1988 and 1996.

Table 3 shows income distribution by decile shares. According to income per household, the bottom share increased slightly and the top share rose considerably. According to income per capita, the top share rose as well, but the rest changed differently in the two periods. Between 1988 and 1992, the relative position of the lower half of the income distribution was largely kept while the upper half rather dropped. This was the pre-privatization period of the social-liberal government which maintained universal social benefits and kept wages under control. Between 1992 and 1996, relative stability or increase was rather registered in the upper half while the lower half has lost. This was the privatization period of the self-declared liberal government which has replaced universal benefits by targeted ones, removed wage regulation, frozen minimum wage and finally allowed for a fast rise of earnings not endorsed by a growth in the productivity of labor. In both periods, the middle of the income distribution was squeezed.

In terms of the real income of income per household, while the lowest and highest income categories have increased their standards, middle incomes lost 10-20 percent of their purchasing power. However, the real rise at the bottom decile share is rather spurious because there was considerable demographic mobility within it, as we show below. In terms of income per capita, only the top decile share gained and the bottom decile share lost the most. Results given by the two income indicators are disproportionate, which informs us about uneven change in various categories of the population and the reconstruction of income hierarchy in demographic and sociological terms.

Table 4 shows the size of households in individual decile shares and the corresponding distribution of pensioners and children. The most apparent change was the replacement of pensioners by children in the lower part of the income distribution. While in 1988, the first decile share of total disposable income was exclusively occupied by pensioners and the second decile share by two thirds of them, until 1996 both of those decile shares were invaded in great numbers by children. In another words, the lowest income ceased to be represented solely by transfer income (pensioners = non-working poor = old poverty) and is newly represented by low market income (families with children = working poor = new poverty).

Instead of the other cross-sections (by education, type of occupation and size of locality), we use a multivariate analysis. The main purpose is to compare two sets of income predictors: 1. demographic or life-cycle variables (age, the size and composition of households) and 2. economic or labor market variables (education and type of occupation). The methodological

difficulty in displaying the shift in proportions of both sets of variables symmetrically is caused by the fact that while the "demography" of a family is relatively easily indicated and represented in all income surveys, specification of "labor market capacities" is only scarcely available and not comparable across surveys.[15]

In Table 5, we present the analysis of the variance of income for households in which its head is his prime age (25-54). The reason of sample reduction is to display relations of "demographic" and "economic" factors in households which participate fully in the labor market. We observe a considerable weakening of the life-cycle profile of household income in favor of its occupation profile. According to income per household, the specific importance of the age of the household's head is close to zero and the weight of the number of children tends to disappear, especially following the diminishing relation of family allowances to their earnings. According to income per capita, the specific weight of the number of children more than halved. In other words, while in 1988 the sole number of children has explained 46 percent of the variance of income per capita in households in their prime age, this percentage represented only 27 percent in 1996 (the decrease was less impressive for all households which was 25 and 20 percent respectively).

From the other side, the importance of labor market characteristics of individuals (household heads) has increased. The manual/non-manual distinction, not distinguishable in the communist period, re-appeared in both income indicators. In the packaging of income per capita, education has tripled in importance. All of those changes indicate that there was considerable social mobility in income hierarchy, concretely that non-manual and educated workers went up while manual and less skilled people went down. There were also other important changes according to branch and sector of ownership but unfortunately available data do not allow us to make a comparison over time.

4. Less redistribution behind the scene

Communist society was endlessly redistributive. As almost total gross national product ran through the state budget, all yields and losses were put into one pot and nobody ever learned how much was taken or given to him or to anybody else and for what. Although part of the standard

[15] In 1988, strictly broad social categories (working class, other employees and cooperative peasants) were used. In 1992, the distinction employee/self-employed was added but it still had only minor influence at the time. The 1996 survey was the first to incorporate branch of activity and occupation in a more detailed classification (two-digits ISCO code).

economic vocabulary was still nominally kept, such words as price, wage, tax and insurance had lost their basic meanings. People were not rewarded according to their work but from the centrally planned wage bill. They paid some taxes and received several benefits but no balance between the two was ever considered nor calculated, except on an aggregate level.[16]

After 1989, income distribution was made more transparent in several steps. The first step was the abolition of price subsidies (provided through negative turn-over tax) in the mid-1990s. The second step was unification of different kinds of income tax into one, paid by all self-employed persons since 1991. However, the most important steps were effectuated by 1993 when the (almost flat at the time) wage tax was replaced by a new universal income tax, the turn-over tax was replaced by the value added tax, and new settings of employee and employers pension and health contributions was introduced. The system of social benefits was redesigned and substantial targeting was introduced by 1996. Thus, distribution of market income was visibly separated from its redistribution through taxes, contributions and benefits.

In social transfers, minimum income and means-testing started to play a special role. In 1991, the official living minimum was established and its level has served since 1993 as a bench-mark for the income testing of various social benefits within the state support scheme, especially family allowances. Regular valorization of the living minimum guarantees its increase in line with inflation. The mode of its calculation is in favor of persons (amounts appointed for individual household members) which disregards common expenditures of a household (lump-sum amounts for families according to their size), thus still obeying the communist "needs" principle. With the increasing share of common costs (especially housing) in family expenditures, small families are increasingly disadvantaged.[17]

The general level of redistribution in a country is usually displayed as the proportion of taxes and contributions in the GDP (so-called tax quota). In Figure 2, we notice a break in the statistical method, when the former Soviet "Balance of Incomes and Expenditures of the Population" was replaced by the standard National Accounts by 1993. The new system started on a rather high level of redistribution, nevertheless both tax and contribution rates have decreased slowly but regularly since then. Currently, the Czech tax quota is localized between the liberal Anglo-saxon

[16] Eg. the wage tax established by the communist regime and remaining valid until the end of 1992 also included social security payments and the state support of families with children. It differed according to gender, age, marital status and the number of dependent children.

and social Scandinavian countries, close to Germany, Austria (which redistribute somewhat less), the Netherlands and France (which redistribute somewhat more).[18]

Unlike the macroeconomic calculation, we are hardly able to examine redistributional flows on a microlevel in their entirety. This is caused by a variety of subjects (households and firms) and channels (through incomes and consumption). Here, we limit our observation to direct taxes paid by households (together with contributions for health and social insurance) and state benefits they receive. Moreover, for sake of comparability over time, we have to limit the analysis only to the non-agricultural employee population. There are two reasons for this: 1. cooperative peasants were not taxed under the communist regime and 2. the method of surveying taxes in household of self-employed and dependent workers differs in post-1989 income surveys.[19]

The calculation of taxes and benefits according to decile shares of income on the comparative sub-sample reveal important changes over time. As Table 6 shows, while the amount of income tax and social contributions increased, social benefits decreased in this section of the population, in each case by about 5 percent. If we take the population as a whole, the rise in the financial burden of households is less striking but still apparent (see Table 9). This contradicts the assumption about the tax neutrality of the new system (Coulter et al., 1993). Diminishing "social wage" provided in kind by state enterprises and/or trade unions (creches and maternity schools, recreation, cantines) makes the transformation of the system even less advantageous for families with children.

Together with the growing financial burden, both taxes and social benefits are distributed more steeply among households, following the reform design. During the communist regime, wage tax (whose amounts were last established in late 1950s) had completely lost its progressivness by the time and the overwhelming majority of workers advanced to its highest level (17 percent). The progressivness of the new system appears despite the fact that the majority of the active population is still hit only by the first range of the income tax (15 percent) and only very few by

[17] Concretely speaking, the elasticity coefficient of the official living minimum with size of household is 0.85, in comparison with the average elasticity 0.7 in Western countries, as reported by Buhman et al., 1988.
[18] According to the OECD Revenue Statistics, the composite (taxes plus contributions) tax quota in 1996 was 40.3 in the Czech Republic, 35.9 in the United Kingdom, 38.2 in Germany, 44.1 in Austria, 43.9 in the Netherlands, 45.7 in France and 51.9 in Sweden.
[19] While the tax of dependent workers is calculated by the Czech Statistical Office according to characteristics of households (no additional deductions included), the tax of the self-employed is self-reported.

the second (20 percent).[20] Regarding social benefits, their targeting was the main purpose which framed the new system of state social support introduced by 1996.

Table 7 presents an analysis of the variance of taxes and social benefits. Whereas the relationship to the number of children of both channels of redistribution radically weakened, relationship to the number of active earners considerably strengthened. While the effect of household income on the tax level was zero in 1988, it became the second single factor in 1996. Also the changing weight of the "labor market" variables (the distinction of manual/non-manual workers and education) documents that socio-economic stratification, previously almost completely absent in channels of redistribution, comes slowly to the fore.

Regarding the distribution of tax, the previously strong effect of children was not replaced by other factors and the total variance explained is lower in 1996 than in 1988. However, regarding the distribution of social benefits and largely also the resulting effect of redistribution, the number of active earners dominate and the variance explained by all variables in 1996 is as high as in 1988. The effect of the number of children was simply replaced by the effect of the number of active earners to which a small effect of labor market variables was added.

The registered shift documents the change of the system. Generally speaking, Czech society moves from redistribution based on family life-cycle to redistribution based on family labor market participation - its extent (the number of active earners) as well as intensity (relative earnings). The communist system of redistribution was mostly shaped following the logic of basic needs and reproduction, indicated clearly by the number of children. The new system appears to be determined differently, addressing the economic (labor market) capacity of a household. However, the effects of the life-cycle surface if we consider the entire population including pensioners: redistribution by age cohorts is even more striking in 1996 than in 1988. This is given by a growing gap between the average earnings and pension benefits developed since 1992.

5. Moving closer to the West

The changing income structure represents a part of the general modernization trend returning the Czech Republic into the family of "standard" capitalist countries. This is a long process which has asserted itself in various fields of the economic and social life with strength. Income distribution

[20] There is no formal zero tax rate in the Czech tax system but incomes up to 84 thousand Czech crowns (what corresponds about the second decile of per household income distribution) were exempted from income tax in

was in this process not the first (no special attention was directed to it in the reform design), nor the last (opening markets and most of reform measures hit household incomes in some way). There is no meter for measuring the distance from the "rule" and t after all here is no rule of an "optimal" income structure. However, comparison with core Western countries may give us a basic idea about the particularity of the Czech system, to a great extent inherited from the communist regime.

Cross-national comparisons we make here are indebted to the *Luxembourg Income Study* (LIS) for two reasons: 1. due to analyses and studies which were already done using its database by prominent scholars closely related to it; 2. due to the direct accessibility of the LIS database, enabling us to produce additional analyses. Although most of LIS datasets are less recent than the last we have for the Czech Republic, we still can compare national data under the legitimate assumption that income distribution and structure changes much less rapidly in stabilized Western systems than in transitional countries.

We will compare the Czech Republic (which joined the OECD in 1995) with the other OECD countries in three directions: distribution of household income, structure of income determination and redistribution through taxes and benefits. In all three comparisons, we use especially the LIS "OECD study" (Atkinson, Rainwater and Smeeding, 1995) which is complemented by some of our analyses made directly on the LIS database. For comparison, we select only the most important OECD countries representing the liberal (USA, UK), social-market (Austria, Germany), welfare (Belgium, the Netherlands) or socialist (Sweden) veins.

The first comparison should answer the question of whether the Czech lands as an extremely equalized country in the past is still much less unequal than Western countries. As Table 8 shows, changes occurring after 1989 certainly brought the Czech lands closer to the West. As we stated above, there was no equality in income per household - if measured by this indicator, income disparities were higher in the Czech Republic than in any West European country under observation. Between 1988 and 1996, also the range of income per capita became wider and, therefore, has reached the level common in "socially oriented" Western countries (Belgium and Sweden). Unlike those countries, Czech income distribution is localized a bit higher in relation to the income average - what corresponds to the lower purchasing power of income in absolute terms.

1996.

Here, we have to remember our previous observation that especially households located in the highest decile share profited from the transformation. Indeed, the relative position of the ninth decile increased much less than the average income of the tenth decile share. Concretely speaking, whereas the position of the ninth decile (P90) of per capita income in the Czech Republic in 1996 is on about the level of Sweden or Belgium, the position of the top vintile (P95) is closer to higher Dutch or German levels. It seems that however close income inequality in the Czech Republic currently is to social-democratic Sweden, it rather moves away from its own socialist past and moves closer to countries like Germany or the Netherlands.

The second comparison concern the structure of income determination. As correlations of per household with per capita income in the last column of Table 8 illustrate, the "communist" gap between the two income distributions seems already to be over. Their increasing interrelationship indicates a weakening of demographic factors and a strengthening of "labor market" characteristics of households. It means that the income per household indicates now better the resulting level of living of a family, be it measured by income per capita or per equivalent unit. Surprisingly enough, the "Western pattern" of the per household/per capita income affinity is not shared by all OECD countries - exceptions are the Netherlands and Sweden.

To gain a closer look into the workshop in which inequalities are forged, we compare some elementary factors of household income. Table 9 shows that in international comparison, the percentage of variance explained by demographic variables was so extreme in the pre-1989 Czech Republic that only Sweden could compete with it in this sense. This percentage has decreased to a level much closer to Western countries localized somewhere in between social-market (like Germany) and liberal (like UK) countries. This concerns both income distributions - income per household (and the weight of the number of active earners) and income per capita (and the weight of the number of dependent children).

The third comparison concerns the level and degree of redistribution through taxes and social transfers. As Table 10 shows, the position of the Czech Republic seems to be rather unique in both distributions. It is much more redistributive in taxes and considerably more redistributive in social benefits that any other OECD country under observation. Here, we have to be aware of the fact that a steep distribution of taxes is largely given by the absent taxation of pension benefits.

The Czech Republic strictly belongs to the liberal model in both tax and transfer distribution. The economic and social reforms have even strengthened redistributional flows.[21]

We can conclude that Czech household income ceased to be particular regarding their inequality and structure of determination and distribution. However, regarding the equalizing effect of taxes and social benefits, it continues to be rather extreme. If the Czech Republic appears to be a very liberal country from many aspects, in this sense it is even more redistributive now than in its communist past.

6. Conclusion

After the break with totalitarian rule, household incomes are surveyed with growing difficulties. Despite this fact, two statistical household surveys of the renewed "capitalist" Czech Republic are already available, which can be compared with 1988 data, enabling us to detect changes in the range and structure of income. This comparison allows us to examine whether the country already escaped from the model of income distribution centered on the reproduction of individuals, in which incomes per household were extremely unequal and incomes per capita were extremely equalized. By the same token, we shall ask whether this country has already joined the family of "standard" Western countries in which no gap exists between incomes per household and per capita and where indicators of household labor market capacities are important beside their demographic characteristics.

In our observation, we found that the range of income inequality increased considerably between 1988 and 1996. The increment in inequality was much larger in per capita income than in total household income. Rise in inequality was mostly produced by the fast advance of the top decile share. Income hierarchy has been fixed at the bottom, opened up but compressed in the middle. Simultaneously, important shifts occurred in the composition of the income lowest. Whereas in 1988, pensioners occupied mostly the bottom decile share, they moved to the lower middle income ladders to a great deal, being partly replaced by children. Household income is currently much less determined by demographic variables than in the former regime. For the time being, those determinants were only partly replaced by labor market characteristics (where, however, we fail to find more and better indicators).

[21] As Gardiner (1997) documents, the redistributive effect of tax and transfer policy has increased in the past period in most Western countries too.

With regard to redistribution, the state takes more from and give less to households. In regard to both taxes and transfers, the number of children is not the prominent factor as it was in the communist regime. Instead, household labor market capacity indicated by the number of active earners and income has appeared. At the same time, flows of redistribution strengthened, be it in connection with tax reform (more progression) or social reform (more targeting). The equalizing intervention of the Czech state in favor of the poor and near-poor (and to the detriment of the middle classes) seems to be very high in comparison even with the most redistributive Western countries.[22]

[22] The fate of the so-called middle classes in the Czech transition, considered from the economic, social and political point of view, is analyzed in Vecernik, 1999.

7. References

Atkinson, A.B., L. Rainwater and T.M. Smeeding, *Income Distribution in OECD Countries. Evidence from the Luxembourg Income Study*, Paris, OECD 1995.

Buhmann, B., L. Rainwater, G. Schmaus, and T.M. Smeeding, Equivalence scales, well-being, inequality, and poverty: sensitivity estimates across the countries using the Luxembourg Income Study (LIS) database, *The Review of Income and Wealth*, 34 (2), 115-142, 1988.

Coulter, F., Ch. Heady, C. Lawson, S. Smith and G. Stark, Microsimulation Modelling of Personal Taxation and Social Security Benefits in the Czech Republic, Manuscript, 1993.

Elteto, O. , Disparities in the economic well-being of Hungarian society from the late 1970s to the 1980s. In: Gottchalk, Gustafsson and Palmer eds., 1997.

Gardiner, K., A survey of income inequality over the last twenty years - how does the UK compare? In: Gottchalk, Gustafsson and Palmer eds., 1997.

Gottchalk, P., B. Gustafsson and E. Palmer eds., *Changing Patterns in the Distribution of Economic Welfare. An International Perspective*. Cambridge University Press, Cambridge 1997.

Kordos, J. *Metody analizy i prognozirowania plac i dochodow ludnosci* (Methods of analysis and forecasting of incomes of the population). PAN, Warsaw 1972.

Rainwater, L. Family equivalence as a social construction. In: O. Ekert-Jaffe ed., *Standards of Living and Families: Observation and Analysis.* John Libby Eurotext, 1994.

Vecernik, J. Dynamika prijmove diferenciace v Ceskoslovensku (Dynamics of income disparities in Czechoslovakia), Sociologický časopis 12 (5), 472-485,1997.

Vecernik, J. Mzdova a prijmova diferenciace: analyza nekterych problemu (Wage and income disparity: analysis of some problems). Study No.1 of the Institute for Philosophy and Sociology, Academy of Sciences, Prague, 1986.

Vecernik, J., *Markets and People. The Czech Reform Experience in a Comparative Perspective.* Avebury, Aldershot 1996.

Vecernik, J., The middle classes in Czech reforms: the interplay between policies and social stratification, Manuscript, 1999.

Wiles, P. *Distribution of Income: East and West.* North Holland Publishing Company, Amsterdam, 1974.

8. Tables

Table 1

Characteristics of income surveys and comparison with National Accounts

Characteristic	1988	1992	1996
Targeted per cent of households	2	0.5	1
Survey sample (N of households)	69912	15677	27314
Non-response rate in per cent of households	4.2	15.7	23.8
Household income per capita according to income surveys:			
- in nominal terms (thousands CZK yearly)	22.3	33.7	63.5
- growth in real terms (1988=100)	100.0	78.1	93.4
Population income per capita according to National Accounts			
- in nominal terms (thousands CZK yearly)	25.9	42.0	83.5
- growth in real terms (1988=100)	100.0	84.2	103.7
Coverage of income surveys in comparison to National Accounts	86.1	80.2	76.0

Sources: Microcensus 1988, 1992 and 1996; National Accounts.
Income per capita is weighted by persons.

Table 2

Characteristics of distribution of household income

Indicator	Per household			Per capita		
	1988	1992	1996	1988	1992	1996
Coefficients and decile ratio:						
Variation	0.53	0.69	0.73	0.40	0.56	0.65
Gini	0.29	0.32	0.33	0.20	0.23	0.26
Decile ratio (D90/D10)	5.12	4.95	5.21	2.43	2.51	2.91
Correlations (Pearson coefficients):						
Size of household	0.59	0.55	0.52	-0.64	-0.51	-0.15
Number of active earners	0.73	0.59	0.61	0.04	0.10	0.18
Number of children	0.29	0.28	0.28	-0.75	-0.59	-0.21

Sources: Microcensus 1988, 1992 and 1996.
Income per capita is weighted by persons.
Correlations are computed on households as observation unit. All coefficients are significant on the level <0.001.

Table 3

Distribution of household income according to decile shares and real growth (per cent)

Decile	Per household (HH)			Per capita (PC)			Real growth in 1988-1996	
share	1988	1992	1996	1988	1992	1996	HH	PC
1	2.5	2.9	2.8	5.3	4.9	4.3	105.6	74.6
2	4.1	4.1	3.9	6.6	6.4	5.9	88.5	82.8
3	5.9	5.8	5.6	7.4	7.3	6.8	88.7	85.9
4	7.6	6.9	6.7	8.1	7.9	7.6	81.7	87.7
5	9.3	8.1	7.9	8.8	8.6	8.3	79.7	88.5
6	10.7	9.6	9.4	9.6	9.2	9.1	81.4	88.6
7	12.0	11.1	10.9	10.6	10.1	10.1	84.5	89.2
8	13.2	12.8	12.7	11.8	11.3	11.5	88.9	90.8
9	15.1	15.2	15.4	13.6	13.2	13.7	95.0	93.7
10	19.6	23.5	24.7	18.2	21.1	22.6	117.3	116.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	93.4	93.4

Sources: Microcensus 1988, 1992 and 1996.

Income per capita is weighted by persons.

Table 4

Average size and the composition of households according to decile shares

Decile shares	Average size			Distribution of children			Distribution of pensioners		
	1988	1992	1996	1988	1992	1996	1988	1992	1996
Per household:									
1	1.01	1.07	1.09	0.1	0.5	1.0	16.0	13.3	13.5
2	1.35	1.26	1.33	1.1	1.8	2.8	14.9	12.1	12.0
3	1.74	1.95	2.04	2.7	2.8	4.2	16.9	19.3	19.6
4	2.22	2.20	2.29	6.7	4.4	6.3	13.0	18.7	17.3
5	2.73	2.62	2.76	10.4	9.4	11.7	9.5	10.9	9.1
6	3.06	3.04	3.11	13.3	13.5	14.5	7.1	7.4	7.3
7	3.31	3.32	3.28	16.2	15.7	15.3	5.3	5.1	6.2
8	3.50	3.56	3.43	17.4	17.2	15.6	4.9	4.7	5.6
9	3.66	3.75	3.60	17.0	18.0	14.9	5.3	4.3	5.3
10	4.10	3.87	3.70	15.0	16.7	13.6	7.0	4.2	4.3
Total	2.67	2.66	2.66	100.0	100.0	100.0	100.0	100.0	100.0
Per capita:									
1	2.64	3.76	3.82	14.1	18.2	19.3	11.1	2.8	2.5
2	2.89	3.31	3.48	14.2	15.4	16.5	9.9	5.7	4.9
3	3.01	2.82	2.88	13.8	12.2	13.0	9.6	11.0	9.9
4	2.99	2.59	2.51	13.2	9.9	9.3	9.6	14.7	16.7
5	3.05	2.51	2.37	12.6	8.5	8.1	8.6	16.2	18.3
6	2.99	2.43	2.34	11.3	8.0	7.7	9.0	15.2	16.2
7	2.90	2.48	2.48	9.4	7.7	7.6	8.6	13.0	12.1
8	2.66	2.57	2.68	6.7	7.8	6.9	9.6	10.0	8.1
9	2.31	2.47	2.57	3.6	6.5	6.0	10.8	7.1	6.4
10	1.84	2.29	2.24	1.2	5.8	5.5	13.1	4.4	5.0
Total	2.67	2.66	2.66	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Microcensus 1988, 1992 and 1996.

Income per capita is weighted by persons.

Table 5

Analysis of variance of (ln) household income (per cent of total variance)

Factor	No of categories	Per household		Per capita	
		1988	1996	1988	1996
Main effects		62.82	43.73	59.26	48.22
N of active earners	3	24.21	27.86	3.84	3.92
N of children	5	5.42	2.40	31.84	19.43
Age of the head	7	1.89	0.23	3.03	0.22
Non-manual	2	0.16	0.70	0.00	1.43
Education	4	3.29	3.45	1.19	3.59
Locality	3	0.08	0.18	0.07	0.64
2-ways interactions		3.16	2.36	2.60	1.75
Explained		65.98	46.08	61.86	49.97

Sources: Microcensus 1988 and 1996.
Only households with head in prime age (25-54) included.
Income per capita is weighted by persons.
All coefficients are significant on the level <0.001.

Table 6

Relative taxes and social benefits according to decile shares (per cent)

Decile share	According to income per household				According to income per capita			
	Taxes		Social benefits		Taxes		Social benefits	
	1988	1996	1988	1996	1988	1996	1988	1996
1	16.1	16.6	17.0	17.9	10.3	11.9	30.1	30.5
2	14.1	16.0	23.4	22.0	11.9	14.8	24.0	22.0
3	13.6	16.3	24.2	21.8	13.0	16.4	20.4	17.6
4	14.4	17.2	21.2	18.3	13.7	17.4	18.0	15.5
5	14.9	18.0	18.5	15.4	14.1	18.3	16.6	14.1
6	15.2	18.2	16.6	13.6	14.8	18.8	15.3	13.8
7	15.3	19.7	15.6	11.2	15.4	19.8	14.4	11.7
8	15.7	20.2	14.7	9.9	16.0	20.4	14.2	10.1
9	16.0	21.4	13.8	7.8	17.2	21.6	14.1	7.8
10	16.1	24.1	12.4	4.8	17.4	24.6	15.4	4.4
Total	15.3	20.0	16.7	11.9	15.3	20.0	16.7	11.9

Sources: Microcensus 1988 and 1996.
Only households of non-farm employees included.
Income per capita is weighted by persons.
Relative tax is computed as percentage of income tax and social contributions in gross household income. Relative social benefits are computed as percentage of social benefits in net household income.

Table 7

Analysis of variance of relative taxes and social benefits (per cent of total variance)

Factor	N of ca tegories	Taxes		Social benefits		Summary effect	
		1988	1996	1988	1996	1988	1996
Main effects		41.96	41.61	29.05	28.54	35.66	33.69
N of active earners	3	3.33	4.68	6.25	13.44	5.80	10.86
N of children	5	28.68	9.80	13.97	4.27	19.60	6.38
Age of the head	7	0.76	0.11	0.80	0.20	0.87	0.18
Non-manual	2	0.02	0.27	0.23	0.30	0.16	0.32
Education	4	0.97	2.36	0.10	1.00	0.31	1.47
Locality	3	0.36	1.18	0.25	1.46	0.33	1.51
Household income		0.01	6.18	0.13	0.02	0.08	0.87
2 ways interactions		4.51	2.53	2.87	3.06	3.34	2.99
Explained		53.53	44.13	31.92	31.61	39.00	36.68

Sources: Microcensus 1988 and 1996.

Only households of non-farm employees with head in prime age (25-54) included.

Relative tax and social benefits are calculated the same way as in Table 6.

Summary effect is computed as benefits - taxes in percent of net household income.

All coefficients are significant on the level <0.001.

Table 8

Characteristics of distribution of household income in OECD countries

Country	Year	Per cent of median income					P90/P10	Correlation DPI/PC*
		P10	P25	P75	P90	P95		
Per household:								
Belgium	1988	47.9	70.3	133.7	172.2	200.8	3.59	0.56
France	1984	45.9	68.8	139.4	193.7	238.6	4.22	0.61
Germany	1984	45.8	68.8	134.1	178.6	213.8	3.90	0.62
Nether.	1987	50.8	72.9	134.4	181.7	216.9	3.58	0.48
Sweden	1987	39.0	61.8	136.7	164.5	183.7	4.22	0.60
UK	1986	41.2	62.9	146.7	204.7	240.2	4.97	0.65
USA	1986	31.8	58.0	149.2	210.1	252.1	6.61	0.64
Czech R.	1988	31.8	58.6	132.6	162.7	182.9	5.12	0.45
	1996	38.7	65.6	147.4	201.6	246.2	5.21	0.67
Per capita:								
Belgium	1988	56.9	73.8	134.2	174.1	201.6	3.06	0.61
France	1984	47.5	68.2	144.9	206.1	253.9	4.33	0.64
Germany	1984	54.3	73.3	141.9	193.2	230.9	3.56	0.70
Netherl.	1987	55.8	72.5	140.6	192.8	228.3	3.50	0.68
Sweden	1987	58.2	77.1	136.6	171.7	194.2	2.95	0.45
UK	1986	45.6	68.5	144.7	203.9	247.9	4.47	0.68
USA	1986	33.2	60.7	157.3	232.0	288.4	6.99	0.70
Czech R.	1988	66.8	81.1	128.7	162.5	185.5	2.43	0.37
	1996	60.9	78.6	131.2	177.1	220.3	2.91	0.68

Sources: Atkinson, Rainwater and Smeeding, 1995; LIS database; Microcensus 1988 and 1996.
*) Pearson correlation coefficients between total disposable and per capita income. In the lower part weighted by persons.

Table 9

Analysis of variance of (ln) household income in OECD countries (per cent of total variance)

Factor	Germany	Nether-lands	Sweden	UK	USA	Czech Republic 1988	Czech Republic 1996
Per household:							
Main effects	36.04	16.57	52.04	24.33	25.98	59.33	57.39
N of active earners	22.95	11.31	25.59	22.33	18.16	37.11	4.70
N of children	2.52	0.67	1.48	0.30*	0.22	7.79	32.72
Age of the head	3.96	2.47	1.59	0.61	2.24	1.62	3.20
2-way interactions	4.88	**	**	2.65	1.23	2.58	1.54
Explained	40.93	16.57	52.04	26.97	27.20	61.91	58.93
Per capita:							
Main effects	38.37	33.77	50.06	36.80	31.62	33.37	33.38
N of active earners	3.17	1.43	2.72	4.91	3.52	28.56	4.09
N of children	30.12	25.69	40.29	24.98	24.87	2.85	18.72
Age of the head	1.28	0.63	1.24	1.01	1.68	0.34	0.52
2-way interactions	4.19	**	**	4.38	1.86	1.94	1.91
Explained	42.56	33.77	50.06	41.18	33.48	35.31	35.29

Sources: LIS database; Microcensus 1988 and 1996.

Only households of non-farm employees with head in prime age (25-54) included.

All coefficients (except those marked *) are significant on the level <0.01.

****** Due to empty cells or a singular matrix, higher order interactions are not available.

Table 10 (corrected)

Distribution of taxes and transfers in OECD countries

according to quintile shares (per cent)

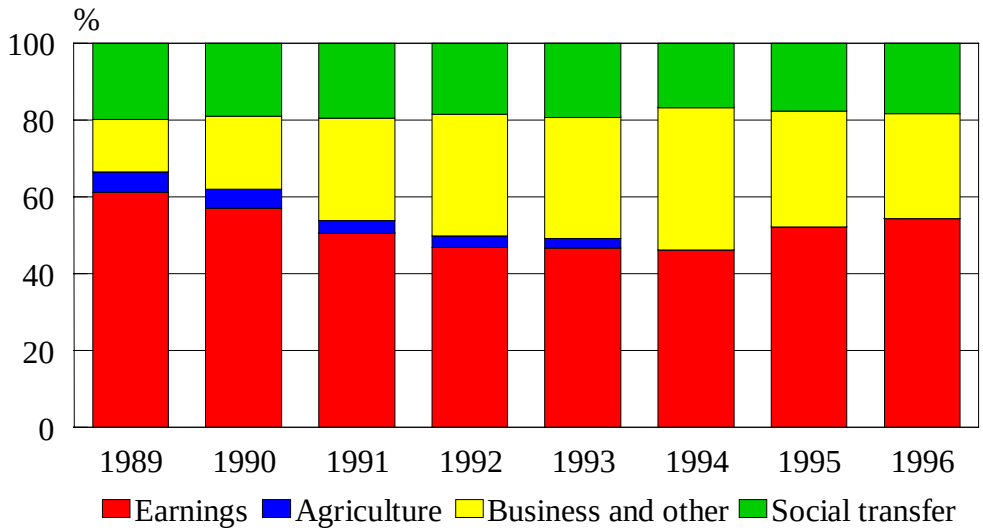
Quintile share	Germany	Nether-lands	Sweden	UK	USA	Czech Republic 1988	Czech Republic 1996
Taxes:							
1	5.5	10.3	6.3	4.5	3.8	1.7	1.8
2	10.4	10.0	12.5	8.1	6.9	11.1	5.4
3	17.0	16.2	17.7	15.9	13.9	20.2	14.1
4	23.4	22.3	23.3	25.0	22.6	27.3	25.1
5	43.7	41.2	40.1	46.4	52.7	39.7	53.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average	24.4	36.4	32.5	21.4	21.2	14.8	20.2
Transfers:							
1	21.8	24.9	15.2	26.7	29.2	27.5	27.5
2	22.2	21.3	25.8	25.9	21.2	23.4	30.6
3	16.7	16.9	21.7	19.4	17.1	17.1	20.4
4	21.0	17.7	19.9	16.1	17.5	15.8	12.7
5	18.3	19.2	17.4	11.9	15.1	16.2	8.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average	24.1	43.4	42.7	30.1	14.5	26.2	24.9

Sources: Atkinson, Rainwater and Smeeding, 1995; LIS database; Microcensus 1988 and 1996.

Household income is adjusted to equivalent unit which is computed as root square of the size of household.

Figure 1

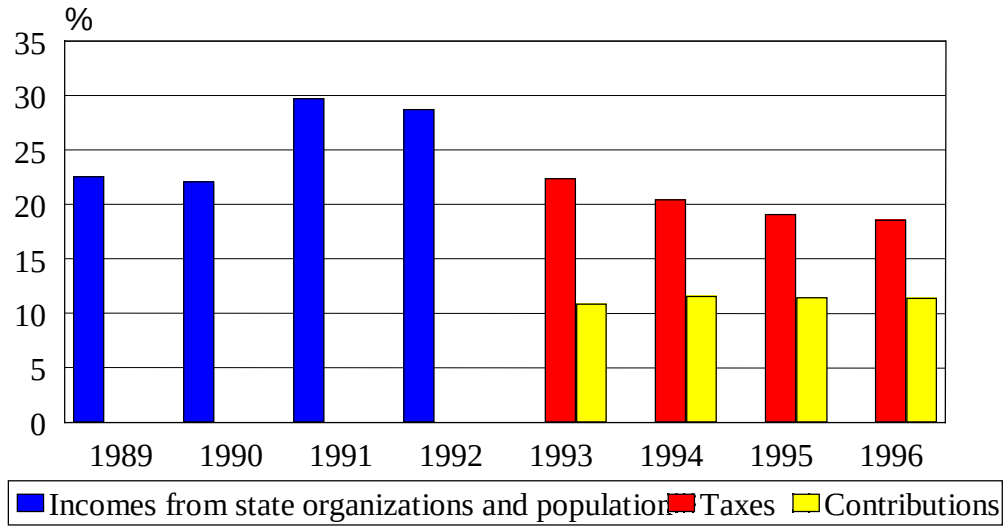
Incomes of the population according to their source (per cent)



Source: Statistical Yearbooks and Czech National Bank.

Figure 2

Direct taxes and contributions in GDP (per cent)



Source: Statistical Yearbooks.