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Effect of changes in tax/benefit policies in Austria 1998 - 2005

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WORKING PAPER SERIES



EUROMOD Working Paper No. EM3/07

**EFFECT OF CHANGES IN TAX/BENEFIT
POLICIES IN AUSTRIA 1998 – 2005**

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May 2007

EFFECT OF CHANGES IN TAX/BENEFIT POLICIES IN AUSTRIA 1998 – 2005*

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* This paper uses EUROMOD version C7. EUROMOD is continually being improved and updated and the results presented here represent the best available at the time of writing. Any remaining errors, results produced, interpretations or views presented are the authors' responsibility. EUROMOD relies on micro-data from twelve different sources for fifteen countries. This paper uses data from the Austrian version of the European Community Household Panel (ECHP) made available by the Interdisciplinary Centre for Comparative Research in the Social Sciences and the Austrian version of the EU-SILC made available by Statistik Austria as well as for an international comparison the ECHP User Data Base made available by Eurostat; the Panel Survey on Belgian Households (PSBH) made available by the University of Liège and the University of Antwerp; the Income Distribution Survey made available by Statistics Finland; the Enquête sur les Budgets Familiaux (EBF) made available by INSEE; the public use version of the German Socio Economic Panel Study (GSOEP) made available by the German Institute for Economic Research (DIW), Berlin; the Living in Ireland Survey made available by the Economic and Social Research Institute; the Survey of Household Income and Wealth (SHIW95) made available by the Bank of Italy; the Socio-Economic Panel for Luxembourg (PSELL-2) made available by CEPS/INSTEAD; the Socio-Economic Panel Survey (SEP) made available by Statistics Netherlands through the mediation of the Netherlands Organisation for Scientific Research - Scientific Statistical Agency; the Income Distribution Survey made available by Statistics Sweden; and the Family Expenditure Survey (FES), made available by the UK Office for National Statistics (ONS) through the Data Archive. Material from the FES is Crown Copyright and is used by permission. Neither the ONS nor the Data Archive bears any responsibility for the analysis or interpretation of the data reported here. An equivalent disclaimer applies for all other data sources and their respective providers.

EFFECTS OF CHANGES IN TAX/BENEFIT POLICIES IN AUSTRIA 1998 – 2005

Michael Fuchs and Christine Lietz¹

Abstract

The aim of this paper is to evaluate whether policy reforms in Austria between 1998 and 2005 were successful in meeting redistributive objectives and in reducing poverty. For the analysis we use the tax/benefit micro-simulation model EUROMOD. Due to the sequence of reforms and the use of two datasets, the period under review is split into two parts: 1998 to 2003 and 2003 to 2005. Important changes in the first period were the tax reform 2000, the introduction of the universal childcare benefit (“Kinderbetreuungsgeld”) as well as increases in family-targeted benefits and tax reliefs. We find that the policy reforms were in general clearly progressive and family-friendly. However, as with elderly people, the situation did not improve for all population groups at risk of poverty. In the period from 2003 to 2005 the tax reform 2004/05 was introduced and contributions to health insurance were raised. We find that the measures had no significant impact on poverty and income distribution; however, in total they increased the disposable income for almost all population groups. The analysis is completed by the assessment of the redistributive impact of two hypothetical policy changes in favour of lower income groups, namely the continuous introduction of employees’ social security contributions above the lower threshold for contributions (“Geringfügigkeitsgrenze”) and the yearly indexation of family benefits.

JEL Classification: C8; D31; I3

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1 Introduction

The Austrian welfare system does not primarily focus on persons at risk of poverty. As the Austrian National Action Plan for Social Inclusion states, particularly “family policy is based on the principle of horizontal compensation, with state benefits being redistributed away from persons without dependent children to those who have childcare obligations” (Republic of Austria 2001, 18). However, the same source points out that “in Austria there is a general consensus that combating poverty and social exclusion are central matters of political concern for society” (Republic of Austria 2003, 3). Thus, it can be argued that in Austria poverty is combated in a “preventive” way by including the whole population – and not only the socially disadvantaged – in the system of the welfare state. In fact, the redistributive impact of taxes and benefits from high to low income classes reaches a considerable amount.

The aim of this paper is to evaluate whether tax/benefit policy reforms between 1998 and 2005 were successful in reducing poverty and in meeting redistributive objectives (concerning the reduction of inequality of disposable income with respect to differences in primary income and family composition). In addition we investigate the effect of two hypothetical policy changes in favour of low-income groups, which were designed following recent political discussions but also on the basis of the results of the first part of our analysis. Questions addressed are:

- Who benefited and who lost from changes in taxes and benefits?
- In particular, did particularly vulnerable groups such as children, or the elderly gain from these reforms?
- What have been the effects on people living in different household types (e.g. households with and without children, single parents, etc.)?
- What were the consequences of the policy changes in terms of social security contributions, income taxes and cash benefits paid/received by each income quintile?
- How did the redistributive impact of these instruments change over time?

To investigate these questions we use the tax/benefit micro-simulation model EUROMOD. A tax/benefit model is based on representative household micro-data and designed to analyse the effects of changes to components of disposable household incomes, particularly social security contributions, personal taxes and cash benefits. Austria is one of the few countries that hardly uses tax/benefit micro-simulation for national policy analysis and debate. Usually tax/benefit changes are evaluated by using administrative data, which refer only to individuals, or by analysing the effects on “typical” model families. However,

the household context is crucial when analysing distributional effects, and measuring the effects on model families is a limited approach as they represent only a certain part of the whole population. In contrast, tax/benefit micro-simulation models are able to analyse the effects of policy changes and of their interactions with already existing policies on all population groups both on the individual and on the household level.

The period under review is analysed in two parts: first we evaluate tax/benefit reforms from 1998 to 2003 and thereafter tax/benefit reforms from 2003 to 2005. The main reason for doing so is the sequence of the main reforms (increase of family benefits from 1999 to 2003; tax reform 2004/05 and increase of social insurance contributions 2004 and 2005) that can be fully represented in this way. Furthermore we use two datasets for the analysis: the 5th wave of the ECHP (European Community Household Panel, PDB-version) with income data for 1998 and the EU-SILC 2004 (Community Statistics on Income and Living Conditions) with income data for 2003.² The special approach we apply allows measuring the “pure policy effect” of the reforms by using the ECHP for the period from 1998 to 2003 and the SILC for the period from 2003 to 2005 as well as for the simulation of hypothetical policy changes. This approach is described in more detail in Chapter 2.2.

The paper is organised as follows: Chapter 2 describes methodological issues like the capabilities of EUROMOD and tax/benefit micro-simulation models in general and explains the approach and definitions we apply throughout this study. Chapter 3 provides a short overview of Austria’s position in Europe concerning the structure of taxes and benefits and the situation concerning social inclusion and income distribution. Chapter 4 describes the policy reforms from 1998 to 2003 and evaluates their impact on poverty and income distribution. Chapter 5 analogously analyses policy reforms from 2003 to 2005. Chapter 6 assesses the effect of hypothetical policy reforms in favour of lower income groups. Finally, Chapter 7 summarises and concludes our findings.

² The ECHP (European Community Household Panel) was conducted in Austria from 1995 to 2001. In 2003 it was replaced by the EU-SILC (Survey on Income and Living Conditions) as basis for statistics on income and the social situation of private households in Europe. The ECHP-data is provided by the Interdisciplinary Centre for Comparative Research in the Social Sciences (IFS/ICCR), Vienna (see Interdisziplinäres Forschungszentrum Sozialwissenschaften 2001). The sample comprises of 7,386 individuals in 2,677 households. For calculating gross values from the net income data, specific approaches for different income components were followed. The SILC data is provided by Statistik Austria (see Statistik Austria 2006a and http://www.statistik.at/fachbereich_03/eusilc_txt.shtml). The sample comprises of 11,524 individuals in 4,521 households (children born in 2004 were excluded). Both datasets contain comprehensive information on socio-demographic characteristics, labour market characteristics and income- and living conditions of Austrian households.

2 Methodological issues

2.1 Tax/benefit micro-simulation and EUROMOD

The tax/benefit micro-simulation model EUROMOD is a flexible tool, which enables research on the effects of policy reforms that have an impact on incomes, poverty, inequality and social inclusion.² Particularly important for our purposes is that it allows the analysis of policy changes on a very high level of detail and coherence. With EUROMOD it is possible to analyse single components of the tax/benefit system in breakdowns, which are hardly available from other sources (i.e. benefits broken down by income, age, gender and household type).

Micro-simulation models are based on household micro-data from representative sources. Disposable income is calculated for each household in the dataset by using elements of income taken from the survey data (e.g. original income from employment) combined with components that are simulated by the model (taxes and benefits). The calculations are performed once for a basic scenario – in our case the tax/benefit system as it was in place in 1998 respectively 2003 – and again for one or more policy change(s). These policy changes can be in the form of possible reforms policy-makers or researchers might be interested in as well as in the form of real changes from one year to another – in our case the tax/benefit changes between 1998 and 2003 respectively 2003 and 2005.

The basic output from EUROMOD is the micro-level change in household disposable income as a result of changes in taxes and/or benefits. This provides a basis for the calculation of

- impacts on measures of poverty and inequality
- differential effects on groups of socio-economic interest, classified by individual or household characteristics
- estimates of aggregate effects on state revenue and expenditure

The areas of policies covered by EUROMOD include social security contributions (both of employees and employers³), income tax⁴ as well as cash benefits. Not covered are for example indirect taxes (e.g.

² For a detailed description of EUROMOD see Sutherland 2001; for a discussion of the applicability of indicators of social inclusion in EUROMOD see Atkinson 2002.

³ As social security contributions by employers do not affect disposable income, they are not included in this paper.

⁴ EUROMOD covers also some form of property taxes, for Austria withholding tax on investment income (“Kapitalertragssteuer”). However, this kind of taxes is usually heavily underestimated in tax/benefit models since capital and interest income are underreported in the underlying income surveys.

value added tax) and benefits in kind (e.g. free access to health and education services). Furthermore, the underlying micro-data usually not include information on social insurance contribution histories. Thus it is not possible to fully simulate social benefits that are contributory (pensions⁵, unemployment benefits, sickness benefit, maternity benefit, etc.); therefore they are taken directly from the data. On the other hand, simulated benefits are fully simulated, meaning that a possible non-take-up of eligible persons is not taken into account (this is especially the case for social assistance). Thus measures of poverty and inequality in the income contribution indicate usually lower values than in the underlying original datasets.

2.2 Measuring the “pure” impact of policy changes

A common approach for analysing the effect of reforms of the tax/benefit system is using income data for successive years. However, a change observed by this method reflects not only the impact of policy reforms but also the impact of other influences such as changes in the level of economic activity, changes in demographic composition or changes in the distribution of sources of primary income.⁶ It is difficult or impossible to decompose the observed change into the parts that are due to each influence, not least because they are not independent of each other. Static micro-simulation models, such as EUROMOD, however allow an approach that holds most influences constant and enables us to focus on the “pure” effect of reforms of the tax/benefit system (day-after effect). In other words we ask what would have happened if nothing but policy rules had changed. This is achieved by comparing outcomes of applying 1998 tax/benefit rules and 2003 tax/benefit rules on the same micro-data (for 1998) to analyse the policy reforms from 1998 to 2003. By doing so we measure the “first-order” or “over-night” effects of moving from the 1998 to the 2003 tax/benefit system, abstracting from effects of demographic, macro-economic and behavioural changes (cf. Sutherland 2002). The same approach is used to analyse the policy reforms from 2003 to 2005, using micro-data for 2003. Appendix 2 illustrates the advantage of this approach compared to an analysis of policy changes in the time period 1998 to 2003 based on micro-data for 1998 and 2003.

2.3 Concepts and definitions

Throughout this study we use equivalised incomes, taxes and benefits. That means that we sum up, for example, disposable income of all household members and then assign a proportion of this sum to each

⁵ In our case, only the pension top-up is simulated.

⁶ See Immervoll et al. 2006 for an assessment of these influences.

household member. The proportion is computed by dividing the household sum by a factor that accounts for economies of scale, i.e. the fact that larger households are better off than smaller by sharing certain resources (e.g. heating).⁷ As an exception to this rule, in Figure 1 unequivalised income, and in Tables 8, 9, 15 and 16 unequivalised taxes and benefits are used for obvious reasons.

Income deciles are defined by proportioning the population into ten groups according to their equivalised disposable household income. Poverty is assessed using poverty rates that indicate the share of persons with equivalised disposable income below the poverty line. The poverty line is defined as 60% of median equivalised disposable income. As we aim to measure the “over-night” effect of policy changes based on the situation in 1998 respectively in 2003, i.e. their effect if nothing else had changed, we “retain” the poverty line and do not recalculate it after simulating the reforms. Thus, also the “sense of (relative) poverty” remains the same. With this measure, more substantially decreasing poverty rates are to be expected since higher incomes do not affect the poverty line.

For applying the 2003 policy rules on the 1998 data, monetary values are updated using the consumer price index to account for inflation. Thereafter, for the purpose of comparison, all results are adjusted to 1998 prices. The same approach is applied for 2005 policy rules used with 2003 data.

For the household type, we define children according to the eligibility criteria of the family allowance (“Familienbeihilfe”), i.e. persons below 18 or below 26 in full-time education and not exceeding a certain income limit.

Depending on the perspective, pensions can be classified as benefits or original income. We regard pensions as “state forced savings” and count them – with the exception of the pension top-up (“Ausgleichszulage”) – as part of the original income and not as benefits.⁸ On the other hand we regard the child tax credit (“Kinderabsetzbetrag”) as a benefit as it is granted as a transfer (negative tax paid together with the family benefit) independent of the tax liability and with no influence on it.

⁷ We use the modified OECD equivalence scale as divisor, which gives a weight of 1 to the first adult in the household, a weight of 0.5 to each further adult and a weight of 0.3 to each child (below 14 years of age).

⁸ As the only exception for the international comparison in Figure 1, pensions are counted as benefits (for technical reasons).

3 Austria in an European context

Though this section is not intended to be a comprehensive analysis of Austria's position in Europe concerning the structure of taxes and benefits and the situation with regard to social inclusion and income distribution – as this would go beyond the scope of this study – it provides a general picture by looking at important and frequently used indicators.

3.1 Size and structure of taxes and benefits

3.1.1 Macroeconomic perspective

The size of the public sector in terms of revenues and social expenditures is comparatively large in Austria. On the revenue side, in 1998 the level of taxation (including social security contributions) amounted to 43.9% of GDP. After reaching a peak in 2001, it decreased to 42.9% in 2003 and, mainly due to the tax reform 2004/05, to 41.9% in 2005 but is still above the OECD-Europe and the EU-15 averages. However, the composition of public revenues implies a rather low degree of progression: The share of progressive taxes on income and profits plus taxes on property amounts only to 31%. On OECD-Europe and EU-15 average the share is considerably higher (37 to 38%) (OECD 2006).

Also the level of social expenditure with regard to GDP is to some extent above EU-average in Austria. In 1998 it amounted to 28.4% of GDP and increased mainly due to the extension of family benefits by 1.1 percentage points to 29.5% in 2003. The higher social expenditure in comparison to other European countries can basically be explained by the high expenditure in the categories “old age and survivors” as well as “family” (European Commission/Eurostat 2006).

Table 1: Size of public sector revenues and social expenditures in % of GDP⁹

| | 1998 | | 2003 | |
|-------------|----------|--------------------|----------|-----------------------|
| | Revenues | Social Expenditure | Revenues | Social Expenditure |
| Austria | 43.9 | 28.4 | 42.9 | 29.5 |
| OECD Europe | 38.6 | | 38.3 | |
| EU-15 | 40.3 | 27.5 | 39.7 | 28.3 (EU-25: 28.0) |

Source: European Commission/ Eurostat 2006; OECD 2006

⁹ For 2005, no data is available on the European level so far.

Focusing in more detail on the instruments analysed in this paper – i.e. social security contributions, income taxes and cash benefits – with regard to social security contributions we find a relatively stable rate on a high level of more than 14% of GDP in Austria, which is still clearly above the OECD-Europe and EU-15 averages. The upper contribution limit leads to a regressive impact of social security contributions, as in relation to income it puts a heavier burden on low income groups than on higher income groups. On the other hand, the size of revenues from (progressive) taxes on income and profits is more close to the OECD-Europe and EU-15 averages, but tends to be below these. The latest tax reform reduced the share in the GDP to 12.0% in 2005 (OECD 2006).

The predominant part of total social expenditure consists of monetary transfers, in Austria around 72%, in the European Union around 68%. Again in Austria the rate of cash benefits in % of GDP is higher than on EU-average and amounted after the extension of family benefits in 1999/2000 to more than 20% in 2003 (European Commission/ Eurostat 2006). So far, no corresponding data for 2005 are available but monetary transfers derived from the system of national accounts indicate a decrease by 0.5 percentage points in 2005 (BMSG 2006; Statistik Austria 2006b).

Table 2: Social security contributions, income and profit taxes, cash benefits in % of GDP¹⁰

| | 1998 | | | 2003 | | | 2005 | | |
|-------------|--------------------------|-------------------------|---------------|--------------------------|-------------------------|--------------------------|--------------------------|-------------------------|---------------|
| | Social security contrib. | Income and profit taxes | Cash benefits | Social security contrib. | Income and profit taxes | Cash benefits | Social security contrib. | Income and profit taxes | Cash benefits |
| Austria | 15.1 | 12.9 | 19.8 | 14.5 | 12.7 | 20.5 | 14.4 | 12.0 | n/a |
| OECD Europe | 11.2 | 13.4 | | 11.1 | 12.6 | | n/a | n/a | |
| EU-15 | 11.4 | 14.5 | 18.1 | 11.4 | 13.4 | 18.3 (EU-25: 18.1) | n/a | n/a | n/a |

Source: European Commission/ Eurostat 2006; OECD 2001; OECD 2006

The expenditure side of the Austrian welfare state is characterised by the principle of horizontal equity (e.g. redistribution from households without children to households with children independently of income, etc.). Thus, like in the EU-25, only a small share of cash benefits goes to means-tested benefits; in Austria the share (4%) is even smaller than on EU-average (8%) (European Commission/ Eurostat 2006). In Austria the cash benefits are dominated by benefits within the social insurance system which are related to past income levels: Including pensions (and the equivalent “Ruhegenüsse” of civil servants), the share reaches 70% of all cash benefits. The 2nd largest type are universal benefits (mainly family-related) with a share of 15%.

¹⁰ For 2005, no data is available on the European level so far.

In 2003, almost two thirds of the cash benefits account for old age and survivor benefits, 13% for family transfers, 10% for invalidity benefits, 6% for unemployment benefits, 5% for cash benefits related to sickness and 1% for other transfers. Since 1998 the highest increase is registered for family benefits (BMSG 2006).

3.1.2 Microeconomic perspective

EUROMOD covers all countries of the EU-15 Member States. It embodies a knowledge base about different national structures and policy systems within a comparative framework. We use this capacity to analyse the micro-economic effects of social security contributions, income taxes and cash benefits in an European context and compare the composition of standardised € 100 disposable income in 1998.¹³

Figure 1 shows the results for an average household and for low- and high-income households. For seven countries (Austria, Finland, Greece, Ireland, Italy, Portugal, United Kingdom) market income constitutes on average between 95% and 105% of disposable income, meaning that in these countries the state “takes away” about the same amount in taxes and employee contributions as it “provides” in cash benefits. In Austria, the share of cash benefits (incl. pensions) slightly outweighs social security contributions and income taxes. On the contrary, on EU-15 average, market income is slightly higher than disposable income, emphasising – like in Austria – slightly more the role of income taxes than that of social security contributions.

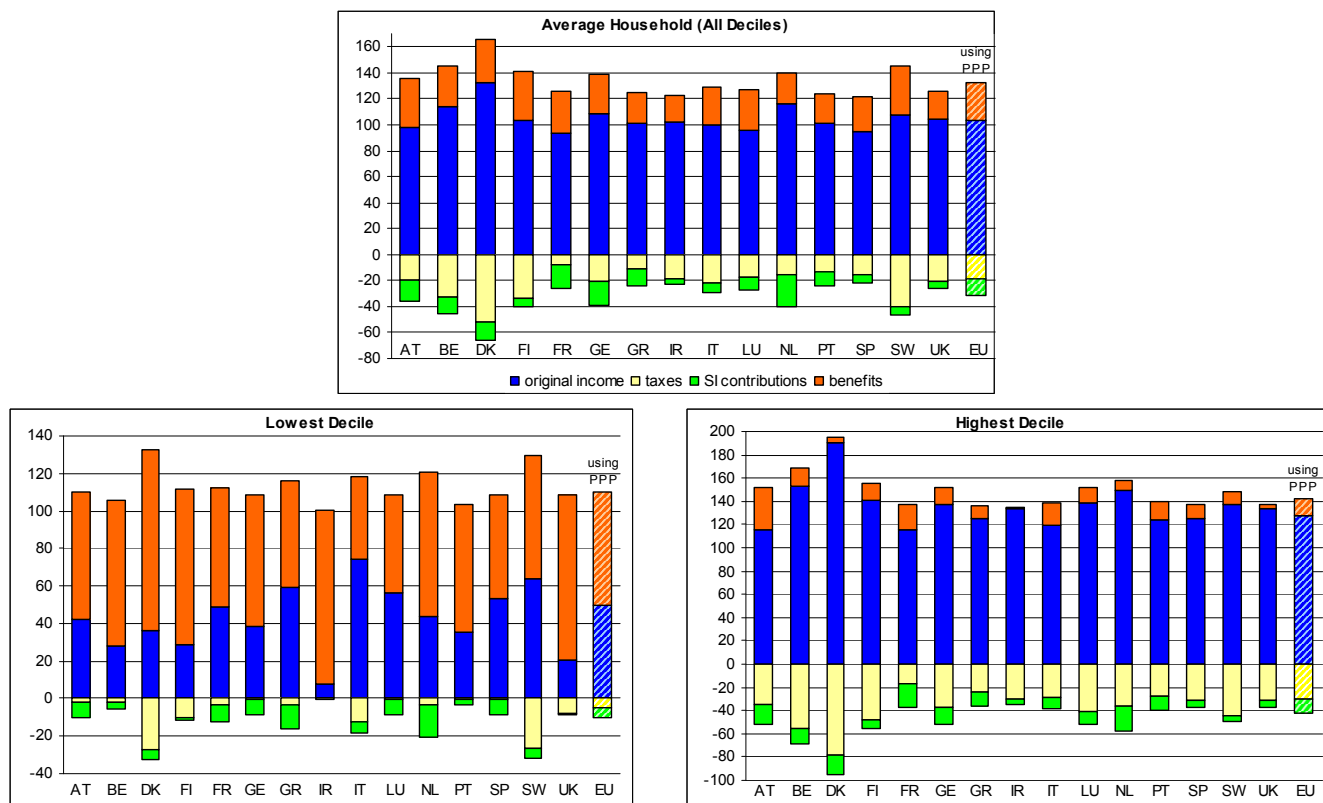
For households in the bottom decile, market incomes and state transfers each account for approximately 50% of disposable income in six EU-15-countries (Austria, France, Greece, Luxembourg, Spain and Sweden). This is also the case for the EU-15-average. For Austria it can be seen that people in the lowest income decile pay only social security contributions but almost no taxes, whereas on the EU-15 average there is an almost equal share of the two instruments.

Looking at households in the top decile, in practically all countries the share of income taxes to be paid is higher than the share of social security contributions. This relates to upper contribution limits for social security contributions and to progressive income tax scales. An interesting pattern is that the share of benefits is considerably higher in Austria compared to the other countries. Partly this can be explained by the fact that income is more equally distributed than in other EU-countries (see Chapter 3.2). Nevertheless, it also mirrors the importance of social-insurance related and universal benefits in Austria. Moreover, in Austria public pensions – especially of civil servants – form a considerable part of

¹³ Note that in the scope of the model major parts of taxes (e.g. indirect taxes) and benefits (e.g. benefits in kind, public services) are not included. Public pensions are classified as benefits here.

disposable income in the top decile, while in other countries public pensions are of less importance for the top decile.

Figure 1: Composition of € 100 disposable income in Austria and other EU countries, 1998



*Income components based on unequivalised household disposable income
Pensions classified as benefits
Source: Euromod*

3.2 Poverty rates and inequality of income distribution

According to European convention 60% of the median equivalised income constitute the at-risk-of-poverty threshold, i.e. for Austria 10,182 Euro for a single-person household per year in 2003 (1998: 8,628).¹¹ About 13% of persons in Austria were living in households with an equivalised income below the threshold (1998 12%). In an European comparison this at-risk-of-poverty rate is relatively low and 3 to 4 percentage points below the EU-25 and EU-15-averages. Both in Austria and on the European average, at-risk-of-poverty rates are higher for women than for men.

Table 3 shows also at-risk-of-poverty-rates for children (in this case defined as persons aged younger than 16) and elderly people (aged 65 or older) in contrast to the rates for the whole population. In Austria, both

¹¹ In this paper the year relates to the year the incomes refer to. As Eurostat defines the year after the year the data was gathered (= income year+1), the listed figures can be found under the years 2004 (incomes 2003) and 1999 (incomes 1998) at the Eurostat website.

children and in particular elderly people face a higher at-risk-of-poverty rate than the total population. Concerning child poverty, Austria ranks consistently lower than on EU-average whereas regarding old age poverty Austria found itself clearly above EU-average in 1998 but slightly below it in 2003 (Eurostat New Cronos).

Table 3: Poverty rates in Austria and in the EU, 1998 and 2003

| | 1998 | | | | | 2003 | | | | |
|----------------|-------|-----|-------|-----|-----|-------|-----|-------|-----|-----|
| | total | men | women | <16 | >64 | total | men | women | <16 | >64 |
| Austria | 12 | 10 | 14 | 14 | 24 | 13 | 11 | 14 | 15 | 17 |
| EU-25 | 16 | 15 | 17 | 19 | 17 | 16 | 15 | 17 | 20 | 18 |
| EU-15 | 16 | 15 | 17 | 19 | 17 | 17 | 15 | 18 | 20 | 19 |
| NMS-10 | nd | nd | nd | nd | nd | 16 | 16 | 16 | 22 | 9 |

Poverty rate: share of people living in households with disposable income below the poverty line

Poverty line: 60% of median equivalised disposable household income

Source: Eurostat New Cronos

Not only overall poverty rates are lower, also the disposable equivalised income of the households is more equally distributed in Austria than on the European average. The Gini-coefficient shows the percentage of the income concentration and amounts to 26% in Austria. On EU-average it amounts to about 30%.

Table 4: Gini-coefficients in Austria and in the EU, 1998 and 2003

| | 1998 | 2003 |
|----------------|------|------|
| Austria | 0.26 | 0.26 |
| EU-25 | 0.29 | 0.30 |
| EU-15 | 0.29 | 0.30 |
| NMS-10 | nd | 0.30 |

Based on equivalised disposable household income

Source: Eurostat New Cronos

Summarizing it can be concluded that the size of social security contributions and income and profit taxes on the one hand, and cash benefits on the other hand, is relatively large in Austria. This means that on average the state withdraws a relatively high share of market incomes in form of contributions and taxes but also provides a relatively high share of cash benefits to private households. In contrast to the other European countries (basically regressive) social insurance contributions play a more important role than (progressive) taxes on income and profits. Both at-risk-of-poverty rates and the inequality of income distribution (measured in equivalised disposable income) are below the EU-average.

4 Changes in tax/benefit policies 1998 – 2003

In this chapter we first describe the most important policy changes implemented between July 1998 and June 2003 in Austria covered by the analysis. Thereafter, the main part of this chapter refers to the distributional consequences of the implemented policy reforms.¹²

4.1 Description of changes taken into account in the analysis

4.1.1 Social security contributions

From 1998 to 2003 there were no changes in the social security contributions for employees and pensioners: employees had to pay between 17.65% (white collar) and 18.2% (blue collar) of their gross income for pension insurance, health insurance and unemployment insurance as well as for housing promotion (“Wohnbauförderung”) and the compulsory contributions to the legal representation of interests (“Arbeiterkammerumlage”). Pensioners paid health insurance contributions of 3.75%. All contributions had to be paid up to the upper contribution limit.

Self-employed, farmers and civil servants have their own contribution rates. For these groups, we list only the changes between 1998 and 2003:

- 2001: Increase of pension insurance rate for farmers from 14% to 14.5%;
- 2001: Increase of pension insurance rate for self-employed from 14.5% to 15%; decrease of health insurance rate for self-employed from 9.1% to 8.9%;
- 2001: Differentiation of the pension contribution for federal civil servants: for those born before December 1959 12.55%, for those born after November 1959 11.05% (before for both groups 11.75%);
- 2001: Increase of the pension contribution for federal civil servant pensioners from 1.3% or 1.5% (depending on the date of retirement) to 2.1% or 2.3% (HV SV various volumes).

For self-employed and farmers the consequences have been a slight increase in social security contributions. For federal civil servants the changes have a kind of redistributive effect, as contributions were lowered for younger persons (with lower incomes) and increased for elder persons (with higher incomes).

¹² To make clear the scope of the model, in Appendix 3 we also list those kinds of changes which are not covered by the analysis with EUROMOD.

4.1.2 Income tax

In Austria the tax system is not indexed, changes to parameters occur only in the framework of tax reforms. Reforms of the income-tax scale become essential, amongst others, if due to inflation incomes grow nominally and underlie increasing tax rates.¹³ Thus, the tax reform 2000 (though essentially not increasing the bracket boundaries) reduced the middle three marginal rates by one percentage point each. Furthermore it introduced a tax-free zone into the scale. Beside this tax-free zone, after the change the tax scale comprised of four brackets with marginal tax rates from 21% to 50% (see Table 5).¹⁴ In addition, the general tax credit (“Allgemeiner Absetzbetrag”) was increased from € 642 to € 887 per year with different tapering rules in order to decrease the tax credit with increasing income as before (Breuss/Weber 1999; Lehner 1999).

Table 5: Income tax: tax rates and bands

| up to 1999 | | since 2000 | |
|---------------------------------------|------|---------------------------------------|------|
| tax bands | rate | tax bands | rate |
| for the first € 3,634 | 10 % | for the first € 3,640 | 0% |
| for further € 7,267 (up to € 10,901) | 22 % | for further € 3,630 (up to € 7,270) | 21% |
| for further € 10,901 (up to € 21,802) | 32 % | for further € 14,530 (up to € 21,800) | 31% |
| for further € 29,069 (up to € 50,871) | 42 % | for further € 29,070 (up to € 50,870) | 41% |
| for all further amounts | 50 % | for all further amounts | 50% |

Income liable to tax: gross income minus social security contributions

Source: EStG § 33

In addition, in the period under investigation the following changes concerning tax credits took place:

- 1999: Increase of negative tax (paid directly in cash in cases of no or little tax liability) relating to the single-parent tax credit (“Alleinerzieherabsetzbetrag”) and the single-earner tax credit (“Alleinverdienerabsetzbetrag”) for persons with at least one child from € 145 to € 364 per year.
- 2001: Reduction of the wage earner tax credit (“Arbeitnehmerabsetzbetrag”) from € 109 to € 54 per year.
- 2001: Tapering of the pensioners’ tax credit (“Pensionistenabsetzbetrag”) between € 16,715 and € 21,802 annual income.

The outcomes of the tax reform 2000 on the individual level can be summarised as follows: The effective marginal tax rates were reduced for all income recipients; thus, all persons liable to tax were relieved. Compared to 1997 (last change of scale) the adaptation eliminates the higher tax burden due to inflation

¹³ See Immervoll 2005 for a discussion of this subject.

¹⁴ However, as before a special flat rate of 6% applied to the 13th and 14th salary of employees and lowered the marginal tax rates.

for all income recipients. The relative gains (related to taxable income) are higher in lower income groups and decrease with increasing income. However, in absolute terms tax savings are low in the lower income groups (Breuss/Weber 1999; Lehner 1999).

While the increase in the negative tax related to the single-earner/ single-parent tax credit is also especially in favour of single parents threatened by a high risk of poverty, the reduction of the wage-earner tax credit (in relation to the income more important for persons with low incomes) and the tapering of the pensioners' tax credit (starting at a relatively low income) seem to put a burden also on relatively low-income groups.

4.1.3 Cash benefits

Pensions

In Austria there is no universal minimum pension. Only persons eligible to a pension receive the pension top-up if their total income remains below a certain income threshold. The cumulated increase of the pension top-up between 1998 and 2003 (10.8% for single persons) was slightly above the increase of the consumer price index (cumulated 9.0%) and higher than for average pensions. In 2003, an extra-ordinary increase of the pension top-up for couples by 7.3% took place (cf. HV SV 2006, 89).

Although poorer pensioners were favoured by the measures, not much more than the price stability of their pensions was secured. Thus, compared to the development of the incomes of the total population, the development of pensions lagged behind.

Family-related benefits

In an international comparison, families are well supported by the tax- and benefit system in Austria. This is especially due to the high expenditure on family allowance, child tax credit and the childcare benefit, which amounted to 88% of all family cash benefits in 2003 (BMSG 2006; OECD 2005; Statistik Austria 2006c, 212).

On the basis of a decision by the Constitutional Court on the consideration of children for the taxation of income in October 1997, an extensive "family package" with additional transfers was concluded. The new measures, which came into effect in two steps in 1999 and 2000, provided an increase in the family allowance and in the child tax credit. Concerning family allowance, the base amounts were increased and a surcharge for the second, third and every further child was introduced. The child tax credit was increased for the first child (from € 25.4 per month) and the second child (from € 38.2 per month) to uniformly € 50.9 per child. These measures enabled to exempt at least half of the maintenance costs for

children from tax (AK diverse volumes; Breuss/Weber 1999; Lehner 1998). In 2003, for children above two years of age the base amount of the family allowance was increased again. Table 6 shows the amounts of family allowance in 1998 and 2003:

Table 6: Family allowance per month 1998 and 2003

| Age | 1 st child | | 2 nd child | | 3 rd and every further child | |
|---------------------|-----------------------|--------|-----------------------|--------|---|--------|
| | 1998 | 2003 | 1998 | 2003 | 1998 | 2003 |
| 0-2 | 94.47 | 105.40 | +0.00 | +12.80 | +0.00 | +25.50 |
| 3-9 | 94.47 | 112.70 | +0.00 | +12.80 | +0.00 | +25.50 |
| 10-18 | 112.64 | 130.90 | +0.00 | +12.80 | +0.00 | +25.50 |
| 19-25 ¹⁵ | 134.44 | 152.70 | +0.00 | +12.80 | +0.00 | +25.50 |

Source: AK diverse volumes

In 1999, a surcharge to the family allowance (“Mehrkindzuschlag”) for families with more than two children staying below a certain income limit was introduced, the amount was increased in 2000 and in 2002; since 2002 for the third and every further child € 36.40 per month are granted if the yearly taxable income of the family does not exceed 12 times the monthly upper contribution limit in the social security system (in 2003: € 39,240).

Essentially, family allowances and child tax credits are distributed across the income groups similar to the distribution of the number of children across the income groups. The support per child is relatively uniform, but per household due to the higher number of children per family in low-income groups, it is higher than in high-income groups (Guger 1998).¹⁶ Thus, the lower the income, the higher the relative advantage rendered by the new family measures. In general, the relative advantages decreased with age and number of children. However, this picture is adjusted for low-income recipients by the surcharge to the family allowance for families with more than two children, which has a strong redistributive impact (Guger 2005; Lehner 1998).

In 2002 the universal childcare benefit was introduced and replaced the former insurance-related allowance on parental leave (“Karenzgeld”). The main differences are:

- Almost all mothers/fathers are eligible, originally only those who worked before;
- a small increase in the benefit amount: € 14.53 instead of € 13.67 daily;
- the personal income limit for the eligibility to the benefit was increased: in the case of the child care benefit recipients are allowed to have an additional yearly gross income of € 14,600; in the

¹⁵ If in full-time education and below a certain income limit.

¹⁶ Ranked by the net disposable equivalised household income, in households of non-self-employed the share of children in the bottom income-third is 40%, in the middle third 33% and in the top third 27% (Guger-ÖIF).

case of the allowance on parental leave € 296.21 per month. In both cases the income of the (non-benefit-receiving) spouse is irrelevant;

- increase of the duration of the receipt by 12 months (to max. 30 months or 36 months in the case of the involvement of both partners) (AK diverse volumes).

The introduction of the childcare benefit extended the group of eligible persons, especially towards non-active persons (housewives/househusbands, students, pupils).¹⁷ Thus, women with small children are more frequently in a financially secured status (Riesenfelder et al. 2006). Like the former allowance on parental leave, the childcare benefit rather benefits younger parents. It is therefore concentrated on middle- and low-income groups and benefits low-income groups to an even higher share than the former allowance on parental leave (Guger 1998; Guger 2005).

4.2 Empirical findings

4.2.1 Situation in 1998

Table 7 shows the dimension of different population breakdowns (by household type, age and gender) and these groups' average equivalised disposable household income per month in 1998. Persons in households consisting of couples with three or more children and of single parents represent the poorest population groups under consideration (incomes of about 80% of the total average). The group with the highest income are persons in non-single households without children (about 115% of total average income).

A noteworthy finding is that children (below 18 years of age) have a considerably lower income than the population average. The same is true for elderly people (60 years or older), though to a lesser extent. Furthermore, on average women dispose of less income than men.

If we analyse the equivalised disposable household income per decile, we find that the total average is exceeded in the 7th decile. While there is a certain gap in the incomes between the lowest decile (44% of total average income) and decile 2 (60% of total average income), there is a tremendous jump from the 9th decile (139% of total average income) to the highest decile (200% of total average income).

¹⁷ For modelling reasons we assume a full implementation of the childcare benefit already in 2003. In reality this is only the case by the end of 2004. The difference is small since it concerns only those persons who were not eligible to the former allowance on parental leave, who began to receive the benefit only in 2002. For the other groups, regulations for the transition period were obtained which equalled a full implementation.

Table 7: Average disposable income by population group, 1998

| | share of population | average disp. income | % of total average |
|---------------------------------|---------------------|----------------------|--------------------|
| all | 100.0% | 1,366 | 100.0% |
| decile 1 | 10.0% | 603 | 44.2% |
| decile 2 | 10.0% | 821 | 60.1% |
| decile 3 | 10.0% | 958 | 70.2% |
| decile 4 | 10.0% | 1,070 | 78.4% |
| decile 5 | 10.0% | 1,179 | 86.3% |
| decile 6 | 10.0% | 1,311 | 96.0% |
| decile 7 | 10.0% | 1,455 | 106.5% |
| decile 8 | 10.0% | 1,632 | 119.5% |
| decile 9 | 10.0% | 1,901 | 139.2% |
| decile 10 | 10.0% | 2,736 | 200.3% |
| hh type*: single | 12.8% | 1,282 | 93.9% |
| hh type: single parent | 3.6% | 1,099 | 80.5% |
| hh type: ma no child | 34.1% | 1,558 | 114.1% |
| hh type: ma 1-2 children | 39.7% | 1,321 | 96.7% |
| hh type: ma 3+ children | 9.8% | 1,084 | 79.4% |
| age 0-17 | 21.3% | 1,203 | 88.1% |
| age 18-59 | 57.6% | 1,451 | 106.2% |
| age 60+ | 21.1% | 1,299 | 95.1% |
| female | 51.7% | 1,316 | 96.4% |
| male | 48.3% | 1,419 | 103.9% |

* hh=household; ma=more (than one) adult; share of persons living in such a hh
Decile groups based on equivalised disposable household income

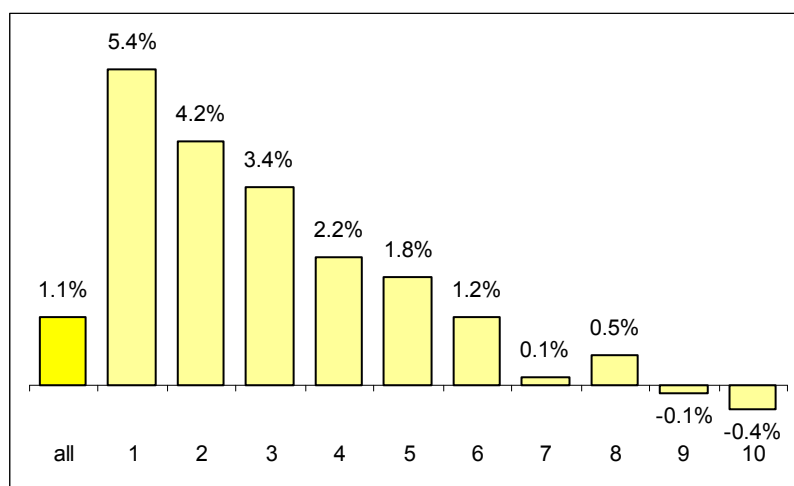
Source: Euromod based on ECHP 1999

4.2.2 Effects of changes from 1998 to 2003 on disposable income and poverty

4.2.2.1 Changes in disposable income

Figure 2 illustrates the average change in household disposable income for different income groups due to the policy changes from 1998 to 2003. On average all reforms taken into account result in a 1.1% increase of disposable income. The figure also shows that changes are clearly progressive. Relative income gains are the higher the lower the decile, only the top deciles face a certain decrease (though the loss is rather moderate).

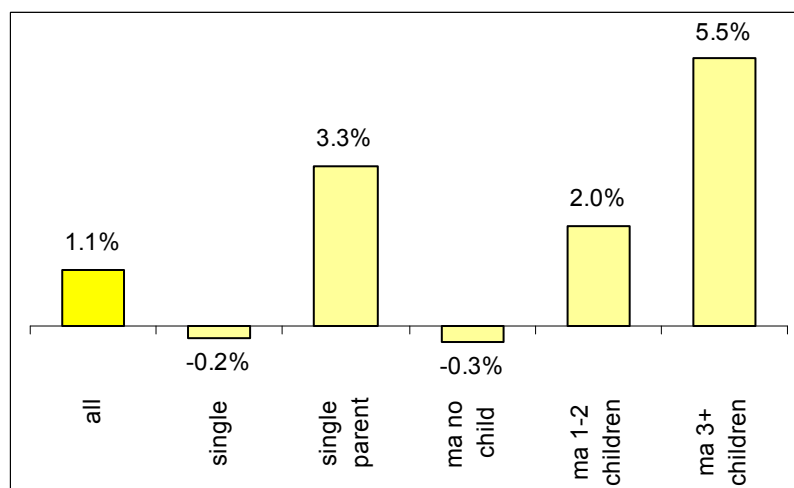
Figure 2: Average percentage change in real disposable income 1998-2003, decile groups



*Decile groups based on equivalised disposable household income in 1998
Source: Euromod based on ECHP 1999*

Turning to the change in household disposable income by different household types, also a clear picture emerges: While the groups without children face a decrease in their disposable income, the groups with children gain (Figure 3). The “big winners” are those with the lowest income in 1998: families with three or more children (plus 6%) and single parents (plus 3%), underlining the progressive character of the changes as shown before.

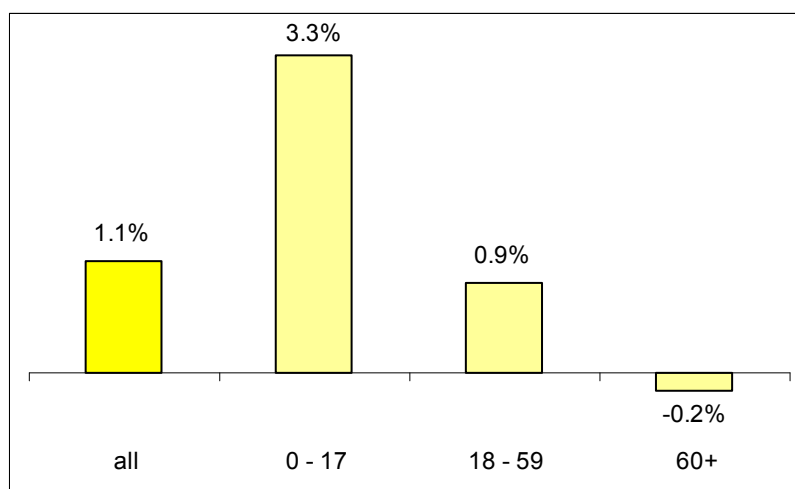
Figure 3: Average percentage change in real disposable income 1998-2003, household types



*ma = more (than one) adult
Source: Euromod based on ECHP 1999*

The effect of increased family benefits is clearly visible in the analysis according to age groups. Children (below 18 years of age) gain by far more (plus 3%) than the other age groups. The working-age group (18 to 59 years of age) is also among the winners (plus 1%), certainly not least because they consist partly of parents. The only group with a (small) loss in disposable income are elderly people.

Figure 4: Average percentage change in real disposable income 1998-2003, age groups



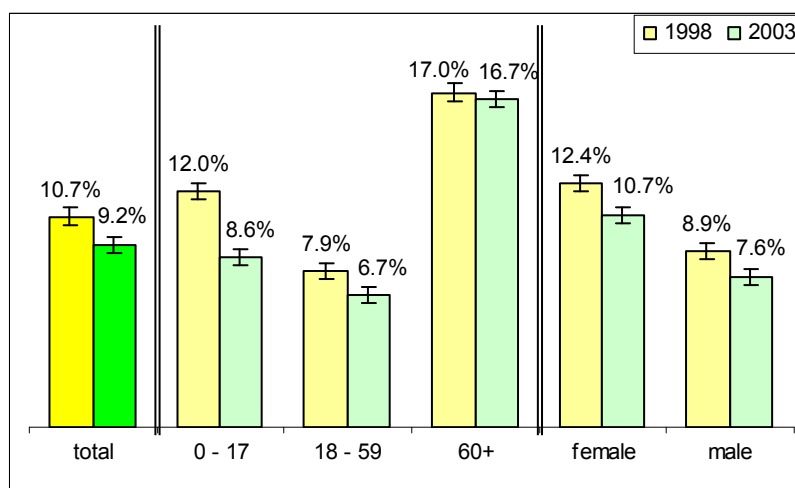
Source: Euromod based on ECHP 1999

4.2.2.2 Changes in poverty

To measure changes in poverty, poverty rates for 1998 and 2003 are calculated based on the same (or a “retained”) poverty line, namely 60% of 1998 median disposable income (see Chapter 2.3). Figure 5 again illustrates the progressive outcomes of the policy reforms by decreasing poverty rates for the whole population (9% vs. 11%) and the population breakdowns taken into consideration. The reforms clearly succeeded in reducing child poverty (9% vs. 12%). On the other hand, while all other age groups experience a substantial decrease in their poverty rate, the decrease for elderly people is insignificant (this can be explained by the moderate increases in the pension top-up which were only slightly above the development of the consumer price index). Moreover, the already considerable difference between the overall poverty rate and the poverty rate for the elderly increases.

Concerning gender, the reforms lead to a somewhat higher decrease in poverty rates for women than in those for men. This should be due to the fact that women make up for the predominant part of single parents.

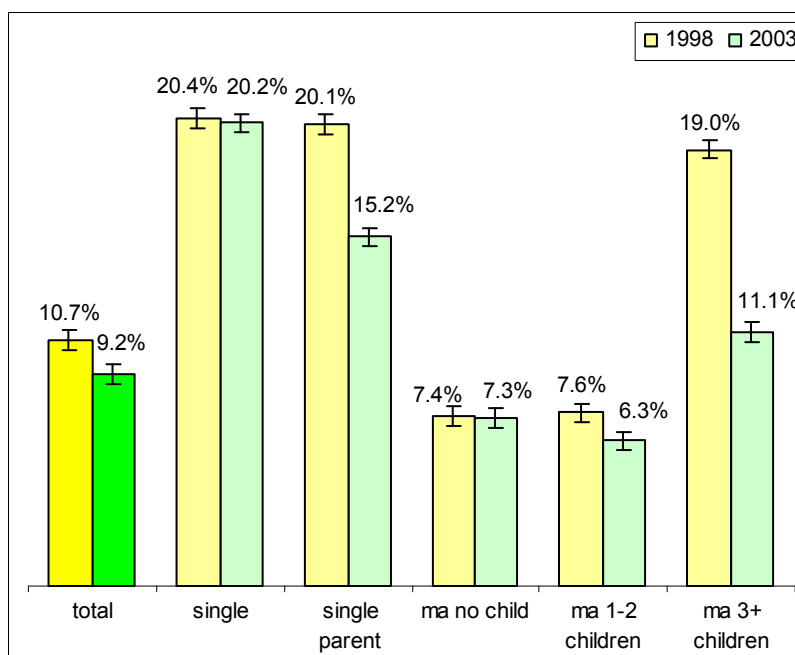
Figure 5: Change in poverty rates 1998-2003, different groups



Poverty rate: share of people living in households with disposable income below the poverty line
 Poverty line: 60% of median equivalised disposable household income in 1998
 Statistical reliability of the estimates is shown using confidence intervals at the 5% level
 Source Euromod based on ECHP 1999

Figure 6 confirms the observations made above: poverty reduction concentrates on households with children. The poverty rate for couples with three or more children decreased from clearly above the overall rate in 1998 (19%) to about 11% in 2003. The rate for couples with one or two children drops from an already low level in 1998 even further. The situation improves also for single parents, one of the groups most vulnerable to poverty, although their poverty rate (15%) remains quite above the overall poverty rate. In contrast there is practically no change in poverty rates for groups without children. This is particularly precarious for singles where about one fifth is still at risk of poverty (a large part of this group is presumably formed by elderly people).

Figure 6: Change in poverty rates 1998-2003, household types



ma = more (than one) adult
 Poverty rate: share of people living in households with disposable income below the poverty line
 Poverty line: 60% of median equivalised disposable household income in 1998
 Statistical reliability of the estimates is shown using confidence intervals at the 5% level
 Source Euromod based on ECHP 1999

4.2.3 Instruments driving changes

The previous analysis suggests that tax/benefit changes in favour of families with children take a very important role among the policy reforms from 1998 to 2003. In this chapter we assess the contribution of different groups of instruments to overall changes in more detail. Thus, we split total changes in disposable income into changes related to different instrument groups, namely social security contributions, income taxes and cash benefits. In a next step, we analyse the share of social security contributions, income taxes and cash benefits paid/received by each income quintile and the changes over time. Finally, we assess the redistributive effect of each of the instrument groups both in 1998 and 2003.

4.2.3.1 Role of social security contributions, income taxes and cash benefits

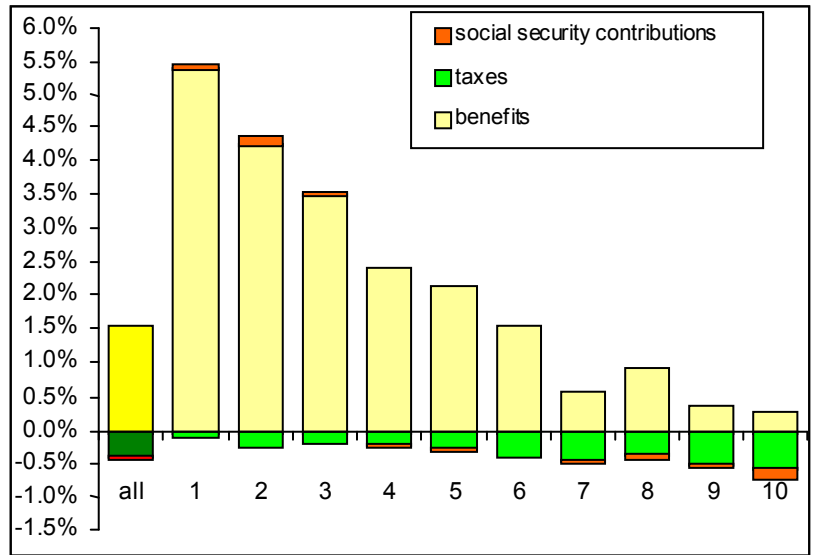
Figure 7 presents the average changes in disposable income per decile (as in Figure 2), different colours indicate the composition of these changes. From the point of view of the household, increases in benefits as well as decreases in social security contributions and income taxes are presented in the positive area (above the 0.0%-line); in the same sense decreases in benefits as well as increases in social insurance contributions and income taxes are shown in the negative area (below the 0.0%-line).

In general, increases in disposable income arise from gains in benefits, with the progressive patterns observed above. On the one hand, the same absolute amounts (family allowance, child tax credit, childcare benefit) play a significantly higher relative role related to the total income in low-income households. On the other hand, although family benefits are mainly universal benefits and thus benefit also high-income groups, children are more concentrated in the lower income groups.

In contrast, taxes rise on average for all deciles and therefore decrease disposable income, indicating that the outcomes of the tax reform 2000 are outweighed by fiscal drag but also by the following reduction of tax credits (wage-earner tax credit, pensioners' tax credit). The effect is more significant for higher incomes. The trend of higher tax payments in 2003 compared to 1998 is confirmed on the individual level by the share of income taxes in the taxable income, which increased from 1998 to 2003 from 16.7% to 17.0% (Milz 2001; Statistik Austria 2006d).

Changes in social security contributions are more or less negligible for all income groups. The changes are mainly due to changes in the pension contribution rate of civil servants: it decreased for younger persons (lower incomes) but increased for older persons (higher incomes).

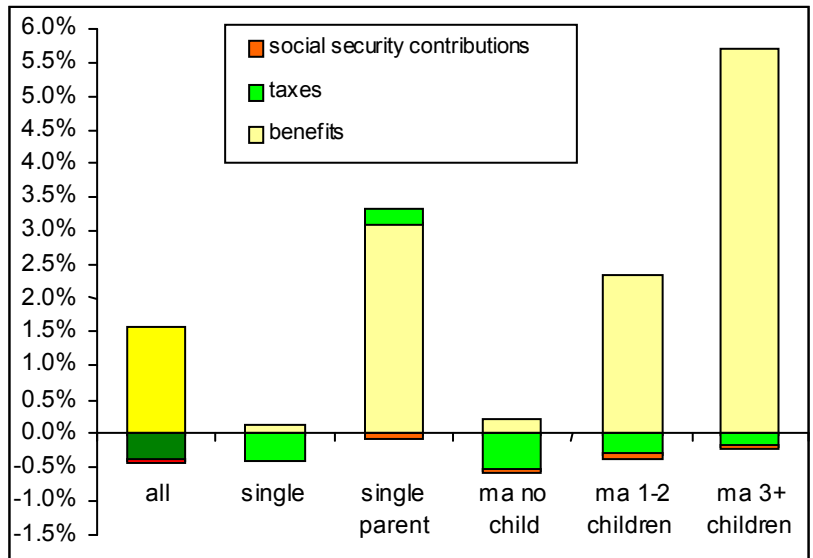
Figure 7: Decomposition of average %-change in real disposable income 1998-2003, decile groups



*Decile groups based on equivalised disposable household income in 1998
Source: Euromod based on ECHP 1999*

Figure 8 decomposes the changes in disposable income according to different household types. Again, benefits dominate the picture. Even for groups without children, there are small gains in benefits (pension top-up), but they are outweighed by tax increases. For single parents, tax reliefs (increase of negative tax related to the single-earner tax credit) have some importance.

Figure 8: Decomposition of average %-change in real disposable income 1998-2003, household types

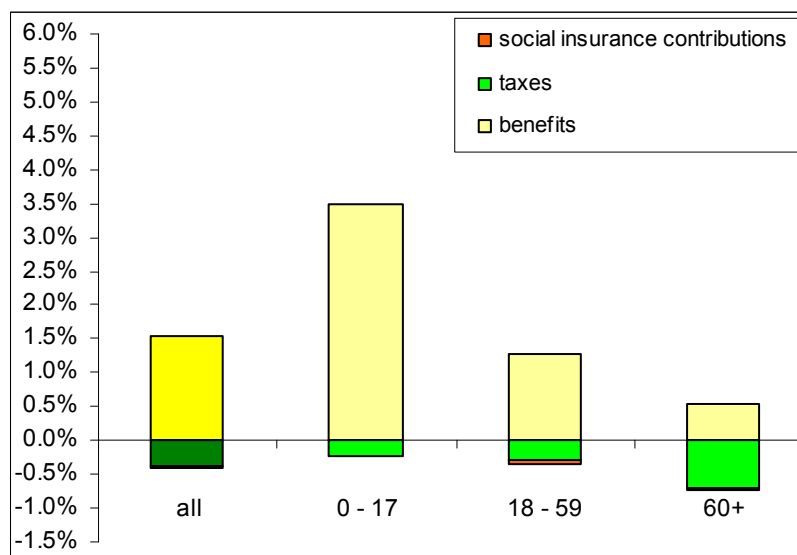


*ma = more (than one) adult
Source: Euromod based on ECHP 1999*

Turning to the decomposition of the change in disposable income according to age groups, the targeting of the policy changes on families with children again becomes obvious. But also the elderly (60 years and

over) gained slightly from changes in benefits, either from the (moderate) changes in the pension top-up or because a part of them lives in households together with children. Figure 9 shows also that the losses due to increases in taxes are concentrated within the group of the elderly. Here, beside fiscal drag, the outcomes of the tapering of the pensioners' tax credit can be observed.

Figure 9: Decomposition of average %-change in real disposable income 1998-2003, age groups



Source: Euromod based on ECHP 1999

4.2.3.2 Share of instrument per income group

In a next step we analyse the share of social security contributions, income taxes and cash benefits paid/received by each income quintile (again ranked by equivalised disposable household income). An instrument that is entirely independent of income would be distributed equally among the income groups, i.e. each income quintile would receive/pay 20%. However, it has to be kept in mind that on the contributions' and taxes' side the proportions reflect the existing income distribution by definition, as social security contributions and income taxes are based with a certain rate on income.

In fact, lower income quintiles pay lower proportions of total social security contributions and total income taxes than higher income quintiles. Moreover, low-income groups receive higher proportions in total cash benefits than high-income groups. In 1998, the lowest quintile paid 6% of all social security contributions and 2% of all income taxes and received 28% of all cash benefits. On the other side, the highest quintile brought up 38% of social security contributions and 56% of income taxes and benefited from 12% of all cash transfers (Table 8). Thus, at a first glance two statements can be made: on the one hand the upper contribution limit of social security contributions and the progressive scale of income taxes lead to the fact that income taxes are much more concentrated in higher income groups than social

security contributions. On the other hand, also cash benefits – despite the high share of social insurance-related and universal benefits – are more in favour of households with less income.

The interesting aspect lies in the comparison of the proportions for 1998 and 2003 and thus to assess whether the reform measures changed the distribution of the instruments across the income groups. The distribution of social security contributions and income taxes shows practically no difference, suggesting that there was no change in the progressivity of these instruments. For income taxes this indicates that similar to an analysis related to the individual level (cf. Milz 2001; Statistik Austria 2006d), the tax reform 2000 did not change the distribution of income taxes according to income groups based on disposable household income, too. Because of the minor changes concerning social security contributions (only self-employed and civil servants were affected), no changes in their distribution were to be expected. For the benefit side, the figures in Tables 8 and 9 confirm the progressive nature of the reforms, as the proportion of benefits received by the higher two quintiles (27.4% in 2003 vs. 28.7% in 1998) decreased in favour of the lower three quintiles (72.7% in 2003 vs. 71.2% in 1998).

Table 8: Share of instrument per income group, 1998

| | social security contributions | income taxes | cash benefits |
|-------------------|--|---------------------|----------------------|
| quintile 1 | 6.4% | 2.4% | 27.9% |
| quintile 2 | 11.9% | 7.4% | 24.8% |
| quintile 3 | 18.3% | 12.7% | 18.5% |
| quintile 4 | 25.4% | 21.6% | 16.7% |
| quintile 5 | 38.1% | 55.9% | 12.0% |
| total | 100.0% | 100.0% | 100.0% |

*Quintile groups based on equivalised disposable household income in 1998
Source: Euromod based on ECHP 1999*

Table 9: Share of instrument per income group, 2003

| | social security contributions | taxes | cash benefits |
|-------------------|--|--------------|----------------------|
| quintile 1 | 6.3% | 2.4% | 28.6% |
| quintile 2 | 11.9% | 7.3% | 25.2% |
| quintile 3 | 18.2% | 12.8% | 18.9% |
| quintile 4 | 25.4% | 21.7% | 16.0% |
| quintile 5 | 38.2% | 55.8% | 11.4% |
| total | 100.0% | 100.0% | 100.0% |

*Quintile groups based on equivalised disposable household income in 1998
Source: Euromod based on ECHP 1999*

4.2.3.3 Redistributional effect of social security contributions, income taxes and cash benefits

Already the above analysis provided some hints on the redistributive impact of the tax-benefit instruments. To refine the assessment of these effects, Table 10 and Table 11 contain a range of standard measures in order to explore changes in the effects of the instruments on income inequality.

The Reynolds-Smolensky Index of Redistribution represents the difference between income inequality before applying an instrument and income inequality after applying this instrument¹⁸ – measured by the Gini-coefficient, plus the so-called “re-ranking”-index¹⁹. The redistributive effect indicated by the Reynolds-Smolensky index can be further decomposed into progressivity and “importance”. Progressivity terms the “pro-poor” nature – if for example taxes or contributions are disproportionately higher on the upper (lower) part of the income distribution, then it is progressive (regressive). We measure progressivity by the Kakwani index, which is positive for progressive instruments and negative for regressive instruments. The amount of redistribution an instrument can achieve not only depends on its progressivity but also on its importance. The importance is indicated by the rate, i.e. the (average) rate that is applied on the base income for calculating the instrument. (Appendix 1 provides a more comprehensive description of the measures used.)

In general the Reynolds-Smolensky index indicates that cash benefits have the highest redistributive impact of the three instruments,²⁰ with the redistributive impact of social security contributions tending to be regressive (the Gini is even higher after applying this instrument than before). The higher redistributive impact of cash benefits compared to income taxes stems from their progressive effect (the Kakwani index for cash benefits is markedly higher than that for income taxes). However, the higher (“importance”) rate provides also the income taxes with an efficient power concerning redistribution.

Regarding the effect of the reform measures between 1998 and 2003, as expected, the redistributive impact of benefits increased; however, not by increasing progressivity (the Kakwani index shows an

¹⁸ There is a certain ambiguity about the question which “pre-income” to use for measuring the redistributional effect of an instrument. It is for example not 100% clear whether the pre-income for benefits is original income or original income minus social security contributions and income taxes. We chose the following “tax/benefit sequence”, as in our opinion this mirrors best the Austrian tax-benefit system: pre-income for social security contributions is original income, pre-income for income taxes is original income minus social security contributions and pre-income for cash benefits is original income minus social security contributions and income taxes.

¹⁹ The term re-ranking is used for the fact that the income ranking of the population in the pre- and post-instrument situation can be different, which makes the interpretation of the difference between pre- and post-Gini more difficult. However, in our case the re-ranking indices show very small values, therefore effects due to re-ranking can be neglected.

²⁰ However, it has to be kept in mind that for our analysis we assume full take-up of benefits, in particular of social assistance. Thus, the Gini after cash benefits is lower than in the underlying original dataset.

insignificant decrease) but by a rise in the (“importance”) rate. This seems to be very reasonable given the nature of the reforms. Concerning social security contributions and income taxes, index changes are negligible.

Table 10: Redistributive effect of tax/benefit-instruments, 1998

| | Gini pre | Gini post | Reynolds-Smolensky index | rate | Kakwani index | re-ranking index |
|--------------------------------------|----------|-----------|--------------------------|---------|---------------|------------------|
| social security contributions | 0.32182 | 0.32300 | 0.00042 | 0.13477 | 0.00271 | 0.00160 |
| std.error | 0.00376 | 0.00401 | 0.00059 | 0.00088 | 0.00378 | 0.00005 |
| taxes | 0.32300 | 0.28180 | 0.04353 | 0.17282 | 0.20836 | 0.00233 |
| std.error | 0.00402 | 0.00338 | 0.00090 | 0.00182 | 0.00296 | 0.00007 |
| benefits | 0.28180 | 0.23451 | 0.05359 | 0.09609 | 0.61129 | 0.00630 |
| std.error | 0.00322 | 0.00288 | 0.00157 | 0.00216 | 0.01030 | 0.00052 |

rate: size of instrument in percentage of base

Source: Euromod based on ECHP 1999

Table 11: Redistributive effect of tax/benefit-instruments, 2003

| | Gini pre | Gini post | Reynolds-Smolensky index | rate | Kakwani index | re-ranking index |
|--------------------------------------|----------|-----------|--------------------------|---------|---------------|------------------|
| social security contributions | 0.32182 | 0.32270 | 0.00072 | 0.13506 | 0.00461 | 0.00161 |
| std.error | 0.00388 | 0.00406 | 0.00056 | 0.00093 | 0.00356 | 0.00004 |
| taxes | 0.32270 | 0.28074 | 0.04446 | 0.17619 | 0.20790 | 0.00250 |
| std.error | 0.00397 | 0.00334 | 0.00097 | 0.00192 | 0.00308 | 0.00007 |
| benefits | 0.28074 | 0.22653 | 0.06195 | 0.11348 | 0.60789 | 0.00774 |
| std.error | 0.00345 | 0.00296 | 0.00180 | 0.00260 | 0.01063 | 0.00051 |

rate: size of instrument in percentage of base

Source: Euromod based on ECHP 1999

5 Changes in tax/benefit policies 2003 – 2005

The second time period under investigation is the period from July 2003 to June 2005. Below we describe the most important policy changes taken into account in the analysis. The main part of this chapter is again dedicated to the analysis of the outcomes of the policy changes in terms of income distribution and poverty.²¹

5.1 Description of changes taken into account in the analysis

5.1.1 Social insurance contributions

Whereas in 2003 employees were subject to contributions between 17.65% (white collar) and 18.2% (blue collar) of gross income for social security, housing promotion and compulsory contributions to the legal representation of interests, in 2005 these contributions amounted to between 18.0% (white collar) and 18.2% (blue collar).

The increase of the total contribution rate is due to increased contributions to health insurance, which affected also pensioners (who pay only contributions to health insurance) as well as self-employed, farmers and civil servants, who have their own contribution rates. The increase in health insurance contributions was due to several reasons: introduction of a contribution for accidents in leisure time, establishment of an uniform contribution rate (employer plus employee) for white collar and blue collar employees, (temporary) general increase of health insurance contributions, stepwise increase of health insurance contributions of pensioners (HV SV 2004; HV SV 2005). Table 12 contains the changes for the most important groups:

Table 12: Contributions to health insurance 2003 and 2005²²

| | Blue collar workers | White collar workers | Self employed | Farmers | Civil Servants | Pensioners |
|------|---------------------|----------------------|---------------|---------|----------------|------------|
| 2003 | 3.95% | 3.40% | 8.90% | 6.40% | 3.95% | 3.75% |
| 2005 | 3.95% | 3.75% | 9.10% | 7.50% | 4.10% | 4.95% |

Source: HV SV diverse volumes

²¹ Changes which are excluded due to restrictions of the model are listed in Appendix 3.

²² Excluding employer contributions.

In general these changes led to a heavier burden for all groups with pensioners being most affected. Because of the upper contribution limit the changes tend to have a (small) regressive impact.

With the target of increasing the employment rate of the elderly and prolonging their presence on the labour market, beside other measures the contributions to the unemployment insurance (employees' contribution: 3.0%) for female employees above 56 years of age and male employees above 58 years of age were abolished. The measure benefits elderly employees and thus usually those with higher incomes.

- In the course of the pension reform 2004, the pension contributions of active federal civil servants were again differentiated: in 2003 they paid 12.55% (if born before 1960) or 11.05% (if born after 1959) for incomes below and above the upper contribution limit for social security contributions²³; if born after 1954 from 2005 on, depending on their exact age, they pay between 10.25% and 12.4% for incomes below the upper contribution limit and between 0.0% and 11.73% for incomes above the upper contribution limit. Within the group of civil servants, this means a (slight) redistribution towards younger groups with less income.
- In 2004 the pension contribution rate for federal civil servant pensioners was raised by one percentage point to (depending on the date of retirement) 3.1% or 3.3%.

In 2005, the upper contribution limit for social security contributions was raised extraordinarily by 5.2% (BMSG 2006). This puts a somewhat higher burden on higher income groups.

5.1.2 Income tax

Within the first stage of the tax reform 2004/05 tax credits targeting families were further increased: Supplements with regard to the number of children were added to the single-earner/ single-parent tax credit (so far uniformly EUR 364 per year), which are also paid as negative tax (paid directly in cash in cases of no or little tax liability):

- EUR 130 for the 1st child,
- EUR 175 for the 2nd child and
- EUR 220 for each further child.

In addition, the income limit for the spouse for the single-earner tax credit was increased from € 4,400 to € 6,000 per year, if the couple has a least one child.

²³ Civil servants are the only group of persons who pay pension contributions also above the upper contribution limit.

The 2nd stage of the tax reform 2004/05 integrated the increased general tax credit into the regular income tax schedule. The tax schedule was reduced to four income brackets with three marginal tax rates from 38.33% to 50%²⁴, the tax-free zone was enlarged (Breuss et al. 2004; BMSG 2004).

Table 13: Income tax: tax rates and bands

| up to 2004* | | since 2005** | |
|---------------------------------------|------|---------------------------------------|--------|
| tax bands | rate | tax bands | rate |
| for the first € 3,640 | 0 % | for the first € 10,000 | 0% |
| for further € 3,630 (up to € 7,270) | 21 % | for further € 15,000 (up to € 25,000) | 38.33% |
| for further € 14,530 (up to € 21,800) | 31 % | for further € 26,000 (up to € 51,000) | 43.60% |
| for further € 29,070 (up to € 50,870) | 41 % | for all further amounts | 50% |
| for all further amounts | 50 % | - | - |

*Income liable to tax: gross income minus social security contributions; * General tax credit not integrated; ** General tax credit already integrated*

Source: EStG § 33

The tax reform results in about 350,000 persons in addition who have to pay no income tax due to low income; thus, from about 5.9 million persons liable to tax now about 2.55 million are exempted from tax. However, as the general negative tax (10% of social security contributions up to € 110 per year) was not increased, persons without or with very low income are not relieved by the tax reform.

The highest relative tax savings occur at a yearly income liable to tax of € 11,000 € (6.1%). They are reduced with increasing income to 0.7% at € 22,000 and increase up to an income of € 35,000 to 1.6%. For higher incomes they drop continuously. In comparison to 2003, up to a yearly income liable to tax of € 50,000 €, the fiscal drag is compensated for all income recipients (Breuss et al. 2004).

The changes concerning the single-earner/ single-parent tax credit improved also the situation of single parents that are exposed to an above-average risk of poverty.

5.1.3 Cash benefits

Pensions

The cumulated increase of the pension top-up between 2003 and 2005 (3.0% for single persons) was higher than the increase for average pensions but below the development of the consumer price index (cumulated 4.4%). However, in 2004, an extraordinary increase of the pension top-up for couples by

²⁴ However, as before a special flat rate of 6% applies to the 13th and 14th salary of employees and lowers the marginal tax rates.

5.1% took place (cf. HV SV 2006, 89). Thus, in the period under investigation only the financial safeguarding of low pensions of couples was secured.

Family-related benefits

In the area of family-related benefits only minor changes took place between 2003 and 2005. In general, the changes were more in favour of low-income groups but were of a small extent:

- In 2004 the childcare benefit was increased by 50% for multiple births;
- for the means-tested supplement to the childcare benefit (approx. EUR 181 per month) the personal income limit was increased from € 3,997 to € 5,200 per year in 2004;
- hand in hand with the extraordinary increase of the upper contribution limit for social security contributions, the limit of the yearly taxable family income to be eligible to the surcharge to the family allowance with three or more children was increased by 5.2% in 2005 (AK diverse volumes).

Beside these small changes, the main family benefits (family allowance, child tax credit, childcare benefit) were neither changed nor “indexed” in the period 2003 to 2005. In general, in Austria family benefits are not indexed, i.e. do not rise with inflation or income growth. This means that (without reforms) benefit amounts proportionally fall short of other incomes.

5.2 Empirical findings

5.2.1 Situation in 2003

Table 14 shows the dimension of different population breakdowns (by gender, age and household type) and these groups' average equivalised disposable household incomes per month in the year 2003. As in 1998, persons living in single-parent households (78% of total average income) and persons living in households with couples with three children or more (80% of total average income) are the poorest population groups under consideration. The group with the highest income are persons in non-single households without children (111% of total average income).

Children (below 18 years of age) still have a lower income than the population average, while the elderly (60 years and above) are slightly above the population average. Still there is a gap between the disposable household income of women (98% of total average) and men (102% of total average), however, the data suggests a smaller difference than in 1998.

Looking at income deciles, the total average income is exceeded in the 7th decile. In the lowest decile the average income is less than half of the total average (44%), in the highest decile more than twice of the total average (206%).²⁵

Table 14: Average disposable income by population group, 2003

| | share of population | average disp. income | % of total average |
|---------------------------------|----------------------------|-----------------------------|---------------------------|
| all | 100.0% | 1,641 | 100.0% |
| decile 1 | 10.0% | 725 | 44.2% |
| decile 2 | 10.0% | 973 | 59.3% |
| decile 3 | 10.0% | 1,140 | 69.5% |
| decile 4 | 10.0% | 1,276 | 77.8% |
| decile 5 | 10.0% | 1,417 | 86.4% |
| decile 6 | 10.0% | 1,573 | 95.9% |
| decile 7 | 10.0% | 1,735 | 105.7% |
| decile 8 | 10.0% | 1,940 | 118.2% |
| decile 9 | 10.0% | 2,250 | 137.2% |
| decile 10 | 10.0% | 3,381 | 206.1% |
| hh type*: single | 14.5% | 1,574 | 95.9% |
| hh type: single parent | 3.9% | 1,284 | 78.2% |
| hh type: ma no child | 34.9% | 1,819 | 110.9% |
| hh type: ma 1-2 children | 37.5% | 1,618 | 98.6% |
| hh type: ma 3+ children | 9.1% | 1,313 | 80.0% |
| age 0 – 17 | 20.4% | 1,471 | 89.6% |
| age 18 – 59 | 58.6% | 1,694 | 103.3% |
| age 60+ | 21.0% | 1,657 | 101.0% |
| female | 51.4% | 1,608 | 98.0% |
| male | 48.6% | 1,675 | 102.1% |

* hh=household; ma = more (than one) adult; share of persons living in such a hh
Decile groups based on equivalised disposable household income

Source: Euromod based on EU-SILC 2004

5.2.2 Effects of changes from 2003 to 2005 on disposable income and poverty

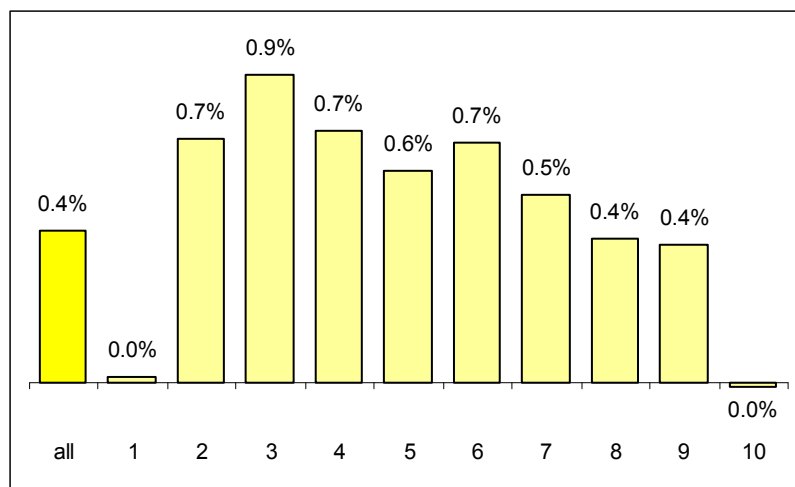
5.2.2.1 Change in disposable income

On average the policy reforms between 2003 and 2005 result in a 0.4% increase of disposable household income (Figure 10). The figure does not show a clear pattern concerning progressivity. While there is nearly no change for the top and the bottom decile, the lower deciles gain slightly more than the higher deciles with the highest gains in decile 3 (plus 0.9%). This pattern is caused by the interaction of the

²⁵ Differences in the income distribution between 1998 (Table 7) and 2003 (Table 14) do not only refer to real changes between the two years but also reflect the usage of different data sources. Accordingly it cannot be concluded that elderly people are better off in 2003 than in 1998 nor that the difference in male and female disposable household incomes has narrowed.

reliefs by the tax reform 2004/05 and the non-indexation of family benefits; the latter leads (isolated from other changes) to losses in real income (see below).

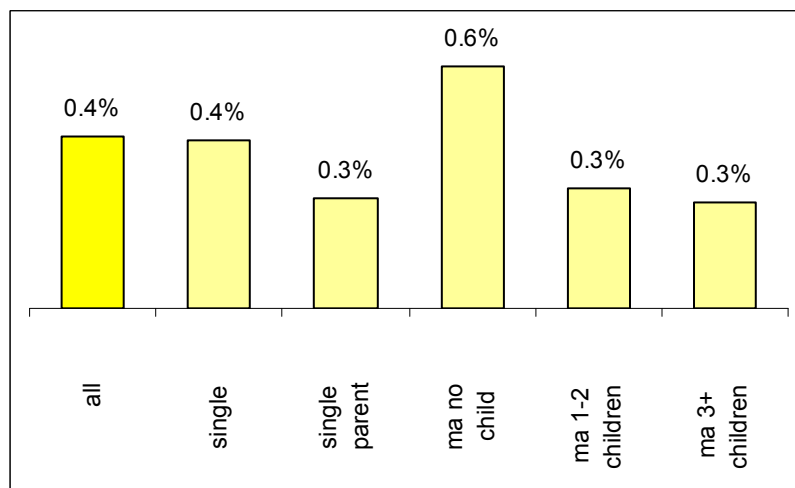
Figure 10: Average percentage change in real disposable income 2003-2005, decile groups



*Decile groups based on equivalised disposable household income in 2003
Source: Euromod based on EU-SILC 2004*

The reduction in disposable household income due to the non-indexation of family benefits becomes more visible if the changes in disposable income are split with respect to different household types. Figure 11 illustrates that households without children (more-person households: 0.6%; singles: 0.4%) gain on average more than household types with children. However, the differences are not very incisive.

Figure 11: Average percentage change in real disposable income 2003-2005, household types

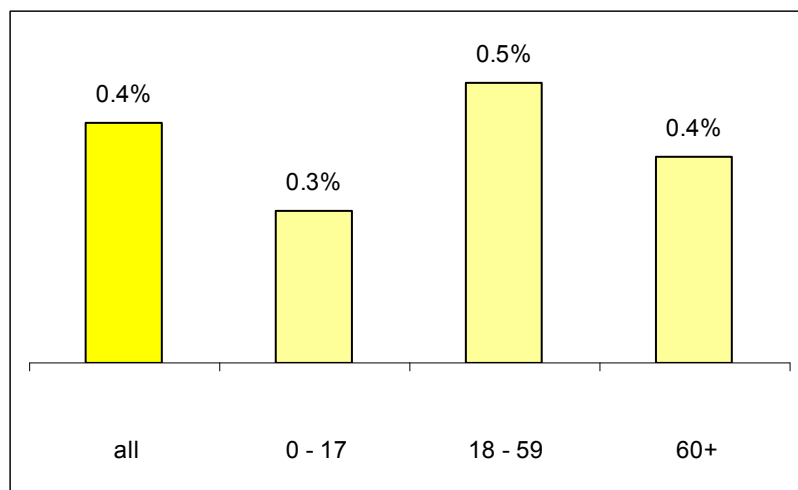


*ma = more (than one) adult
Source: Euromod based on EU-SILC 2004*

The same holds true for differences with respect to age groups: people of working age gain slightly more (plus 0.5%) than children (plus 0.3%) and the elderly (plus 0.4%) (Figure 12). This may be explained by

the non-indexation of family benefits on the one hand and the raise in health insurance contributions, which affects the elderly over-proportionally, on the other.

Figure 12: Average percentage change in real disposable income 2003-2005, age groups

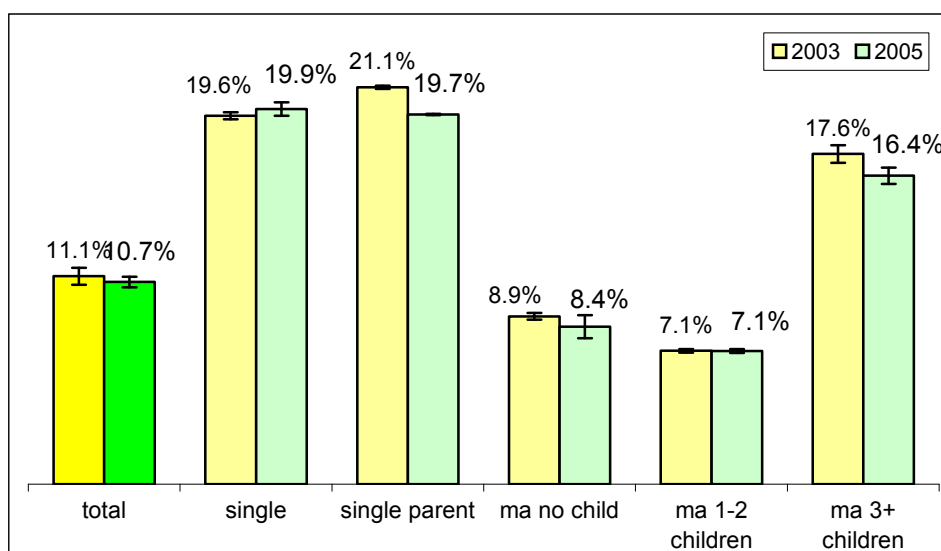


Source: Euromod based on EU-SILC 2004

5.2.2.2 Change in poverty

Following the modest impact of the reforms on the income distribution, and taking into account the confidence interval (95%), the policy changes in the period under investigation had no influence on poverty rates in general. Also according to age and gender, poverty rates did not change significantly. If we look at different household types, some poverty reduction (more than one percentage point based on a “retained” poverty line) for single parents and couples with three and more children can be observed. Here, the extension of the single-parent/ single-earner tax credit including negative tax is decisive.

Figure 13: Change in poverty rates 2003-2005, household types



ma = more (than one) adult

Poverty rate: share of people living in households with disposable income below the poverty line

Poverty line: 60% of median equivalised disposable household income in 2003

Statistical reliability of the estimates is shown using confidence intervals at the 5% level

Source Euromod based on EU-SILC 2004

5.2.3 Instruments driving changes

Following the previous analysis it can be assumed that as regards changes in income distribution, the reliefs by the tax reform 2004/05 on the one hand, and the non-indexation of family benefits from 2003 to 2005 on the other hand, have a counteracting effect. In addition, for specific population groups specific policy changes (e.g. the extension of the single-parent/ single-earner tax credit for single parents and couples with three or more children or the increase of health insurance contributions for the elderly) seem to play a role. To assess the contribution of different groups of instruments to overall changes in more detail, again we split total changes in disposable income into changes related to social security contributions, income taxes and cash benefits. This analysis is accompanied by the analysis of the share of social security contributions, income taxes and cash benefits paid/received by each income quintile and the respective changes from 2003 to 2005 and the assessment of the redistributive effect of each instrument group over time.

5.2.3.1 Role of social security contributions, income taxes and cash benefits

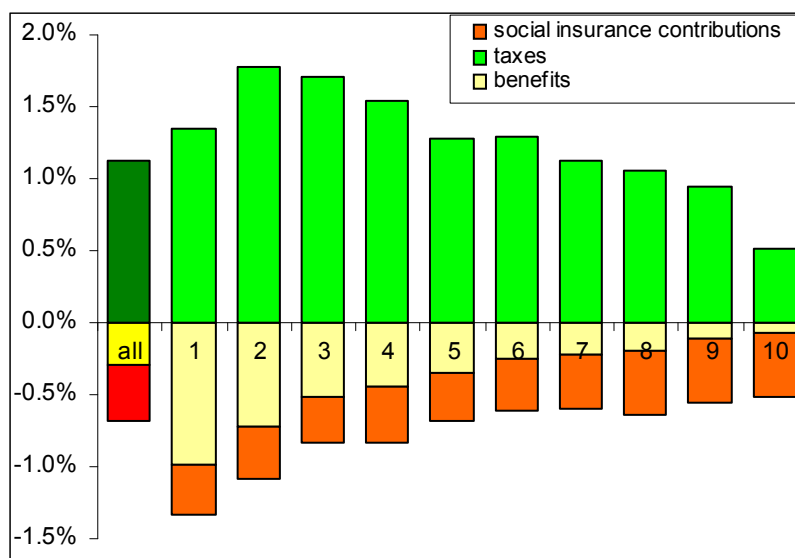
Figure 14 presents the average changes in disposable income per decile (as in Figure 10) related to different instrument groups (for a description of the method see 4.2.3.1). In total, increases in disposable income arise from tax reliefs (tax reform 2004/05). In contrast, decreased benefits – mainly due to the non-indexation of family benefits – and increased social security contributions, i.e. health insurance

contributions, decrease disposable income. However, on average the gains due to tax reliefs outweigh these losses. Thus, the tax reform 2004/05 noticeably strengthened household disposable income.

However, in particular for the bottom decile, gains from paying less tax are equalised by losses in benefits and increases in social security contributions. This development is, on the one hand, due to the fact that the tax reform 2004/05 abstained from an increase in the general negative tax (only the income bracket with eligibility to the negative tax was extended). Thus, persons without or with very low incomes are hardly relieved by the tax reform (Breuss et al. 2004). On the other hand, children are more concentrated in the lower income deciles and income from family benefits builds quite an important part of the total income in these households, thus the non-indexation of family benefits has a stronger impact on low incomes.

For income deciles above the 2nd decile – following the structure of the tax reform – the gains from the tax reform decrease continuously but also the losses due to the non-indexation of family benefits. In terms of higher social security contributions, the higher income deciles are also affected by the extraordinary rise in the upper contribution limit. As a result, in the highest decile the increases of social security contributions almost make up for the gains due to the tax reform.

Figure 14: Decomposition of average %-change in real disposable income 2003-2005, decile groups

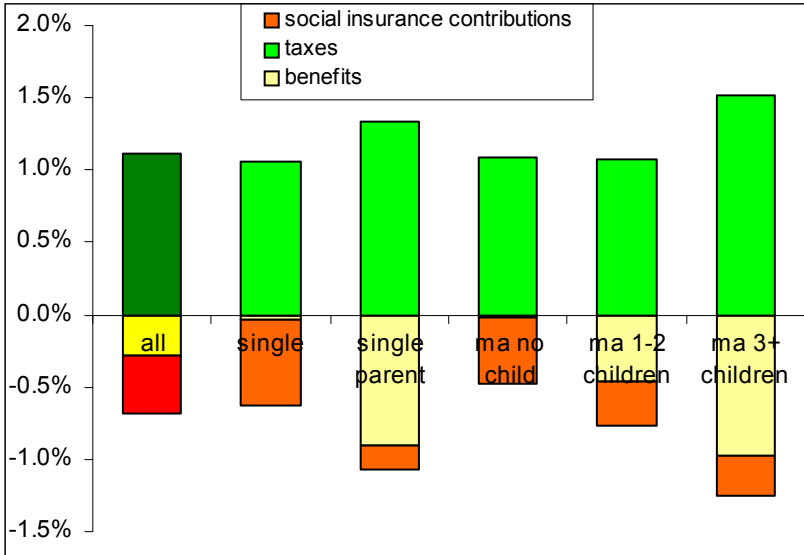


*Decile groups based on equivalised disposable household income in 2003
Source: Euromod based on EU-SILC 2004*

Looking at different household types, Figure 15 clearly states that especially households with children are affected by the lacking adaptation of family benefit amounts. Somewhat higher gains in tax reliefs – as some of them are especially targeted at families with children, like the additional amounts for children

within the single-earner / single-parent tax credit – are substantially reduced by reductions in family benefits (in real income terms).

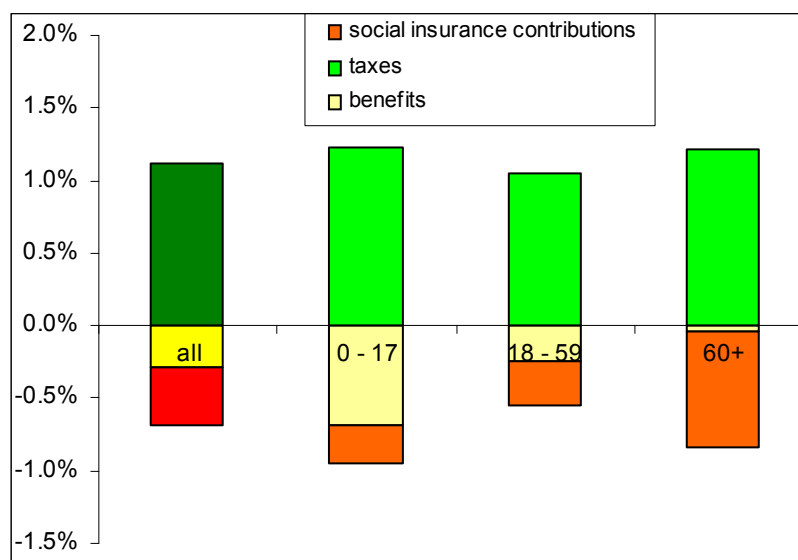
Figure 15: Decomposition of average %-change in real disposable income 2003-2005, household types



ma = more (than one) adult
 Source: Euromod based on EU-SILC 2004

Analysing the changes in disposable household income according to age groups, it can be observed that gains due to the tax reform 2004/05 are more or less equally distributed among the age groups. The differences lie in the reductions of disposable income caused by the non-indexation of family benefits and the increase in social security contributions. Clearly, children are most affected by the non-indexation of family benefits. On the other hand, the elderly are strongly concerned by the increase in health insurance contributions, as pensioners were the group with the highest increase of contributions and these contributions play quite an important role in relation to their total income (Figure 16).

Figure 16: Decomposition of average %-change in real disposable income 2003-2005, age groups



Source: Euromod based on EU-SILC 2004

5.2.3.2 Share of instrument per income group

Following the decomposition of the changes in disposable household income from 2003 to 2005 according to the different tax-benefit instruments, we analyse the development in the share of social security contributions, income taxes and cash benefits paid/received by each income quintile. In general, it again can be seen that lower income groups receive a higher share in total cash benefits than the share they have to pay of total social security contributions and total income taxes, whereas for higher income groups the opposite is true.

In 2003, the bottom quintile paid 6% of all social security contributions and 2% of all income taxes and received 32% of all cash benefits. In contrast, 12% of all cash benefits went into the top quintile whereas it made up for 38% of all social security contributions and 59% of all income taxes.

Looking at the development from 2003 to 2005, the distribution of social security contributions and cash benefits across the income quintiles saw practically no change. This can be explained by the fact that health insurance contributions were raised for all population groups – the differences are related to different occupational groups but not to income groups. In the case of benefits, some minor changes and the general non-indexation of family benefits did not change the distribution across the income quintiles.

On the income tax side, the tax reform 2004/05 led to small changes in the distribution across the income quintiles: the proportion of taxes paid by the top quintile (plus two percentage points) increased in favour of the lower four quintiles. This is due to the structure of the tax reform with the extension of the tax-free

zone on the one hand and the retention of the 50% marginal tax rate for high incomes on the other hand, leading to continuously decreasing gains from the tax reform for higher incomes.

Table 15: Share of instrument per income group, 2003

| | social security contributions | income taxes | cash benefits |
|-------------------|--|---------------------|----------------------|
| quintile 1 | 6.2% | 1.9% | 31.6% |
| quintile 2 | 12.7% | 6.8% | 22.1% |
| quintile 3 | 18.3% | 12.2% | 18.6% |
| quintile 4 | 24.7% | 20.2% | 15.4% |
| quintile 5 | 38.1% | 58.9% | 12.2% |
| total | 100.0% | 100.0% | 100.0% |

*Quintile groups based on equivalised disposable household income in 2003
Source: Euromod based on EU-SILC 2004*

Table 16: Share of instrument per income group, 2005

| | social security contributions | income taxes | cash benefits |
|-------------------|--|---------------------|----------------------|
| quintile 1 | 6.3% | 1.2% | 31.7% |
| quintile 2 | 12.7% | 5.9% | 22.1% |
| quintile 3 | 18.2% | 11.7% | 18.5% |
| quintile 4 | 24.6% | 20.1% | 15.4% |
| quintile 5 | 38.1% | 61.1% | 12.3% |
| total | 100.0% | 100.0% | 100.0% |

*Quintile groups based on equivalised disposable household income in 2003
Source: Euromod based on EU-SILC 2004*

5.2.3.3 Redistributional effect of social security contributions, income taxes and cash benefits

The previous results concerning the distribution of the instrument groups across the income quintiles suggest that the progressivity of income taxes increased slightly whereas there was no change in the progressivity of social security contributions and cash benefits. To evaluate whether this first assessment can be approved, Table 17 and Table 18 show the standard measures for redistribution as described in Chapter 4.2.3.3 of the paper.

The Reynolds-Smolensky- and the Kakwani indexes approve the insignificance of changes in social security contributions and cash benefits concerning redistribution. The indexes also confirm that the redistributive impact of income taxes increased with the tax reform 2004/05 but the rise is rather modest. Not surprisingly, the higher redistributional effect of the income taxes stems from the higher progressivity of the instrument (indicated by the Kakwani index) and not from the “importance” of the instrument, as tax rates were lowered. However, in terms of redistribution (under the assumption of full take-up), cash benefits are still the most important instrument.

Table 17: Redistributive effect of tax/benefit-instruments, 2003

| | Gini pre | Gini post | Reynolds-Smolensky index | rate | Kakwani index | re-ranking index |
|---------------------------------------|----------|-----------|--------------------------|---------|---------------|------------------|
| social insurance contributions | 0.33663 | 0.34031 | -0.00205 | 0.13511 | -0.01313 | 0.00163 |
| std.error | 0.00568 | 0.00563 | 0.00001 | 0.00064 | 0.00003 | 0.00004 |
| taxes | 0.34031 | 0.29500 | 0.04717 | 0.17877 | 0.21670 | 0.00187 |
| std.error | 0.00168 | 0.00155 | 0.00014 | 0.00098 | 0.00075 | 0.00002 |
| benefits | 0.29500 | 0.23896 | 0.06354 | 0.11020 | 0.64015 | 0.00750 |
| std.error | 0.00035 | 0.00012 | 0.00122 | 0.00180 | 0.00296 | 0.00075 |

rate: size of instrument in percentage of base

Source: Euromod based on EU-SILC 2004

Table 18: Redistributive effect of tax/benefit-instruments, 2005

| | Gini pre | Gini post | Reynolds-Smolensky index | rate | Kakwani index | re-ranking index |
|---------------------------------------|----------|-----------|--------------------------|---------|---------------|------------------|
| social insurance contributions | 0.33663 | 0.34030 | -0.00218 | 0.13826 | -0.01359 | 0.00149 |
| std.error | 0.00621 | 0.00759 | 0.00138 | 0.00225 | 0.00873 | 0.00001 |
| taxes | 0.34030 | 0.29203 | 0.05026 | 0.16919 | 0.24681 | 0.00199 |
| std.error | 0.00217 | 0.00116 | 0.00098 | 0.00069 | 0.00359 | 0.00002 |
| benefits | 0.29203 | 0.23801 | 0.06117 | 0.10618 | 0.63729 | 0.00716 |
| std.error | 0.00171 | 0.00223 | 0.00124 | 0.00240 | 0.00001 | 0.00072 |

rate: size of instrument in percentage of base

Source: Euromod based on EU-SILC 2004

6 The impact of hypothetical policy measures

6.1 Introduction

Micro-simulation models are especially useful for answering “What-if”-questions about different approaches to policy reform as they offer distinct possibilities of modelling, so that simulated changes translate directly into changes of actual policy rules. For this purpose the advantage of micro-simulation models is that the effects of reform measures both on disposable household income and its distribution and on the potential budgetary consequences for the state (or responsible public authorities) can be studied.

We use this capability to assess the “over-night” impact of two hypothetical policy reforms that could have an impact on low incomes and poverty. The choice of these reform scenarios is partly derived by proposals made in the current policy debate (reform 1: continuous introduction of employees’ social security contributions above the lower threshold for contributions) and partly induced by the results of our analysis of actual policy reforms (reform 2: indexation of family benefits).

The simulations are based on the tax/benefit system in force in 2005. For this purpose, the incomes contained in the latest available micro data (EU-SILC 2004 with incomes 2003) are up-rated with specific up-rating factors (depending on the type of income) to 2005. On the basis of this method the income distribution and the poverty rates in the “baseline scenario” are calculated. Then the reform scenarios are applied and analysed. For the reform scenarios we again use a “retained” poverty line, i.e. the same poverty line as in the baseline scenario.

6.2 Reform 1: continuous introduction of employees’ social security contributions above the lower threshold for contributions

In the current system employees start paying the full rate of social security contributions once their monthly income exceeds the lower threshold for contributions which amounted to € 323.46 in 2005. Below this limit no compulsory insurance contributions have to be paid by employees, there is only the option for a voluntary health and pension insurance.²⁶

²⁶ As the focus in this paper is on household disposable income, social security contributions by employers are again not included in the analysis.

The proposal to switch to a continuous introduction instead of an abrupt introduction of social security contributions above the lower threshold for contributions is based on two concerns. On the one hand, in the area of low incomes negative incentives to take up, extend or to continue employment should be avoided. It is argued that the erratic progression in the low-income sector caused by the current regulation is inequitable and counterproductive for effective incentives for work. On the other hand, there is also the argument that for employees who did not profit from the tax reform 2004/05 because of already tax-free incomes some supportive measures to increase their net income have to be introduced. The decrease of social security contributions for employees with low incomes would be one example for measures leading in this direction.

The concrete reform scenario introduces staggered social security contributions for employees with low income. The full contribution rate (18.0% white collar; 18.2% blue collar) is only reached at a monthly gross income of € 1000. Between € 323.46 and € 1000 the rate is increased continuously from zero to the full rate.

On average, the reform would produce an increase in disposable household income by 0.3%. As the measure is targeted at low-income groups, it has also some kind of redistributive effect. The gains are the highest in the bottom income decile (about 0.7%) and decrease continuously with rising income. In terms of household types, single parents would profit most from the reform (average increase of disposable income by 0.4%) as they seem to be most frequently engaged in the degree of employment concerned. Looking at age groups and gender, despite the fact that persons in pension age are certainly less affected by the measure, there are no relevant differences.

Table 19: Reform 1: Average percentage change in disposable income by population group

| all | 0.29% |
|--------------------------|--------------|
| decile 1 | 0.68% |
| decile 2 | 0.55% |
| decile 3 | 0.47% |
| decile 4 | 0.51% |
| decile 5 | 0.43% |
| decile 6 | 0.35% |
| decile 7 | 0.28% |
| decile 8 | 0.20% |
| decile 9 | 0.15% |
| decile 10 | 0.06% |
| hh type: single | 0.09% |
| hh type: single parent | 0.43% |
| hh type: ma no child | 0.30% |
| hh type: ma 1-2 children | 0.36% |
| hh type: ma 3+ children | 0.29% |
| age 0-17 | 0.35% |
| age 18-59 | 0.35% |
| age 60+ | 0.09% |
| female | 0.29% |
| male | 0.29% |

ma = more (than one) adult

Decile groups based on equivalised disposable household income in 2005

Source Euromod based on EU-SILC 2004

However, the (relatively small) increases in disposable income cannot produce any significant change in poverty rates. The calculations result in annual costs or decreased revenues for the state from employees' social security contributions of € 294 million. Thus, the additional costs would manage to increase the disposable income of low-income groups to some extent but not reduce the poverty rates.

Table 20: Reform 1: Change in poverty rates by population group

| | base | reform |
|--------------------------|--------------|--------------|
| total | 11.1% | 10.9% |
| hh type: single | 20.4% | 20.0% |
| hh type: single parent | 21.4% | 21.4% |
| hh type: ma no child | 8.8% | 8.6% |
| hh type: ma 1-2 children | 7.3% | 7.0% |
| hh type: ma 3+ children | 16.4% | 16.4% |
| age 0-17 | 11.4% | 11.2% |
| age 18-59 | 10.0% | 9.7% |
| age 60+ | 13.8% | 13.8% |
| female | 12.5% | 12.2% |
| male | 9.6% | 9.4% |

ma = more (than one) adult

Poverty rate: share of people living in households with disposable income below the poverty line

Poverty line: 60% of median equivalised disposable household income in 2005

Source Euromod based on EU-SILC 2004

6.3 Reform 2: yearly indexation of family benefits

Relating to the results of the analyses of the effects of policy changes in the period 2003 to 2005, the reform picks up the fact that family benefits are not “indexed” in Austria, i.e. do not rise with inflation or income growth. In general, given the high expenditure on family benefits in an international comparison and the significant increases in recent years, this seems not to be a dramatic problem. Nevertheless, since these last adaptations took place, the real income for families derived from family benefits decreased.

The last amendment of the child tax credit goes back to the year 2000, the childcare benefit was not increased since its introduction in 2002. In the case of the family allowance, the age-related amounts (surcharges for children above two years of age) were adapted in 2003, the surcharges depending on the number of children in 2000 and the surcharge for families with more than two children (“Mehrkindzuschlag”) in 2002.

The reform scenario raises the mentioned family benefits from each last year of adaptation to the year 2005 by the consumer price index. With this measure the disposable household income would rise on average by 0.4%. As children are more concentrated in the lower income deciles and the same absolute amounts of family benefits are higher in relation to low incomes, the reform would have some kind of redistributive impact. In the lowest three deciles, the gains would amount to about 0.9% and would continuously decrease in the higher deciles. Relating to the household type, couples with three and more children (plus 1.4%) as well as single parents (plus 1%) would benefit most from the indexation.

Table 21: Average percentage change in disposable income by population group, reform 2

| | |
|--------------------------|--------------|
| all | 0.39% |
| decile 1 | 0.85% |
| decile 2 | 0.87% |
| decile 3 | 0.88% |
| decile 4 | 0.69% |
| decile 5 | 0.48% |
| decile 6 | 0.39% |
| decile 7 | 0.36% |
| decile 8 | 0.24% |
| decile 9 | 0.18% |
| decile 10 | 0.09% |
| hh type: single | 0.00% |
| hh type: single parent | 1.00% |
| hh type: ma no child | 0.00% |
| hh type: ma 1-2 children | 0.67% |
| hh type: ma 3+ children | 1.37% |
| age 0-17 | 0.96% |
| age 18-59 | 0.34% |
| age 60+ | 0.04% |
| female | 0.40% |
| male | 0.39% |

ma = more (than one) adult

Decile groups based on equivalised disposable household income in 2005

Source Euromod based on EU-SILC 2004

In contrast to reform 1, the benefit indexation would be able to reduce poverty rates for households with children. Especially single parents – a group substantially at risk of poverty – and certainly children themselves would benefit from the reform. The calculations result in annual costs or higher expenditure on family benefits of € 341 million. Thus, not taking into consideration important factors like work incentives and solely concentrating on combating poverty, with only a slightly higher budget than for reform 1, the effect on poverty rates is more pronounced.

Table 22: Change in poverty rates, different groups, reform 2

| | base | reform |
|--------------------------|--------------|--------------|
| total | 11.1% | 10.5% |
| hh type: single | 20.4% | 20.4% |
| hh type: single parent | 21.4% | 18.6% |
| hh type: ma no child | 8.8% | 8.6% |
| hh type: ma 1-2 children | 7.3% | 6.4% |
| hh type: ma 3+ children | 16.4% | 15.2% |
| age 0-17 | 11.4% | 10.1% |
| age: 18-59 | 10.0% | 9.5% |
| age: 60+ | 13.8% | 13.8% |
| female | 12.5% | 11.8% |
| male | 9.6% | 9.2% |

ma = more (than one) adult

Poverty rate: share of people living in households with disposable income below the poverty line

Poverty line: 60% of median equivalised disposable household income in 2005

Source Euromod based on EU-SILC 2004

7 Summary and conclusions

The aim of the presented analysis is to evaluate whether policy reforms in Austria between 1998 and 2005 were successful in meeting redistributive objectives and in reducing poverty. In addition, the outcomes of two hypothetical policy reforms, one targeting employees with low incomes, the other families with children, were assessed. The main findings based on the tax/benefit micro-simulation model EUROMOD²⁷ relating to equivalised disposable household income are:

Changes in the Austrian tax/benefit system from 1998 to 2003 (primarily the increase of family benefits with the “family package” 1999/2000, the tax reform 2000 and the introduction of the childcare benefit in 2002) led in total to a significant increase in disposable household income (on average 1.1%). The changes were clearly progressive meaning that gains in disposable income were the higher the lower the income, only the top income groups faced (moderate) losses. The progressive nature is also illustrated by decreasing overall poverty rates. (This observation is based on the concept of the analysis, i.e. using a “retained” poverty line as well as up-rating and devaluating incomes for comparison purposes by the consumer price index.²⁸)

A second characteristic of changes in the period 1998 to 2003 is their family-friendliness. While all household types without children saw on average a slight decrease in their disposable income, all household types with children gained. The “big winners” were those groups who are most at risk of poverty and have the lowest disposable income (around 80% of the total average): couples with three or more children and single parents. In the same sense, poverty reduction concentrated on households with children and the reforms clearly succeeded in reducing child poverty. The poverty rate for couples with three children and more decreased substantially. The situation improved on average also for single parents, although their poverty rate remained far above the overall poverty rate. In contrast there was near to no change in poverty rates for groups without children.

While the other age groups experienced an increase in disposable income and a decrease in their poverty rates, the situation for people aged 60 years and more remained more or less the same. Thus, the already considerable difference between the overall poverty rate and the poverty rate for elderly people increased.

²⁷ As input datasets we use ECHP 1999 and EU-SILC 2004.

²⁸ Note that this observation is based on the concept of the analysis, i.e. using a “retained” poverty line as well as up-rating and devaluating incomes for comparison purposes by the consumer price index (see Chapter 2.3).

Concerning the question which instruments were the driving forces, higher cash benefits accounted for almost all the increases in disposable income. Tax reliefs targeted at (low-income) families with children (increases in the single-earner/ single-parent tax credit including negative tax) had some impact on poorer people's income, especially for single parents. However, for the general public of tax-payers, decreases in taxes (due to the tax reform 2000) were more than compensated by the following reduction of tax credits (wage-earner tax credit, pensioners' tax credit) and by fiscal drag. Especially the elderly were affected by the reduction of tax credits – in conjunction with the relatively low indexation of the pension top-up this explains their stagnant position in terms of disposable income mentioned above. Changes due to social security contributions can almost be neglected.

In sum, the effect of increases in benefits outnumbers the effect of a de-facto increase in income taxes by far, this explains the average rise in the disposable income of the households. If we look at the lion's share of an increase in benefits, almost all of the increase is due to an increase in family-related benefits: Both the increase of the family allowance and the child tax credit as well as the introduction of the child care benefit played an important part. The redistributive impact of these *per se* universal benefits, which also benefit high-income groups, stems from the fact that on the one hand, the same absolute amounts play a significantly larger relative role related to the income of low-income groups, and that on the other hand children are more concentrated in lower income groups.

Changes in the Austrian tax/benefit system from 2003 to 2005 (mainly the tax reform 2004/5 and increases in the health insurance contributions since 2004) led in sum to an average gain of 0.4% in disposable household income. In general, the measures had no significant impact on income distribution and poverty: While there was nearly no change in disposable income for the top and the bottom decile, the lower deciles gained slightly more than the higher deciles.

On average households without children profited more than households with children. However, some poverty reduction for single parents and couples with three and more children can be observed. With respect to age groups, people in working age gained slightly more than children and the elderly.

If we look at the instruments driving the changes, we find that all population groups benefited from the tax reform 2004/05. However, as the tax reform abstained from an increase in the (general) negative tax, the gains are relatively low in the bottom decile but the highest in the 2nd decile, from where they decrease continuously with rising income. A noteworthy finding is that increases in disposable income arising from the tax reform were to a certain extent lowered by losses in benefits (in terms of real income). These losses are due to the fact that in Austria family benefits are not “indexed”, i.e. do not rise with inflation or income growth, thus, as a result benefit amounts proportionally fall short of other

incomes. Especially households with children were affected and thus over-proportionally lower income groups, as children are more concentrated in low-income households and especially for single parents and for couples with three or more children state transfers, in particular family benefits, make up for a relatively high share in total income.²⁹ However, the extension of the single-parent/ single-earner tax credit within the tax reform 2004/05 (including negative tax for families with children) supported those vulnerable groups. The elderly were mostly affected by the increase of health insurance contributions, as pensioners were the group with the highest increase of contributions and these contributions play quite an important role in relation to their income.

In total, the preponderance of gains from the tax reform led to an increase in disposable income. However, as mentioned above, for the bottom decile the gains were fully compensated mainly due to losses (in terms of real incomes) caused by the non-indexation of family benefits and for the top decile due to higher social security contributions related to an extraordinary increase of the upper contribution limit.

Another important part of the analysis related to the *share of instruments* (social security contributions, income taxes, cash benefits) *paid/ received per income group* and the *redistributional effect of the instruments* over time.³⁰ In general, the upper contribution limit of social security contributions and the progressive scale of income tax lead to the fact that income tax is much more concentrated on higher income groups than social security contributions. Also cash benefits – despite the high share of social-insurance-related and universal benefits – favour people with less income. Concerning social-insurance-related benefits this at the first glance surprising diagnosis stems from the fact that the probability of becoming unemployed or sick is higher in lower income classes. In the case of universal family benefits, the vertical redistributive impact is caused by the distribution over the life cycle (high benefit intensity around birth, children are more concentrated in lower income groups) (Guger 1996; Guger 1998; Guger 2005).

In 2005, the bottom quintile paid 6% of all social security contributions and 1% of all income taxes and received 32% of all cash benefits. On the other side, the highest quintile brought up 38% of all social security contributions and 61% of all income taxes and benefited from 12% of all cash benefits. Disregarding artificial changes due to the usage of different underlying datasets (ECHP 1999 and EU-SILC 2004), two developments can be observed in the period 1998 to 2005: Between 1998 and 2003, due

²⁹ However, this has to be put into the context that in Austria the promotion of families with cash benefits was significantly increased until 2003 and is quite generous in an international comparison.

³⁰ The analysis is based on the assumption of full take-up of benefits, in particular social assistance benefits. Pensions, with the exception of pension top-up, are counted as original income (see Chapters 2.1 and 2.3).

to the extension of family benefits, the proportion of benefits received by the higher two quintiles decreased in favour of the lower three quintiles by about 1.5 percentage points. In the period 2003 to 2005, the tax reform 2004/05 increased the proportion of taxes paid by the top quintile (plus two percentage points) in favour of the lower four quintiles. Thus, no substantial changes in the distribution of the instruments can be assessed, but the changes indicate also a redistributive impact.

To refine the assessment of the distributional effects of the instrument groups, we use a range of standard measures on income inequality (e.g. the Reynolds-Smolensky Index of Redistribution based on the difference between income inequality before and after applying an instrument). Cash benefits have the highest redistributive impact of the three instruments. In the period of the extension of family benefits (1998 to 2003) the Reynolds-Smolensky Index for cash benefits slightly increased. Moreover, the redistributive impact of income taxes was slightly raised in the line of the tax reform 2004/05. Social security contributions – due to the upper contribution limit – have even a slight regressive impact and showed no changes in the periods of investigation. In sum, the redistributive impact from high to low income classes reaches a considerable amount. Measured by equivalised household income, the Gini for original gross income stands at 0.34 in comparison to 0.24 for net disposable income.

Concluding, our analysis indicates that tax/benefit reforms between 1998 and 2003 were clearly successful in reducing income inequality and combating poverty, especially among families with children, while reforms in the period 2003 to 2005 – despite producing an average increase of disposable income – had no strong impact on income distribution and poverty. Noteworthy the reforms were not budget neutral but implemented at the cost of a higher budget deficit. This holds true especially for the increases of family benefits whereas the effect of the tax reform 2004/05 will be compensated after 2005 by fiscal drag. Our investigation also indicates that not all population groups at risk of poverty gained from recent reforms. For example, the measures had practically no impact on the situation of elderly people. Moreover, vulnerable groups that clearly benefited from the reforms like single parents and couples with three and more children still face a comparatively high poverty rate. That means that there is still a necessity to put combating poverty and social exclusion at the centre of political efforts.

Thus, we use the capability of EUROMOD to assess the impact of two *hypothetical reforms* that could have an impact on low incomes and poverty. Following recent policy discussions, in reform scenario 1 we simulate a continuous introduction of social security contributions for employees above the lower threshold for contributions up to a monthly gross income of € 1,000 (instead of the current abrupt introduction).³¹ On average, the reform would produce an increase in disposable household income by

³¹ As the focus of this paper is on disposable household income, we do not analyse possible reductions on contributions paid by employers.

0.3%. As the measure is targeted at lower income groups, the gains would be the highest in the bottom income decile and decrease continuously with rising income. However, the (relatively small) increases in disposable income cannot produce any significant change in poverty rates. The costs of the reform would amount to about € 300 million annually.

Relating to the results of the analyses of the effects of policy changes in the period 2003 to 2005, the 2nd reform scenario picks up the fact that family benefits are not yearly indexed in Austria. Thus we simulate a rise of family benefits by the consumer price index from each last year of adaptation to the year 2005. With this measure the disposable income would rise on average by 0.4%. In the lowest three deciles, the gains would amount to about 0.9% and would continuously decrease in the higher deciles. In addition, the family benefit indexation would be able to reduce poverty rates for households with children, especially single parents would benefit from the reform. The measure would result in costs of about € 350 million annually. However, it has to be kept in mind that (even without this possible reform) expenses on family benefits are already quite high in an international comparison.

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Appendix 1: Measures of redistribution

The measures of income redistribution and progressivity used in this study are based on a family of indices based on the single-parameter Gini (or S-Gini) (Donaldson and Weymark, 1980; Yitzhaki, 1983). The redistributive effect, Π^{RE} , of taxes and/or benefits is measured as the difference between the Gini coefficients of income before and after taxes and/or benefits. This difference can be decomposed into *vertical equity* and *re-ranking*. Vertical equity is measured by the Reynolds-Smolensky index, Π^{RS} , (Reynolds and Smolensky, 1977) which is defined as the difference between the Gini coefficient for income before taxes and/or benefits and the concentration index³² of income after taxes and/or benefits. Re-ranking is measured by the re-ranking index, D , which is defined as the difference between the generalised Gini coefficient for income after taxes and/or benefits and the generalised concentration index of income after taxes and/or benefits.

$$\begin{aligned}\Pi_{TB}^{RE} &= G_X - G_{X+TB} \\ &= \Pi_{TB}^{RS} - D \\ &= [G_X - C_{X+TB}] - [G_{X+TB} - C_{X+TB}]\end{aligned}\tag{1}$$

Progressivity is measured using the Kakwani index Π^K (see Kakwani 1977). This is defined as the difference between the generalised concentration index of taxes and the generalised Gini coefficient for income before taxes.

$$\Pi_T^K = C_T - G_X\tag{2}$$

Equation (3) shows the relationship between the Reynolds-Smolensky and the Kakwani indices:

$$\begin{aligned}\Pi_T^{RS} &= \frac{t}{1-t} \Pi_T^K \\ \rho_B^{RS} &= \frac{b}{1+b} \rho_B^K\end{aligned}\tag{3}$$

where t is the average tax rate and b the average benefit rate.

³² The concentration index is the Gini index for the concentration curve.

Appendix 2: Total change in disposable income 1998-2003

The table below compares disposable income and its components in 1998 and 2003 based on two different datasets: For 1998 the 5th wave of the ECHP and for 2003 the EU-SILC 2004 (containing income data for 2003) is used. 2003 incomes are devaluated to 1998 prices using the consumer price index for comparison purposes. The table reports a change of disposable income of 6.7%, whereof however 6.4% are changes in original income. Thus, it is obviously impossible to evaluate to which extent the changes in taxes and social insurance contributions are due to reforms in these policies, due to socio-economic changes in terms of employment rate, unemployment rate and number of pensioners, etc. and which are due to the different databases themselves (different sample, interviewer effects, etc.). Furthermore, the lack of panel data for the two years, for example, makes the comparison of income by household type virtually unusable.

*Total change in average disposable income 1998-2003**

| | total change in average disp.income | original income | thereof increase in ... | | |
|------------------------|---|--------------------|-------------------------|--------------|-----------------------|
| | | | benefits | taxes | soc. sec. contrib. |
| all | 6.7% | 6.4% | 2.9% | -1.6% | -0.9% |
| decile 1 | 6.8% | 0.3% | 6.7% | 0.1% | -0.3% |
| decile 2 | 6.0% | -1.2% | 6.0% | 0.8% | 0.4% |
| decile 3 | 6.8% | 5.8% | 1.8% | 0.0% | -0.8% |
| decile 4 | 7.3% | 6.7% | 3.0% | -0.1% | -2.3% |
| decile 5 | 7.7% | 2.1% | 4.7% | 0.5% | 0.4% |
| decile 6 | 6.9% | 4.7% | 4.4% | -0.8% | -1.4% |
| decile 7 | 5.9% | 3.6% | 4.3% | -0.7% | -1.3% |
| decile 8 | 5.2% | 5.0% | 0.8% | -0.4% | 0.0% |
| decile 9 | 4.5% | 5.4% | 1.7% | -1.7% | -0.9% |
| decile 10 | 8.9% | 15.5% | 1.3% | -6.5% | -1.5% |
| hh type**: | | | | | |
| single | 7.9% | 15.4% | 0.0% | -6.5% | -1.0% |
| single parent | 4.8% | 3.4% | 5.4% | -2.5% | -1.5% |
| ma no child | 2.6% | 4.6% | -0.1% | -0.6% | -1.3% |
| ma 1-2 children | 9.9% | 5.8% | 6.1% | -1.1% | -0.9% |
| ma 3+ children | 9.7% | 1.4% | 9.1% | -0.6% | -0.3% |
| age 0-17 | 10.3% | 4.7% | 7.9% | -1.6% | -0.8% |
| age 18-59 | 3.6% | 1.6% | 2.8% | -0.2% | -0.6% |
| age 60+ | 12.2% | 21.1% | -1.3% | -6.0% | -1.7% |

* using 5th wave of ECHP for 1998 and EU-SILC 2004 for 2003

** hh=household; ma = more (than one) adult

Decile groups based on equivalised disposable household income in the respective year

Source: Euromod

Appendix 3: Changes not covered by the analysis

The changes that are not covered by our analysis can be divided into three groups. The first group relates to the fact that not only the disposable income (after social security contributions, income taxes and cash benefits) plays a role in terms of income distribution and poverty but also expenditures that have to be met by the households. In the period 1998 to 2003, the following changes concerning expenditures can be mentioned:

- Miscellaneous increases in taxes and fees, e.g. for motor vehicles, electricity, tobacco, driving-licence, passport, etc.;
- in the health-care system, out-of-pocket-payments (for prescriptions, medical aids, etc.) were increased, both categories put a burden especially on recipients of low incomes;
- the contribution-free health-coinsurance was abolished for certain relatives, the additional contribution rate for these relatives amounts to 3.4%³³;
- introduction of tuition fees for students, etc.

Between 2003 and 2005, among others the following changes concerning expenditures took place:

- Increases in several taxes, e.g. mineral oil and tobacco tax, but on the other hand decreases of consumption taxes in the course of the tax reform 2004/05;
- In the health-care system, out-of-pocket-payments (for prescriptions, medical aids, spectacles, etc.) were increased, which put a burden especially on recipients of low incomes.

The second group of changes not covered by the analysis relates to changes in benefits that cannot be simulated (due to the lack of information on the insurance and work history in the data) but are taken directly from the data using up-rating factors. As most important measure of this kind, the modified calculation method for the unemployment benefit in 2001 (uniform net replacement ratio instead of the calculation by wage classes, reduction of family supplements, increase of the replacement ratio in the case of low benefits) is not taken into account for the analysis of changes between 1998 and 2003. After the reform, in general unemployed persons with children receive lower benefits, unemployed persons on low benefits without children receive higher benefits than before (AK diverse volumes).

Although we concentrate explicitly on the “day after” effect of policy changes, for a complete information we also list a third group of changes not covered by the analysis which refers to changes in

³³ There is no information in the survey data on circumstances which are determining whether the additional contribution rate has to be paid or not.

the socio-economic environment; substantially to changes in the employment rate, in the unemployment rate, in the number of pensioners and in the level of gross incomes in the periods under investigation:

- The average number of employed persons (employees and self-employed) increased from 3.446 million in 1998 to 3.560 million in 2003 and reached a new peak in 2005 with 3.619 million (AK 2006, 136; Statistik Austria 2006c, 198). The increase is mainly due to employees working part-time. There were also specific changes in the employment patterns of certain groups, for example the introduction of the childcare benefit led to a deferral of the (re)entry of mothers into the labour market (Lutz 2003; Riesenfelder et al. 2006).
- Compared to 7.2% in 1998, the (national) unemployment rate stood at 7.0% in 2003 and reached again 7.2% in 2005 (AK diverse volumes).
- The total number of pensioners increased from 1.995 million in 1998 to 2.105 million in 2003 and reached also a new peak in 2005 with 2.143 million (Statistik Austria 2001; Statistik Austria 2006; Statistik Austria 2007 HV SV diverse volumes).
- In terms of incomes from pensions, we do not take into account structural effects (higher pensions for new pensioners than for outflows). In terms of individual gross employment incomes, the situation since 1998 was influenced by the extension of part-time work. Thus, the differences between low and high individual employment incomes increased both from 1998 to 2003 and from 2003 to 2005, the real median income of employees even decreased. However, gross earnings per head increased in each period under investigation. Thus, on the level of households gross income increased as more persons per household received an income, on the household level there was also no trend towards higher income inequality (Rechnungshof 2004; Rechnungshof 2006; Statistik Austria 2007).