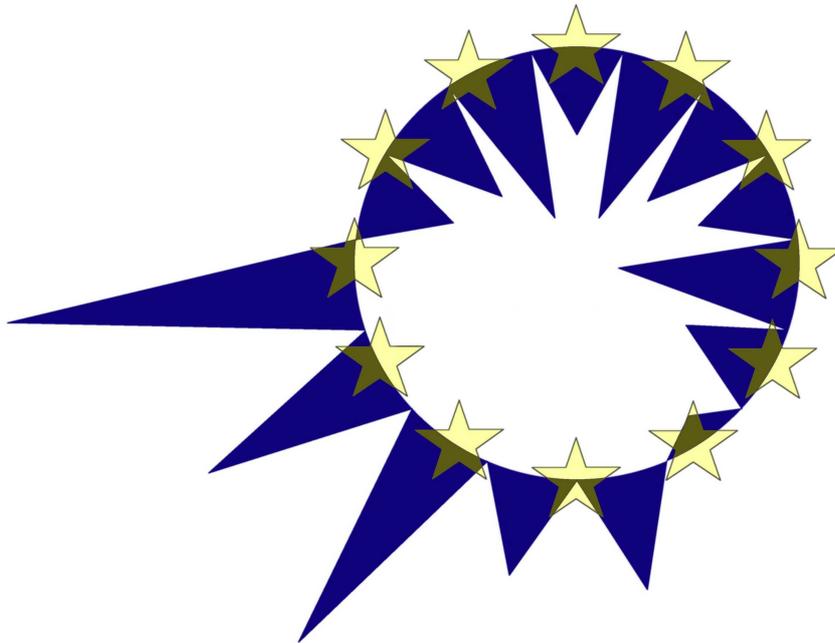


# EUROMOD

## WORKING PAPER SERIES



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ALTERNATIVE TAX-BENEFIT  
STRATEGIES TO SUPPORT CHILDREN IN  
POLAND

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**ALTERNATIVE TAX-BENEFIT STRATEGIES TO SUPPORT CHILDREN  
IN POLAND\***

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\* This paper uses EUROMOD version D15. 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 the 2005 Polish Household Budgets' Survey (Badanie Budżetów Gospodarstw Domowych - BBGD), provided by Polish Central Statistical Office and prepared at the Department of Economics, Warsaw University. Neither the Polish Central Statistical Office nor Warsaw University bear any responsibility for the analysis or interpretation of the data reported here.

# Alternative tax-benefit strategies to support children in Poland<sup>1</sup>

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## Abstract

Eurostat data shows that children and elderly are especially at risk of being in poverty. In 2004 the average rates of poverty risk in the European Union for these groups were about 19%. In Poland, the rate was 29% for children and only 7% for the elderly. We examine the role of the tax-benefit system in explaining this situation and analyse how much child poverty figures could change under several reform scenarios. In 2005, families with children were mainly supported by a means-tested family allowance and some supplements. This was extended in 2007 with the introduction of a non-refundable child tax credit. Making use of the European tax-benefit microsimulation model EUROMOD, this paper assesses the consequences of the recent reform in Poland. We examine the outcome in comparison to child policies in three other European systems and show that poverty reduction would have been more pronounced, if child policies were changed along the lines of the system in France or the United Kingdom. The Austrian system – relying primarily on universal benefits – would bring about a similar reduction in the poverty rate but with much greater reduction in the poverty gap. The paper presents detailed distributional analysis under the different systems assuming the cost of “importing” each of them to be the same as that of introducing the 2007 reform.

**JEL Classification:** D31, I38

**Keywords:** child poverty, tax and benefit reforms, transition

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## 1. INTRODUCTION

A non-refundable child credit was introduced in Poland in 2006 for the 2007 tax year. Initially announced at the value of €31.90 per year per child at its introduction the tax credit was raised to €306.40 which took the cost of this reform to between €1.73 and €1.89 billion per year or between 0.58% and 0.63% of the GDP.<sup>2</sup> In the light of the total value of social spending on family benefits (€2.18 billion per year) and social assistance (€0.4 billion per year) this represents a significant shift of resources to families with children.<sup>3</sup>

The early extension of the generosity of the credit, the full value of which could be claimed for 2006, coincided with the early parliamentary elections in fall 2007. It seemed like a rushed decision with little thought given to the consequences of the policy and little analysis of potential other options of supporting families with children. The coalition government at the time (with Jaroslaw Kaczynski as the prime minister) provided little justification for the policy beyond the claim that it was in line with its agenda of “supporting the family”, and the policy attracted little scrutiny (and even less criticism) from the opposition parties. The election campaign certainly contributed to the unwillingness of opposing a major tax hand-out, but the policy could have actually appealed to the then major opposition party, the Civic Platform (PO). Not only the policy represented a tax-cut but as we shall show its benefits have gone largely to better-off families representing a significant proportion of the PO’s electorate. The policy (together with some other tax cuts introduced by the Kaczynski government) was taken on board by the new government formed by Donald Tusk and there has been no discussion since of scaling it back.

To the best of our knowledge distributional effects of the reform have not been investigated in detail and not much is known about potential effects of the reform on child poverty, and more generally on the incomes of households with children. All this despite the very high rate of child poverty in Poland. According to the European Commission document “Child poverty and well-being in Europe” the at-risk-of-poverty rate among families with children in Poland was equal to 29% in 2005 and was the highest among all EU-25 countries. Significantly lower poverty rates were observed in the Czech Republic – 18%, Hungary – 20% and Estonia – 21%. This suggests that historical reasons (fifty years of centrally planned economy) and low level of economic development do not present fully satisfactory explanations of high child poverty in Poland.

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<sup>2</sup> Information from the Ministry of Finance (converted using the exchange rate from 30.06.2007, €1=3.768).

<sup>3</sup> Value for the cost of Family Allowance from Statistical Yearbook of Poland; value for the cost of Social Assistance after the Ministry of Labour and Social Policy (questionnaire MPiPS-03).

Poverty among families with children has been identified as a key challenge for social policy in Poland. In an official document approved by the government entitled “National Report on strategies for social protection and social inclusion” it has been declared that “*comprehensive policy for families with children is the most essential priority for social integration*”. The government agenda includes changes in the system of family benefits as well as in housing benefit and personal income tax regulations, with the goal of changing the structure of social spending. It is estimated that prior to 2007 only about 4.7% of total social spending (0.8% of GDP) was spent on family and child benefits.

Such agenda finds justification in empirical studies that have shown that countries with the lowest child poverty rates are the ones that allocate the highest proportions of their gross national product to child support (Adamson, et al. (2000), Bradshaw and Finch, (2002). Also, it has been shown that appropriately designed and well funded policies can have a considerable effect on family incomes and hence on reducing child poverty. Adamson et al. (2000) note that differences in tax and social expenditure policies can result into different rates of reduction of ‘market child poverty’ ranging from a high of 20 percentage points to a low of 5 percentage points. Such differences in the effect of policies are also reported by Levy et al. (2007) who found that in a swap of policies between the UK and Spain, policies from the UK were more effective at reducing poverty levels in Spain even when expenditure levels were held constant.

Considering the government intention to reduce poverty rate among families with children in Poland it is important to consider the consequences of the introduction of the child tax credit together with possible alternative solutions. In this paper we assess the effect of the recent introduction of the Polish reform and ask what the outcome would have been if instead of that child policies had been reformed in line with the systems of Austria, France and the United Kingdom. The choice of these three systems is guided by the fact that they represent different approaches in supporting families. The Austrian system gives emphasis to universal credits, the French to tax concessions and targeting large and lone parents families, while the system in the United Kingdom gives more emphasis to means-testing. The Polish and other systems described in the paper are the ones in force in 2005. Results are obtained by using the European tax-benefit microsimulation model EUROMOD.

The paper presents first policy evaluation results of the tax reform in Poland obtained by applying a tax and benefit microsimulation model. It is the first study in which effects of alternative policy scenarios based on implementation of policy solutions from other countries are presented for Poland. Our main result is that the significant amount of resources spent on the introduction of the

child tax credit in 2007 could have brought greater reductions in poverty rates among children had it been channelled differently to households with children. We show that by increasing the social expenditure by the same amount as with the child credit tax reform, the rates of poverty for children would have decreased significantly more under the French or the UK system. We claim that better targeting of social spending explains effectiveness of these policies.

The paper is organized as follows. Section 2 presents a detailed description of poverty among families with children and social protection in Poland. Section 3 describes the policies to support families with children in Poland, Austria, France and the United Kingdom. Section 4 discusses the methodology used for the assessment of alternative child policy reforms in Poland. Section 5 shows the results. Section 6 concludes.

## **2. CHILD POVERTY AND SOCIAL PROTECTION: POLAND IN THE EUROPEAN CONTEXT**

The at-risk-of-poverty rate for children in EU-25 countries in 2005 was 19%. The highest rate, 29%, was observed in Poland, where the rate was not only above the average level in the EU but also children had significantly higher risk of being in poverty than the overall population (21%). Lower poverty rates for children in the Czech Republic (18%), Hungary (20%) and Estonia (21%) suggest that other than historical reasons explain high levels of child poverty in Poland.

In comparison to other EU-25 member states, the relative position of children living with lone parents in Poland is relatively better than in other household groups. The poverty rate of 46% is similar to those in Cyprus, Spain, Estonia and Greece, and lower than in the Czech Republic, Ireland, Malta and Lithuania. However, only 8% of poor children live in lone parent type of household while the average for the EU-25 is 23%. Among large households (couples with 3 and more children) and complex households (more than one family) the child poverty risk in Poland is the largest and well above the EU average. While in Poland the poverty rate is 47% for “couples with 3 and more children” and 26% for “complex households with children”, the EU-25 average is 25% and 20%, respectively. Consequently, a distribution of poor children by type of households in Poland is different than in other EU-25 countries. The noticeable difference is higher share of poor children living in households consisting on more than one family. The share in Poland was 25% and was similar to values in Latvia (21%) and Slovakia (20%). The respective shares for the Czech Republic was 11% and for Hungary 12%. Other countries with the shares significantly above the EU-25 average (11%) were Portugal (18%) and Spain (16%). Interestingly, while the rate of poverty for couples with 3 and more children in Poland (47%) is above the rates in France (20%), Austria (21%), and the UK (27%), the share of poor children living in such families in Poland

(34%) is similar to the shares in France (33%) and Austria (34%) but it is larger than in the UK (26%). This might mean that policies implemented in other countries reduced poverty among families with three and more children more effectively than the benefit system that was in force in Poland in 2005.<sup>4</sup>

Having work is thought to be an effective protection against poverty. In Poland, however, in-work poverty remains a problem. For example, the at-risk-of-poverty rate among couples with 3 or more children where both parents work full time is 30% (the EU-25 rate - 13%), while with one parent working full-time and the second one part-time the rate rises to 41% (10% in the EU-25).<sup>5</sup> This could be partially explained by the lack of in-work benefits in Poland in 2005. It may also mean that implementing systems that include such benefits and tax credits for children may improve financial situation of working poor families with children.

An amount of social spending and its structure are crucial when explaining poverty rates. In Figure 1 we show the relationship between family related spending as a proportion of the GDP, and as a proportion of total social expenditure. There is a clear pattern in both relationships – higher overall spending on families and greater share of social expenditure allocated to families are generally associated with lower rates of child poverty. In 2005 the amount of social transfers in Poland was equal to 19.6% of GDP. Similar fractions were spent in Hungary, the Czech Republic and Slovakia. However, social spending in Poland has been characterized by large shares of expenditures related to old-age, sickness and disability pensions. Family and childcare benefits accounted only for 0.8% of the GDP. The corresponding figure was 1.4% of the GDP in the Czech Republic and 2.5% in Hungary.<sup>6</sup>

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<sup>4</sup> European Commission (2008), p.145 and p.150.

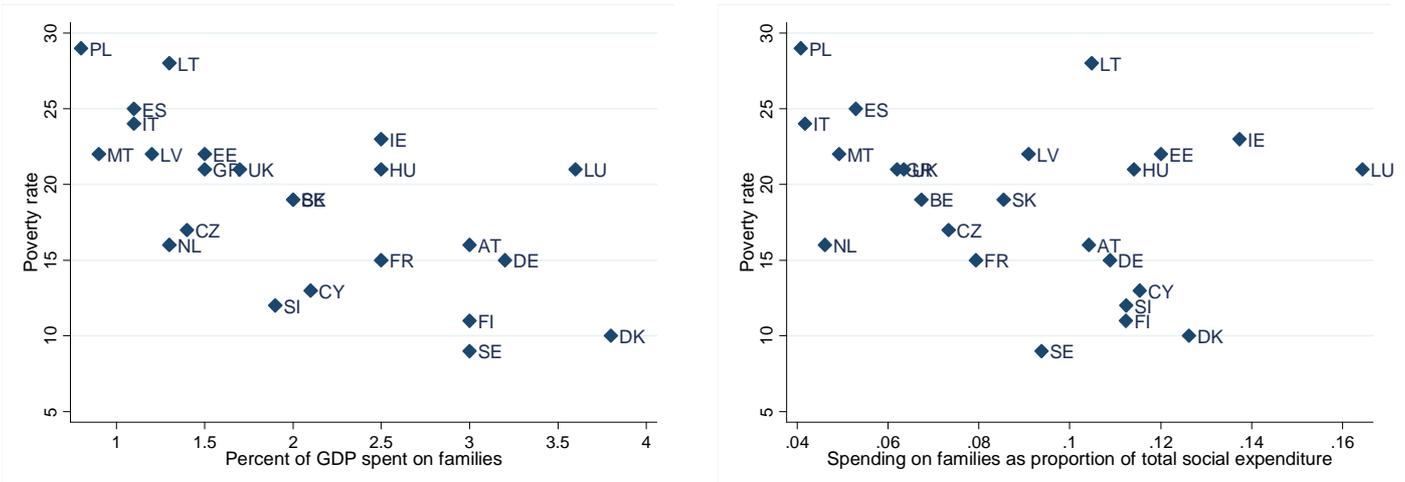
<sup>5</sup> European Commission (2008), p.169.

<sup>6</sup> European Commission (2008), p.158.

**Figure 1 Spending on families and poverty rate in the EU**

**A) Proportion of the GDP spent on families**

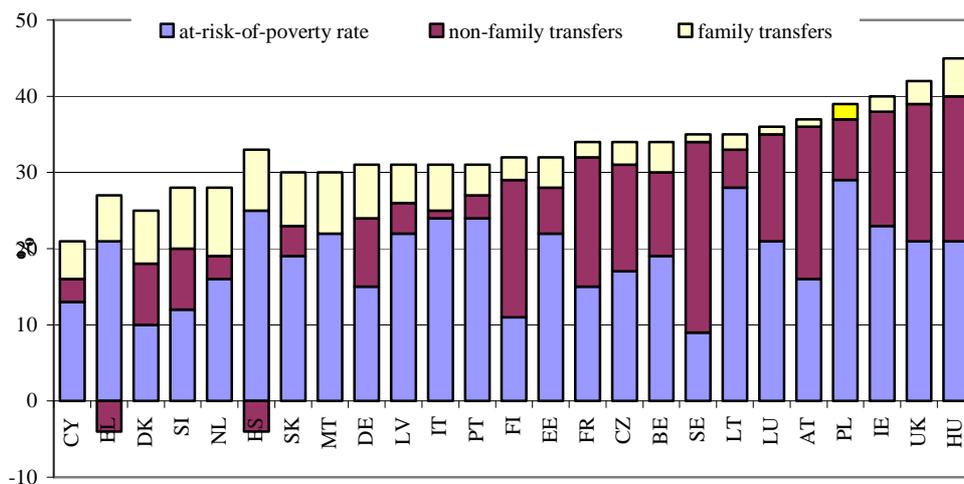
**B) Spending on families as proportion of total social expenditure**



Source: based on figures in European Commission (2008).

At-risk-of-poverty rate before transfers in Poland was lower than in the UK, Ireland and Hungary. However, the rate after transfers was the highest in the EU-25 (Figure 2). Overall social expenditure decreased child at-risk-of-poverty rate by 26% - from 39% to 29% - in Poland. This was similar to the effects observed in Italy (23%) and Portugal (23%) and was larger than in Lithuania (20%), Spain (14%) and Greece (9%). In Hungary and the Czech Republic the at-risk-of-poverty rate fell by more than 50% as a consequence of social transfers.

**Figure 2 Child at risk of poverty rates – effects of family and non-family transfers in 2005.**



Source: European Commission (2008).

Some explanation for the findings presented above may rest in a significant share of agricultural households with high values of own consumption and imputed rents. But even if this is true, child

poverty rates are still very high in Poland. As we shall demonstrate below a significant reduction in the rate of child poverty in Poland could have been achieved with the level of spending implied by the introduced 2007 tax credit reform. Allocating the resources in the form of a non-refundable tax credit brought smaller reductions in child poverty compared to several alternative child support designs we consider.

### **3. POLICY DESCRIPTION**

In the analysis which follows we describe in detail the cash benefits and direct personal taxes operating in 2005 which are specifically designed for the support of children and their families in Poland, Austria, France and the United Kingdom.

#### **3.1 Poland**

In 2005, support to families in Poland consisted mainly of two policies: joint taxation in personal income tax available for couples and lone parents, and an income-tested family allowance with supplements.<sup>7</sup>

- Joint taxation ('łączone opodatkowanie dochodów'): personal income tax is individual but couples and single parents may fill in a joint tax return with their partners or children, respectively. In both cases and independently of the number of children, joint taxation doubles the amount of the universal tax credit and applies a splitting rule, by which only half of the family income is subject to the tax schedule and the resulting tax liability is then multiplied by two. The income tax schedule consists of three bands: 19 percent up to €9,167 per year, then 30 percent up to €18,334, and 40 percent beyond. Under income tax rules, dependent children are defined as (i) child aged 18 or below, (ii) child disabled regardless of age but entitled to nursing allowance (see below), or (iii) child aged 25 or below, in education and with income below a limit.
- Family Allowance ('Zasiłek Rodzinny'): beneficiaries are families with children whose monthly income in the previous year did not exceed €125 per capita. The monthly amount is €11 for the first and second child, €13 for the third and €16 for each consecutive one. The allowance is paid until the end of the child's education at school (usually to the age of 18). In case the child continues education at school or university the allowance is paid until the age of 24. In 2005,

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<sup>7</sup> The nominal exchange rate used in for the conversion of system values into euros is that of 30/06/2005, €1=4.0388PLN.

about 5.2 million children (about 56-58% of children in age below 18) received the Family Allowance.

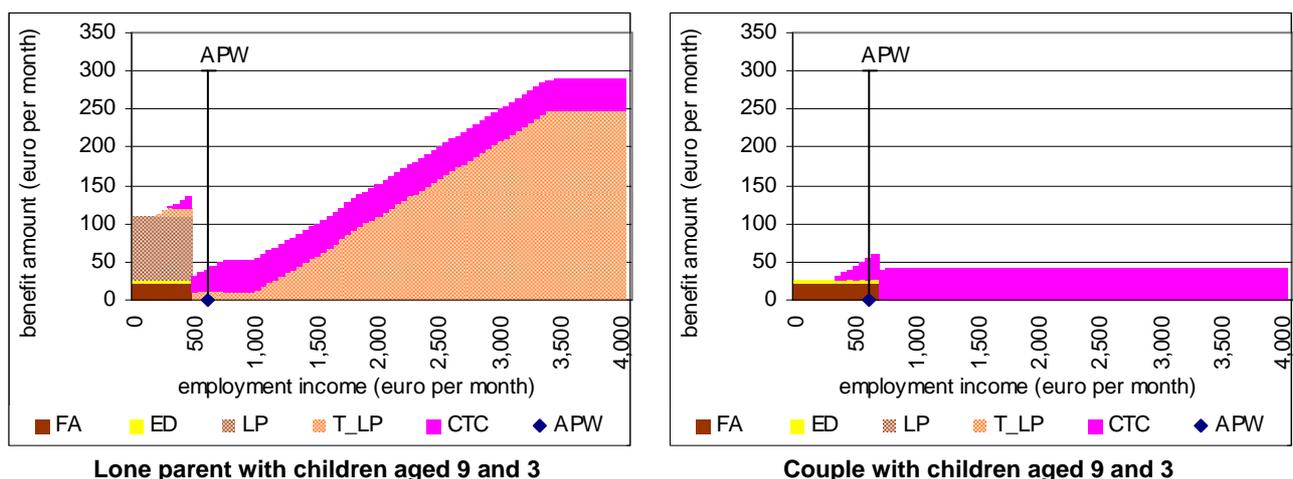
- Parental Leave Allowance ('Dodatek z Tytułu Opieki nad Dzieckiem w Okresie Urlopu Wychowawczego'): is a supplement to Family Allowance granted to a parent, factual or statutory guardian of a child, who takes parental leave to take care of at least one child aged 6 years or less. The monthly amount is €99 per month.
- Supplement for Child Birth ('Dodatek z Tytułu Urodzenia Dziecka'): one time lump sum grant of €124 upon the birth of a child.
- Supplement for Starting the School Year ('Dodatek z Tytułu Rozpoczęcia Roku Szkolnego'): €22 per year, payment for each child in primary and secondary school.
- Supplement for Education of Disabled Child ('Dodatek z Tytułu Opieki i Edukacji Dziecka Niepełnosprawnego'): granted until the child reaches the age of 16 or 24 (if in education) and subject to moderate or severe degree of disability. The monthly amount is €12 per child under the age of 5 and €17 per child aged 5 to 24.
- Supplement for Lone Parents ('Dodatek z Tytułu Samotnego Wychowywania Dziecka'): granted to lone parents who are not receiving alimony because the child's father is dead or unknown. Eligibility is not granted if alimony is legally determined but father does not pay (in this case, the mother receives payments from the state alimony fund). The monthly amount is €42 per child and €62 per disabled child, with a maximum of €186 per family.
- Nursing Benefit ('Świadczenie Pielęgnacyjne'): granted to a parent (either in couple or single family) in case of resignation from employment to take care of a disabled child. There is no condition on the child age to qualify. The amount of the benefit is €104 per month.
- Nursing Allowance ('Zasiłek Pielęgnacyjny'): a benefit granted to a handicapped child, a handicapped person over 16 years of age with a medical certificate confirming significant degree of disability or to a person who is over 75 years old. The benefit may also be granted to a person above than 16 years of age with a medical certificate of moderate disability if disability occurred before reaching the age of 21. The allowance is paid monthly at €36 per month.

As was stated before the non-refundable child tax credit introduced in 2007 is also considered in the analysis as a reform to the 2005 system. The amount of the tax credit in 2007 is twice the universal

tax credit of €142, which is equivalent to €24 pmonth.<sup>8</sup> The tax deduction is independent of the source of taxable income. However, self-employed whose income is not taxed in accordance with general income tax regulation with progressive tax rates are not eligible for the child tax credit.

Figure 3 illustrates the structure of child protection in Poland using two synthetic family types: a lone parent and a one-earner couple with two children aged 9 and 3. This gives an indication of the relative size of each policy element and how it is targeted by parental income for these family types. Being contingent on the presence of a dependent child, we treat the advantage to lone parents of being taxed under joint taxation as a policy targeted to support children. Although couples can also take advantage of joint taxation this is not treated as a “child policy” as they could be taxed in this way whether or not they have children. Low income lone parent families are also covered by the Supplement for Lone Parents. The figure also suggests that the introduction of the child tax credit has considerably increased the expenditure and extended the range of families covered.

**Figure 3 Poland, 2005/07 policies for two family types**



Notes: The first family type consists of a 41 year-old, employed single mother. The second family type consists of a couple with a 41 year-old employed husband and a 41 year-old non-working wife. In both cases, individual original income is computed as the product of multiplying a fixed hourly wage (€11.54 per hour) times an increasing number of working hours. All families are assumed to be tenants paying a rent of €300 per month.

Acronyms: FA: family allowance; ED: supplement for starting the school year; LP: lone parent supplement; T\_LP: tax relief due to joint taxation; and CTC: 2007 child tax credit (in 2005 prices); APW: Eurostat’s gross earnings of a one-earner married couple, at 100% of average production worker, with two children

Source: EUROMOD

### 3.2 Austria

Austria has one of the most generous child protection systems in Europe. According to the Eurostat (2005) social expenditure on policies to support families with children accounts for 3% of the GDP, the figure exceeded only by Denmark, Luxembourg and Germany. Child protection is provided

<sup>8</sup> The value we simulate in the analysis relates to the value of the universal tax credit in 2005, which was €131. The maximum value of the child tax credit is then €262 per child per year.

mainly through universal benefits that are complemented, by central and regional governments, for groups with special needs or high vulnerability.<sup>9</sup> There is no standard definition of dependent children in the Austrian system. However, the most commonly used includes children up to the age of 17, and below 25 if in full-time education and with income below a given limit.

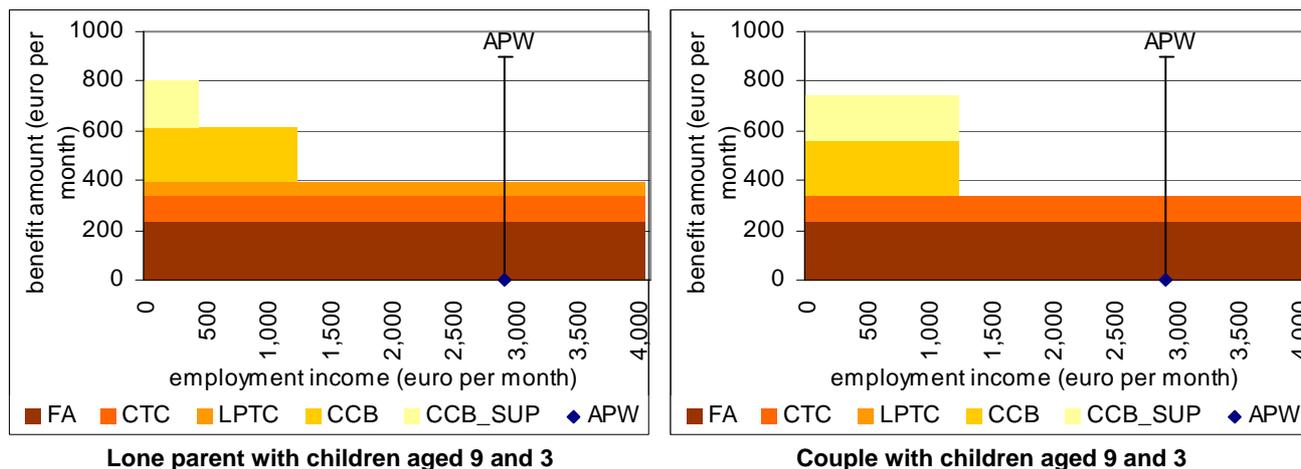
- Family Allowance ('Familienbeihilfe'): universal benefit paid per child. The basic amount is €105 per month and it increases with age, disability and number of children in the family. An additional €36 supplement for the third and following children is available for families with income below €3,630 per month.
- Child Tax Credit ('Kinderabsetzbetrag'): refundable tax credit paid per child. The amount is €51 per month.
- Lone Parent Tax Credit ('Alleinerzieherabsetzbetrag'): refundable tax credit for lone parents. The basic monthly amount is €30, plus €11 for the first child, €15 for the second and €18 for subsequent children.
- Childcare Benefit ('Kinderbetreuungsgeld'): paid to one of the parents of children aged up to 3 years whose income does not exceed €1,217 per month. The income test is applied at the individual level, i.e., the income of the other parent is not considered. The monthly amount of the benefit is €442.
- Childcare Supplement ('Zuschuss zum Kinderbetreuungsgeld'): supplement of €184 per month for parents receiving the universal childcare benefit and with family income below €433 per month.
- Family Bonus ('Familienzuschuss'): income-tested benefit provided by provincial governments. In Vienna, it is paid to families with children aged 1 or 2. The amount of benefit per child depends on the family income and family composition (e.g., a couple with a child and monthly income less than €769, would receive up to €153).

Figure 4 illustrates how Austrian child protection is dominated by universal policies and complemented by generous benefits to lower income families. Of course the shape of the figure is contingent on family type used in the illustration and particularly on the age of children. Had the youngest child been aged 4 instead of 3, only the universal benefits would apply.

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<sup>9</sup> For more details about the Austrian tax-benefit system and its recent reforms see Fuchs and Lietz (2007).

**Figure 4 Austria, 2005 policies for two family types**



Notes: see notes to Figure 3

Acronyms: FA: family allowance; CTC: child tax credit; LPTC: lone parent tax credit; CCB: childcare benefit; CCB\_SUP: childcare supplement; APW: Eurostat's gross earnings of a one-earner married couple, at 100% of average production worker, with two children.

Source: EUROMOD

### 3.3 France

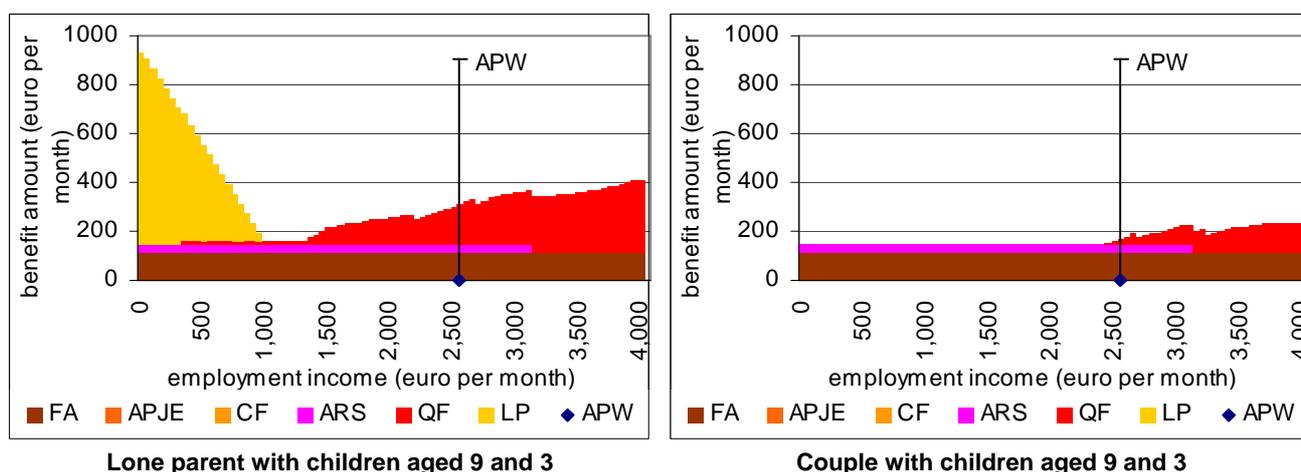
Policies to support families with children are also quite generous in France, and are particularly supportive for families with two or more children. The French system combines universal and income-tested benefits with non-refundable tax concessions.

- Joint taxation ('Quotient Familial'): this instrument is similar to the Polish income tax splitting system. However, the amount of the 'splitting factor' (used to divide the tax base by and then to multiply the resulting tax liability) changes with family composition and increases with the number of children.
- Family Allowance ('Allocation Familial'): universal benefit for families with 2 children or more. The basic amount for a family with two children aged below 11 is €115 per month. The amount increases considerably with age and number of children in the family.
- Young Children Allowance ('Allocation Pour Jeunes Enfants'): income-tested benefit for children aged less than 3. The benefit amount (€165 per month) is fixed independently of the number of children, but the income test varies with the type of family (lone parent or couple) and the number of earners and children.
- Family Complement ('Complement Familial'): income-tested benefit for families with 3 or more dependent children aged 3 or more. As in the Young Children Allowance, the benefit amount (€150 per month) is fixed independently of the number of children, but the income test varies with the type of family (lone parent or couple) and the number of earners and children.

- Education Related Benefit ('Allocation de Rentrée Scolaire'): income-tested benefit for children aged 6 to 17 to support expenses on school material. Again, the benefit amount (equivalent to €30 per month) is fixed independently of the number of children, but the income test varies with the type of family (lone parent or couple) and the number of earners and children.
- Lone Parent Benefit ('Allocation de Parent Isolé'): income-tested benefit for lone parent families. In 2005, the basic benefit amount was €720 per month. The amount increases with each additional child but it is reduced on a euro per euro basis with family income.

Figure 5 illustrates the structure of French child policies. It reflects the relatively higher generosity towards low income lone parent families. In contrast to the Polish income tax, the French splitting factor ('Quotient Familial') is more generous for couples with children. However, the factor is considerably higher for the first child in a lone parent family.

**Figure 5 France, 2005 policies for two family types**



Notes: see notes to Figure 3

Acronyms: FA: family allowance; APJE: young children allowance; CF: family complement; ARS: education related benefit; QF: joint taxation (quotient familial); APW: Eurostat's gross earnings of a one-earner married couple, at 100% of average production worker, with two children.

Source: EUROMOD.

### 3.4 United Kingdom

Aiming to tackle high levels of child poverty the UK government has considerably reinforced policies to support families with children over the last decade.<sup>10</sup> Although the system includes a universal Child Benefit, the main bulk of the protection is through means-tested benefits. The UK uses a single definition of dependent children in all benefits: children below the age of 16 or 19 if in full-time education.<sup>11</sup>

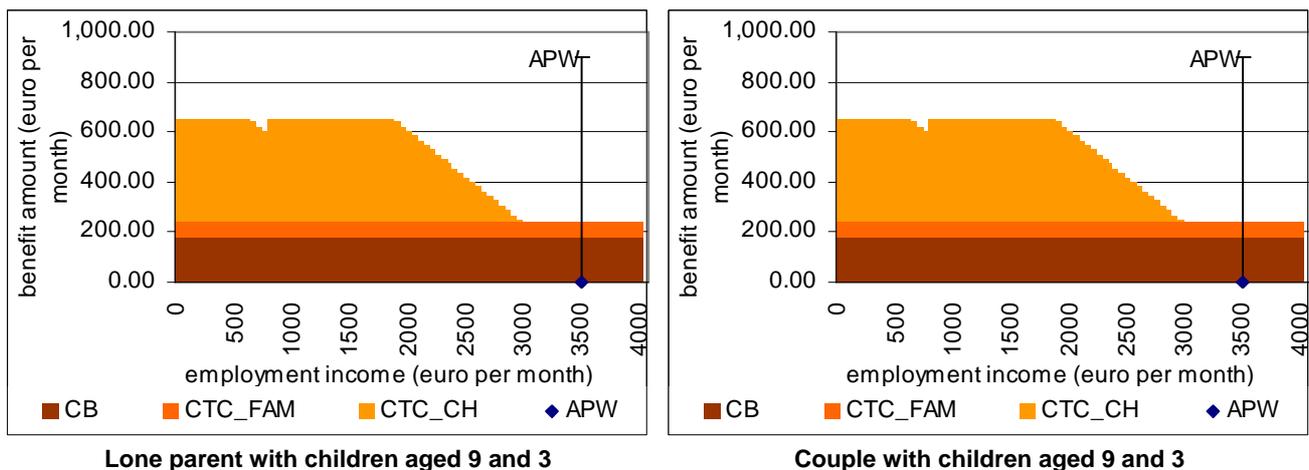
<sup>10</sup> See, for example, Piachaud and Sutherland (2001), Myck (2000) and Brewer et al. (2006).

<sup>11</sup> The nominal exchange rate used in for the conversion of system values into euros is that of 30/06/2005, €1=£0.67473.

- Child Benefit: universal benefit paid per child. The benefit amount is €109 per month for the first child and €73 for the following children.
- Child Tax Credit: income-tested refundable tax credit divided in two elements. The family element is a fixed amount equivalent to €67 per month (it is doubled in the case of a new born child) paid to all families below an income limit equivalent to €6,175 per month and then reduced at the rate of 6.7 percent (of gross family income). The child element is equivalent to €209 per month per child and is withdrawn at the rate of 37 percent for families with gross income above €1,718 per month.

Other benefits that explicitly or implicitly also take into account the presence of dependent children are the, the Housing Benefit and the Working Tax Credit (an in-work benefit).<sup>12</sup> Figure 6 shows the generosity of the British system, mainly resulting from the family and child elements of the Child Tax Credit. It is very clear that relative to the Austrian and the French systems, family support in the UK is much more targeted on lower income families.

**Figure 6 United Kingdom, 2005 policies for two family types**



Notes: see notes to Figure 32  
 Acronyms: CB: child benefit; CTC\_FAM: child tax credit, family element; CTC\_CH: child tax credit, child element; APW: Eurostat's gross earnings of a one-earner married couple, at 100% of average production worker, with two children  
 Source: EUROMOD

<sup>12</sup> The part of the Working Tax Credit which is child-related, i.e. for example the difference between the value of the WTC for a single person with and without children, is not included in the analysis as it could not be simulated in Poland due to lack of information on the hours of work in the BBGD data.

## 4. METHODS

### 4.1 Model and Data

This paper makes use of EUROMOD - a static tax-benefit microsimulation model that currently covers 19 Member States of the European Union (all 15 previous to 2004 and 2007 enlargements plus Estonia, Hungary, Poland and Slovenia).<sup>13</sup> It is a multi-country microsimulation model that has been designed to be flexible enough to take into account the particularities of different national policies but also to provide a common framework for the implementation of policies and the production of results.<sup>14</sup> This guarantees comparability of outputs and transferability of policies across countries, therefore making it possible to analyse the effects of the application of policies from one country on the population of another. EUROMOD is unique for a wide range of analysis for international comparative research on the effects of policies and policy reform on income, welfare, poverty, inequality and social inclusion.

The micro-data used in the microsimulation are derived from the 2005 Polish Household Budgets' Survey (Badanie Budżetów Gospodarstw Domowych - BBGD). The survey was the only large household survey with the combination of demographic and income information conducted in Poland until 2005 and until then all official poverty statistics were calculated using the BBGD data. Since 2005 the more recent poverty statistics have also been published based on the Polish SILC data, however the BBGD data has proved to be a very reliable source for the purpose of incomes analysis and microsimulation.

### 4.2 Simulation

In the following section, different policies to support families with children are simulated on the Polish BBGD database. These policy reforms consist of eliminating all 2005 Polish child policies simulated in EUROMOD (including lone parent joint taxation) and replacing them by the 2005 policies of Austria, France and the United Kingdom described in the previous section. Monetary amounts of policies 'borrowed' from other countries have initially been scaled by GDP per capita ratio after applying the exchange rate.<sup>15</sup> Tax concessions are also scaled, but no adjustment is made to the tax schedule or the tax base. The child tax credit, implemented in Poland in 2007, is also

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<sup>13</sup> See Sutherland (2001).

<sup>14</sup> See Immervoll and O'Donoghue (2001) and Lietz and Mantovani (2007) for technical information on EUROMOD framework.

<sup>15</sup> According to Eurostat, in 2005 the GDP per capita was €6,405 in Poland, €29,797 in Austria, €27,348 in France and €29,968 in the United Kingdom.

simulated as a ‘reform’ by adding it to 2005 system after indexing its amount to 2005 prices.<sup>16</sup> We refer to this system as “PL-2007”. Throughout we consider as if all policies (original and simulated) and incomes were as on 30<sup>th</sup> of June 2005. No adjustment is made for changes in population composition or income across the year.

The budget effect of each policy (as well as its impact on household income) is measured as the difference between household disposable income including and excluding the analysed benefits and tax concessions. Policies or elements of policies that are not targeted at children, according to our common definition remain in place and interact with the reformed policies.

The simulations do not control for benefit targeting failure, tax avoidance or evasion. Thus it is assumed that the legal rules apply and that the costs of compliance are zero. This can result in the over-estimation of taxes and benefits. More generally we make the strong assumption that individual behaviour such as benefit take-up, tax evasion and other relevant socio-economic decisions (e.g. labour supply or family formation) do not change as a result of the policy changes that are modelled.

### **4.3 Measurement**

Following the United Nations Convention on the Rights of the Child, our definition of children is people aged under 18 (i.e. aged 0-17).<sup>17</sup> We generally assume that income is shared within the household such that household disposable income can be used to indicate the economic well-being of each individual within the household (the ‘within household’ incidence is not considered).

Household disposable income is defined as original income plus private transfers (e.g. alimony), replacement income (e.g. pensions and contributory benefits) and social benefits minus taxes and social contributions aggregated at the household level. Non-cash benefits are not included. Household disposable incomes are equivalised using the modified OECD equivalence scale, as recommended by the Eurostat.<sup>18</sup>

Poverty is measured following the Laeken at-risk-of-poverty approach defined as those living in a household with equivalised household disposable income below 60 per cent of the median. The at-risk-of-poverty threshold, based on the EUROMOD (‘baseline’) simulation of the 2005 tax-benefit

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<sup>16</sup> According to Eurostat, inflation in Poland (measured by the HICP) between 2005 and 2007 was 4.1 percent.

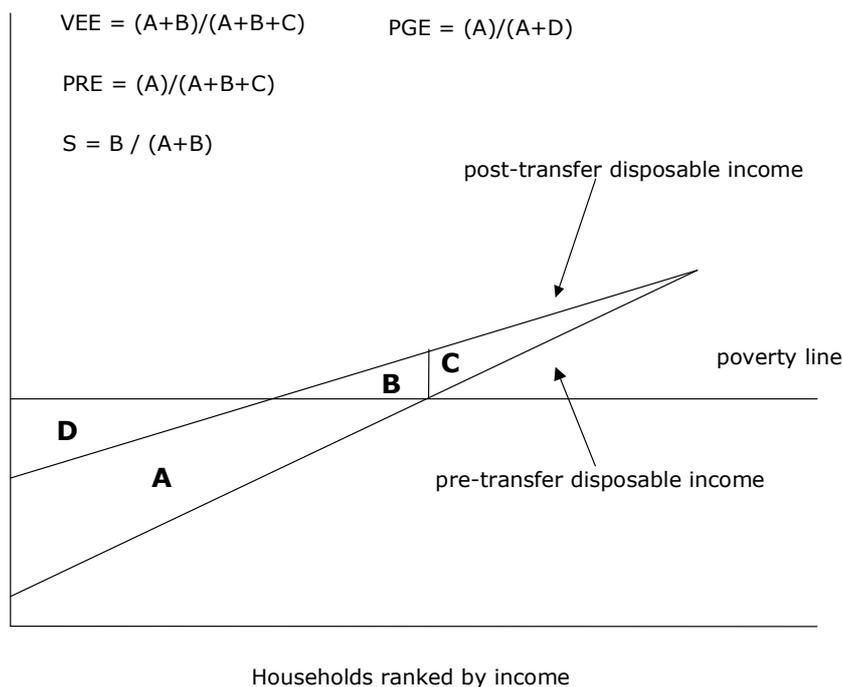
<sup>17</sup> Note that this diverges from the definition of a child used in the tax and transfer rules of our analysed countries (as would any common definition). Hence, our analysis does not consider part of the expenditure on these policies as support to children.

<sup>18</sup> This assumes single person=1; additional people aged 14+ = 0.5; additional people aged under 14 = 0.3.

system is €141.53 per month (571.61 PLN) per equivalised person.<sup>19</sup> This threshold is maintained fixed in the assessment of all reform scenarios. Poverty incidence, intensity and severity are measured using FGT indexes  $\alpha=0$  to 2 (Foster et al., (1984)).<sup>20</sup>

The efficiency of policies in alleviating poverty is measured through a set of indicators proposed by Beckerman (1979). These are graphically represented in Figure 7. Vertical Efficiency (VEE) measures the proportion of total transfers received by the poor. Poverty Reduction Efficiency (PRE) is the proportion of total transfers that effectively contributes to reduce the poverty gap. Spillover (S) is the amount of transfers paid to the poor that exceeds the poverty line, normalized by the amount of total transfers paid to the poor. The effectiveness or “horizontal efficiency” (Matsaganis et al, 2004) of policies in alleviating poverty can be measured using the Poverty Gap Reduction Efficiency (PGE) which computes the extent to which the transfers succeed in filling the aggregate poverty gap.

**Figure 7 Target efficiency of social transfers**



<sup>19</sup> So for example for a household made of two adults and two children this would be €297.213, while for a single adult with one child €183.989.

<sup>20</sup> See Lambert (2001, chapter 6) for a survey on poverty measurement.

## 5. THE EFFECT OF ALTERNATIVE CHILD POLICIES IN POLAND

### 5.1 Coverage and Expenditure

The spending and coverage levels of a policy are essential for achieving any significant distributional outcome. Estimates from EUROMOD depicted in Table 1 show that one third of Polish children are not covered by the 2005 child policies and that the monthly average spending is equivalent to about €16 per child. The introduction of the child tax credit (the simulated system “PL-2007”) increases considerably the coverage and almost doubles the expenditure.

In spite of that, expenditure on child policies in Poland falls short if compared to those from Austria and the United Kingdom, even when controlling for differences in GDP per capita. If implemented in Poland, the UK and Austrian systems would imply monthly spending of about €50 per child. Interestingly, if we adjust the French system by the GDP per capita difference, the cost of implementing the French system in Poland would be lower than PL-2007. It is also remarkable that, analysing 2003 policies, Levy et al. (2007) find that when applied on their own countries the expenditure on child support in Austria (€220 per child) is considerably higher than the UK (€174). This reflects that the distribution of the characteristics of children and their households in Poland is quite different from in these countries. In particular, in comparison to these countries there is a higher concentration of children in the bottom of income distribution in Poland, thus increasing the cost of means-tested benefits.

**Table 1 Coverage and expenditure**

	<b>Baseline 2005 system</b>	<b>PL-2007 system</b>	<b>Austrian system</b>	<b>French system</b>	<b>UK system</b>
Coverage (% of children)	67.3%	97.4%	100.0%	81.3%	99.9%
Average spending per child (€ per month)*	15.8	29.4	47.7	29.2	49.0

\* Average spending is calculated over all children under the age of 18 independently of whether covered by the tax-benefit system or not.

Source: EUROMOD

In order to analyse what would have happened if instead of introducing the 2007 child tax credit the Polish government had reformed the child protection system in line with the systems of Austria, France or the UK, the monetary amounts of the child policies from the three countries were adjusted by factors that made the overall social expenditure budget-neutral with respect to Polish system after introducing the child tax credit, i.e. so that their cost with respect to the 2005 system would correspond to the PL-2007 system. The overall expenditure level depends on elements whose distribution is quite irregular, in particular the characteristics and circumstances of the children and

their families and the interaction between child policies and the rest of the tax-benefit system. Thus, finding the factors that achieve budget neutrality cannot be obtained analytically but requires an iterative exercise. The factors derived from this exercise are presented in Table 2.

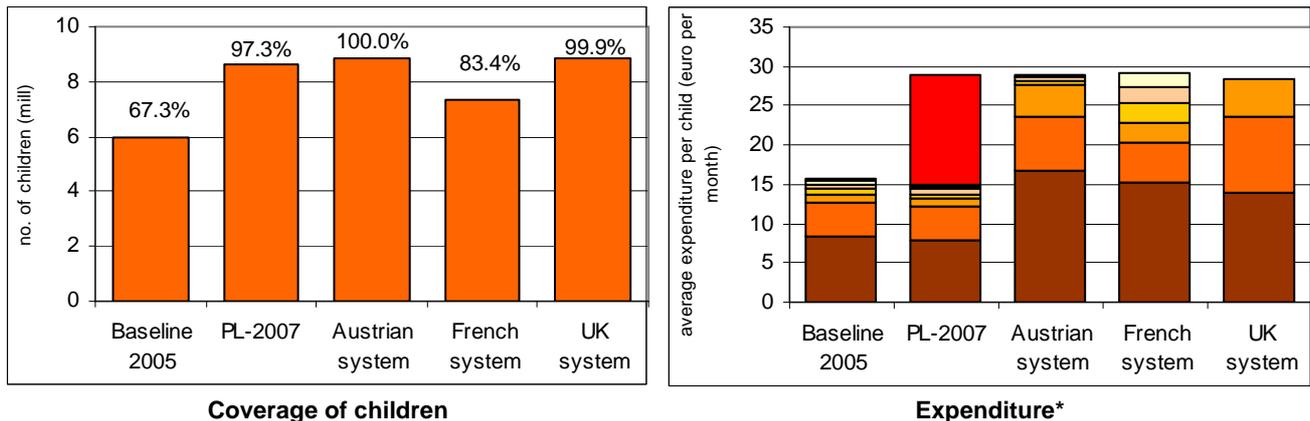
**Table 2 Factors applied at policy monetary amounts**

	<b>Austrian system</b>	<b>French system</b>	<b>UK system</b>
GDP per capita neutral	0.2150	0.2342	0.2137
Budget neutral – with respect to PL-2007	0.1344	0.2931	0.1487

Source: EUROMOD

Figure 8 shows the decomposition of total spending by each policy instrument. In the case of the Austrian system the family allowance makes up 58 percent of total spending, this is followed by the refundable Child Tax Credit (24 percent) and the Childcare Benefit (14 percent). The Childcare Supplement, Family Bonus and the Lone Parent Tax Credit are nearly negligible. Accounting for more than half of total expenditure, the Family Allowance is the most significant French instrument, then followed by the Lone Parent Benefit (17 percent), the Young Children Allowance and Education Related Benefit (9 percent each). As one would expect, the expenditure on the French joint taxation is larger than on the current Polish system. However, the relatively low spending level reflects the fact that the progressivity of the tax schedule (e.g., number of tax bands, thresholds and rates) in the Polish income tax is much lower than in France. As for the UK system, the universal Child Benefit contributes with the largest proportion (49 percent), which is followed by the means-tested child element of the Child Tax Credit (35 percent), and then by the “affluence tested” family part of the CTC.

**Figure 8 Coverage and expenditure decomposition**

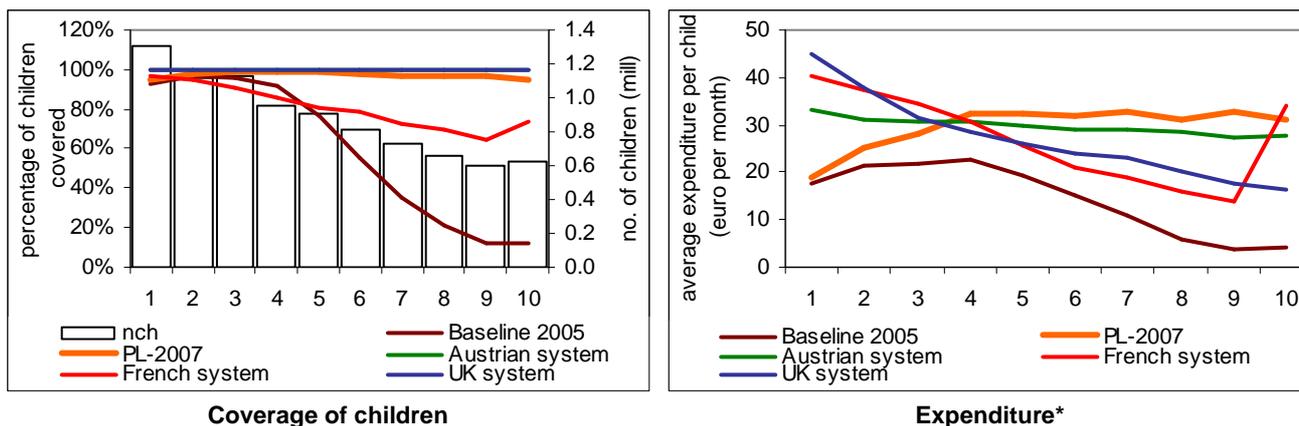


\* List of policies per system in decreasing order of spending (from bottom to top in the figure):  
 Baseline-2005: family allowance, supplement for lone parents, nursing benefit, supplement for starting the school year, joint taxation, supplement for education of disabled child, supplement for child birth;  
 PL-2007: same as the Baseline-2005 system plus child tax credit;  
 Austrian system: family allowance, child tax credit, childcare benefit, childcare supplement, lone parent tax credit, family bonus;  
 French system: family allowance, lone parent benefit, young children allowance, education related benefit, joint taxation (*quotient familial*), family complement;  
 UK system: child benefit, child tax credit: child element and family element.  
 The Austrian, French and UK systems adjusted to make the overall expenditure equivalent to the PL-2007 system when simulated on the Polish population (see Table 2 for conversion factors).  
 Source: EUROMOD

Figure 9 shows the distribution of child policies by household income level in terms of the percentage of children covered and the average spending per child per decile of equivalised household disposable income. It reveals how coverage and average spending per child of Polish policies decrease with income in the 2005 system. This is clearly altered with the introduction of the 2007 child tax credit.

As for the alternative reforms based on other countries, the Austrian system covers all children and the spending per child is somehow more evenly spread over the income distribution, although slightly higher at the bottom. As for the French system coverage and spending fall with income with the exception of the last decile where both raise as families begin to benefit from the 'Quotient Familial'. The UK system virtually covers all children under 18 and, as expected from a system largely based means-testing, the spending monotonically decreases with household income.

**Figure 9 Coverage and expenditure per decile**



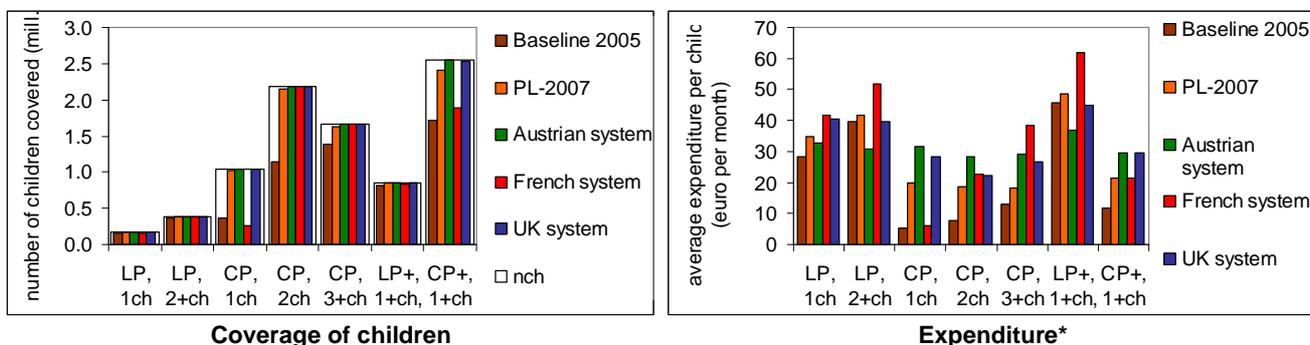
\* Deciles of equivalised household disposable income.

See notes on Figure 7.

Source: EUROMOD

As for the distribution per household type, children with couples tend to be less covered by the 2005 Polish and French systems. The average spending per child is substantially higher in lone parent households in the case of the 2005 Polish and French systems and, to a lesser extent, of the UK and the PL-2007. With the 2005 Polish system, a child in a lone parent household received more than 5 times as much as a child living with both parents. In other systems children in lone parent households also get more than in couples, but the ratio is significantly lower. The Austrian system contrasts with the rest as similar amounts per child are spent across all household types. In Austria and the UK the average spending per child does not change substantially with the number of children in the household. In contrast in the French and the Polish 2005 systems an additional child increases spending per child substantially. In Poland, the presence of the second child increases spending per child, on average, by 40 percent in a lone parent household and by 49 percent in a couple. In France, such increases are 24 and 276 percent, respectively.

**Figure 10 Coverage and expenditure per household type**



See notes on Figure 7.

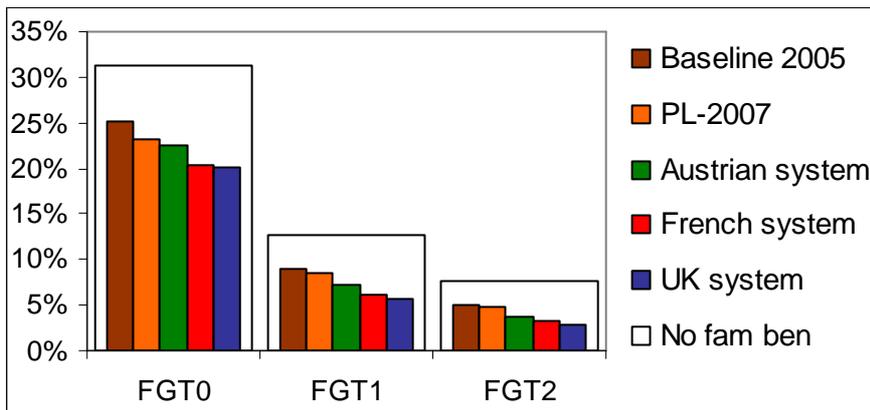
Source: EUROMOD

## 5.2 Poverty

According to results presented in Figure 11, child policies considerably reduce the risk of falling into poverty. Measured by the headcount index (FGT with  $\alpha=0$ ), the at-risk-of-poverty rate is reduced by 6 percentage points (from 31 to 25 percent) due to the 2005 Polish child policies. Although almost doubling the expenditure, the introduction of the 2007 Child Tax Credit reduces the risk of poverty only by 2 percentage points (to 23 percent). At the same expenditure level, further reductions could be achieved by implementing the structure of the Austrian (to 22.5 percent), French (to 20.3 percent) or UK (to 20.2 percent) systems.

In relative terms these results are even stronger as one focuses on measures sensitive to the size of the poverty gap. Compared to the PL-2007 system, the normalised poverty gap (FGT with  $\alpha=1$ ) is 15 percent lower with the Austrian, 28 percent with the French and 32 percent with the UK system. When we attach a greater weight to incomes at the bottom of the distribution (FGT with  $\alpha=2$ ), the reduction is by 22, 33 and 40 percent, respectively.

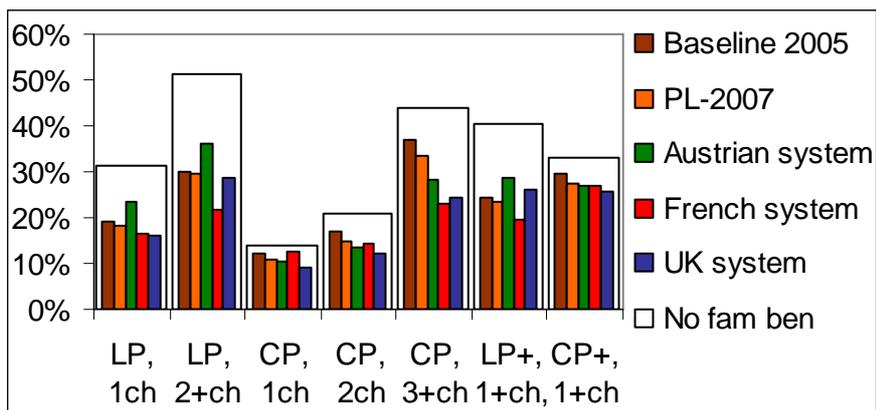
**Figure 11 Child poverty risk (FGT indices)**



See notes on Figure 7.  
Source: EUROMOD

The effect of policies on child poverty risk by household type is shown in Figure 12. The introduction of the 2007 child tax credit seems to bring highest poverty reduction among couple households. Whereas under the Austrian system child poverty in Poland *increases* among children living in lone parent households, under the French system this group would experience a substantial reduction.

**Figure 12 Child poverty risk per household type (FGT with  $\alpha=0$ )**



See notes on Figure 7.

Source: EUROMOD

### 5.3 Targeting efficiency

As the VEE index in Table 3 indicates, a significant part of the 2005 Polish child policies are targeted to poor children (47 percent of total expenditure). As one would expect, the targeting level falls considerably (to about 27 percent) with the introduction of the 2007 child tax credit (PL-2007 system). This would be higher if replaced by the Austrian (34 percent), French (44 percent) or UK (46 percent) system in the budget-neutral fashion. The estimates of PRE and S confirm this general assessment.

Similar conclusions are drawn with regard to the effectiveness of child policies to reduce poverty as measured by the PGE index. The overall poverty gap falls by 21 percent with the Polish 2005 policies (25 percent including the child tax credit), 31 with the Austrian, 35 with the French and 39 percent with the UK system. Thus while the 2007 child tax credit contributes to the reduction of poverty by increasing the horizontal target efficiency, it performs significantly worse relative to the systems of Austria, France and the UK introduced at the same cost.

The PL-2007 system therefore performs worse on all targeting measures relative to the Austrian and UK systems, and on three out of four measures relative to the French (with higher spillover) and the baseline system (PGE).

**Table 3** Target efficiency

	Baseline 2005 system	PL-2007 system	Austrian system	French system	UK system
VEE	0.4711	0.2716	0.3389	0.4405	0.4562
PRE	0.3901	0.2116	0.2835	0.3348	0.3857
PGE	0.2076	0.2520	0.3059	0.3465	0.3892
S	0.1719	0.2208	0.1635	0.2399	0.1545

For indices definitions see Figure 7. The Austrian, French and UK systems adjusted to make the overall expenditure equivalent to the PL-2007 system when simulated on the Polish population (see Table 2 for conversion factors).

Source: EUROMOD.

## 6. CONCLUSIONS

In 2005 the relative financial situation of families with children in Poland was worse than in any other of the EU-25 countries. As we show in the analysis presented above while the preferential tax treatment of those with children (the simulated PL-2007 system) will improve the situation of many households, it is unlikely to have a very significant effect on the proportion of children in poverty. Significant changes have taken place since 2005 with improved economic conditions and increasing employment levels likely to ameliorate the conditions of many Polish families with children. Financial circumstances of some families may also have improved as a result of the recent wave of emigration out of Poland and frequent arrangements of one parent working abroad and the other staying in Poland and taking care of children. It would take some courage, though to claim that the latter solution would be the most desirable way of helping children out of poverty. As the economic conditions improve, with likely further increases in income inequality, the government will need to decide on the most efficient way to assist the families whose circumstances will not improve enough to take them above the poverty line threshold. Improving conditions of families with children may also be an effective way of limiting emigration or in fact encouraging the return of the recent emigrants to Poland.

In the analysis we demonstrated the potential effects of alternative approaches to targeting resources on families with children, by importing three different European tax and benefit systems and replacing the Polish child related policies. These three are characterised by very different emphasis, the Austrian on universal credits, the French on tax concessions and targeting large and lone parent families, and the UK's on means-testing. We have "imported" the three systems in static micro-simulations in such a way so as to keep the level of expenditure in the range of that compared to the Polish system extended for the child tax credit introduced in 2007. This means that the analysed scenarios show the static effects that could have been achieved at the same cost in the hypothetical scenarios of implementing child related policies of each of the three countries. Naturally, importing

entire segments of tax and benefit systems is an unrealistic approach to reforms. However, the diverse nature of the three systems we considered allows us to relate the effects of the recent Polish reform to potential approaches that can be taken to child-related policies.

It is notable that in the case of all three systems the level of expenditure in the bottom three deciles of the income distribution is higher than under the PL-2007 system. This is reflected also on the pattern of spending by family type, with lone parents benefiting more under the French system, while couples are being treated more generously under the universal Austrian system and the means-tested British design. The systems of France and the UK reduce poverty risk in almost all types of households relative to the PL-2007 system, and when the poverty figures are aggregated then all three analysed systems prove more effective in lowering child poverty relative to the introduced policies, as they are more precisely targeted on the poorest households relative to the PL-2007 system. The targeting efficiency of the latter is lower even compared to the tax-focused French design and unsurprisingly falls well short of the means-tested British system.

As always, the policies affecting household incomes should not be entirely separated from the potential effects they may have on the financial incentives to work. As recently demonstrated by Haan, Morawski and Myck (2008) the flip side of the low level of child related benefits in Poland is relatively strong financial incentives on the labour market. Naturally each of the considered systems of support for families would produce a different set of changes to incentives on the labour market. If governments aim to target the combined goal of reduced poverty and increased levels of employment, then the effects future policies have on the financial incentives to work will have to be considered in combination with the way they influence family incomes and change the poverty rate.

However, the static analysis we presented demonstrates how different the design of the Polish system was in 2005 compared to the systems of Austria, France and the UK. The very limited generosity of the system towards families with children sheds some light on the reasons behind the position of Poland in the EU-25 child poverty table. Our results are also illustrative of the likely consequences of the introduction of the child tax credit in Poland in 2007 for changes in the level of child poverty, and set these effects in the light of important alternative policies that could have been considered. We showed that the introduction of the child tax credit will have a rather limited effect on poverty among children. If the government takes the priority of a “*comprehensive policy for families with children*” seriously, then further policies to address child poverty in Poland will be required. The three systems “imported” in our exercise may serve as reference points for any future considerations.

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