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Family Benefits and Family Policy in Selected European Countries

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Family policies vary considerably, in their focus as much as in the instruments used, in Germany, France, the Netherlands, Sweden and Denmark, the countries selected for the analysis. Germany's traditional type of family policy was fundamentally rehauled in recent years in order to boost female employment and improve options to reconcile job and family. France pursues a pronatalist policy that aims to increase female employment as well as fertility rates. Family policy in the Netherlands promotes a secondary-earner model. In Sweden, the focus of family policy is on facilitating female employment by child-care facilities, on increasing fathers' involvement and on reducing poverty by way of generous money transfers. In Denmark, the emphasis is on encouraging parents to quickly return to work. More recent reforms, especially with regard to parental leave, reflect an intensifying effort to increase fathers' involvement in some countries. Another aspect is the pressure on family benefits exerted by the fiscal consolidation programmes implemented in most EU countries since the early 2010s.

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1. Introduction

The present overview of family benefits and the major instruments of family policy looks at the provisions in selected EU member countries adhering to different family policy and welfare state models: Germany and the Netherlands representing a rather conservative continental European model, Sweden and Denmark standing for a social-democratic egalitarian approach, and France pursuing a pro-natalist family policy. The focus of our analysis is on family benefits, i.e., tax breaks or cash benefits, as well as on public child care.

With the exception of the Netherlands, family benefits of the countries in our sample as well as Austria all exceed the OECD average (as per 2011; *Schratzenstaller*, 2015), are highest in Denmark (4.0 percent of GDP), followed by Sweden and France (around 3.6 percent of GDP, respectively), and Germany (3.1 percent of GDP). In Austria, at 2.7 percent of GDP, family benefits are slightly above the OECD average of 2.6 percent of GDP, in the Netherlands significantly below (2.1 percent of GDP). Developments since 2005 have been uneven across countries: while the GDP-share of family support increased in Denmark, Sweden and Germany – like in the OECD on average – it declined in the Netherlands, Austria and France.

Unlike in Denmark, where spending on child care facilities accounted for about half of total family support both in 2005 and 2011 – the highest proportion in our sample

-, this share rose in all other countries, following the OECD trend, ranging in 2011 from 16 percent in Germany to 44 percent in Sweden. These comparative data, collected and published by the OECD, become however available only with a considerable time lag. Since the latest reference year of 2011, many countries – among which are also the ones studied here – have embarked on reforms leading partly to restraint and partly to reinforcement of family support, or to a change in the composition of family benefits (frequently by extending public child care facilities). Level and structure of family benefits may thus have changed in a significant way.

2. Germany

Since the last decade, Germany's family policy has undergone a far-reaching reform process, based upon what may actually be regarded as a paradigm change in policy objectives. Up to the middle of the 2000s, the underlying family concept was inspired by traditional conservative ideas (Esping-Andersen, 1999, Gauthier, 1996, Pfau-Effinger, 2005), as witnessed by the design of income tax and social security provisions as well as by the preference given to cash transfers over the promotion of child care facilities. Yet, with the introduction of the parental benefit ("Elterngeld", an income-related earnings compensation of relatively short duration) in 2007, later made more flexible and supplemented by a "partnership bonus" as from mid-2015, and by passing a law in 2008 providing for more child care facilities, major reforms have been enacted that turn away from the traditional understanding of family policy (Blum, 2014). However, since these reforms in favour of enhancing the reconciliation of work and family life (not only for mothers, but increasingly also for fathers) are not or only tentatively accompanied by changes to the same effect in the social security scheme and the income tax system, the current family policy mix in Germany is not entirely consistent. The internal contradictions have indeed been exacerbated by the introduction of the child care benefit ("Kinderbetreuungsgeld") in 2013 (see also further below) that squarely goes against the parental benefit and the expansion of child care facilities with regard to the aim of better reconciling work and family obligations. The Federal Constitutional Court declared the child care benefit unconstitutional in July 2015.

2.1 System of household taxation

Since 1958, Germany adheres to the joint income tax assessment of spouses. This income tax splitting promotes a traditional division of work within the family, since the tax benefit rises with the income difference between the two partners and is highest for single-earner households. The tax relief also rises with income: for a single-earner household with a taxable annual income of \in 50,000, the benefit of splitting amounts to \in 4,500 per year, at an income of \in 100,000 almost \in 8,200 (Ochmann – Wrohlich, 2013). Among the total family benefits, the income tax splitting represents a major item with an implicit tax revenue shortfall of \in 19.8 billion that in 2010 markedly exceeded the expenditure for child care facilities of \in 16.2 billion and accounted for almost 10 percent of total family benefits (Bonin et al., 2013).

Simulation studies (e.g., Bach et al., 2011) suggest that replacing income tax splitting by individual income taxation would significantly boost labour force participation of married women (participation rate as well as hours worked). The adverse incentives emanating from income tax splitting for an equal intra-family division of work, notably for families with children of pre-school age ("1.5-earner model"; $M\ddot{u}ller - Neumann - Wrohlich$, 2013, p. 1), are reinforced by the system of contribution-free health insurance for family members earning no more than \in 395 and \in 450, respectively (mini-job) per month.

2.2 Cash benefits

In order to cover the direct cost of children, the German tax and transfer system relies on generous cash benefits. In a logical extension of income tax splitting, the child

tax benefit ("Kinderfreibetrag") of € 7,008 per year for couples, or € 3,504 per parent in the case of separate income tax assessment, carries a tax relief up to $\leq 3,100$ per year¹ (for families with a taxable annual income above € 118,000; Ochmann – Wrohlich, 2013). This tax benefit will, however, be applied only if the tax relief exceeds € 2,200 per year (for the first and second child) of the child benefit ("Kindergeld") alternatively granted in the "dual system"; this is the case for married couples with a taxable annual income of \leq 63,500 and above (as per 2015). The amount of the child benefit that may normally be claimed up to the age of 18, for dependent children in higher education or professional training until the age of 25, rises with the number of children. The special burden of single parents is acknowledged via an additional tax benefit of € 1,308 per year. Overall, Germany stands out for its high share of direct and indirect cash benefits accounting for 68 percent of total family benefits in general, and in particular for the eminent role of tax subsidies: including the tax revenue shortfalls related to income tax splitting, tax subsidies in 2011 claimed a share of 28.5 percent of total public family benefits, far above the OECD average of around 10 percent.

2.3 Parental leave benefits

Until the end of 2006, the parental leave model², stretching as a rule over several years, provided for a monthly lump-sum benefit of € 300 over a period of 24 months (or, as a "budget model", a lump-sum payment of € 450 per month for one year, in order to create an incentive for shorter leaves of absence). Meanwhile, only the 3year job guarantee or the right to unpaid leave (parental leave - "Elternzeit") is still in force of this regulation (Table 1)3. Since 2007, only one single model is offered: an earnings-related parental benefit corresponding to 67 percent of previous net income, subject to a ceiling of € 1,800 per month, paid up to 12 months; a minimum amount of € 300 per month is granted in any case. The option of extending benefit payments to a total 14 instalments by two non-transferable partner months shall encourage the second parent to also take parental leave, thereby increasing fathers' involvement. Parental benefit may also be claimed if the parent looking after the child stays employed for no more than 30 hours per week (part-time option)4. The monthly payments may be halved upon request, in which case the benefit period of parental benefit is extended to a maximum of 28 months after child birth. However, only a rather small minority of parents draw this option, e.g., 11.6 percent of the parents of children born in the second quarter 2013 (Blum – Erler, 2015).

As of mid-2015, the parental leave regulation is made more flexible and supplemented by a "partner bonus" in order to encourage fathers' participation. According to the rules of "ElterngeldPlus" (Parental Benefit Plus), parents working part-time may claim 2 months of Parental Benefit Plus instead of 1 month of basic parental benefit, at a benefit level no higher than half of the regular parental benefit and with the entitlement period extended accordingly. Both parents may simultaneously draw parental benefit up to 14 months while working no more than 30 hours per week. If both parents are employed and working between 25 and 30 hours per week for at least four consecutive months, each parent receives a partnership bonus of four additional months of Parental Benefit Plus. Parental leave may be taken in up to 3, instead of previously 2, sub-periods.

The parental leave model has significantly boosted the participation of fathers⁵ (in 2000 at only 1.5 percent); it increased from 23.4 percent of children born in the sec-

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¹ For the 0.1 percent of taxpayers liable to affluence tax ("Reichensteuer"), i.e., with a taxable income above \leq 250,000 per year, the tax relief amounts to \leq 3,325 p.a.

² A description of the details of parental leave and of entitlement to parental leave benefit in the countries of our sample is beyond the present analysis. Our focus is rather on the duration of earnings replacement benefits for parents interrupting or reducing work after the birth of a child.

³ For the German regulations for leave of absence for child care, see *Blum – Erler* (2015).

⁴ In that case, the entitlement to parental benefit is calculated in relation to the earnings foregone, if the parent concerned had previously worked for more than 30 hours per week.

⁵ I.e., children whose fathers received parental benefit as a proportion of all children born in the reference period.

ond quarter 2009 (*Blum – Erler*, 2014, 2015) to 31.9 percent in the second quarter 2013. 79.2 percent of fathers only claimed the non-transferable 2 partner months (*Blum – Erler*, 2015). In 2012, average duration had edged down to 3.2 months, from 3.5 months in 2009⁶.

Table 1: Reg	Table 1: Regulations on parental leave in selected EU member countries										
2015											
	Maximum duration of parental leave benefit in months ¹	Design of parental leave benefit during paid leave	Regulations to increase fathers' participation ²	Extent of fathers' participation							
Austria	4 lump-sum models: 12 + 2, 15 + 3, 20 + 4, 30 + 6	Lump-sum: € 436 to € 1,000 per month ⁴	2 to 6 non-transferable partner months	Parental leave ⁶ : all versions: 17.2 percent ⁷							
	Income-related model: 12 + 2 Part-time option ³	Earnings replacement: 80 percent (maximum € 2,000 per month)	Public service: paternity leave 4 weeks ⁵	Short-term lump-sum version (12 + 2): 30.4 percent ⁷							
				Income-related version (12 + 2): 26.2 percent ⁷ (2011)							
Germany	12 + 2 Options ⁸ :	Earnings replacement: 67 percent	2 non-transferable partner months	Parental leave ⁶ : 31.9 percent ⁷ (2013)							
	Half benefit amounts and double duration – Parental Benefit Plus: at part-time employment 2 instead of 1 month of parental benefit with maximum half benefit amount Part-time option	(maximum € 1,800 per month)	Simultaneous claim to parental leave up to 14 months at up to 30 work hours each per week ⁸	Average duration: 3.2 months (2012)							
			Partnership bonus: at simul- taneous claim of parental leave and work between 25 to 30 hours additional 4 months Parental Benefit Plus ⁸								
France	4 for 1st and 2nd child 6 as from 3rd child ⁹ Thereafter 6 + 6 for 1st child ¹⁰ , 24 + 12 ¹⁰ as from 2nd child Part-time option	Earnings replacement: 100 percent (maximum € 3,170 per month) Lump sum: € 391 per month	6 non-transferable partner months for 1st child, 12 non- transferable partner months as from 2nd child Paternity leave: 11 days	Parental leave ⁶ : 3.7 percent (2012) ⁷ Paternity leave: 62 percent (2012)							
Denmark	11.5 ¹¹ Part-time option	Earnings replacement: 100 percent (maximum € 554 per week)	8 months leave, shared ad libitum between parents, may also be taken simultaneously Paternity leave: 2 weeks	Parental leave ⁶ : 7.2 percent ¹² (2010-11) Average duration: 36 days (2012-13) Paternity leave: 60 percent (2011)							
Sweden	14 ¹³ + 2 Part-time option	Earnings replacement: 77.6 percent 1st to 13th month (maximum € 47.447 per year) 14th to 16th month: € 20 per day	2 non-transferable partner months Leave of 8 months, to be shared equally between parents ¹⁴ In the first year, parents may claim 30 days leave simultaneously Paternity leave: 2 weeks ¹⁵	Parental leave ⁶ : 25 percent ¹² (2013) Paternity leave: 75 percent (2011)							
Netherlands ¹⁶	12 ^{10,17} Part-time option	Tax credit: € 4.24 per hour of leave ¹⁸	Parents may take leave simultaneously Paternity leave (paid): 2 days Paternity leave (unpaid): 3 days ¹⁹	Parental leave ⁶ : 23 percent ⁷ Average duration: 16 months à 8 hours per week (2013) Paternity leave: 51 percent (2004)							

Source: Country reports in Moss (2014, 2015); WIFO compilation. – 1 "+ x": non-transferable partner months. – 2 Paternity leave: as a rule paid leave at full earnings replacement within defined time after birth. – 3 Within an upper earnings limit. – 4 Benefit level depending on duration of leave, being highest for the shortest lump-sum version. – 5 Unpaid; in federal government service and some of the Länder. – 6 Share of cash benefit (parental leave benefit). – 7 In relation to completed cases of parental leave. – 8 As of mid-2015. – 9 Corresponding to maternity leave. – 10 May be claimed by both parents. – 11 Of which 8 months may be shared ad libitum between parents. – 12 In relation to all leave of absence days claimed. – 13 Of which 2 months reserved for the mother. – 14 Transfer only possible with written consent of the parent concerned; a "gender-equality bonus" is granted that is the higher, the more equally the parental leave is shared. – 15 For fathers, homosexual partners or other eligible persons. – 16 2014. – 17 Leave of absence only on a part-time basis, i.e., the working time may only be reduced by half at most. – 18 Abolished in 2015. – 19 As from 2015.

2.4 Provision of child care facilities

The changeover during the last years towards a family policy in support of the reconciliation of work and family life is reflected by growing public expenditure on child

⁶ https://www.destatis.de/DE/PresseService/Presse/Pressemitteilungen/2013/12/PD13 411 22922.html.

care facilities (2005: 0.4 percent of GDP, 2011: 0.5 percent of GDP; *Schratzenstaller*, 2015). Accordingly, the share of children below age 3 enrolled in institutional child care has increased markedly, from less than 10 percent in 2004 to 20 percent in 2010 and 28 percent in 2013. The legal entitlement to a place in a kindergarten existing since 1996 for every child from age 3 to school entry has been enlarged as from 1 August 2013: nowadays, every child from age 1 is entitled to receive early-childhood support in a day-care facility (Child Support Act, "Kinderförderungsgesetz").

In order to maintain the freedom of choice between at-home and out-of-home care for the under-3-year-olds, and in view of the targets for the extension of child care facilities likely to be missed, notably in some of the larger West German Länder, a child care benefit ("Kinderbetreuungsgeld") was introduced on 1 August 2013 – in parallel to the legal claim to a place in a child care facility for children under 3. For children born after 31 July 2012 whose parents are unable or unwilling to have them looked after in an institutional child care facility, a monthly benefit of €100 is granted from the 15th to the 36th month of age of the child. As from 1 August 2014, the benefit was increased to € 150 per month, as a "prolongation" of the parental benefit expiring 14 months after the birth of a child at the latest. After being declared unconstitutional recently, the child care benefit cannot be granted any more in its current form, i.e., as a federal benefit. The child care benefit is deemed to create negative work incentives, especially for women with poor income opportunities. Moreover, there is the concern that indeed children from low-income or immigrant families which would more than others benefit from early-childhood support could in this way be encouraged to stay away from institutional child care (Spieß, 2012). From 1 August to 31 December 2013, child care benefit was granted for 23 percent of the children born in this period, of which 95 percent of the recipients were mothers (Blum - Erler, 2015).

Since 2006, two-thirds of the expenditure for child care of children up to age 14 are income-tax-deductible up to a ceiling of \in 4,000 per year. In 2012, the original condition of both parents being gainfully employed was waived. The tax burden is in this way reduced by a maximum of \in 1,770 per year.

3. France

In the welfare state typology by Esping-Andersen (1999), France, like Germany, is classified under the "conservative" type. The most salient feature of French family policy is seen in a consistent master plan (Luci, 2011) with a well-balanced family policy mix. The latter is geared – based on a first, natality-promoting pillar – on the special subsidisation of multi-child families ("policy of the third child"), consisting in over-proportional support via income tax relief, income-contingent transfers, level and duration of earnings replacement during parental leave as well as tax deductibility of child care cost. Apart from this pro-natality approach with the explicit aim of raising the fertility rate, a second major pillar is the quest for reconciliation of work and family life (Luci, 2011, Erhel, 2013). Until recently, the focus in this regard was set on encouraging labour force participation of mothers, supported by a high social acceptance of (full-time-)working mothers (Rötter, 2014), while efforts at greater involvement of fathers were largely absent (Fagnani – Math, 2010). Only very recently, the regulations concerning parental leave have been supplemented by such an element, i.e., the introduction of non-transferable "partner months" (see below). Due to the need for fiscal consolidation, monetary benefits have been curtailed and focussed, although many of them had already before been targeted specifically towards low- and middle-income families.

3.1 System of household taxation

France applies an income tax splitting model which not only includes both parents but also the children living with the family, whereby a splitting factor of 0.5 is applied for the first two children and of 1 as from the third child. The definition of the splitting factor is inspired by the "marginal cost" of each child, as in families of more than two children the cost to cover children's basic needs, e.g., housing or family vehicle, rises

more than proportionally (*Dell – Wrohlich*, 2006). To some extent, however, the doubling of the splitting factor as from the third child can also be seen as part of the dedicated support for larger families as reflected also by other family policy instruments (see further below; *Fagnani*, 2005).

Given the progressive income tax schedule, the amount of the tax relief in the French family tax splitting model rises with income, in a similar way as in the German income tax splitting model. Households with no or low taxable income thus receive little or no tax benefit. Whereas the splitting effect operates to full extent for adults, like in Germany, a ceiling for the exoneration via children had been introduced as early as 1982, set until the end of 2013 at \leq 2,000 respectively for the first two children and at \leq 4,000 for each further child (Ochmann – Wrohlich, 2013). In 2014, the ceiling was lowered to \leq 1,500 for the first and the second child. In 2011, 34 percent of two-parent households with two children paid no income tax on account of the family splitting regulation. Single parents are entitled to an additional splitting factor of 0.5 (as from the third child 1.5 instead of 1), the tax relief also being subject to a ceiling.

3.2 Cash benefits

While no benefit is granted for the first child, families with 2 children receive \in 129.35 per month, such with 3 children \in 295.05, with 4 children \in 460.77 and \in 165.72 for each further child. Families of 3 children receive for each child above 14 years of age a monthly supplement of \in 64.67, except for the first-born child. The French government, as from mid-2015, decided to cut these benefits by 50 percent above a household income of \in 67,140 per year and by 75 percent above a household income of \in 89,491 per year.

Other family subsidies have already for some time been linked to the income of parents or those responsible for the care of a child: the school enrolment allowance (for children of 6 to 18 years, paid annually in August or September, at a maximum of \in 395.90), the supplementary family benefit for families of 3 or more children (of age 3 to 21, maximum \in 185.19), the allowance granted during pregnancy ("child-birth premium", one-off benefit of up to \in 923.08 paid in the seventh month of pregnancy) as well as the allowance granted at birth of a child (at a maximum of \in 184.62 per month until the 3rd birthday).

3.3 Parental leave benefits

In the French model, also the duration of parental leave and the benefit period for parental leave benefit, and thus the total amount of earnings replacement benefits are scaled to the number of children? Maternity leave is 16 weeks for the first and second child, for each further child 24 weeks. During that period, mothers are entitled to full replacement of their previous earnings, up to a maximum of \leq 3,170 per month. Thereafter, both, the father and the mother, may receive a monthly lumpsum of \leq 391 during 6 months each (income-related and dependent on working time) for taking care of their first child. For each additional child, one parent may claim leave of absence up to 24 months (at a monthly lump-sum benefit of \leq 391), the other parent additional non-transferable 12 months. Families with at least 3 children may alternatively opt for a higher monthly lump-sum of \leq 819.14 for up to one year, if one parent interrupts work completely. Within the first 4 months after birth of a child, fathers may take paternity leave up to 11 working days at full salary.

While receiving parental leave benefit, both parents may work between 16 and 32 hours per week, with the benefit being reduced accordingly. If both parents work part-time, they may still receive parental leave benefit, but the total amount is limited to \leqslant 391 per month. The prevailing models of parental leave benefit therefore reflect the intention to prevent parents from retreating from work completely or at least to encourage their early return to the labour market.

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⁷ For the regulations on leave of absence for child care purposes in France, see Fagnani – Boyer – Thévenon (2015).

Participation of fathers in child care is still low in France. There is the possibility of paternity leave, as referred to above, of which over 60 percent of fathers make use; nevertheless, the percentage of fathers claiming child care benefit is very low at 3.7 percent, of which moreover 70 percent choose the part-time option (Boyer – Nicolas, 2013).

3.4 Provision of child care facilities

Expenditure on child care facilities in France amounts to around 1.2 percent of GDP and claims a share of nearly 34.5 percent of total family benefits (2011). For children from the age of 3, parents are entitled to accommodation in a child care facility; nearly all 3-to-6-year-olds are enrolled in free full-day pre-schooling. The French system offers a broad array of child care facilities (Erhel, 2013, Luci, 2011). Particularly since the 1990s it is the declared aim of family policy to give parents the freedom of choice between different forms of child care, be it in public institutions, in the family by skilled nurses, or by qualified day-nannies supported by public subsidies. In 2013, according to Eurostat, 39 percent of the under-3-year-olds were looked after in formal child care provisions, two-thirds of them probably by day-nannies (Seils, 2013)8. The option of having their children taken care of by qualified persons at home is mainly used by parents with higher income and represents only a small minority of 2 percent of children (Erhel, 2013). Private child care (by day-nannies or nurses at the parents' home) is much more common in France than in most other EU member countries (except in the Netherlands). For day-care persons looking after children up to the age of 6, a wage subsidy of at most 85 percent or € 460.93 per month, depending on parents' income and the number of children, is granted, if the daily gross wage does not exceed € 48.05. 50 percent of private expenditure for the care of children until the age of 6 by day-care persons or in formal institutions (up to a ceiling of € 2,300 per year, net of any subsidies received) is deductible via a tax credit.

4. Netherlands

At 2.1 percent of GDP (2011), family benefits in the Netherlands falls short of the OECD average of 2.6 percent, partly as a result of a rather implicit approach to family policy that largely refrains from direct intervention and focuses rather on labour market and social policy. Also cash transfers that ultimately benefit families are generally not targeted to households, but to individual eligibility criteria.

4.1 System of household taxation

A consistent feature of the implicit Dutch family policy is the largely individual-based income taxation. The only exception is the possibility for a person with little or no income to transfer his general tax credit (granted any individual) to his/her taxpaying partner.

4.2 Cash benefits

In 2015, the range of cash benefits has been reformed in a major way, when the former 11 allowances were reduced to 4: child allowance, child tax credit, combination tax credit and child care tax allowance. Additional benefits for single parents and the tax credit that could be claimed instead of an earnings replacement benefit of \leq 4.24 per hour of child care leave of absence, were abolished.

The child allowance is independent of parents' income, but varies with the age of a child. Children up to 5 years receive € 767 per year (unchanged in 2015), children between 6 and 11 years € 931, and children from 12 to seventeen years € 1,095.

The child tax credit was slightly increased in 2015, up to \leq 1,032 per year for the first child and up to \leq 1,808 for two children. It is income-dependent and starting from an

⁸ By definition, day-nannies do not belong to the formal child care facilities sampled by Eurostat; however, the revealed high enrolment ratio appears realistic only if places offered by day-nannies are included (*Seils*, 2013).

annual household income of \le 19,676 is reduced in steps of 6.75 percent (in 2014, the income ceiling was \le 26,147 and the steps were 7.6 percent). For single parents, the child tax credit is augmented by up to \le 3,050 per year, as a compensation for the abolition of the single-parent tax credit. Since 2013, eligibility for the child tax credit is subject to a ceiling for household net wealth of \le 81,360.

Taxpayers with a child below 12 years and annual earnings above € 4,857, who are single parents or with a partner earning a higher income, are eligible for an incomedependent child tax credit (combination tax credit) of at least € 1,033 per year. The latter is raised for earnings between € 4,857 and € 32,832 by 4 percent of the amount exceeding € 4,857, up to a maximum of € 2,152. The purpose is to set an incentive for a second earner to take up work.

The monetary transfers therefore consist to a large part of tax benefits that are directly linked to gainful employment. The sheer existence of children only entitles to child allowance that is rather low by Austrian standards.

4.3 Parental leave benefits

A characteristic feature of the Netherlands is the host of leave of absence regulations that are not necessarily linked to family status: employees may accumulate overtime work hours and spend them later on further education, nursing care, holidays, child care or partial retirement.

After birth of a child until the age of 8, each parent may claim parental leave up to 26 times the weekly work hours (i.e., for a full-time worker 988 hours or 26 weeks). Parental leave is in principle only granted in case of part-time employment, while full-time employees need the consent of their employer. If, for example, a full-time work contract is reduced by half, leave may be taken for 12 months. Different part-time options are available; the higher the number of individual weekly work hours, the more can leave of absence be extended. If the employer agrees, parental leave may also be taken in two or three instalments. Both parents may take leave at the same time. There is no earnings replacement benefit in the Netherlands, although until 2014 parents were entitled to an income tax credit of € 4.24 per hour of leave. This parental leave tax credit has been phased out in 2015.

In 2013, 23 percent of fathers made use of the possibility of taking parental leave, compared with only 15 percent in 2003. On average, they took leave for 8 hours per week over a period of 16 months, working 39 hours per week during that period. Within 4 weeks after birth of a child, fathers are eligible for 2 days of paid paternity leave, and since 2015 for an additional 3 days of unpaid leave. In 2004, 51 percent of fathers claimed paternity leave.

4.4 Provision of child care facilities

Since the early 1990s, special emphasis is given to a broader infrastructure of care facilities, in order to raise labour force participation, notably of mothers; before that time, public child care institutions were regarded as a makeshift for "abnormal" family situations (Kremer, 2002). However, there is still a considerable difference in care arrangements between children under 3 and pre-school children: as from the age of 4, children are entitled to receive care, with pre-school education being free of charge and offered full-time. The publicly financed pre-school facilities are attended by almost all 4-and-5-year-olds and thus provide nearly full coverage. On the other hand, only 46 percent of the under-3-year-olds (2013) are enrolled in institutional care, mostly on a part-time basis (Seils, 2013). 41.5 percent of total family benefits (0.9 percent of GDP) go to child care facilities (2011).

A particular feature of the Dutch system is the three-partite financing of external child care by employers, parents and the public sector. In principle, it is the parents who pay the child care fees to the institutions; part of the cost is then reimbursed by the employer and part is recovered via deductibility from income tax (*Plantenga*,

 $^{^{9}}$ For the leave of absence regulations for child care purposes in the Netherlands, see den Dulk (2014).



2013). According to the Child Care Act of 2005, parents may deduct the cost of institutional care of pre-school children of currently up to € 6.84 per hour (after-school nursery € 6.38, care for pre-school children at home € 5.48) from income tax, if both parents are gainfully employed or study. The tax allowance depends on parents' weekly working time: for pre-school children in formal care, 140 percent of the working time of the parent working the relatively shorter hours per week are deductible, for school children in after-school nurseries 70 percent. A maximum of 230 hours per month are tax-deductible, providing an incentive for part-time work at relatively long weekly hours. Since 2013, the tax-deductible amount has been linked to household income; depending on the latter, the child care benefit may reduce the cost for the first child by over 90 percent (at a household income no higher than € 17,918 per year). For household incomes of € 105,594 per year and above, the reduction of child care cost is limited to 18 percent for the first child. For the second and any further child, the tax relief is significantly higher: for household incomes no higher than € 17,918 per year, the cost is reduced by 93 percent, for higher incomes (about € 175,000 and above), by a maximum of 58 percent.

Given the widespread "part-time culture", mainly but not only for female employment¹⁰, the offer of part-time child care facilities, especially in pre-school education, in combination with the equally part-time-biased parental-leave regulations, is conducive to a secondary-earner model where it is mainly the women who work parttime and shoulder the bigger part of child care obligations (Knijn – Saraceno, 2010).

5. Sweden

5.1 System of household taxation

The Swedish system is entirely based on individual income taxation where neither family and employment status, nor the partner's income are of relevance.

5.2 Cash benefits

Families receive no tax benefits, but only direct cash payments. For each child, the basic allowance is SEK 1,050 (€115.40) per month, designed to cover the basic needs. As from the second child, there are supplements rising progressively with the number of children. As a rule, the child allowance is granted up to the age of 16, but extended for children in further education and training.

5.3 Parental leave benefits

The link of income maintenance to the previous earnings level sets a limit to the income losses suffered during parental leave¹¹. For the first 390 days of parental leave benefit (granted up to 480 days at most), parents receive 77.6 percent of their previous earnings up to an earnings ceiling of SEK 445,000 (€ 47,447) per year. 60 of the 390 days, for which income-dependent parental leave benefit may be received, 60 days are reserved for each parent and are non-transferable. For the remaining 90 days, the allowance is no longer income-dependent, but a flat amount of SEK 180 (around €20) per day. Upon expiry of the 60 days of leave foreseen for both parents, the remaining 360 days must be split equally between the parents; sharing them in a different way requires the consent in writing by the parent giving up (part of) his leave entitlement.

A "gender-equality bonus" introduced in mid-2008 shall provide a financial incentive for a more equal sharing of parental leave between mother and father. The bonus refers to the 390-day period of replacement of previous earnings after exhaustion of the non-transferable 60 days by mother and father (i.e., 270 days). For each day that father and mother share the leave equally among each other, they receive

¹⁰ The proportion of men working part-time of around one-fifth is also significantly above the EU average.

¹¹ For the regulations concerning leave of absence for child care purposes in Sweden, see Duvander - Haas - Hwang (2015).

SEK 50 (€ 5, altogether a maximum of SEK 13,500 or € 1,439 when the leave is shared equally between parents). In addition, parents may during the first year after birth of their child claim up to 30 days leave at the same time for looking after the child. However, empirical evidence suggests that the effects of the gender-equity bonus are rather modest so far (Duvander – Johansson, 2012, Försäkringskassan, 2014). In 2012, 56 percent of the eligible parents made use of the bonus (2011: 54 percent), on average for 14.5 days.

In the Swedish model, the parental leave benefit is granted only for little more than one year, during that time however at relatively generous amounts. Moreover, the allowance does not necessarily have to be claimed immediately after maternity leave; the regulation only provides for the allowance to be drawn before the child reaches the age of 12. At any time, the parental leave benefit may be received for half or quarter of a day or even on an hourly basis, offering working parents a high degree of flexibility.

Of the children born in 2004, 88.3 percent of fathers made use of parental leave before the child's eighth birthday (Duvander – Haas – Hwang, 2015). Fathers of children born in 2003 took on average 91 days of leave over the eligibility period of eight years, whereas mothers claimed 342 days. In 2011, 44 percent of the recipients of parental leave benefit were men; they drew the benefit on average for 37 days, compared with an average 95 days for women. Fathers' participation has significantly increased in the longer-term perspective: while in 1989 only 7 percent of all parental leave days were taken by fathers, that proportion had risen to 25 percent (3.5 times as high) by 2013. The proportion of couples who share parental leave broadly equally (between 40 percent and 60 percent) goes up only slowly (2008: 12 percent, 2010: 12.7 percent). The introduction of the first "daddy month" in 1995 raised fathers' participation distinctly: the share of fathers who took no leave at all fell from 54 percent to 18 percent, while the proportion of fathers who took at least one month's leave jumped from 9 percent to 47 percent (Ekberg – Eriksson – Friebel, 2013).

Within sixty days after birth or adoption of a child, the father (or same-sex partner) is entitled to up to ten days' leave of absence, at an earnings replacement ratio of 77.6 percent (subject to a ceiling of SEK 333,750 or € 35,585 per year). Around 75 percent of fathers of children born in 2011 or otherwise eligible persons took paternal leave (Duvander – Haas – Hwang, 2015).

5.4 Provision of child care facilities

Sweden spends 1.6 percent of its GDP (2011) on child care facilities, representing some 44 percent of government family-related expenditure. As from a child's first birthday, parents are entitled to formal care for their child, i.e., in a full-day nursery if both of them work, and on a half-day basis if only one of them is employed (Duvander – Haas – Hwang, 2015). Since 2009, the local authorities may pay up to SEK 3,000 (€ 320) per month in child raising allowance (vårdnadsbidrag) to parents of 1-to-3-year-old children who make no use of a public child care facility and have already taken 250 days' leave of absence. This child raising allowance cannot be cumulated with simultaneous leave; the eligibility criterion is that a second adult (not necessarily the other parent) works or studies in the household. This benefit, offered by more than one-third of municipalities, may provide a negative incentive for labour force participation of mothers, although the number of recipients is very small. Only 2.9 percent of the children between 1 and 3 years of age had parents who received the child raising allowance in 2011, among these 92 percent women. In 2007, 47 percent and in 2013 55 percent of children under 3 were accommodated in child care facilities.

6. Denmark

6.1 System of household taxation

The Danish income tax system, like the Swedish one, can be regarded as (formally) individualised, although there are tax breaks for couples. Thus, the part of the basic

tax allowance not used by one person may be transferred to his/her spouse, from which mainly single-earner households benefit. Like Sweden, Denmark does not offer any tax breaks for families.

Table 2: Family benefits and instruments of family policy in selected European countries – Overview 2015

2015						
	Austria	Germany	France	Denmark ¹	Netherlands	Sweden
Family benefits as a percentage of GDP (2011)	2.71	3.05	3.61	4.05	2.13	3.64
Direct cash benefits as a percentage of GDP	2.03	1.21	1.24	1.63	0.74	1.49
Tax benefits as a percentage of GDP	0.04	0.87	0.68	-	0.51	-
Benefits in kind as a percentage of GDP ²	0.65	0.97	1.69	2.42	0.88	2.14
Child allowance (cash benefit) ²	Yes ³	Yes ³	Yes ^{3,4,6}	Yes ^{5,6}	Yes ⁵	Yes ⁷
Tax benefits ^{2,8}	Child tax credit ⁹ Child tax allowance ⁸	Child tax allowance ¹⁰		-	Child tax credit ^{7,9,11}	-
Parental leave (months) ¹²	Lump-sum models: 12 + 2, 15 + 3, 20 + 4, 30 + 6 Income- dependent model: 12 + 2	12 + 2	10 + 6 (1st child) 28 + 6 (2nd child) 30 + 12 (as from 3rd child)	11.5	12	14 + 2
Earnings replacement benefits	Lump-sum models: lump-sum: € 436 to € 1,000 per month Income- dependent model: Earnings replacement: 80 percent (maximum € 2,000 per month)	Earnings replacement: 67 percent, maximum € 1,800 per month ¹³	Earnings replacement: 100 percent (maximum € 3,170 per month) 4 months (1st and 2nd child) 6th month (as from 3rd child) lump-sum: € 391 per month 6 + 6 month (1st child) 24 + 12 months (as from 2nd child)	Earnings replacement: 100 percent (maximum € 554 per week)		Earnings replacement: 1st to 13th month 80 percent (maximum € 47,447 per year), 14th to 16th month € 20 per day
Tax benefit for care at home	Single-earner tax credit	Spousal splitting (highest tax relief for single-earner couple)	Family splitting (highest tax relief for single-earner couple, rising with number of children)	Transfer of unused personal tax credits	Transfer of unused personal tax credits	-
Ratio of children under 3 in institutional care (2013)	17 percent	28 percent	39 percent	62 percent	46 percent	55 percent
Child care cost for secondary-earner family (100 percent + 67 percent of average workers' earnings) with 2 children in all-day care (2012)	3.4 percent of gross earnings 2.7 percent of net family income ¹⁴	11.2 percent of gross earnings 9.7 percent of net family income	13.1 percent of gross earnings 9.7 percent of net family income	11.9 percent of gross earnings 10.7 percent of net family income	24.09 percent of gross earnings 20.3 percent of net family income	5.8 percent of gross earnings 4.4 percent of net family income

Source: OECD, Eurostat, WIFO research and compilation. - 1 2014. - 2 Unless otherwise stated: income-independent; excluding any additional benefits for single parents. - 3 Level depending on number of children. - 4 As from 2nd child, supplements for older children in families with more children; as of mid-2015. - 5 Level depending on children's age. - 6 Income-dependent. - 7 As from 2nd child: supplements for families with more children. - 8 Lowers tax base; tax relief depending on individual income tax rate. - 9 Lowers amount of tax due. - 10 Alternative to child allowance. - 11 Plus income-dependent child tax credit if second parent works and earns a higher income. - 12 "+ x": non-transferable partner months; duration of child care allowance. - 13 Various flexibility options (Table 1). - 14 Vienna; in other Länder significantly higher, but no data available.

6.2 Cash benefits

Financial relief for families with children is mainly granted via child allowances, graded by the age of a child. Since 2014, an annual income ceiling of DKK 712,600 (\leq 95,651) is applied; for incomes above the ceiling, 2 percent of the exceeding amount are deducted from the child allowance. Single parents are entitled to an additional lump-sum of DKK 5,284 (\leq 709) per year plus DKK 5,184 (\leq 696) per child.

6.3 Parental leave benefits

The Danish model also provides for relatively high earnings replacement ratios at short benefit periods during maternity and parental leave¹². Women are eligible for maternity leave from 4 weeks before giving birth to 14 weeks thereafter. Subsequently, parental leave up to 32 weeks may be taken, to be shared ad libitum between both parents. Unlike, however, in the other Nordic countries and unlike, meanwhile, also in all other countries of our sample except the Netherlands, there is no part of parental leave exclusively "reserved" for the father. Up to a ceiling of DKK 4,135 (€ 554) per week, previous earnings are replaced at 100 percent. Under collective agreements covering about 75 percent of employees, possible differences between previous earnings and the benefit ceiling are also compensated. Between 8 and 13 weeks of parental leave may be deferred and taken at a later stage. The parental leave period may be extended from 32 to 46 weeks, whereby the earnings replacement ratio is reduced accordingly. For the leave period, a parttime work arrangement may be settled with the employer, in which case the benefit period for parental leave benefit is prolonged and the level reduced proportionally. During the first 14 weeks after birth of a child, fathers are entitled to 2 weeks' paternity leave with previous earnings replaced at 100 percent (subject to the ceiling referred to above). In 2011, 60 percent of fathers made use of such paternity leave. In 2010-11, men claimed 7.2 percent of all parental leave days, at an average duration of 36 days.

6.4 Provision of child care facilities

In Denmark, every child as from the age of 6 months is entitled to a place in an institutional care facility, unless one parent (or both) is on maternity or parental leave. The share of children under 3 years of age and enrolled in a formal care institution of 62 percent in 2013 (2007: 70 percent) is by far the highest in the EU. Expenditure on child care facilities represents 2 percent of GDP and accounts for 50 percent of total spending on family benefits (2011).

7. Summary

The countries of our sample, i.e., Germany, France, Netherlands, Sweden and Denmark, differ considerably with regard to their design of family policy as well as to the instruments used (Table 2)¹³, also in comparison to Austria. The traditionally-oriented German family policy has in some respect been changed profoundly in recent years, with the aim of raising female labour force participation and reconciling work and family obligations, also for men. However, since the reform has left major elements unchanged (e.g., household taxation) or since implementation will take several years (expansion of child care facilities), the German policy is of all models perhaps the least internally consistent one. Further steps are nevertheless being taken towards enhancing compatibility of work and family life, and towards greater involvement of fathers in child care ("Parental Benefit Plus" and more flexible regulations as from mid-2015). The pronatalist approach of French family policy targets higher female labour force participation and higher fertility at the same time. Family policy in the Netherlands strongly relies on cash benefits linked to employment on the one hand, and on part-time arrangements for work and child care supported by parental leave regulations, on the other, thereby promoting a secondary-earner model. Swedish family policy sets the focus on supporting female employment through child care facilities, but also on fathers' participation and poverty reduction via generous cash transfers. Family policy in Denmark, by combining short benefit duration for parental leave allowance with high earnings replacement rates and a legal claim to institutional care even for very young children, puts the emphasis on

 $^{^{12}}$ For the regulations concerning leave of absence for child care purposes in Denmark, see *Bloksgaard – Rostgaard* (2015).

¹³ For further detail see Schratzenstaller (2015).

the early return of parents to work, a key feature of the Nordic policy model. The country shares the rather weak incentives given to fathers' participation with France and the Netherlands.

Recent reforms, notably of leave regulations, show growing efforts in some countries to encourage the participation of fathers in the care for their children: such as in France (introduction of non-transferable partner months as from the first child), Sweden ("gender-equality bonus") or Germany (partnership bonus). Already for some years, Germany and Austria have introduced several months' leave dedicated exclusively for the second parent, which expire if not claimed. Likewise, the introduction in Germany and Austria of earnings-related benefits during parental leave, following the Swedish and Danish examples, creates incentives for greater involvement of fathers during early childhood.

In the context of the fiscal consolidation programmes adopted by most EU member countries after the recession of 2009, also family benefits have come under pressure. Both in Denmark (since 2014) and France (since 2015), the previously generally granted child allowance has been curtailed for parents with high income. Thus both countries, and nowadays also the UK, now belong to the small group of countries that do not grant income-independent family benefits. In the Netherlands, cash benefits have in recent years increasingly been made contingent upon parents' income and, in the 2015 reform, streamlined and better targeted. Also in Austria, the first budget consolidation package of 2011 has restricted certain monetary benefits, some of which had only been introduced shortly beforehand. These concerned, however, minor items and their impact on government finances is rather small (abolition of the single-earner tax credit for couples without children, reduction of the 13th monthly instalment of the family allowance). Most recently, benefits have been raised again, with the stepwise increase of the family allowance between 2014 and 2018 and the doubling of the child tax allowance as from 2016. Apart from Austria, Germany is the only country where public spending is increased not only for child care facilities, but also for cash benefits; yet, the German tax benefit of income tax splitting, although implying a high budgetary cost, has never been put up for discussion in the latest fiscal consolidation exercise. At the same time, all countries reviewed here - likely to be representative for the large majority of EU and OECD countries – take steps to expand the provision of child care facilities.

8. References

Bach, S., Geyer, J., Haan, P., Wrohlich, K., "Reform des Ehegattensplittings: Nur eine reine Individualbesteuerung erhöht die Erwerbsanreize deutlich", DIW-Wochenbericht, 2011, 78(41), S. 13-19.

Bloksgaard, L., Rostgaard, T., "Denmark Country Note", in Moss (2015).

Blum, S., "No Need to Reinvent the Wheel: Family Policy Transfers in Germany and Austria", Policy Studies, 2014, http://www.tandfonline.com/doi/pdf/10.1080/01442872.2013.875153.

Blum, S., Erler, D., "Germany Country Note", in Moss (2014).

Blum, S., Erler, D., "Germany Country Note", in Moss (2015).

Bonin, H., Fichtl, A., Rainer, H., Spieß, C. K., Stichnoth, H., Wrohlich, K., "Zentrale Resultate der Gesamtevaluation familienbezogener Leistungen", DIW-Wochenbericht, 2013, 80(40), pp. 3-13.

Boyer, D., Nicolas, M., "Les Pères Bénéficiaires du Complément de Libre Choix d'Activité", CNAF essentiel, 2013, (113).

Dell, F., Wrohlich, K., "Income Taxation and its Family Components in France", CESifo DICE Report, 2006, 4(4), pp. 50-54.

den Dulk, L., "Netherlands Country Note", in Moss (2014).

den Dulk, L., "Netherlands Country Note", in Moss (2015).

Destatis (Statistisches Bundesamt), Pressemitteilung Nr. 411 vom 6. Dezember 2013, https://www.destatis.de /DE/PresseService/Presse/Pressemitteilungen/2013/12/PD13 411 22922.html.

Duvander, A.-S., Haas, L., Hwang, Ph., "Sweden Country Note", in Moss (2015).

Duvander, A.-S., Johansson, M., "What are the Effects of Reforms Promoting Fathers' Parental Leave Use?", Journal of European Social Policy, 2012, 22(3), pp. 319-330.

Ekberg, J., Eriksson, R., Friebel, G., "Parental Leave – A Policy Evaluation of the Swedish 'Daddy Month' Reform", Journal of Public Economics, 2013, 97(C), pp. 131-143.

- Erhel, Ch., Parenting in France. Exchange of Good Practices on Gender Equality, Europäische Kommission, Brüssel, 2013, http://ec.europa.eu/justice/gender-equality/files/exchange of good practice fr/discussion paper fr2013 en.pdf.
- Esping-Andersen, G., Social Foundations of Postindustrial Economies, Oxford, 1999.
- Fagnani, J., "Family Policy in France: Old Challenges, New Tensions", CESifo DICE Report, 2005, 3(2), pp. 40-44.
- Fagnani, J., Boyer, D., Thévenon, O., "France Country Note", in Moss (2015).
- Fagnani, J., Math, A., "Recent Reforms in French and German Family Policies: Similar Challenges, Different Responses", Sociologica. Problemas e Práticas, 2010, (64), pp. 11-35.
- Försäkringskassan, Lag kunskap om jämställdhetsbonus, Stockholm, 2014.
- Gauthier, A. H., The State and the Family, Oxford, 1996.
- Knijn, T., Saraceno, Ch., "Changes in the Regulation of Responsibilities Towards Childcare Needs in Italy and The Netherlands: Different Timing, Increasingly Different Approaches", Journal of European Social Policy, 2010, 20(5), pp. 444-455.
- Kremer, M., "The Illusion of Free Choice: Ideals of Care and Child Care Policy in the Flemish and Dutch Welfare States", in Michel, S., Mahon, R. (eds.), Child Care Policy at the Crossroads: Gender and Welfare State Restructuring, New York, 2002, pp. 113-142.
- Luci, A., Frauen auf dem Arbeitsmarkt in Deutschland und Frankreich. Warum es Französinnen besser gelingt, Familie und Beruf zu vereinbaren, Friedrich-Ebert-Stiftung Internationale Politikanalyse, Berlin, 2011.
- Moss, P. (ed.), 10th International Review of Leave Policies and Related Research, 2014, http://www.leavenetwork.org/lp and r reports.
- Moss, P. (ed.), 11th International Review of Leave Policies and Related Research, 2015, http://www.leavenetwork.org/lp_and_r_reports.
- Müller, K.-U., Neumann, M., Wrohlich, K., Familienarbeitszeiten Wirkungen und Kosten einer Lohnersatzleistung bei Familienteilzeit, Berlin, 2013.
- Ochmann, R., Wrohlich, K., "Familiensplitting der CDU/CSU: Hohe Kosten bei geringer Entlastung für einkommensschwache Familien", DIW-Wochenbericht, 2013, 80(36), pp. 3-11.
- Pfau-Effinger, B., Wandel der Geschlechterkultur und Geschlechterpolitiken in konservativen Wohlfahrtsstaaten Deutschland, Österreich und Schweiz, Universität Hamburg, 2005 (mimeo).
- Plantenga, J., "Local Providers and Loyal Parents: Competition and Consumer Choice in the Dutch Childcare Market", in Lloyd, E., Penn, H. (Hrsg.), Childcare Markets Can They Deliver an Equitable Service?, Bristol, 2013, pp. 63-78.
- Rötter, Y., Familienpolitik im Kontext des Neo-Institutionalismus, Hamburg, 2014.
- Schratzenstaller, M., "Family Benefits in Austria An Overview", WIFO Bulletin, 2015, 20(14), pp. 156-165, http://bulletin.wifo.ac.at/58369.
- Seils, E., "Die Betreuung von Kindern unter drei Jahren", WSI-Report, 2013, (9).
- Spieß, C. K., "Betreuungsgeld widerspricht den Zielen nachhaltiger Familienpolitik", DIW-Wochenbericht, 2012, 79(24), pp. 24, https://www.econstor.eu/dspace/bitstream/10419/61183/1/717860574.pdf.