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POLICY DEPARTMENT A
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Gender Equality

Costs and benefits of maternity and paternity leave

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POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

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COSTS AND BENEFITS OF MATERNITY AND PATERNITY LEAVE

WORKSHOP FEMM / EMPL
- 5 October 2010 -

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EUROPEAN PARLIAMENT

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

POLICY DEPARTMENT C: CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS

FULLY PAID MATERNITY LEAVE OF 18 AND 20 WEEKS - Impact Assessment -

STUDY

Abstract

The background for this Impact Assessment is the Commission's proposal for a Directive of the European Parliament and of the Council amending Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers, as well as workers who have recently given birth or are breastfeeding. The Women's Rights and Gender Equality Committee and the Employment and Social Affairs Committee have proposed several amendments to the Commission's proposal. The two committees have requested a medium term ex-ante impact assessment of the introduction of a fully paid maternity leave in ten EU Member States.

PE 425.629 EN

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality and the Committe on Employment and Social Affairs.

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LINGUISTIC VERSIONS
Original: EN

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Manuscript completed in September 2010.

This document is available on the Internet at:
http://www.europarl.europa.eu/studies

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ABBREVIATIONS

GDP : Gross Domestic Product
IA : Impact Assessment
LFPR : Labour Force Participation Rate
NPV : Net Present Value

1. INTRODUCTION

The background for this Impact Assessment (IA) is the Commission's proposal for a Directive of the European Parliament and of the Council amending Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers, as well as workers who have recently given birth or are breastfeeding. The Women's Rights and Gender Equality (FEMM) Committee and the Employment and Social Affairs (EMPL) Committee have proposed several amendments to the Commission's proposal. The two committees have requested a medium term ex-ante Impact Assessment (IA) of the introduction of a fully paid maternity leave in different EU Member States (in the following referred to as "member states") with the following measures:

1. "A right to maternity leave of 18 continuous weeks allocated before and/or after confinement and paid 100% of the last monthly salary or the average monthly salary" (Proposal A);

2. "A right to maternity leave of 20 continuous weeks allocated before and/or after confinement and paid 100% of the last monthly salary or the average monthly salary" (Proposal B).

Proposal A is identical to B; except the proposed duration of the maternity leave.

The IA has been prepared by Ramboll Management Consulting according to the provisions of the framework contract IP/A/ALL/FWC/2006-105, LOT 2. The IA has been conducted on the basis of the Terms of Reference and the information received through e-mail correspondence and telephone conversations with the Officer in Charge in the Policy Department C, "Constitutional Affairs and Citizens' Rights", European Parliament.

1.1. Aim and scope of the study

The IA attempts to determine the economic and social costs and benefits of introducing either Proposal A or Proposal B to the employees, employers, government budgets and society as a whole in ten member states:

- Belgium
- Denmark
- Estonia
- France
- Germany
- Hungary
- Poland
- Spain
- Sweden
- United Kingdom

Eight of these member states[1] were subject to a study on the costs and benefits of options to improve provisions for the reconciliation of work, private and family life; a study ordered by the European Commission in 2008 and prepared by a consortium of COWI and Idea (provided in electronic version). In the Terms of Reference the study

[1] Belgium, Denmark, Estonia, France, Hungary, Poland, Spain, and the UK

was referred to as a possible basis for this current report and was made available to Ramboll Management Consulting. In the following, this report is referred to as "the 2008 report".

1.2. The applied approach

The IA will determine the costs and benefits of introducing either Proposal A or Proposal B to the employees, employers, government budgets and society as a whole. These costs and benefits will depend on the method by which the two proposals are implemented in line with existing national schemes.

In the first instance, the baseline situations in each of the ten member states are outlined, and the assumptions regarding the implementation of the proposed changes in the maternity leave schemes will be described. This establishes a common basis for the assessment and estimate of qualitative and quantitative benefits and the costs of the revisions.

As mentioned in the 2008 report, the nature of the costs and benefits differs considerably. It is possible to estimate and quantify the costs per member state, provided that the necessary assumptions are established. However, the benefits are more difficult to identify and quantify.

As in the 2008 report, the economic costs are identified as the value of the loss of production when the period of leave is extended, as well as by the tax distortion resulting from increased public expenditures, financed by increased taxes. In addition, the savings in childcare costs resulting from longer periods of maternity leave have been estimated and included.

In order to compare costs and benefits across member states, a simplified scoring system was applied in the 2008 report, i.e.:

- Gender equality at work
- Gender equality at home
- Child development and health
- Parent health
- Fertility
- Participation of women in the labour market

The same scoring system has been applied in the current study. Minor deviations are made in only a few instances.

1.3. Structure of the report

After the introduction, the baseline situations and proposed changes as a result of the two proposals in each of the member states are presented. In chapter 3, the qualitative impacts are assessed, and the estimate of quantitative, economic and financial effects for employees, employers, government budgets and society as a whole are described in chapter 4. This is done on the basis of the descriptions of baselines and assumptions concerning the proposed amendments. Finally, the conclusions of the impact assessments are summarised and compared in chapter 5.

2. BASELINE SITUATIONS AND PROPOSED CHANGES

In this chapter, a brief description of the current situation concerning maternity leave and take-up rates is given for each of the ten member states covered by the study. The descriptions also include information on existing parental leave schemes that may affect the implementation of the proposed amendments. The descriptions are based on information gathered from the 2008 report, official national websites, and telephone and e-mail correspondence with contact persons in each of the ten member states (see annex 3). In addition, contributions forwarded by the Policy Department from the member states have been received and taken into consideration in relation to the description of the baseline situations and the study in general.

Based on descriptions of the present situation in the ten member states, the expected implications of the proposed amendments (proposals A: 18 weeks and B: 20 weeks) are outlined alongside the assumed implementation patterns as a basis for the assessments of benefits and costs.

In some instances, the patterns of implementation for improved maternity leave schemes might be affected by the combination of existing maternity and parental leave schemes. In addition, there are often several options available for the member states to pursue.

Furthermore, the baseline situations and the assumed patterns of implementation, including the increased period of leave of up to 18 and 20 weeks, the increase in renumeration to 100%, the impact on the future take-up rate, the assumed financing pattern, as well as assumptions concerning changes to existing parental leave schemes are described.

The described baseline situations and assumptions regarding the implementation of the proposed new maternity leave schemes in each of the ten member states will form the basis for the assessment of benefits and costs.

2.1. Belgium

In Belgium, maternity leave of 15 weeks is offered to women in the labour force. 10 of these weeks are mandatory. In case of multiple births, the period can be extended to 19 weeks. At least one week must be taken before the birth, and at least 8 weeks must be taken after the birth.

The period of maternity leave is supplemented by a period of parental leave of 13 weeks exclusive to the mother and renumerated at approximatively 23% of the previous salary. The maximum length of compensated maternity and parental leave is thus 28 weeks. The other parent (usually the father) has the right to a similar 13 week period of parental leave.

Women receive maternity benefits while on maternity leave. The benefits are 82% of the salary for the first 30 days (with a ceiling of 94.10 EUR/day) paid by the employer, and 75% of the salary (maximum of 88.77 EUR/day) financed by the state, from the 30th day on. The maximum (daily) allowance was marginally increased in 2009, and the compensation for the private sector, which was estimated at 68% in the 2008 report, is assumed to remain unchanged in 2010.

Employees in the public sector are 100% compensated; about 30% of women are employed in the public sector[2]. The resulting average compensation is thus 78%.

In addition, the take-up rate is high. It was estimated at 95% in 2008, and according to informants, this has not changed.

For Belgium the consequences of the two EU proposals will be an extension of the leave period from 15 to 18 (A) or 20 (B) weeks. The implementation of the proposals will also imply an increased compensation to private sector employees from the current level of an estimated 68% to 100%, corresponding to an increase from an overall average of 78% to 100%. The take-up rate is assumed to increase from 95% to 99%. As Belgium has a mixed financing of the maternity leave compensations, with both public and private contributions, the increased compensation under an improved scheme may be financed by the state or by the employers, or it may be shared between the two in multiple ways. For the calculation of economic costs, it is first assumed that it is entirely state funded, but the consequences of 100% funding by the employer will also be determined. The parental leave scheme is assumed to continue unchanged.

2.2. Denmark

In Denmark, the existing period of maternity leave consists of 4 weeks pregnancy leave and 14 weeks leave after birth, of which the two weeks immediately after the birth are mandatory. However, this should be seen in relation to the 32 weeks shared parental leave with compensation, which is predominantly used by the mother. On top of this, public servants are offered another 2 to 4 weeks maternity leave before birth. The total period of leave available for the mother is thus 50 to 54 weeks, of which 32 weeks may be shared with the father.

The compensation is financed from the public budgets and is comprised of 90% of earnings with a ceiling of 500 EUR per week in 2010. In addition, a supplementary compensation ensures a full compensation for part of the 18 week period of maternity leave by some employers, depending on collective agreements between trade unions and employers' organisations.

All public servants receive full compensation for a 32 week period. About 45% of employed women are working in the public sector. According to the 2008 report, the compensation was on average 66%for the labour market as a whole. Only marginal adjustments have been made since then and the average percentage is assumed to be unchanged.

The compensation given in connection with parental leave is the same as for maternity leave.

The take-up rate for maternity leave is very high, estimated at 99% in the 2008 report. This is assumed to be valid for the 20 week period considered for maternity leave under proposal B. For women, the take-up rate for parental leave is 94%.

[2] European Foundation for the Improvement of Living and Working Conditions, 2007: Industrial Relations in the Public Sector

On the basis of the relatively long period of combined pregnancy, maternity and parental leave, the consequences of the current EU proposals are assumed to be an extension of the maternity leave period and a corresponding reduction of the parental leave.

As a result, the net effect will be increased compensation from the current average of 66% to 100% for the 18 and 20 week periods without an increase in the total leave period. This will not imply changes for public servants that already have full compensation for a 32 week period. The same is the case for employees in the private sector with a similar agreement.

The take-up rate is assumed to remain unchanged at 99% and valid for the entire maternity leave period. The increased compensation is assumed to be financed by the state. This will be in line with the current system where the overwhelming majority of the compensation is paid for by the state, and where there is no legal obligation for payment by employers. However, it is not likely that the state would assign itself with the part currently funded by employers. The consequences of leaving the full burden of a higher compensation on the employers will also be determined.

2.3. Estonia

An obligatory 20 week maternity leave is already fully compensated for in Estonia. At least 30 days shall be taken before birth. The scheme is financed by the Health Insurance Fund and funded by the employers.

The proposed proposals will not affect Estonia, as all proposed requirements are already met.

2.4. France

The normal maternity leave period in France is 16 weeks, with 6 weeks before birth and 10 weeks after birth. Eight of the 16 weeks are mandatory.

In some cases however, the maternity leave can be longer:

- after the third birth: 26 weeks (8 weeks before birth and 18 weeks after birth);
- in case of expecting twins: 34 weeks.

First and second births constitute slightly more than 80% of all births in France. This means that about 20% of mothers have a maternity leave of 26 weeks, and the average length of the leave period within the first 20 weeks after birth is therefore 16.7 weeks.

The normal compensation is up to a maximum of 77.24 EUR per day or 2,317 EUR per month, which equals the ceiling for monthly social security after deduction of 19.68% for social security and for general social contributions[3].

The compensation is paid for by a tax financed public fund, Caisse Primaire d'Assurance Maladie. In many cases additional payments from employers are paid according to collective agreements. According to the 2008 report, the compensation constitutes on average about 56% of previous earnings.

[3] www.service-public.fr, 2010

The take-up rate is high at 99%.

The consequences of the current EU proposals are assumed to be an extension of the maternity leave period from the present average of 16.7 to 18 and 20 weeks for proposals A and B. The proposals will hence demand an increase of 1.3 weeks for proposal A and of 3.3 weeks for proposal B. The existing provisions for later births already meet the requirements for the length of the maternity leave of both proposals. The proposals will further imply an increased average compensation from 56% to 100% of previous incomes. The increased compensations are assumed to be paid from the same public fund as the one funding the existing leave scheme. The take-up rate is assumed to stay at the present level of 99%.

2.5. Germany

A maternity leave of 14 weeks, 6 weeks before and 8 weeks after the birth, is offered to German mothers. The post-birth weeks are mandatory, but in reality almost every woman uses the 6 weeks pre-birth leave as well.

The rate of compensation is 100%. The compensation is partly paid by the health insurance (13 EUR/day or about 2% on average) and the rest is paid by the employers. About 14% of employed women in Germany are employed by the public sector.

In addition, two months parental leave is available for parents to be spent during the first 12 months after birth. A compensation of 67% is given (from 300 EUR to a maximum of 1,800 EUR per month). This provides an average compensation of about 617 EUR per month (net of taxes and social security) which corresponds with a percentage compensation of about 50%. The take-up rate is close to 100%.

The consequences of the EU proposals concerning maternity leave will be an increased length of the maternity leave from 14 to 18 and 20 weeks. It is assumed that the longer period of leave will be a net increase, and that the parental period of leave will remain unchanged. The compensation rate already meets the proposed requirements for the maternity leave. The compensation for the additional leave is assumed to be financed along the same lines as the existing maternity leave, and the take-up rate is assumed to continue to be 100% after the extension.

2.6. Hungary

The existing 24 week maternity leave is optional, consisting of up to 4 weeks before and the rest after birth. After this period, there is an 80 week parental leave option that is compensated by 70% of former earnings or a maximum of two times the minimum wage.

According to information from the Hungarian Institute for Family and Social Policy, a compensation of 70% of daily earnings without a ceiling is provided by the National Health Insurance Fund. This is funded by employees (68%) through a social security contribution and by employers (32%). In Hungary, 38% of employees are employed in the public sector.

The take-up rate for the maternity leave scheme is estimated at 100% in the 2008 report. This has been confirmed through recent contact with public officials.

The consequences of the EU proposals concerning maternity leave will be limited to an increased compensation from 70% to 100% of previous earnings. This is assumed to be financed along the same model as is already applied for the existing maternity leave, i.e. 32% from employers and 68% from a taxlike social contribution from employees.

2.7. Poland

The Polish maternity leave scheme was changed in 2008. The duration of the mandatory and fully compensated maternity leave is now 20 weeks increasing in case of multiple births. In addition to this, an optional parental leave of 2 weeks from 2010, 4 weeks from 2012, and 6 weeks from 2014 is offered.

The leave is financed by the Social Security Fund which is funded by the employers (approximately 47%) and the remaining is financed by employee contributions.

The take-up rate is close to 100%.

The EU proposals will not have any consequences on Poland. A full 20 week leave with full compensation is already in place.

2.8. Spain

In Spain, the length of maternity leave is 16 weeks, of which at least 6 weeks shall be taken after birth. The remaining 10 weeks may be taken before or after, or they may be transferred to the father in addition to the paternity leave.

The maternity leave is fully compensated, however with a ceiling in place the average compensation level is 98%.

The maternity scheme is financed by the Social Security Fund, which is funded by contributions from employees and employers of 4.7% and 23.6% of salaries, respectively. The first two days of maternity are fully paid by the employer in the private sector. About 20% of employees in Spain work in the public sector.

Spain also offers an individual 3 year unpaid parental leave to all parents. Very few people make use of this.

The Spanish take-up rate for maternity leave has been estimated at close to 100%. Most mothers use it, albeit not always for the entire length. Taking this and the few reported transfers of maternity leave to the father into account, the average take-up rate is estimated at 95%.

There are two options with different consequences for implementing the two proposals. It may either include the entire existing maternity leave of 16 weeks and abandon the right to transfer part of it to the father, or it may be done by increasing the total maternity leave and the part reserved for the mother, thereby keeping the 10 weeks transferable leave unchanged. In the first instance, seen here as the main solution, will require extensions of the maternity leave from 16 to 18 or 20 weeks, respectively. In the second case, the 6 month leave period, which is exclusively for the mothers, is increased by 12 or 14 weeks up to 18 and 20, keeping 10 weeks on top as transferable to the father.

In addition, a marginal increase in the compensation from 98% to 100% will be required in both cases. The funding is assumed to follow the same pattern as the existing scheme and will be distributed on employers (83.4%) and employees (16.6%). The latter is considered as a tax. The take-up rate is assumed to stay unchanged at 95%.

2.9. Sweden

Designated maternity or paternity leave schemes do not exist in Sweden. Instead, a parental leave system provides practically the same rights for both parents. The mother and father are both entitled to 240 optional days of parental benefit (in total 480 calendar days). 60 of these calendar days are reserved for each parent, while the other days can be transferred to the other parent provided that the first 60 days have already been used. Parents with sole custody are entitled to all 480 days. In addition, the father has another ten optional nursing days at his disposal.

A compensation of 80% of the salary with a ceiling of 44,300 EUR per year for the first 390 days is followed by a fixed compensation of 18.8 EUR per day for the remaining 90 days. A full parental leave compensates an average of 67% of the mother's previous earnings, but collective agreements often provide supplementary pay during a certain amount of time, varying depending on sector from 3 to 11 months. Many employees therefore receive 90% of their former salary during, at least part of, their parental leave. The average total compensation has been estimated at 76.2% for women's use of the parental leave scheme.

The parental leave scheme is part of the Swedish Social Security which is financed through public budgets and largely financed by employer paid taxes.

The take-up rate of the maximum parental leave available is 87.4% for women, but the share of women making use of at least 20 week is much higher. It has been estimated at 99%.

The implementation of the EU proposals may be done by extending the part of the leave period of 60 days (8.6 weeks), which is reserved exclusively for the mothers up to a total of 18 or 20 weeks. This could be done by either (1) reducing the part of the parental leave which may be shared, or (2) by increasing the total leave period by 9.4 or 11.4 weeks. A higher compensation from an average of 76% to 100% will also be needed to meet the requirements.

2.10. United Kingdom

Women in the UK are entitled to 39 weeks of paid maternity leave and a total leave period of 52 weeks.

A 90% compensation of previous earnings is given without a ceiling for the first 6 weeks. For the remaining 33 weeks, 90% of previous salaries or a maximum of £124.88 (150 EUR) is provided. This results in an approximate average compensation of 40%.

The maternity leave compensation is paid by the employer, however about 93% is subsequently reimbursed by the state. 28% of employed women in the UK work in the public sector[4].

In addition, the UK government supports new mothers in the first year of their child's life through a number of other programmes that include various benefits and tax credits, some of which particularly benefit the poorest new mothers. On top of this, an estimated 40% of mothers also receive an "Occupational Maternity Pay" at various levels and lengths from their employer.

The take-up rate of the 39 week maternity leave has been estimated at 84%, and at least 92% of beneficiaries have taken a 20 week maternity leave[5]. This percentage may increase as a result of the proposed 100% compensation.

The consequences of the two proposals will be an increased compensation level from about 40% to 100%. The existing scheme already meets the requirements of both proposals concerning the length of the leave period. The higher compensation is assumed to increase the take-up rate from 92% to 99%.

2.11. Summary of baseline situations and expected changes

The main characteristics, expectations, and proposed assumptions concerning increases in the lengths of maternity leaves, increased remuneration and take-up rates as described in the previous sections are summarised in the following table.

The increases in the length of the leave periods for proposal A and B are listed in the first column, and the foreseen developments in compensation levels are shown in the second column. Finally, the table indicates the current and expected future take-up rates.

[4] European Foundation for the Improvement of Living and Working Conditions, 2007: Industrial relations in the public sector.
[5] Pregnant workers directive - briefing note on costs of maternity and paternity leave proposals

Table 2.1.: Summary of baselines and expected changes in response to the EU proposal

Maternity leave	Length of maternity leave (weeks)			Compensation levels	Take-up rates	
	Baseline	Expected increase A	Expected increase B	Baseline	Baseline	Expected increase A
Belgium	15	3	5	**Belgium**	15	3	5
Denmark	20+	0	0	**Denmark**	20+	0	0
Estonia	20	0	0	**Estonia**	20	0	0
France	16.7	1.3	3.3	**France**	16.7	1.3	3.3
Germany	14	4	6	**Germany**	14	4	6
Hungary	20+	0	0	**Hungary**	20+	0	0
Poland	20	0	0	**Poland**	20	0	0
Spain option I	6(+10)	2	4	**Spain option I**	6(+10)	2	4
Spain option II	6(+10)	10	14	**Spain option II**	6(+10)	10	14
Sweden option I	8.6(+25.7)	0	0	**Sweden option I**	8.6(+25.7)	0	0
Sweden option II	8.6(+25.7)	9.4	11.4	**Sweden option II**	8.6(+25.7)	9.4	11.4
United Kingdom	20+	0	0	**United Kingdom**	20+	0	0

Source: Rambøll Management Consulting - The above descriptions of baselines and expectations.

Notes:

Figures in brackets are weeks of parental leave, that in one of two options assumed to be partly included in an extended maternity leave period.

France: Includes up to 20 additional weeks after the third birth.

Spain: Two options - either include part of the maternity leave that is now transferable to the father, or increase the total length to avoid reducing the period of 10 weeks that may be shared with the father.

Sweden: Two options - either allocate part of the existing parental leave of 34.3 weeks or increase the part which is exclusively reserved for the mother without changing the remaining part of the 25.7 week parental leave.

3. QUALITATIVE IMPACT ASSESSMENTS

An assessment of the qualitative benefits will be presented in this chapter, followed by a quantification of the benefits in terms of a scoring of qualitative changes.

In economic cost-benefit analyses, benefits are usually measured in terms of willingness to pay for the improvements under study, or estimated by other similar methods. The idea is to include the economic value to those directly involved as well as to others in society. In this case, the take-up rates provide some information on the value of the leave to the beneficiaries. Low take-up rates are a sign of a low perception of value among the beneficiaries. However, more information would be needed to get a full picture of the perceived value of the compensation to beneficiaries, e.g. by conducting a survey among parents.

In addition a number of external benefits may include the benefits to the children and to the society at large, such as the possible impacts on gender equality, health and fertility.

In general, the benefits are difficult to quantify and estimate in monetary terms, and hence the reason for the qualitative approaches that has been pursued both here and in the 2008 report.

3.1. The assessment of benefits

As in the 2008 report, this study does not attempt to make a full assessment of all the benefits of changes in the maternity leave schemes. The qualitative assessment will focus on a number of qualitative benefits that are judged and scored with the aim of comparing the positive impacts to the net economic costs, as well as comparing costs and benefits among the ten member states included in the study.

The aspects considered as important for the benefits to citizens and society of changed maternity leave schemes are the same as considered in the 2008 report, namely the following:

- Gender equality at work
- Gender equality at home
- Child development and health
- Parent health
- Fertility
- Participation of women in the labour market

The 2008 report was based on a study of available research literature in the respective field.

In the following section, the main conclusions on the potential qualitative benefits of changed maternity leave schemes and main principles of the applied scoring system in the 2008 report are briefly presented alongside the scoring of selected states of paternity leave schemes. The scoring system will be used as a basis for assessing the benefits for comparison with the cost estimates of the proposed changes in the maternity leave schemes.

a. Gender equality at work is mainly affected by the individual entitlement and the compensation rate. The length of the leave albeit also positive, may become counterproductive beyond a certain point as it could create difficulties with returning to the labour market (after the leave). However, according to the 2008 report, there is no negative implication in increasing the maternity leave up to 20 weeks. When only the length of the maternity leave is increased, the 2008 report scores the impact as low. However, in the case of full compensation, a medium score was given with regards to the aspect of gender equality at work.

b. Gender equality at home, according to the 2008 report, depends on the individual rights and high compensation rates. It is further concluded that no improvements of maternity leave schemes would have a positive impact on gender equality at home. The report gave a low score for “maintaining family roles”.

c. Child development and health effects have been difficult to assess, but the 2008 report concluded that **an increased period of breast feeding** may have a positive effect and was given a low score. Only Improvements beyond existing provisions of less than 3 months were given high scores.

d. Parent health is affected by **longer leave periods** and **higher compensations**. Longer leave periods were given medium scores, and high scores were given for both higher compensation levels and extra weeks of leave.

e. Fertility rates, according to recent research, seems to be affected by social and labour market policies, and optional parental leave schemes seem to have an impact on the fertility and participation decisions, in particular of women at lower educational levels. Other studies show that economic incentives have an impact on fertility behaviour rather than fertility rates. Parameters such as the right to return to work and social security in general may also influence fertility rates. The effects of **higher compensations** and **longer maternity leave periods** are judged to be relatively low in the 2008 report, and a low score was given for this category.

f. Participation of women in the labour market (or the activity rate) was not assessed in the 2008 report. Instead, the break-even increase in women's labour force participation was determined. This is the increase of the activity rate, which is necessary to increase the production value corresponding to the economic costs of the proposed changes in the leave scheme. The underlying assumption was that the resulting higher supply of labour will be fully utilised and the positive values of other (above-mentioned) qualitative benefits were not taken into account. The 2008 report also refers to recent research, showing that expenditure on day care, costs of leave forms (compensation), the right to return to work as well as social security in general may all have a positive influence on both fertility and activity rates. The effect of improvements in maternity leave schemes on women's labour force participation is therefore judged to be low with a certain limited impact from **longer leave periods** and the **rate of compensation**.

Based on the findings from the 2008 report, the length of the maternity leave and the compensation are important characteristics of maternity leave schemes, and they are at the same time important for the estimation of their qualitative benefits. In the following, an operational system for quantifying the benefits (measured in points rather than Euros) is presented and applied for the ten member states.

In order to follow these principles as closely and transparently as possible, the following scoring grid has been developed. Weights of 1, 2, or 3 are assigned to the main characteristics of the proposed changes. The sum of assigned weights is transformed into a total score by dividing the achieved weights by the maximum possible figure.

In a few cases, the implementation may affect the existing shared part of parental or maternity leave periods. Similarly, the value of a certain improvement may in some cases be particularly affected by the existence of a parental leave scheme. This will be taken into account in a few cases where it is deemed relevant by reducing the number of points in the Gender Equality at work and the Child Development/Health categories. In Belgium and Germany, the existing parental leaves are assumed not to be affected by the changes, and in Denmark, the marginal adjustment is assumed to take place without any impact on the value of the leave schemes. Adjustments are made in the case of Spain and Sweden:

Spain: The three year unpaid parental leave which is offered in Spain, is not taken into account but the alternative options for the implementation of a longer maternity leave affects the part of the maternity leave that currently may be shared by the parents.

Two options will be considered:

Option I:
The ten weeks that currently may be shared is turned into a non-transferable maternity leave. This elimination of the sharable part of the maternity leave will affect the qualitative benefits negatively in the calculations (weight -1).

Option II:
The ten weeks that currently may be shared is kept unchanged, and the dedicated maternity leave period of 6 weeks is extended by 12/14 weeks to 18 and 20 weeks resulting in a total leave period of 28 and 30 with close to 100% compensation. In relation to the valuation under the category of Gender Equality at work, only the increase of up to 20 weeks is included. In addition, by taking the parental leave into consideration, there will be no benefits under the Child Development/Health category.

Sweden:
The alternative options for the implementation of a longer maternity leave affects the part of the parental leave that currently may be shared by the parents. This will affect the qualitative benefits. As it stands, 8.6 weeks are exclusively reserved for the mother and 9.4 and 11.4 weeks need to be taken from the common parental leave or to be added as an extension of the combined period of leave. Two options are also considered here: Option I: Part of the parental leave that currently may be shared is turned into a nontransferable maternity leave. This means that the length of the total leave period is unchanged and that the sharable part of the maternity leave is reduced. This will affect the qualitative benefits regarding Gender Equality at work negatively in the calculations (weight -1). Option II: The sharable parental leave is kept unchanged, and the dedicated maternity leave period of 8.6 weeks is extended to 18 and 20 weeks. However, the extension beyond a total length of 20 weeks is not considered in relation to Gender Equality at work.

Table 3.1: Scoring grid model for qualitative benefits

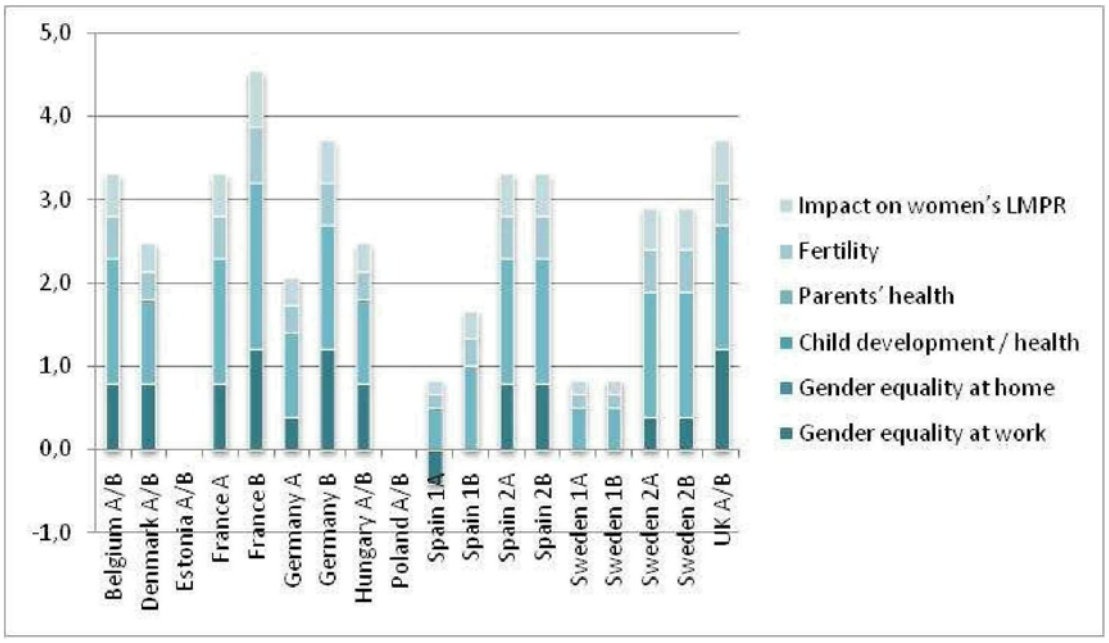
	Increased length of leave	Increased compensation rate	Other factors	Weights	Max point
Gender equality at work	20-39.9%	From 75-95%	Impacts on shared parts	1	2.0
	40% +	From 50-74.9%+		2	
	-	From 0-49.9%		3	
Gender equality at home	-	-	-	0	0.0
Child development / health	From over 3 months	-	-	0	3.0
	From less than 3 m.	-	-	3	
Parent health	0-19.9%	From 75-95%	-	1	3.0
	20-39.9%	From 50-74.9%+	-	2	
	40% +	From 0-49.9%	-	3	
Fertility	0-19.9%	From 75-95%	-	1	1.0
	20-39.9%	From 50-74.9%+	-	2	
	40% +	From 0-49.9%	-	3	
Impact on women's LFPR	0-19.9%	From 75-95%	-	1	1.0
	20-39.9%	From 50-74.9%+	-	2	
	40% +	From 0-49.9%	-	3	

By using "Gender equality at work" as an example, it is possible to get a weight 2 and 3 in the two categories of longer leave and improved compensation. This creates a maximum total of 5. For a country like Belgium, the increased length of the maternity leave (15-18/20 weeks) is 20% and 33%, respectively. This gives a weight 1 for the length of leave. The compensation increases from 78% to 100%, which also gives a weight 1. The total number of weights achieved is thus 2 out of the possible 5, and the total score is thus 0.8, which is 2/5 of the maximum of 2.

3.2. Resulting scores

The scores are calculated on the basis of the description of the baseline situations and on the expected direct consequences of the proposal in the member states. The results are shown in the chart below. The values do not reflect the size of the member states and shall therefore be seen as economic benefits per birth. In order words, they should be compared to the costs per birth rather than the net present values of total economic costs at the macro level.

Chart 1: Estimated qualitative benefits of assumed implementation of the proposed changes to the maternity leave schemes



Source: Rambøll Management Consulting

There are large variations from the lowest to the highest scores, and it is interesting to note the large variations between the alternative options in Spain and Sweden. In both cases, the choice is between an adaptation within the frames of the existing maternity/parental schemes, thus reducing the space for shared parental leaves and an expansion of existing schemes without interfering with the parental leaves. The latter implies the biggest changes, and it is not surprising that this will also generate the highest benefits.

The details of the benefit estimates are given in Annex 2.

4. QUANTITATIVE IMPACT ESTIMATES

4.1. Applied methods and scope of calculations

The estimated quantitative effects are the monetary costs and benefits to the various stakeholders of the proposed fully paid maternity leave of 18 and 20 weeks. They will be estimated in relation to the following main stakeholders:

- employees who will receive increased compensation payments and childcare expense savings,
- employers who may be affected by increased payments for maternity leave compensation,
- the government budget that will have to pay its part of compensation payments as public authority and as employer, depending on the funding model. On top of this, the public sector may in some cases receive part of the savings concerning child care,
- society as a whole, which includes the above-mentioned impacts, as well as the resulting production loss of longer maternity leave periods and the economic costs of tax distortion. These will be further described in the following.

The calculations include only the above-mentioned initial, first-round effects. Second-round, derived effects, such as increased taxes, turnover and employment as a result of increased earnings, further impacts of increased tax rates to finance higher government budgets, or demographic effects are not included in the calculations.

The compensations paid to the leave beneficiaries are income transfers and are therefore not included in the estimation of costs and benefits to society. They are costs to the public sector or to the employers, but at the same time they constitute a corresponding benefit to the beneficiaries, and the overall net effect is zero. Still, they will be part of the impact on public budgets and on employers' expenditures.

The direct cost elements are further described below.

4.2. Production losses

The production losses occur as a result of a longer period of leave. They are measured as the average labour costs per day, which are assumed to be the best estimate of the marginal value of one working day. The labour costs per birth are then estimated by adjusting for labour force participation, employment, and the percentage of mothers making use of the leave scheme, i.e. the take-up rates. The costs cover only the estimated maternity leaves held, as they are estimated per birth (total number of children born) in order to be able to determine total figures on the basis of birth forecasts.

In order to get a more precise estimate of the production loss per birth, it is also adjusted for the possible substitution on the workplace or in society as a whole. When a person's maternity leave starts, she may be substituted by another person who might otherwise have been unemployed. If this happens, there may not be any production loss. The situation and the practises vary by sectors of the economy and by types of jobs. Some jobs, such as teachers, will have to be replaced by a successor or temporary staff. This

means a 100% substitution and no production loss, if substitutes are available, and the unemployment will in such cases be reduced by the total length of the maternity leave.

In other jobs where the duties are not so clearly defined, the employer may seek to do without the person for the duration of the leave. This may result in a busy period for the remaining staff and there will be various different ways to respond to this. Paid overtime may be increased, members of staff may be moved between departments, or activities may be reduced for the period in question. If activities are reduced, the consequence may be a transfer of activities to competitors who may temporarily increase their staff. If this is the case, a substitution will take place, but outside the workplace of the leave beneficiary. Only to the extent that (1) the external substitution implies moving activities to competitors abroad, (2) the issue of capacity is resolved by increasing the activity level of existing staff, or (3) the replacement staff is less productive than the staff on leave, will the effective substitution be considerably lower than 100%. The costs of hiring new staff or reorganising the work place to make it possible to substitute the person on maternity leave may be seen as a barrier that could reduce substitution, even in a competitive market.

The description of the substitution process shows how difficult it is to estimate the average level of substitution. It also shows that the substitution will appear to be higher when the broader view is taken, and that conclusions cannot be made at only the workplace level.

The 2008 report assumed relatively low substitution rates of 30% for maternity leave (and 0% for paternity leave) with the exception of Poland and Hungary, where an 80% substitution for maternity leaves was in place[6]. Furthermore, it was mentioned that the assumptions concerning substitution were "connected with much uncertainty", and a sensitivity analysis was made to illustrate the sensitivity of the results to this parameter.

In the 2008 report, two parallel calculations were made based on substitution rates of both 30 and 80%. The same approach will be used in the present report. The broad range of variation reflects the uncertainty in this parameter, but as no statistical estimates exist it is indeed possible to argue for both substitution rates.

4.3. Saved childcare costs

In cases where the maternity leave period is extended, there will be cost savings of childcare for the same number of weeks. This saving may take different forms. It may be saved costs for a professional private or public day-care, saved wages for a private child minder, or saved time by receiving help from a grandparent or other relatives/friends. The patterns as well as the funding of childcare costs may thus differ from country to country and from family to family.

It is generally assumed in the calculations that the average savings will be an amount paid by the parents corresponding to 25% of the average labour costs in the respective member states. It may be higher in cases of professional services and regarded lower if a private

[6] The substitution rates were estimated in the 2008 report by national informants, which may explain the large difference between Member States. A narrow definition of substitution was applied, focussing only on the concrete replacement of a person in his or her specific job. This may have resulted in an underestimate of the actual substitution rate.

child minder or family member is used, but it is believed that it will be close to a realistic average.

4.4. Tax distortion costs

The third part of the estimated economic costs is the cost of tax distortion. This occurs as a consequence of the increased need for public financing and the fact that public financing through income taxes distorts the market and reduces social benefits. The tax distortion costs are the economic costs resulting from an increase in the funding of government expenditures by income taxes. They are also called the marginal excess burden of taxation and reflect the costs in excess of the taxation itself that taxpayers bear as a result of increased taxes.

The tax distortion costs are determined as 20% of the increases in government budget impacts, for example the increased compensation payments as compared to the existing compensation period and rate. This is in line with the 2008 report which introduces this cost category. It is inspired by the practises in economic cost-benefit analyses in various countries such as Denmark, Norway and the US. The cost of tax distortion has been estimated in various international studies at about 20%. The recommended tax distortion cost in cost-benefit analysis has been 20% of government budget increases in Denmark and Norway, and a 25% cost has been applied in the US[7].

The increased government budgets include higher payment of benefits in terms of income compensation to the mother, whether this is due to longer periods of leave, higher compensations or higher take-up rates. Increased payments to maternity schemes by public funds, to the extent they are financed by tax-like contributions from citizens, shall also be considered as a public budget impact. However, impacts on taxes, e.g. from income reductions, shall not be seen as a subject for tax distortion costs, even if the resulting lower tax revenue will have to be replaced by increased taxes somewhere else. The net effect on taxes and tax distortions from such two developments will be zero.

4.5. Case calculation: Denmark - Proposal B

In order to illustrate the details of the cost estimation, the calculations of the costs of an improved maternity leave are shown in the following case. The introduction of proposal B in Denmark with a fully paid maternity leave of 20 weeks before or after consignment has been used here as an example.

Denmark currently has a maternity leave of 32 weeks, including a parental leave under the same conditions, as well as an average compensation rate of 66% (including 100% compensation to the public sector employees).

Production loss

The first key figure is the production value per person, calculated using the monthly labour costs of 4,260 EUR or 983 EUR per week.

[7] The substitution rates were estimated in the 2008 report by national informants, which may explain the large difference between Member States. A narrow definition of substitution was applied, focussing only on the concrete replacement of a person in his or her specific job. This may have resulted in an underestimate of the actual substitution rate.

Next, the share of active and employed mothers who choose to take the maternity leave is calculated. This is done by multiplying the activity rate of 87%, the employment rate (1-unemployment) of 96%, and the take-up rate of 99%. This shows that 82.6% of all mothers take the maternity leave.

It is assumed that in one way or another, 30% of these will be substituted in their job. This means that there will not be production loss for that part. The production loss will only occur for the remaining 57.8% of all mothers (70% (1-30%) of the 82.6%).

Table 4.1 Calculation of production losses

Calculation of lost production value per birth in Denmark	
Labour costs/month, EUR (a)	4,260 EUR
Labour costs/week, EUR (b=a*12/52)	983 EUR
Activity rate (c)	87%
Employment rate (d)	96%
Take-up rate (e)	99%
Share of mothers who will take leave (f=c x d x e)	82.6%
Substitution rate (g)	30%
Share of mothers in job, but not substituted (h=f x (1-g))	57.8%
Production loss/week per birth, EUR (i = b x h)	**568**
Number of weeks added to the maternity leave (j)	0
Production loss per birth, EUR (k= i x j)	**0.00**

Source: Rambøll Management Consulting

With a production value per person, per week of 983 EUR and with only 57.8% of mothers in a job where they are not substituted, the production loss will be 57.8% of 983 EUR, or 568 EUR per average mother. If the activity rate was lower or the substitution rate higher, the loss per birth would be less because a lower percentage share of mothers would leave a job without substitution. The total production loss figure (EUR 568) is multiplied with the total number of weeks with which the maternity leave is extended, which in the case of Denmark, is zero.

If there was an extension, for example of 2 weeks, the production loss per average birth would be 1,136 EUR or two times 568 EUR. This should then be multiplied by the total number of mothers to get the production loss per year for the whole country.

If improvements of the maternity leave scheme lead to an increase in the take-up rate, the production loss for the increase over the entire period must be added. It would be assumed to be the 20 weeks with full compensation.

Childcare costs

The childcare costs are assumed to be 25% of labour costs per child. As mentioned in the previous section, 82.6% of mothers leave a job to take their maternity leave. Each of them will save 25% of labour costs of 983 EUR per week. On average per mother, the savings will then be 25% of 983 EUR multiplied by 82.6%, or 203 EUR per week.

Table 4.2 Estimated childcare cost savings

Calculation of saved childcare costs	
Labour costs/week, EUR (b)	983
Childcare costs per child per week, EUR (b*25%)	245
Share of mothers who will take leave (f)	82.6%
Saving per total number of mothers, EUR/week (l=b x f)	**203**
Number of weeks added to the maternity leave (m)	0
Savings per mother EUR (n=m x l)	**0.00**

Since the maternity leave period remains unchanged, there will not be any saved childcare costs in Denmark. If there was an extension, the savings per mother should be multiplied by the number of weeks of the extension and by the total number of mothers to get the total savings per year for the country.

In addition, if there would be an increased take-up rate as a result of the improved maternity leave scheme, the saved costs for childcare for the entire 20 week period for the increased number of beneficiaries should also be added.

Public expenditure and tax distortion

The third cost element is the public expenditure and costs of tax distortion as a result of the tax financing of the public expenditures from the implementation of a changed maternity scheme. The rationale behind this cost component is described above.

As the period of leave is unchanged in this case, the public expenditure will only be the additional compensation payments over a 20 week period after increasing the average compensation rate from 66% in the baseline (including public employees that already receive 100%) to the 100% of the proposal. This includes 100% compensation to the public sector employees. The increase in public expenditure will be 34% of the average salary per person on maternity leave, or 920 EUR per week. This is multiplied with 82.6% as only this share of women is active and takes leave. The average public expenditure per mother per week is thus 236 EUR, which shall be multiplied with the number of weeks for which the increase is valid, i.e. 20 weeks. The resulting increase in public expenses for increased compensations is 4,724 EUR, and the estimated tax distortion costs over a 20 week leave amounts to 945 EUR.

Table 4.3 Public expenditure and tax distortion cost

Calculation of tax distortion costs per birth	
Average wage per month, EUR (o)	3,644
Average wage per week, EUR (p=o*12/52)	841
Compensation rate before (q)	66%
Share of mothers who take leave (f)	82.6%
Increased compensation up to 100%, EUR/week/birth (r=p x (1-q) x f	**236**
Weeks added to the maternity leave	0
Costs of additional weeks	0,00
Total increased compensation per mother, 20 weeks (20 x r)	**4,724**
Tax distortion, 20%	**945**

Source: Rambøll Management Consulting

In this case, public expenditures increased only as a result of a higher compensation rate. In other cases where the length of the paid maternity leave was increased, the full compensation per week must be added for the increased period. Similarly, if the take-up rate is supposed to be increased as a result of the changes, the full compensation for all 20 weeks is added for the increased number of beneficiaries.

Finally, if there is a contribution by the employers, the part concerning private sector employees must be deducted from the estimated public expenditure, and the tax distortion costs must be reduced correspondingly.

Total economic cost

In this case, the total socio-economic costs per birth in the country in a given year are as mentioned the costs of increasing the compensation level from 66% to 100%. This gives a total economic cost of 945 EUR per birth.

By multiplying this unit cost by the total number of births in a given year, the total economic costs are determined. As seen above, the calculation of the annual unit costs per birth have already taken into account that some are not in the labour force, do not have a job, or will not make use of the maternity leave.

According to Eurostat, the forecasted numbers of children to be born in Denmark from 2011-2030 are as follows:

Table 4.4: Forecasted number of children to be born in Denmark 2011-2030

Number of births per year, 2011 - 2030			
2011	62,434	**2021**	63,794
2012	61,699	**2022**	64,582
2013	61,132	**2023**	65,303
2014	60,785	**2024**	65,928
2015	60,666	**2025**	66,435
2016	60,775	**2026**	66,810
2017	61,099	**2027**	67,048
2018	61,613	**2028**	67,152
2019	62,263	**2029**	67,141
2020	63,004	**2030**	67,032

Source: Eurostat

The number of births as defined above (number of mothers) is slightly less, as on average 100 children are born by around 98 mothers. This may vary over time and across countries, but it has been assumed that this relationship is the same for all ten member states considered.

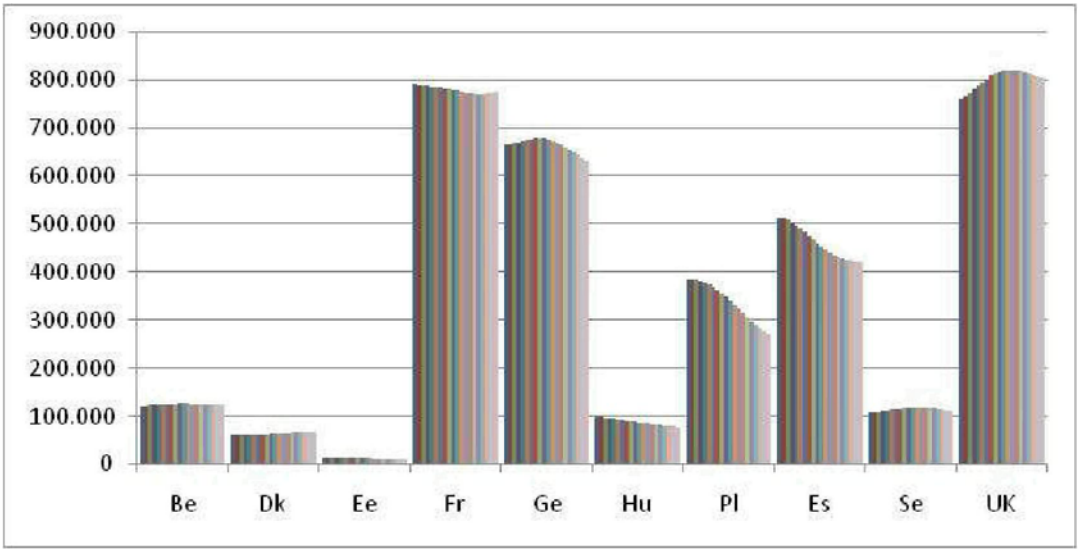
To determine the economic costs per year for the period, the number of children born per year from 2011 to 2030 is multiplied by 98% and the economic costs per birth.

The net present value of total costs of the proposed changes in Denmark under proposal B has been determined on the basis of the above calculations and by applying a real discount rate (economic interest rate in real terms) of 6% per annum for the period from 2011 to 2030. The social and economic discount rate attempts to reflect the social view on how future benefits and costs should be valued against present ones. It may differ from the financial discount rate when the capital market is imperfect (which is always the case in reality[8]). The European guidelines from 1997 recommended a 5% real discount rate, but were open for deviations. As there has been a trend towards higher social and economic discount rates since 1997, a 6% discount rate has thus been applied.

The discount rate is only important to the extent that the profile of costs and benefits vary over time among the projects and countries considered. The different profile among the ten member states is seen from the forecasted number of births (the number of children under the age of one), as illustrated below.

[8] European Commission, DG Regional Policy, Evaluation Unit (1997): Guide to cost-benefit analysis of investment projects

Chart 4.1: Forecasted numbers of children under the age of one, per Member State 2011 - 2030



Source: Eurostat
Colours represent years between 2011 and 2030.

The net present value of the economic costs is an expression of the value of the costs today. It may be compared to a bank account with a 6% real interest rate and with an amount corresponding to the net present value. This would be sufficient to pay the estimated annual costs year-by-year during the 20 year period.

The net present value of the economic costs of implementing the proposal B in Denmark is thus estimated to be EUR 670.7 million. This corresponds to an average annual cost of EUR 58.4 million (the NPV of this annual amount over a 20 year period is EUR 670.7 million). The public expenditure effect has also been determined as a net present value amounting to EUR 3.35 billion. This corresponds to an average annual cost of EUR 292 million.

4.6. Results of the calculations

The application of the described methodology and data to all countries provides a long list of impact estimates. The result is presented in tables 4.5 to 4.8 below and with more details in Annex 3. Calculations have been made for substitution rates of both 30% and 80%. The key results of the calculations are the following:

- The total benefit score for each of the member states, as presented in chapter 3 and in Annex 2, is shown in the first line of tables 4.5 to 4.8. The interpretation is given in chapter 3. For each of the member states it indicates to what extent the proposal is good for gender equality, child and family health, and for the incentive for women to increase their labour force participation.

- Total economic costs per birth are the unit costs for each member state, calculated as the sum of 'production loss' per birth and tax distortion minus saved costs for childcare. This indicator is the best for comparing different sized member states. It is noted that the costs per birth are highest in the UK, Belgium, France and Germany, but by comparing the calculations, it is also worth noting that with a higher substitution rate of 80%, the UK and Denmark show the highest unit costs. The production losses and the childcare savings

occur in member states, where the length of the maternity leave is extended, and the tax distortion occurs where the compensation is increased because of higher compensation rates or longer periods of maternity leave.

– Total economic cost per year is the result of the multiplication of the total economic costs per birth and the average number of birth per year in each member state. They are highest in Germany and the UK.

– Incomes from a 1% increase in the women's labour force participation rate provides a basis for the assessment of the necessary effect on labour force participation to make the costs of an improved maternity leave and the resulting income generation balance. This figure is independent of substitution rates and other assumptions regarding the maternity leave. In all cases, the annual costs are seen to be lower than the value of a 1% increase in women's labour force participation. This means that if the proposal leads to a 1% increase in women's labour force participation rate, this alone would justify the resulting economic costs.

– NPV economic cost is the net present value of total economic costs in real terms over a 20 year period, determined on the basis of a 6% real discount (interest) rate. It is an expression of the total value today of the cost of introducing the proposal as suggested. The net present value of economic costs varies primarily with the size of the member states, and the highest figures are seen in the UK and France. The total economic costs are divided by the GDP of each member state to get the NPV as a percentage of GDP. This illustrates the size and importance of the costs as compared to the size of the respective economies. The percentage share of the national GDP is generally less than 0.2% of GDP and is considerably lower when the substitution is high. This shows what the qualitative values over the 20 year period shall be valued at to make the proposal economically profitable and justified.

– The increased compensation per birth is the total increased compensation to the individual mother in connection with the proposed changes, determined per birth in the country.

– NPV employer cost and NPV public expenditure are the respective net present value of costs carried by the employers and the public sector. In a few cases, it is difficult to say how the funding of improved schemes will be shared; therefore a sensitivity analysis is presented below. The public sector expenditure is the tax-financed costs of the proposals, including the costs of the public sector as an employer. The employers' costs are estimated exclusive of the contributions by the public sector as an employer.

The calculations show that the costs per birth and per year vary significantly across countries. The member states with a scheme in place at the required level in terms of duration and compensation, and member states that can easily adjust to and achieve the proposed requirements of the two proposals, show a zero or a low impact.

For Member States with schemes that are less advantageous or schemes that vary from the requirements of the two proposals it will of course be more expensive to do the necessary adjustments. With a low substitution rate, this is particularly the case for Sweden (II), Spain (II), Belgium, UK, Germany, and France, but with the high substitution rate of 80%, the costs per birth are generally lower, and are highest in the UK, France, Denmark and Belgium.

It appears that the proposals in some cases are expensive for member states that already have advanced maternity allowances in place and where the existing schemes are not organised according to either of the two proposals. This is the case in e.g. Sweden (II) and Spain (II), where the alternative implementation models show the different levels of costs and benefits of meeting the requirements of the proposals in alternative ways. One model may be considerably cheaper, but may score lower in terms of qualitative benefits. A more flexible proposal that gives the member states various options might give the same benefit scores at a considerably lower price.

The tax distortion reflects a high public expenditure increase, typically resulting from an improved compensation. The highest tax distortions per birth are seen in the UK, France, Belgium and Denmark. This element is affected by different assumptions concerning the division of costs between employers and the public sector. If the costs are absorbed by the public sector, the taxfunding will lead to tax distortion costs whereas if the same costs are paid by the employers, this is seen as a transfer from one group of society to another, and this is not seen as an economic cost.

Table 4.5 Main results of Impact Assessment: Proposal A: Fully compensated 18 week maternity leave, 30% substitution

Benefits and costs of full maternity leave of 18 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Benefits	3.3	2.5	0.0	3.3	2.1	2.5	0.0	0.4	3.3	0.8	2.9	3.7
Value of production loss, EUR per birth	1,721	0	0	583	1,731	0	0	427	2,565	0	5,326	590
Tax distortion costs, EUR per birth	635	850	0	744	60	94	0	35	181	183	490	1,145
Child care costs, EUR per birth	-615	0	0	-208	-618	0	0	-153	-916	0	-1,902	-211
Total economic cost, EUR pr. birth	1,741	850	0	1,119	1,173	94	0	309	1,829	183	3,914	1,525
Total economic costs per year, (mill. EUR)	211	53	0	856	766	8	0	143	847	20	435	1,191
Income from 1% increase in LFPR (mill. EUR)	1,081	569	29	5,494	7,140	251	953	2,724	2,724	925	925	5,933
NPV total economic costs as percentage of GDP	0.063%	0.024%	0.000%	0.045%	0.032%	0.009%	0.000%	0.014%	0.081%	0.007%	0.149%	0.076%
Compensation increase per birth	2,832	4251	0	3,722	1,897	586	0	519	2,713	2288	6,124	5,353
NPV total economic costs, (mill. EUR)	2,423	603	0	9,824	8,791	95	0	1,642	9,711	234	4,995	13,666
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	11,966	118	0	1,839	9,607	1,752	4,690	2,724
NPV: public expenditure (mill. EUR)	4,416	3,016	0	32,675	2,251	477	0	917	4,792	1,168	3,127	51,328

Table 4.6 Main results of Impact Assessment: Proposal B: Fully compensated 20 week maternity leave, 30% substitution

Benefits and costs of full maternity leave of 20 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Benefits	3.3	2.5	0.0	4.5	3.7	2.5	0.0	1.7	3.3	0.8	2.9	3.7
Value of production loss, EUR per birth	2,676	0	0	1,479	2,597	0	0	855	2,992	0	6,456	656
Tax distortion costs, EUR per birth	822	945	0	916	90	104	0	64	210	203	575	1,273
Child care costs, EUR per birth	-956	0	0	-528	-928	0	0	-305	-1,069	0	-2,306	-234
Total economic cost, EUR pr. birth	2,542	945	0	1,867	1,760	104	0	614	2,134	203	4,725	1,694
Total economic costs per year, (mill. EUR)	308	58	0	1,429	1,150	9	0	284	988	23	526	1,324
Income from 1% increase in LFPR (mill. EUR)	1081	569	29	5,494	7,140	251	953	2,724	2,724	925	925	5,933
NPV total economic costs as percentage of GDP	0.092%	0.026%	0.000%	0.075%	0.048%	0.010%	0.000%	0.027%	0.094%	0.008%	0.180%	0.085%
Compensation increase per birth	3,731	4,724	0	4,582	2,846	651	0	967	3,160	2,542	7,192	5,947
NPV total economic costs, (mill. EUR)	3,538	670	0	16,394	13,187	106	0	3,259	11,327	260	6,031	15,184
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	17,949	131	0	3,424	11,192	1,946	5,508	3,027
NPV: public expenditure (mill. EUR)	5,720	3,351	0	40,232	3,377	530	0	1,708	5,583	1,298	3,672	57,031

Table 4.7 Main results of Impact Assessment: Proposal A: Fully compensated 18 week maternity leave, 80% substitution

Benefits and costs of full maternity leave of 18 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Benefits	3.3	2.5	0.0	3.3	2.1	2.5	0.0	0.4	3.3	0.8	2.9	3.7
Value of production loss, EUR per birth	492	0	0	166	495	0	0	122	733	0	1,522	169
Tax distortion costs, EUR per birth	635	850	0	744	60	94	0	35	181	183	490	1,145
Child care costs, EUR per birth	-615	0	0	-208	-618	0	0	-153	-916	0	-1,902	-211
Total economic cost, EUR pr. birth	512	850	0	703	-64	94	0	4	-3	183	110	1,103
Total economic costs per year, (mill. EUR)	62	53	0	538	-42	8	0	2	-1	20	12	862
Income from 1% increase in LFPR (mill. EUR)	1,081	569	29	5,494	7,140	251	953	2,724	2,724	925	925	5,933
NPV total economic costs as percentage of GDP	0.018%	0.024%	0.000%	0.028%	-0.002%	0.009%	0.000%	0.000%	0.000%	0.007%	0.004%	0.055%
Compensation increase per birth	2,832	4,251	0	3,722	1,897	586	0	519	2,713	2,288	6,124	5,353
NPV total economic costs, (mill. EUR)	712	603	0	6,170	-477	95	0	21	-14	234	140	9,888
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	11,966	118	0	1,839	9,607	1,752	4,690	2,724
NPV: public expenditure (mill. EUR)	4,416	3,016	0	32,675	2,251	477	0	917	4,792	1,168	3,127	51,328

Table 4.8 Main results of Impact Assessment: Proposal B: Fully compensated 20 week maternity leave, 80% substitution

Benefits and costs of full maternity leave of 20 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Spain II	Sweden	Sweden II	UK
Benefits	3.3	2.5	0.0	4.5	3.7	2.5	0.0	1.7	3.3	0.8	2.9	3.7
Value of production loss, EUR per birth	764	0	0	423	742	0	0	244	855	0	1,844	187
Tax distortion costs, EUR per birth	822	945	0	916	90	104	0	64	210	203	575	1,273
Child care costs, EUR per birth	-956	0	0	-528	-928	0	0	-305	-1,069	0	-2306	-234
Total economic cost, EUR per birth	631	945	0	811	-95	104	0	3	-3	203	114	1,226
Total economic costs per year, (mill. EUR)	77	58	0	621	-62	9	0	2	-2	23	13	958
Income from 1% increase in LFPR (mill. EUR)	1,081	569	29	5,494	7,140	251	953	2,724	2,724	925	925	5,933
Annual econ. costs as percentage of GDP	0.023%	0.026%	0.000%	0.033%	-0.003%	0.010%	0.000%	0.000%	0.000%	0.008%	0.004%	0.061%
Compensation increase per birth	3,731	4,724	0	4,582	2,846	651	0	967	3,160	2,542	7,192	5,947
NPV total economic costs, (mill. EUR)	878	670	0	7,119	-715	106	0	17	-18	260	146	10,986
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	17,949	131	0	3,424	11,192	1,946	5,508	3,027
NPV: public expenditure (mill. EUR)	5,720	3,351	0	40,232	3,377	530	0	1,708	5,583	1,298	3,672	57,031

4.7. Sensitivity to changes in substitution

The calculations have been made on the assumption of substitution rates of 30% and 80%. As mentioned above, there is a high degree of uncertainty in this parameter. The argument for a low substitution rate is that in many cases it will not be possible to find another short term employee as a replacement. However, it may also be argued that in some jobs, a replacement by temporary staff will be necessary or that the market ensures a high substitution rate through a direct or indirect transfer of activities to competitors even if the period of the leave is short.

The resulting consequences of using a substitution rate of 80% instead of 30% are shown in the tables above and in Annex 3. The resulting differences in the economic costs per birth are shown for the two alternatives in the following charts.

Chart 4.2: Sensitivity analysis, Substitution effect on economic costs, proposal A, 18 weeks

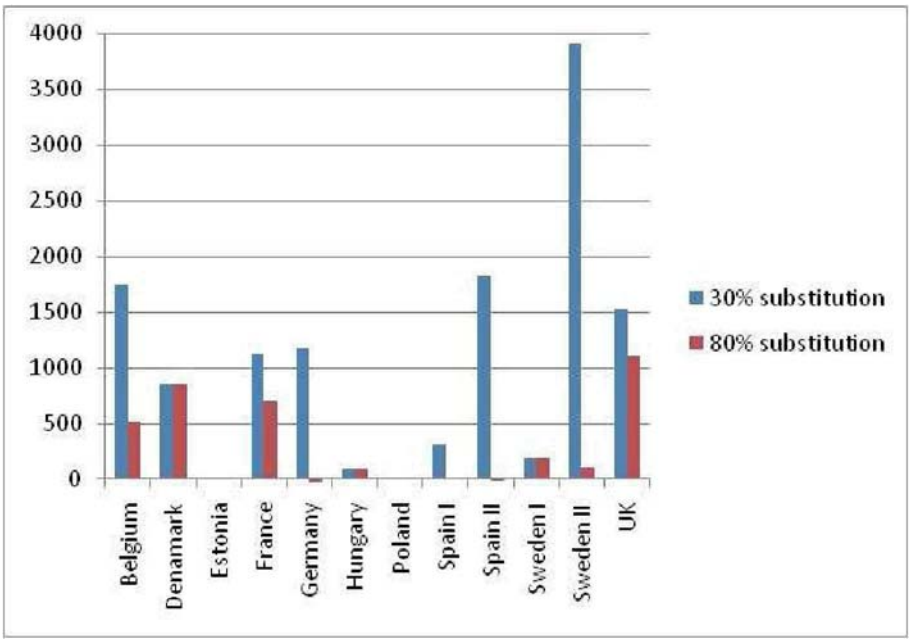
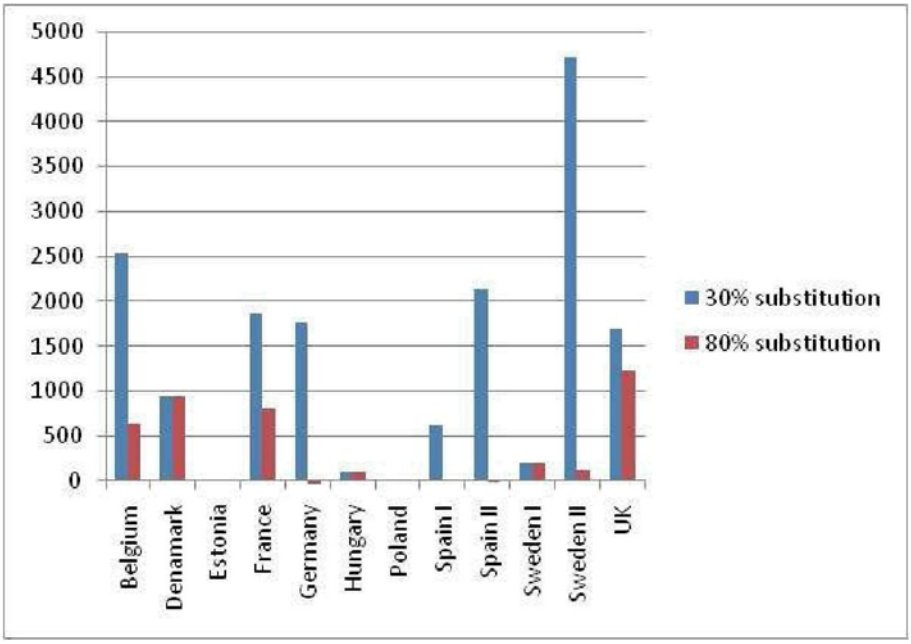


Chart 4.3: Sensitivity analysis, Substitution effect on economic costs, proposal B, 20 weeks



The importance of the substitution rate is evident. The higher the substitution rate, the lower the costs (from production losses). The range from 30% to 80% is large, but the uncertainty regarding this parameter in a given country and at a given time is also considerable. This uncertainty is more important for the calculation of economic costs of the member states with considerable production losses in connection with increasing the length of the maternity leave.

4.8. Sensitivity to changes in the funding of expenses

The NPV of costs to the employer varies according to the different funding schemes, and they are highest in Spain, Sweden, and Germany. This type of figure is somewhat uncertain because some social security funds are very close to the public sector and the contributions are often very similar to a tax payment. However, in the calculations, such funds are considered as paid by the employer with the exception of the parts paid by employees or from other public budgets.

In some cases, the funding pattern and the extent to which the costs of an improved scheme will actually be tax-financed is uncertain. This is the case in Belgium and Denmark. In the first calculation, it has been assumed that all extra costs for compensation will be tax financed in those two member states.

Table 4.9: Sensitivity analysis: Funding from taxes or employers

	Belgium		Denmark	
	Tax-financed	Employer-financed		Tax-financed
Total economic cost, EUR pr. Mother	1,741	1,106	Total economic cost, EUR pr. Mother	1,741
Total economic costs per year, (mill. EUR)	211	134	Total economic costs per year, (mill. EUR)	211
Income from 1% increase in LFPR (mill. EUR)	1,081	1,081	Income from 1% increase in LFPR (mill. EUR)	1,081
Annual econ. costs as percentage of GDP	0.063%	0.040%	Annual econ. costs as percentage of GDP	0.063%
Compensation increase per birth	2,832	2,832	Compensation increase per birth	2,832
NPV total economic costs, (mill. EUR)	2,423	1,540	NPV total economic costs, (mill. EUR)	2,423
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	4,416	NPV employer cost excl. publ.sector empl.(mill. EUR)	0
NPV: public expenditure (mill. EUR)	4,416	0	NPV: public expenditure (mill. EUR)	4,416

By changing this assumption, the resulting tax distortion and hence the economic costs will be affected. This is seen in the table, from which it appears that economic costs and public expenditure are reduced considerably in both member states by placing the burden on the employers. The tax distortion costs will be eliminated and only the part of the economic costs due to production losses and the saved childcare will be left. The economic costs in Denmark where the period of maternity leave is already longer than required, will thus be zero and the compensation to the beneficiaries will remain the same under the two funding options.

In both member states, the public servants are already fully compensated; therefore there will not be extra costs to the public sector as a result of its role as employer. The possible dynamics of the increasing costs of labour, however, have not been taken into account.

5. CONCLUSIONS

The costs of the proposals vary among the member states, both in absolute figures and in economic costs per birth. This is a natural occurrence as long as the current statuses of the maternity leave schemes differ in the various countries.

The cost per birth is seen as a key result of the analysis because it allows for more direct comparison between countries. The variation in this figure from 0 to 5,000 EUR per birth reflects the very different baseline situations in the various member states.

Large variations are also seen among the member states regarding the expected public expenditure, the economic costs as a percentage of GDP, and in particular the employers' costs to the proposed changes in the maternity leave scheme.

The sensitivity analysis demonstrates the importance of the substitution rate for the economic costs of each of the proposals. With higher substitution of the women on maternity leave in the labour market, the value of the resulting production loss decreases considerably and leaves the tax distortion costs and the saved childcare costs as the dominant part of the economic costs.

The economic costs for society may also be reduced by laying the burden of improved maternity leave schemes on the employers. If all the additional compensation is paid by the employers, the tax distortion costs will be eliminated, and the production loss and saved childcare costs will be left as the only economic costs. However, the possible dynamics of thereby increasing the costs of labour have not been taken into account.

The benefits have not been quantified in monetary terms. Scores have been given as described in chapter 3 to the various aspects of the qualitative benefits that are expected to be affected as a consequence of the implementation of the proposal in the various member states.

In many cases a high qualitative score is associated with high economic costs, but there is no clear pattern in the number of scores related to the costs of the proposals. In some member states like Sweden an existing high standard does not allow for much higher qualitative improvements, and in this case, the requirements that may be seen as ill-fitting to the Swedish model with a long parental leave will be relatively expensive, either in terms of economic costs or in terms of qualitative benefits. Two implementation models have been considered for Sweden, and the resulting costs and benefits are very different, depending on how the existing model is adapted to the requirements of the proposal. The same is the case for Spain where two different implementation models have also been considered.

An alternative comparison of costs and (potential) benefits has be done by comparing the annual economic costs or the annual public expenditure with the incomes from a 1% increase in the labour force participation rate. This comparison shows that a minor effect on this parameter would suffice to make the proposal an interesting economic investment for society.

ANNEX 1: STATISTICAL DATA

The calculations are mainly based on data from three sources:

1. Updated statistical data from Eurostat
2. Information and data collected from the 2008 report
3. Information and data collected through telephone interviews with resource persons from all 10 member states.
4. Written contributions received from governmental services of some of the member states

Latest updates of Eurostat data were applied when possible, which is in line with the 2008 report. Eurostat data was used from the most recent available year. Data from different years have been used for different data sets, but not within the same data sample. For example, for monthly labour costs, the most recent available data for all countries was 2007 (even though some countries had published 2008 data, only 2007 data was used to ensure that results could be compared across countries). For the activity rates and unemployment figures, 2009 data has been used.

The main data from Eurostat is presented below:

Labour costs:

Monthly labour costs, EUR	2007	Gender pay gap %
Belgium	4,171	9,0
Denmark	4,659	17,1
Estonia	1,006	30,3
France	3,983	19,2
Germany	3,892	23,2
Hungary	1,055	17,5
Poland	997	9,8
Spain	2,280	17,1
Sweden	4,677	17,1
United Kingdom	4,298	21,4

Source Eurostat

Labour force participation rates:

Labour force participation rates (25 to 54 years), pct. 2009		
	Females	Males
Belgium	79,2	91,8
Denmark	87,0	92,4
Estonia	83,9	91,9
France	83,6	94,4
Germany	82,5	93,4
Hungary	73,6	86,9
Poland	77,5	89,4
Spain	76,7	92,3
Sweden	87,1	92,8
United Kingdom	78,7	91,7

Source Eurostat

Unemployment rates, females:

Unemployment rate (25 to 54 years) - Females	
Pct.	**2009**
Belgium	5.4
Denmark	4.1
Germany	5.6
Estonia	8.4
Spain	12.9
France	6.9
Hungary	6.7
Poland	5.9
Sweden	5.2
United Kingdom	4.0

Source Eurostat

Wages as percent of labour costs:

Total wages and salaries as pct. share of total labour costs	
Belgium	68.7
Denmark	85.5
Estonia	73.6
France	67.2
Germany	76.7
Hungary	71.1
Poland	-
Spain	73.3
Sweden	66.2
United Kingdom	80.5

Source Eurostat

Average monthly wages:

Montly average wages, gender gap adjusted, EUR per month, 2007		
	Men	**Women**
Belgium	2,994	2,737
Denmark	4,326	3,644
Estonia	853	629
France	2,934	2,420
Germany	3,331	2,639
Hungary	816	685
Poland	776	704
Spain	1,814	1,528
Sweden	3,360	2,831
United Kingdom	3,830	3,090

Source Eurostat

GDP 2009

Gross domestic product at market pieces, Millions of EUR, 2009	
Belgium	337,088
Denmark	222,731
Estonia	13,729
France	1,906,036
Germany	2,407,699
Hungary	92,780
Poland	309,407
Spain	1,050,540
Sweden	292,138
United Kingdom	1,564,410

Source Eurostat

Total number of child at the age of O

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Belgium	121,500	121,990	122,472	122,953	123,435	123,934	124,445	124,942	125,354	125,616
Denmark	62,434	61,699	61,132	60,785	60,666	60,775	61,099	61,613	62,263	63,004
Estonia	15,074	15,105	15,087	15,031	14,930	14,784	14,580	14,331	14,037	13,706
France	790,152	788,576	787,433	786,405	785,448	784,461	783,472	782,393	781,016	779,436
Germany	665,610	665,953	667,304	669,305	671,635	673,882	675,825	677,208	677,703	677,206
Hungary	98,981	97,982	96,898	95,698	94,476	93,232	91,992	90,801	89,731	88,703
Poland	382,490	383,797	383,715	382,150	379,161	374,872	369,492	363,176	356,068	348,323
Spain	511,853	510,860	508,060	503,594	497,700	490,708	482,994	474,944	466,911	459,194
Sweden	108,261	108,855	109,663	110,646	111,764	112,970	114,200	115,408	116,527	117,463
UK	761,054	766,708	773,186	780,161	787,477	794,886	801,967	808,248	813,364	817,131

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Belgium	125,690	125,567	125,295	124,936	124,539	124,138	123,783	123,487	123,254	123,093
Denmark	63,794	64,582	65,303	65,928	66,435	66,810	67,048	67,152	67,141	67,032
Estonia	13,345	12,975	12,609	12,262	11,936	11,649	11,411	11,210	11,057	10,951
France	777,613	775,677	773,780	772,076	770,863	770,313	770,608	771,645	773,392	775,663
Germany	675,636	672,993	669,333	664,833	659,813	654,400	648,869	643,300	637,846	632,532
Hungary	87,618	86,507	85,350	84,171	82,998	81,859	80,752	79,699	78,792	77,989
Poland	340,128	331,564	322,814	314,098	305,543	297,356	289,683	282,690	276,447	270,994
Spain	452,003	445,493	439,731	434,754	430,583	427,245	424,810	423,275	422,637	422,877
Sweden	118,157	118,521	118,504	118,092	117,288	116,176	114,840	113,397	111,981	110,730
UK	819,550	820,696	820,655	819,602	817,739	815,219	812,198	808,883	805,439	802,118

Source: Eurostat

ANNEX 2: SCORING OF BENEFITS

		Gender equality at work	Gender equality at home	Child development / health	Parents' health	Fertility	Impact on women's LFPR
Belgium A/B	0.8	0.0	0.0	1.5	0.5	0.5	3.3
Denmark A/B	0.8	0.0	0.0	1.0	0.3	0.3	2.5
Estonia A/B	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France A	0.8	0.0	0.0	1.5	0.5	0.5	3.3
France B	1.2	0.0	0.0	2.0	0.7	0.7	4.5
Germany A	0.4	0.0	0.0	1.0	0.3	0.3	2.1
Germany B	1.2	0.0	0.0	1.5	0.5	0.5	3.7
Hungary A/B	0.8	0.0	0.0	1.0	0.3	0.3	2.5
Poland A/B	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain 1A	-0.4	0.0	0.0	0.5	0.2	0.2	0.4
Spain 1B	0.0	0.0	0.0	1.0	0.3	0.3	1.7
Spain 2A	0.8	0.0	0.0	1.5	0.5	0.5	3.3
Spain 2B	0.8	0.0	0.0	1.5	0.5	0.5	3.3
Sweden 1A	0.0	0.0	0.0	0.5	0.2	0.2	0.8
Sweden 1B	0.0	0.0	0.0	0.5	0.2	0.2	0.8
Sweden 2A	0.4	0.0	0.0	1.5	0.5	0.5	2.9
Sweden 2B	0.4	0.0	0.0	1.5	0.5	0.5	2.9
UK A/B		1.2	0.0	0.0	1.5	0.5	0.5

Source: Assumptions are described in Chapter 3

ANNEX 3: QUANTITATIVE IMPACT ESTIMATION

Results of Impact Assessment: Proposal A: Fully compensated 18 week maternity leave, 30% substitution rate

	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Labour costs/week	919	983	197	831	794	222	219	481	481	987	987	886
Average wage/week	632	841	145	559	609	158	162	353	353	653	653	713
Existing leave period (average)	15	18	18	16.7	14	18	18	16	6	18	8.57	18
Leave extensions, weeks	3	0	0	1.3	4	0	0	2	12	0	9.43	0
Activity rate	79.2%	87.0%	83.9%	83.6%	82.5%	73.6%	77.5%	76.7%	76.7%	87.1%	87.1%	78.7%
Employment rate	94.6%	95.9%	91.6%	93.1%	94.4%	93.3%	94.1%	87.1%	87.1%	94.8%	94.8%	96.0%
Take-up rate, present	95.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	92.0%
Take-up rate, expected	99.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	99.0%
Substitution rate	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Average compensation rate, present	78.0%	66.0%	100.0%	56.0%	100.0%	70.0%	100.0%	98.0%	98.0%	76.2%	76.2%	40.0%
Production loss per mother/week	458	568	106	448	433	107	111	214	214	565	565	431
Production loss from increased leave	1,374	0	0	583	1,731	0	0	427	2,565	0	5,326	0
Production loss from higher take-up rate/mother	347	0	0	0	0	0	0	0	0	0	0	590
Saved Childcare costs/mother	-615	0	0	-208	-618	0	0	-153	-916	0	-1,902	-211
Percentage of increase paid by employers	0%	0%	0%	0%	98%	32%	0%	83%	83%	100%	100%	7%
Tax distortion, 20%, EUR/mother	635	850	0	744	60	94	0	35	181	183	490	1145
Total economic cost, EUR pr. mother	**1,741**	**850**	**0**	**1,119**	**1,173**	**94**	**0**	**309**	**1,829**	**183**	**3,914**	**1,525**
Total economic costs per year, (mill. EUR)	**211**	**53**	**0**	**856**	**766**	**8**	**0**	**143**	**847**	**20**	**435**	**1,191**
Income from 1% increase in LFPR (mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**2,724**	**925**	**925**	**5,933**
Annual econ. costs as percentage of GDP	**0.063**	**0.024**	**0.000**	**0.045**	**0.032**	**0.009**	**0.000**	**0.014**	**0.081**	**0.007**	**0.149**	**0.076**
Compensation increase per birth	**2,832**	**4,251**	**0**	**3,722**	**1,897**	**586**	**0**	**519**	**2,713**	**2,288**	**6,124**	**5,353**
NPV total economic costs, (mill. EUR)	**2,423**	**603**	**0**	**9,824**	**8,791**	**95**	**0**	**1,642**	**9,711**	**234**	**4,995**	**13,666**
NPV employer cost excl. publ.sector empl.(mill. EUR)	**0**	**0**	**0**	**0**	**11,966**	**118**	**0**	**1,839**	**9,607**	**1,752**	**4,690**	**2,724**

Results of Impact Assessment: Proposal B: Fully compensated 20 week maternity leave, 30% substitution rate

	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Spain II	Sweden	Sweden II	UK
Labour costs/week	919	983	197	831	794	222	219	481	481	987	987	886
Average wage/week	632	841	145	559	609	158	162	353	353	653	653	713
Existing leave period (average)	15	20	20	17	14	20	20	16	6	20	9	20
Leave extensions, weeks	5	0	0	3	6	0	0	4	14	0	11	0
Activity rate	79.2%	87.0%	83.9%	83.6%	82.5%	73.6%	77.5%	76.7%	76.7%	87.1%	87.1%	78.7%
Employment rate	94.6%	95.9%	91.6%	93.1%	94.4%	93.3%	94.1%	87.1%	87.1%	94.8%	94.8%	96.0%
Take-up rate, present	95.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	92.0%
Take-up rate, expected	99.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	99.0%
Substitution rate	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Average compensation rate, present	78.0%	66.0%	100.0%	56.0%	100.0%	70.0%	100.0%	98.0%	98.0%	76.2%	76.2%	40.0%
Production loss per mother/week	458	568	106	448	433	107	111	214	214	565	565	431
Production loss from increased leave	2,290	0	0	1,479	2,597	0	0	855	2992	0	6,456	0
Production loss from higher take-up rate/mother	386	0	0	0	0	0	0	0	0	0	0	656
Saved Childcare costs/mother	-956	0	0	-528	-928	0	0	-305	-1,069	0	-2,306	-234
Percentage of increase paid by employers	0%	0%	0%	0%	98%	32%	0%	83%	83%	100%	100%	7%
Tax distortion, 20%, EUR/mother	822	945	0	916	90	104	0	64	210	203	575	1,273
Total economic cost, EUR pr. mother	**2,542**	**945**	**0**	**1,867**	**1,760**	**104**	**0**	**614**	**2,134**	**203**	**4,725**	**1,694**
Total economic costs per year, (mill. EUR)	**308**	**58**	**0**	**1,429**	**1,150**	**9**	**0**	**284**	**988**	**23**	**526**	**1,324**
Income from 1% increase in LFPR (mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**2,724**	**925**	**925**	**5,933**
Annual econ. costs as percentage of GDP	**0.092**	**0.026**	**0.000**	**0.075**	**0.048**	**0.010**	**0.000**	**0.027**	**0.094**	**0.008**	**0.180**	**0.085**
Compensation increase per birth	**3,731**	**4,724**	**0**	**4,582**	**2,846**	**651**	**0**	**967**	**3,160**	**2,542**	**7,192**	**5,947**
NPV total economic costs, (mill. EUR)	**3,538**	**670**	**0**	**16,394**	**13,187**	**106**	**0**	**3,259**	**11,327**	**260**	**6,031**	**15,184**
NPV employer cost excl. publ.sector empl.(mill. EUR)	**0**	**0**	**0**	**0**	**17,949**	**131**	**0**	**3,424**	**11,192**	**1,946**	**5,508**	**3,027**
NPV: public expenditure (mill. EUR)	**5,720**	**3,351**	**0**	**40,232**	**3,377**	**530**	**0**	**1,708**	**5,583**	**1,298**	**3,672**	**57,031**

Results of Impact Assessment: Proposal A: Fully compensated 18 week maternity leave, 80% substitution rate

	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Labour costs/week	919	983	197	831	794	222	219	481	481	987	987	886
Average wage/week	632	841	145	559	609	158	162	353	353	653	653	713
Existing leave period (average)	15	18	18	16.7	14	18	18	16	6	18	8.57	18
Leave extensions, weeks	3	0	0	1.3	4	0	0	2	12	0	9.43	0
Activity rate	79.2%	87.0%	83.9%	83.6%	82.5%	73.6%	77.5%	76.7%	76.7%	87.1%	87.1%	78.7%
Employment rate	94.6%	95.9%	91.6%	93.1%	94.4%	93.3%	94.1%	87.1%	87.1%	94.8%	94.8%	96.0%
Take-up rate, present	95.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	92.0%
Take-up rate, expected	99.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	99.0%
Substitution rate	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Average compensation rate, present	78.0%	66.0%	100.0%	56.0%	100.0%	70.0%	100.0%	98.0%	98.0%	76.2%	76.2%	40.0%
Production loss per mother/week	131	162	30	128	124	31	32	61	61	161	161	123
Production loss from increased leave period/mother	393	0	0	166	495	0	0	122	733	0	1522	0
Production loss from higher take-up rate/mother	99	0	0	0	0	0	0	0	0	0	0	169
Saved Childcare costs/mother	-615	0	0	-208	-618	0	0	-153	-916	0	-1902	-211
Percentage of increase paid by employers	0%	0%	0%	0%	98%	32%	0%	83%	83%	100%	100%	7%
Tax distortion, 20%, EUR/mother	635	850	0	744	60	94	0	35	181	183	490	1,145
Total economic cost, EUR pr. mother	**512**	**850**	**0**	**703**	**-64**	**94**	**0**	**4**	**-3**	**183**	**110**	**1,103**
Total economic costs per year, (mill. EUR)	**62**	**53**	**0**	**538**	**-42**	**8**	**0**	**2**	**-1**	**20**	**12**	**862**
Income from 1% increase in LFPR (mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**2,724**	**925**	**925**	**5,933**
Annual econ. costs as percentage of GDP	**0.018**	**0.024**	**0.000**	**0.028**	**0.002**	**0.009**	**0.000**	**0.000**	**0.000**	**0.007**	**0.004**	**0.055**
Compensation increase per birth	**2,832**	**4,251**	**0**	**3,722**	**1,897**	**586**	**0**	**519**	**2,713**	**2,288**	**6,124**	**5,353**
NPV total economic costs, (mill. EUR)	**712**	**603**	**0**	**6,170**	**-477**	**95**	**0**	**21**	**-14**	**234**	**140**	**9,888**
NPV employer cost excl. publ.sector empl.(mill. EUR)	**0**	**0**	**0**	**0**	**11,966**	**118**	**0**	**1,839**	**9,607**	**1,752**	**4,690**	**2,724**
NPV: public expenditure (mill. EUR)	**4,416**	**3,016**	**0**	**32,675**	**2,251**	**477**	**0**	**917**	**4,792**	**1,168**	**3,127**	**51,328**

Results of Impact Assessment: Proposal B: Fully compensated 20 week maternity leave, 80% substitution rate

	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain I	Spain II	Sweden I	Sweden II	UK
Labour costs/week	919	983	197	831	794	222	219	481	481	987	987	886
Average wage/week	632	841	145	559	609	158	162	353	353	653	653	713
Existing leave period (average)	15	20	20	16.7	14	20	20	16	6	20	8.57	20
Leave extensions, weeks	5	0	0	3.3	6	0	0	4	14	0	11.43	0
Activity rate	79.2%	87.0%	83.9%	83.6%	82.5%	73.6%	77.5%	76.7%	76.7%	87.1%	87.1%	78.7%
Employment rate	94.6%	95.9%	91.6%	93.1%	94.4%	93.3%	94.1%	87.1%	87.1%	94.8%	94.8%	96.0%
Take-up rate, present	95.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	92.0%
Take-up rate, expected	99.0%	99.0%	100.0%	99.0%	100.0%	100.0%	99.0%	95.0%	95.0%	99.0%	99.0%	99.0%
Substitution rate	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Average compensation rate, present	78.0%	66.0%	100.0%	56.0%	100.0%	70.0%	100.0%	98.0%	98.0%	76.2%	76.2%	40.0%
Production loss per mother/week	131	162	30	128	124	31	32	61	61	161	161	123
Production loss from increased leave period/mother	654	0	0	423	742	0	0	244	855	0	1,844	0
Production loss from higher take-up rate/mother	110	0	0	0	0	0	0	0	0	0	0	187
Saved Childcare costs/mother	-956	0	0	-528	-928	0	0	-305	-1,069	0	-2306	-234
Percentage of increase paid by employers	0%	0%	0%	0%	98%	32%	0%	83%	83%	100%	100%	7%
Tax distortion, 20%, EUR/mother	822	945	0	916	90	104	0	64	210	203	575	1273
Total economic cost, EUR pr. mother	**631**	**945**	**0**	**811**	**-95**	**104**	**0**	**3**	**-3**	**203**	**114**	**1,226**
Total economic costs per year, (mill. EUR)	**77**	**58**	**0**	**621**	**-62**	**9**	**0**	**2**	**-2**	**23**	**13**	**958**
Income from 1% increase in LFPR (mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**2,724**	**925**	**925**	**5,933**
Annual econ. costs as percentage of GDP	**0.023%**	**0.026%**	**0.000%**	**0.033%**	**-0.003%**	**0.010%**	**0.000%**	**0.000%**	**0.000%**	**0.008%**	**0.004%**	**0.061%**
Compensation increase per birth	**3,731**	**4,724**	**0**	**4,582**	**2,846**	**651**	**0**	**967**	**3,160**	**2,542**	**7,192**	**5,947**
NPV total economic costs,(mill. EUR)	**878**	**670**	**0**	**7,119**	**-715**	**106**	**0**	**17**	**-18**	**260**	**146**	**10,986**
NPV employer cost excl. publ.sector empl.(mill. EUR)	**0**	**0**	**0**	**0**	**17,949**	**131**	**0**	**3,424**	**11,192**	**1,946**	**5,508**	**3,027**
NPV: public expenditure (mill. EUR)	**5,720**	**3,351**	**0**	**40,232**	**3,377**	**530**	**0**	**1,708**	**5,583**	**1,298**	**3,672**	**57,031**
Benefits	**3.3**	**2.5**	**0.0**	**4.5**	**3.7**	**2.5**	**0.0**	**1.7**	**3.3**	**0.8**	**2.9**	**3.7**

ANNEX 4: SOURCES OF INFORMATION

Main sources of information

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Swedish Social Insurance Agency (2010): Förälder,
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EUROPEAN PARLIAMENT

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT C: CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS

GENDER EQUALITY

PROPOSITION OF A METHODOLOGY TO DETERMINE AND QUANTIFY THE BENEFITS OF MATERNITY LEAVE

NOTE

Abstract

Given variations in current maternity provisions across EU27 and varying degrees to which MS are affected by the 18-week proposal, the most feasible method for undertaking a comprehensive & comparative quantitative assessment of benefits will be through using a Multi-Criteria Decision Analysis Framework drawing on existing evidence & filling gaps with opinion. Following this approach, benefits associated with health cost savings, increased productivity, & criminal justice cost savings can be monetised to allow for comparisons against short- and long-run costs.

PE 425.649 EN

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality.

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LINGUISTIC VERSIONS

Original: EN
Translation: FR

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Manuscript completed in September 2010.

This document is available on the Internet at:
http://www.europarl.europa.eu/studies

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CONTENTS

EXECUTIVE SUMMARY

Current maternity provisions and levels of compensation vary widely across EU27 beyond the statuary 14 weeks provided as part of Directive 92/85 EEC. The current proposal to introduce an 18 week paid maternity leave will affect 22 out of 27 Member State either in terms of length of provision or level of compensation assuming a 100% compensation model. The impacts and benefits of this incremental proposal would hence vary in strength and significance across the EU. Because of different baseline provisions across multiple jurisdictions, the most feasible method for undertaking a comprehensive and comparative quantitative assessment of benefits will be through using a Multi-Criteria Decision Analysis Framework drawing on available evidence as far as possible and filling gaps with expert and stakeholder opinion. Following this approach, it is likely that benefits associated with health cost savings, increased productivity, and criminal justice cost savings can be monetised to allow for comparison against expected short- and long-run costs.

OVERALL INTRODUCTION, BACKGROUND AND AIM

BACKGROUND

Ex ante impact assessment of public policies has become increasingly important in recent decades. The current impact assessment guidelines at European level aims for policy-makers to make an overall assessment of impacts and associated cost-benefits of new regulatory proposals for society, the economy, businesses, governments and individuals. This is part of a trend to improve the effectiveness, efficiency and efficacy of public policy against a backdrop of diminishing or heavily pressurised public resources. At the same time as the need for evidence-informed policies have grown, so have the complexities of today's policies which in turn has rendered evaluation and impact assessment of such policies more complex and difficult. In effect what this means is that today's policy-makers would like to be able to make more precise and better-informed decisions in a world of where complexities and uncertainties abound.

Traditionally the focus of appraisal of public investment has been on analysis of aggregate economic impacts expressed as changes in economic growth (output or value added), jobs (employment) or income (wages). Alongside this, particularly for social and public health interventions, micro-economic evaluation methods have been used at the level of the intervention to assess its cost-benefit or cost-effectiveness. What would be regarded as relevant costs and benefits would be those directly attributable to the policy or intervention (i.e. first round effects), although where indirect impacts (or second round effects) could be seen as important, these would also be taken into account even if not monetised.

In order to understand the impact of the policy and to allow for costs and benefits to be measured and valued, the intervention or policy would need to be assessed against the so called counterfactual, i.e. the situation if which the policy did not occur, also called the "do nothing option" or "status quo" in impact assessments.

In the case of 18 weeks maternity leave, given that most EU27 countries has some provision already, this means that any assessment would be incremental from the current position (i.e. the baseline) both in terms of impacts and associated costs/benefits. The current evidence-base provides some links between length of maternity leave and both short and long run impacts on mother and child health and well-being thus showing signs of potential to monetise impacts. However, given multiple jurisdictions, starting-points,

outcomes, and uncertainty around the applicability of some evidence to the European context, a more flexible but less precise approach may be more adequate.

AIM

This briefing paper provides an outline of possible methods for quantifying and valuing the benefits associated with an introduction of 18 weeks maternity leave. The paper which has been commissioned by the European Parliament will be used as a background to a workshop aimed at providing MEPs with better information and knowledge on the subject. It is our understanding that the European Parliament has already undertaken research on the costs of 18 week maternity leave. This proposal, therefore, is designed to complement this by providing a methodology for how to estimate the benefits generated by 18 weeks maternity leave and thus to facilitate assessment of the return on the investment of the 18-week proposal.

Because the focus of the briefing paper is on discussing and outlining appropriate methodologies, we can only be specific about the method as far as it does not necessitate actually undertaking the actual work to finalise what the most appropriate approach is. Where this is the case, we will outline the reasons for that.

STRUCTURE

The next section provides a brief outline of current maternity provisions in order to illustrate the diversity across EU27 and to provide a snapshot of what can be found in literature around the benefits of maternity leave which will affect the approach. This is followed by the main chapter which provides an outline and discussion around preferred approaches for assessing the benefits associated with the 18-week proposal.

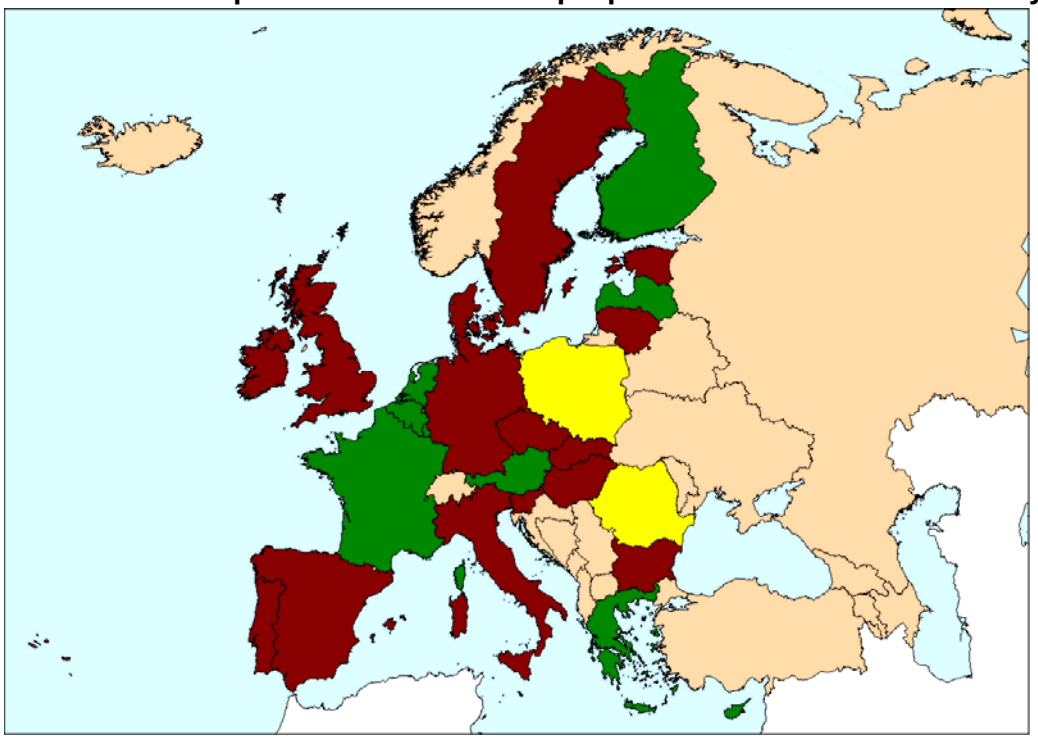
1. MATERNITY POLICY: A BRIEF INTRODUCTION

1.1. Current provisions of maternity leave

Provisions for maternity leave vary across the EU27 with over half of countries providing longer leave than the current 18 weeks proposed. The current legal framework - Maternity Leave Directive 92/85 EEC - provides for a minimum entitlement of 14 weeks of maternity leave and the current proposal would extend the minimum length of maternity leave from 14 to 18 weeks. Judging from a brief review of various sources, it appears that around half of the EU27 would need to increase current provisions in terms of level of benefit paid out if the assumption is that the 18 weeks will be paid at 100% of prior income. However, these groups are not necessarily the same. In fact, only a handful of countries (Denmark, Estonia, Hungary, Lithuania, Slovenia) would be unaffected by the proposal (given that they would already offer 18 weeks maternity leave provision upon the birth of the child at 100% compensation).

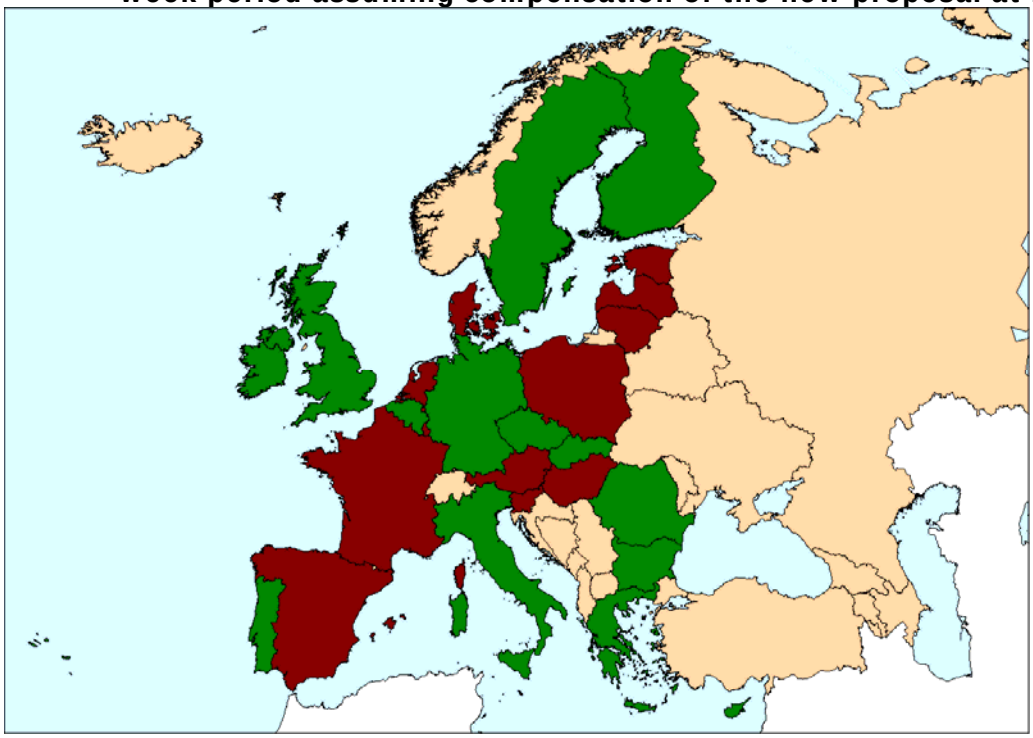
The following maps provide an overview of the countries that would be affected either from the point of length of provision or percentage compensation provided, assuming 100% income benefit. Green indicated that the country is affected by the proposal, dark red means it is not affected and yellow indicates ambiguous or contradictory data found for which more research would need doing to ascertain a definite yes or no.

Map 1: Countries needing to increase the maternity leave period as a consequence of the current proposal for 18 weeks maternity leave



Source: EURES, APESMA Wormens professional network, Wikipedia.

Map 2: Countries needing to increase maternity benefits within the current 18 week period assuming compensation of the new proposal at 100 % of pay



Source: EURES, APESMA Wormens professional network, Wikipedia.

1.2. Current evidence of benefits of maternity leave

Judging from a brief review of literature[1], evidence of benefits of maternity leave seems particularly strong around short and long run physical and mental health and well-being impacts on mother and child. Evidence from the UK[2] and the US[3] found that children whose mothers return to work within the first 3 months after giving birth were less likely to be breastfed, less likely to had all of their immunizations up to date (by 18 months), less likely to have received all of their regular medical check-ups, and more likely to exhibit behavioural problems at age four. Further, studies following the introduction of the US Family leave Act[4] have shown additional benefits of parental leave including reduced infant mortality rates[5]. Equally, an association between longer lengths of maternity leave and lesser incidence of depression among mothers has been found[6].

That the return to work is one of the reasons why mothers never start breastfeeding, or only do so for short durations has again been found in literature[7]. This is important since breastfeeding in turn, has been proven to provide numerous benefits both for infants and mothers. In addition to providing all the nutrients infants need for a healthy development, it has also been found to protect children from common childhood illnesses, including diarrhoea, asthma, respiratory infections, ear infections, etc. among others[8]. In terms of longer-term benefits for children, breastfeeding has also been positively associated with their cognitive development[9]. It has also been shown to physically benefit mothers by reducing risks of breast and ovarian cancer[10], lowering risks of obesity and cutting back on household expenses.

From a societal perspective, the lack of policies to accommodate working parents having children could force individuals to choose between job security and parenting. Again, looking at the US since the Family Leave Act was introduced, there has been some increase in paid parental leave as indicative of companies reaching out to women, as more women are working and returning to work after having children, and by doing so these companies generate positive publicity as employers with family-friendly workplaces - one magazine[11] publishing an annual list of the 100 Best Companies for working mothers each year is noted not only by its usual readership but also by corporate America and increasingly by researchers and policy institutes as well[12]. Employers that have been able to raise their public profile by offering paid parental leave are thus, as a result, being viewed as role

1 This was conducted largely via online sources, a more systematic review of database would be necessary as part of the overall exercise to assess benefits. This will be explained in more detail in coming chapters.

2 Gregg,P.E., Washbrook et al. 2005. "The Effects of a Mother's Return to Work Decision on Child Development in the UK." The Economic Journal. 115(501):F48-F80.

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10 American Institute of Cancer Research (2008) www.aicr.org/site/News2?abbr=pr_&page=NewsArticle&id=13057&news_iv_ctrl=1102.

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12 Miller,K., Helmuth, A.S. et al. 2009. "The Need for Paid Parental Leave Policy: Adapting to a Changing Workforce." Institute for Women's Policy Research. Washington, D.C.

positive role models for family-friendliness in both the private and public sectors. These companies have also – by adopting better maternity leave policies – also been able to reduce turnover costs associated with women leaving their job after having a child. There is also some ad hoc evidence of increased retention of new mothers associated with improved policies[13].

Of relevance to the current 18 week maternity leave proposal is also the evidence from the US suggests that whether or not parents take up leave is associated with pay meaning that due to economic concerns parents do not use statuary leave to its full extent if it is unpaid[14]. Financial issues contribute to new mothers in the United States returning to work much more quickly than new mothers in European countries – approximately one-third of women in the United States return to work within three months of giving birth, compared to approximately five per cent in the UK, Germany, and Sweden[15]. From Europe, evidence[16] shows that paid parental leave raised the overall percentage of women who were employed, with a larger impact on women of child-bearing age (25-34 years of age).

2. APPROACH AND METHOD FOR ASSESSING BENEFITS

2.1. The Research Approach

The previous sections point to some of the challenges involved in assessing the benefits of the 18 week proposal. These include:

- Multiple jurisdictions: As with any EU regulation, the variation in the social and policy context of the Member States means that the costs and benefits are likely to vary in important ways. For instance, baseline maternity policy and the value of costs and benefits differ across jurisdictions. In this instance, at least 22 Member States are likely to be affected to varying degrees. It is important that the proposed method is able to capture this variation.

- Multiple outcomes with a lack of standard measure: The lack of standard outcome measures and the challenge monetising some outcomes means that it is difficult to compare outcomes against each other (particularly important if they are moving in opposite directions) as well as against the cost of the regulation.

- Potential gaps in the evidence base: It is anticipated that the existing literature will not be able to provide robust evidence on the costs and benefits of the policy.

Given the above challenges, it is proposed that a Multi-Criteria Decision Analysis (MCDA) framework is adopted to undertake the research. MCDA allows policy options to be ranked based on a number of criteria pertinent to decision makers. A combination of quantitative data analysis and stakeholder opinion is used to answer three questions:

13 Miller,K., Helmuth, A.S. et al. 2009.

14 Han, W.-J. and Waldfogel, J. 2003. "Parental Leave: The Impact of Recent Legislation on Parents' Leave-Taking." Demography. 40(1):191-200.

15 Johnson T. Current Population Reports. Washington, DC: U.S. Census Bureau; 2008. Maternity leave and employment patterns of first-time mothers: 1961–2003; pp. 70–113.

16 Ruhm, C. 1998. "The Economic Consequences of Parental Leave Mandates: Lessons from Europe." The Quarterly Journal of Economics. 113(1):285-317.

- What criteria should be used to evaluate the policies?
- How do the policies 'score' against each criterion?
- How should the criteria be weighted to generate an overall ranking?

MCDA provides an explicit framework for drawing on expert and stakeholder opinion. This provides a number of advantages when compared with more conventional analysis of return on investment, including:

- Ensuring the 'buy-in' of key decision makers through their involvement in the research process.
- Providing an alternative source of data with which to fill the gaps in the evidence.

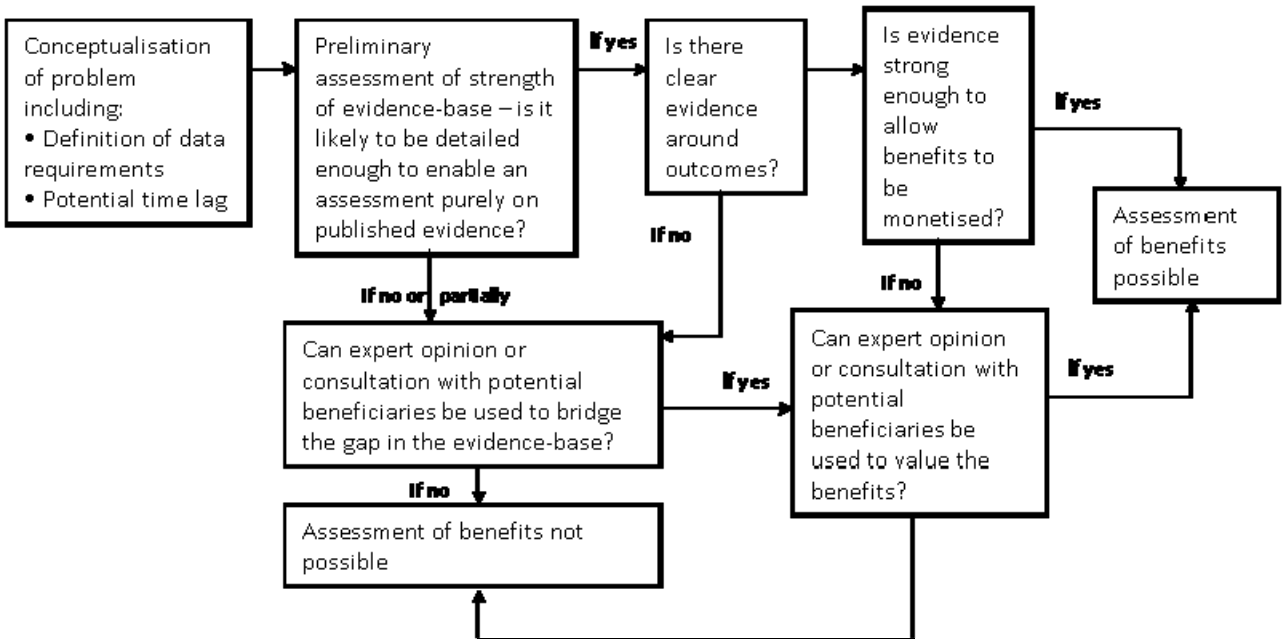
The key concern with MCDA is that the involvement of stakeholders in the generation of evidence will result in subjective answers, undermining the validity of the research findings. This is an important concern. The method has thus been designed to minimise, test and transparently report the implications of the uncertainty associated with expert opinion, including:

- Minimising the use of expert opinion: Where possible existing robust evidence should be drawn on to estimate the costs and benefits of the 18-week proposal.
- Testing the validity of expert opinion: Where possible, the implications of expert opinion should be tested against alternative sources of evidence.
- Transparent reporting of uncertainty: Following best practice, sensitivity analysis should be used to explore the implications of any uncertainty in the analysis, testing whether it is likely to change the conclusions of the analysis.

It is anticipated that expert / stakeholder opinion be used in the following three ways, in order to:

- Provide perspective: Stakeholders would be consulted to agree the criteria against which the 18-week policy should be evaluated.
- Bridge gaps in the evidence: It is anticipated that decision models would be required to evaluate the 18-week proposal against key criteria. Decision models draw on a hierarchy of evidence, including expert opinion. It is anticipated that long-term health benefits would be modelled this way.
- Add weights: Combining criteria into an overall assessment of the policy will require an assessment of the relative 'value' of costs and benefits i.e. how much emphasis or weigh they such have vis-à-vis one another.

Figure 1: Process for determining ability to assess benefits through evidence, opinion or a combination of evidence and opinion



It is proposed that the MCDA framework be applied through the following steps:

1. Scoping: Clarification of the criteria against which the policies will be evaluated.
2. Conceptualisation: Development of a detailed conceptual understanding of the impact of the 18 week policy on evaluation criteria.
3. Decision modelling and data collection: Construction of models to estimate the evaluation crtieria.
4. Weighting: Assessment of the relative value of outcomes.
5. Validation: Assessment of the validity of the results of the research.
6. Dissemination: Presentation and reporting the results of the research.

The remainder of this section describes each of these steps in more detail.

2.2. Scoping

This stage of the research will answer the question: What outcomes should be included in the assessment of the 18 week policy proposal? There are a number of different perspectives and corresponding degrees of stakeholder engagement that could be used to define the scope of the project, including:

– European Parliament perspective: If a European Parliament perspective is used to shape the analysis, whoever is conducting the benefits analysis would need to meet with the Parliament to define the benefits to be included in the analysis.

– Member State perspective: If a Member State perspective is used to shape the analysis, whoever is conducting the analysis would need to meet with separate

groups of Member State representatives to ensure that the variation in perspective that exist across Member States is elicited and reflected in the analysis.

The outcome from the scoping stage will be a clear definintion of the outcomes / criteria used in the impact assessment. Examples of the types of criteria that may be used include: health cost savings, improvements in health related quality of life, improved educational outcomes, increased productivity, avoided crimes, and criminal justice cost savings.

2.3. Developing a Conceptual Model

In order to ensure that the analysis is focused, comprehensive and undertaken efficiently, it is necessary to firstly have a good conceptual understanding of the maternity leave policy: the different baselines across the EU27, the different effects, costs and benefits of the policy, and the process by which these benefits are generated.

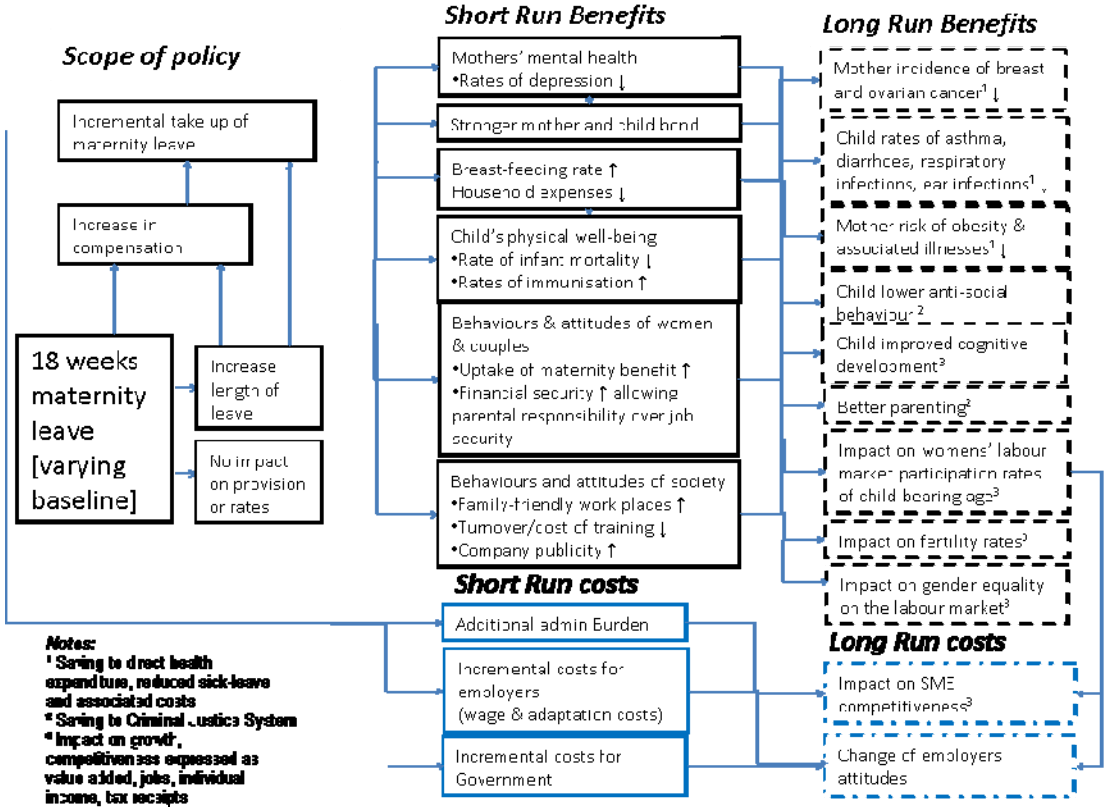
The development of the conceptual framework will focus on answering the following questions:

- How are the costs and benefits of the 18 week proposal generated?
- When are the costs and benefits of the 18 week proposal likely to occur?
- What factors will influence the magnitude of the costs and benefits of the 18 week proposal, including contextual factors in the Member States.

A preliminary logic model of the 18 week proposal is summarised in Figure 2. As part of the assessment, this logic model would be built upon to develop a conceptual model through:

- A review of relevant documentation.
- Interviews with key stakeholders.
- The discussion of a draft conceptual model at a stakeholder workshop.

Figure 2: Example conceptual framework model



Source: See review of literature section above.

The output from the conceptual modelling stage of the project will be a list of the model parameters that need measuring to estimate the benefit generated by the 18 week proposal. Figure 3 below illustates the process of conceptual modelling for one of the outcomes identified in the conceptual framework outlined above – improved cognitive development. It is important to note that this is meant for illustrative purposes only, and that the precise definitions of the components of the model will require a more thorough conceptualisation.

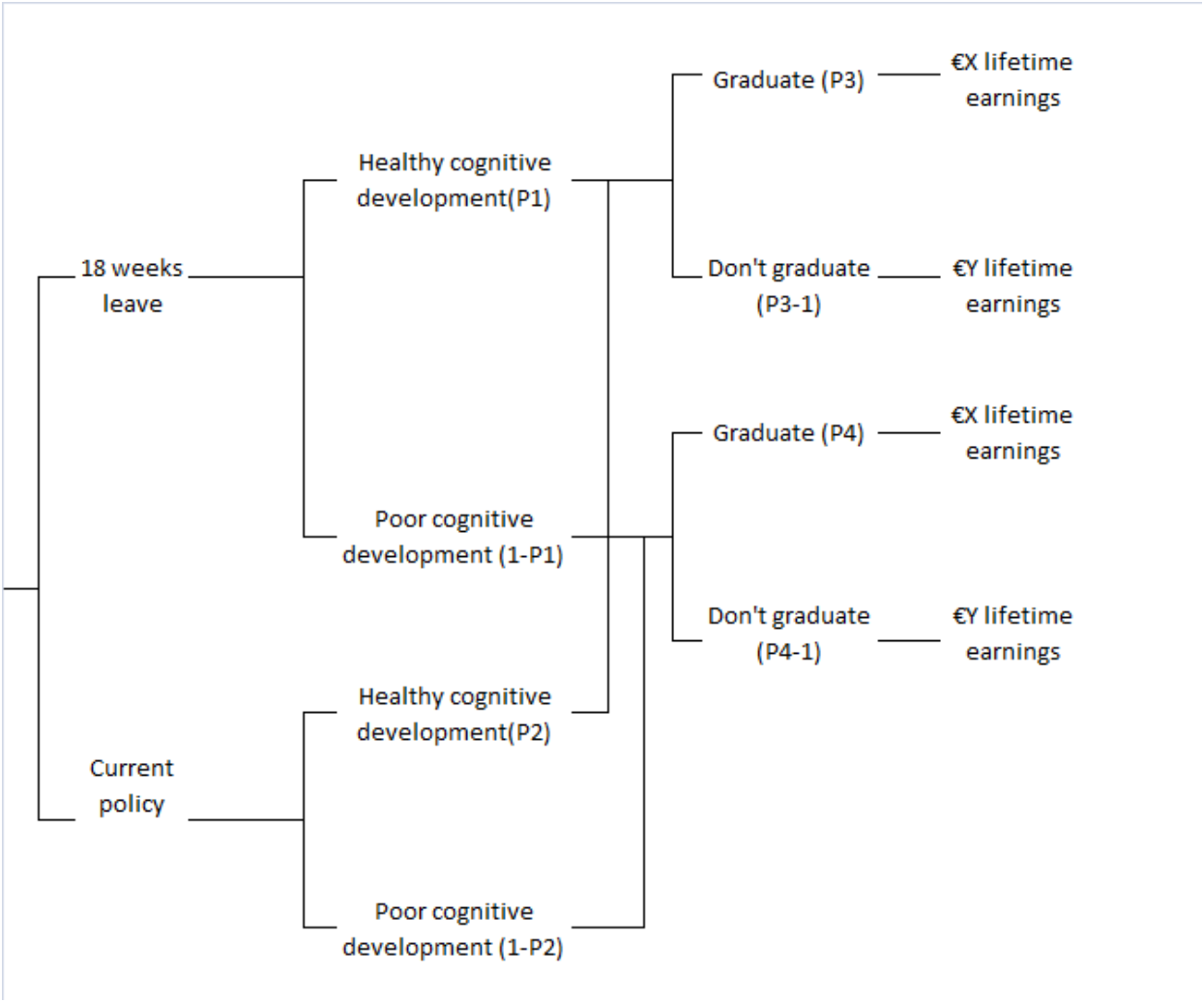
Figure 3 illustrates a model designed to estimate the productivity gain associated with the 18 week proposal. The construction of this conceptual model would require the following data parameters to be estimated:

The probability that 18 weeks of maternity leave would result in healthy cognitive development (P1).

- The probability that current maternity leave policy results in healthy cognitive development (P2).
- The probability that those with health cognitive development graduate from high school (P3).
- The probability that those with poor cognitive development graduate from high school (P4).
- The lifetime earnings of those who graduate from high school (£X).

– The lifetime earnings of those who don't graduate from high school (£Y).

Figure 3: Illustrate of a conceptual model of the benefits of the 18 week proposal – the productivity gains generated by improved cognitive development



2.4. Decision modelling and data collection

It is anticipated that no single source of evidence will have sufficient coverage and rigour to estimate the benefits of the 18 week proposal. For instance, no data exists to allow us to measure all the long-term health implications of the 18 week proposal. Thus, following best practice, a decision model will be constructed to combined different pieces of data to answer the research question[17]. The detailed conceptual model developed in the previous stage of the research would be used to define the data pieces required to construct the decision model.

The model would be populated with data from the following hierarchy of evidence:

[17] This is an approach that Matrix has successfully applied for a number of clients, including the Commission, and that National Institutes for Health and Clinical Excellence (NICE) and the Department for Health in the UK.

1. Existing, high quality studies[18].

2. New analysis of existing data, such as the European Labour Force Survey, and the OECD Family database.

3. Existing, lower quality studies.

4. Expert opinion.

The data used in the model will be a function of what evidence exists, as well the resources available to identify and analyse the data. For instance:

– Different methods can be used to search for existing studies, including (in order of increasing validity): internet searching, contacting experts, rapid evidence assessments, and systematic reviews[19].

– Analysis of existing data requires specialist resources, such as econometric expertise The number of datasets that can be analysed, and the number of analyses that can be undertaken, are, however, a function of the amount of time available to the project.

The output from the modelling phase of the analysis will be an estimate of the effect of the 18 week proposal on the outcome criteria agreed earlier in the project, and how this effect varies between contexts. Figure 4 below illustrates the type of outcome that will be generated by the approach for some of the examples of outcomes listed above - health cost savings, increased productivity, and criminal justice cost savings.

Figure 4: Illustration of the output of the MCDA approach*

	Health costs per person	Productivity per person	Criminal justice costs per person
18 weeks proposal	€0.24m	€1.38m	€0.01m
Current policy	€0.25m	€1.35m	€0.012m
Incremental benefit	€0.1m	€0.3m	€0.002m

**All estimates are hypothetical for illustrative purposes only*

2.5. Weighting

The output from the modelling exercise will be an assessment of the benefits of the 18 week proposal, where the benefits are defined as the criteria agreed with key stakeholders earlier in the project. In order to assess whether the 18 week proposal represents a good investment, it is necessary, however, to make a judgement about how costs[20] and benefits should be traded off against one another. It is proposed that the following approach is used to determine the relative 'value' or 'weight' of costs and benefits:

18 A range of quality grading scales can be used to define high quality, including methods guidance issued by NICE and The Maryland Scale of Methodological Rigour (see Annex).

19 See Figure 6 in Annex for relationship between method used for evidence synthesis and confidence in the findings.

20 It is our understanding that existing cost data based on previous research would be made available for this purpose.

– Where possible, all costs and benefits would be presented in Euros. For instance, health outcomes can be 'valued' as avoided health costs.

– Where it is not possible to value outcomes monetarily, stakeholders would be engaged to provide weights for costs and benefits. A number of approaches are available to elicit such weights, including Discrete Choice Experiments, which involve surveying stakeholders, to workshop based methods (see for instance, CLG 2009). Again whoever conducts the research would, at this point, need to liaise with the Parliament to identify the most appropriate method.

2.6. Validation and sensitivity analysis

The outcome of the modelling and weighting stages of the project will be an assessment of whether the 18 week proposal represents a good investment, and how this assessment varies between contexts (Member States). As with any research, the output from the analysis will be subject to uncertainty. The nature and extent of the uncertainty will be a function of the perspective adopted the evidence available, and the resources available to identify and collate the evidence.

Following best practice, it is proposed that the impact of this uncertainty on the conclusions of the analysis is formally assessed. This will be done in the following ways:

– Validation: The results of the model can be validated against other studies and expert expectations. For instance:

  o The model could be run for both the before-policy and after-policy scenarios. The outputs from the before-policy scenario could then be validated against data describing the current state of affairs.

  o The outcomes of the model could be validated in a workshop of stakeholders and experts.

– Sensitivity analysis would need to be undertaken to test whether the conclusions of the analysis (whether the 18 week proposal is a good investment) change as uncertain model parameters are varied.

2.7. Dissemination

A final step of the process will be to write up and disseminate the findings of the research in a way that it can be easily understood by decision-makers and a wider audience including providing a sense of robustness of the results and explaining any major assumptions and/or uncertainties around the findings.

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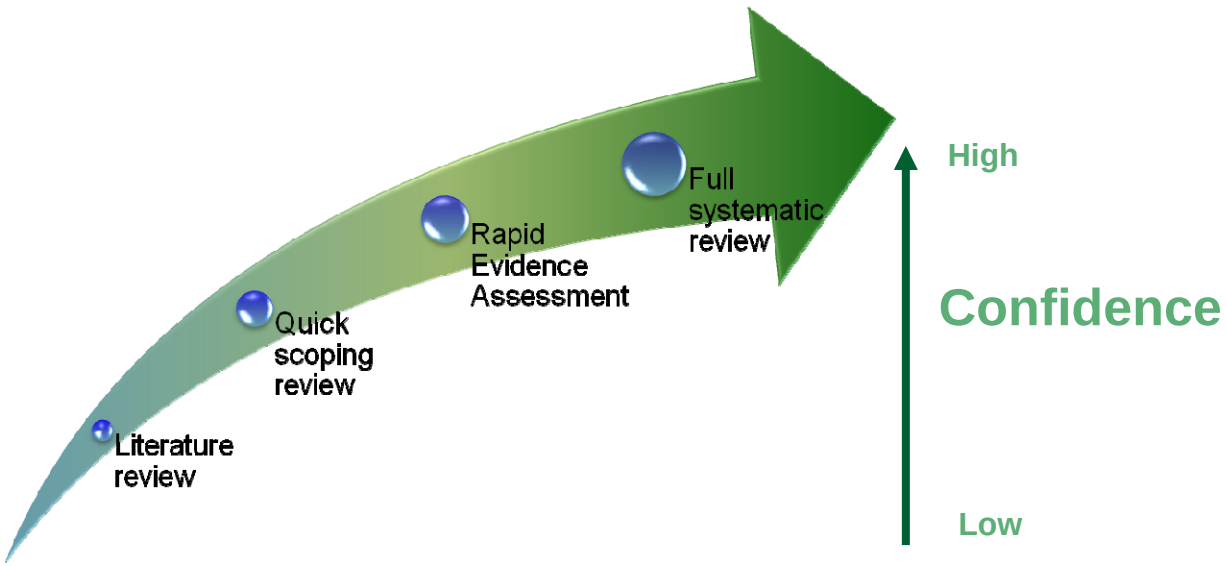
ANNEX

Figure 5: The Maryland Scale of Methodological Rigour

Scale	Impact evaluation methodology	Necessary conditions
5	**Random Control Trial:** Random assignment and analysis of comparable units to program and comparison groups.	Ability to randomly assign participants/non-participants to projects
4	**Matched pairs:** A comparison between multiple units with and without the intervention; or using comparison units that evidence only minor differences.	Close match between group of programme participants and non- participants
3	**Multivariate model:** A comparison between two or more comparable units of analysis, one with and one without the intervention, where there are differences in the relevant characteristics of the units.	Existence of comparable group of non-participations
2	**Before/after or time series analysis:** temporal sequence between the intervention and the measure.	Ability to measure before and after intervention
1	**Correlation:** Correlation between an intervention and a measure at a single pointing time.	Availability of data to show correlation

Figure 6: Relationship between evidence synthesis method and confidence in the results



EUROPEAN PARLIAMENT

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT C: CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS

GENDER EQUALITY

BENEFITS OF MATERNITY / PARENTAL LEAVE IN THE EU27
- A review of the literature -

NOTE

Abstract

Maternity/Parental leave and the relevant benefits constitute important means through which welfare states provide support to families to contribute to social reproduction, to guarantee a good start in life for children, to protect children's and mothers' wellbeing and more recently to address current demographic and economic problems and help families achieve work/family balance, a declared EU priority. This note presents the important benefits and the crucial role maternity/parental leave plays on the societal and family level in the context of the EU-27.

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality.

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LINGUISTIC VERSIONS

Original: EN
Translation: FR

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To contact the Policy Department or to subscribe to its newsletter please write to:
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Manuscript completed in September 2010.

This document is available on the Internet at:
http://www.europarl.europa.eu/studies

CONTENTS

1. INTRODUCTION

Since the second half of the 20th century a lot of changes have shaken the traditional notion of male breadwinner/female homemaker model, which used to be the cornerstone of family policy. Falling fertility rates due to increasing women's participation in the labour market have brought about new family arrangements such as lone mother families headed by unmarried or divorced women, or based on cohabitation of hetero or homosexual couples. Greater family fluidity has made previous policy assumptions questionable and difficult to sustain (Lewis 2006, 2009).

Social rights (which can include the right to care and to be cared for) are in a process of re-conceptualisation, from being burdens on business to becoming contributors to efficiency and from being negative and judicially enforced to becoming positive and proactive (Fredman 2006).

The global economic integration and the prioritisation of the discourse of growth and competitiveness have impacted significantly on welfare states, which have been increasingly seen as highly regulated and costly and have faced retrenchment, cost-containment and 'rolling-back' (Gauthier, 2002/3). The individualisation of public and private life across Europe also challenges the structures that used to support children and provide care. Market individualism has attacked the assumptions of the Western welfare state and the way of life in Eastern Europe. Social individualism and the individual management of one's life and its risks have also spread across east and west (Pascall and Lewis 2004).

Traditional gender roles and labour market divisions dictate that the overwhelming amount of child care is provided by women, with negative implications for their labour market prospects; at the same time, men are deprived of the opportunity to participate equally in infant and child care. The shifting gender balance in the labour market has given rise to debates about the state/family division of childcare responsibility (Leira 1998). State intervention has involved both the (paid) employment and the (unpaid) care work sides and has blurred the boundaries between cash and services (Lewis 2009).

Walby (2004) identifies several ways of transition to a gender regime: first, the social democratic route (Nordic countries) where the development of public services enables women to increase labour market participation; second, the market route (US) where services to enable women to be in employment are private; third, the regulatory route (EU), where women's employment is helped by the removal of discrimination, regulation of working time, policies to promote social inclusion.

Ageing (and the associated increasing needs), fertility and child poverty are linked with employment policies, including the participation of women in the labour market, but not necessarily with considerations about gender equality. The issue of care, however, is central and policy deals with questions about how it is valued and shared between man and women and between the market, the state, the employers and the family (Lewis 2006).

An important problem in welfare literature is that it tends to analyse policies related to employment and less so policies for population segments that do not participate in formal employment (Henderson and White 2004). The eligibility criteria, the allocation principles, the interpretations of the social citizenship status of the caregivers are elements of national variations (Fodor et al. 2002). Family allowances may be universal (awarded on a per-child basis) or selective (income- or means-tested and providing more support to certain types

of families, such as single-parent ones); they may be based on the social insurance principle and awarded on the basis of the employment of the parents; they can be at a flat rate, or earnings-related. They can also follow population policies, e.g. be pro-natal and reward families with more children (Rostgaard 2004). Parental leave arrangements can be seen as one measure in an attempt to meet the challenges of combining work, care and other activities, responsibilities and complexities of contemporary life, by creating primarily time for childcare or as enabling attachment to work (Deven and Moss 2002).

There is a growing awareness of the need for policy to intervene at the household level so as to enable households manage care with increasing participation of men in care activities (Pascall and Lewis 2004). The modernisation of the gender regime creates a political constituency of working women who try to negotiate their right to combine employment with home-making. Parental legislation and policy has to be seen in a broader context of EU legislation that considers gender equality as one of its fundamental pillars. Moreover, it has to be seen in the context of the overall political strategy of the EU, which includes concerns about social cohesion and the necessary regulation of labour markets (Walby 2003).

Attempting to disentangle all the dimensions and interconnected elements of maternity/parental leave benefits is a very complex task, since it involves so many different settings and actors. For the purpose of this note, we use “maternity” and “parental leave” almost interchangeably, as in some countries only the latter is used as a gender-neutral term. Moreover, evidence shows that in most countries it is predominantly taken by mothers as a natural extension of maternity leave.

After a brief presentation of the common EU legislative framework and the member states diverse responses, an account of the main health and socio-economic benefits of maternity/parental leave follows from societal and family perspectives. The most important challenges, policies and trends are mentioned. Policies are also informed by a multitude of other factors such political parties, civil society and social partners, international organisations influencing domestic economies, which due to space constraints could not be included.

2. THE EU LEGISLATIVE FRAMEWORK

The 1957 Treaty of Rome introduced equal pay between women and men (Article 119). A series of legally-binding directives from the 1970s set out to implement gender equality in employment, equal pay for equal work, equal access to employment, training, promotion, working conditions, equal treatment in social security (Walby 2004).

In 1992, a European Council recommendation on childcare suggested that member states develop and encourage initiatives to enable women and men to reconcile occupational, family and child care responsibilities (Council of the European Union 1992). The recommendation suggested others, including childcare services, parental leave, family-friendly policies in the workplace and measures to promote participation of men in child-caring activities. In 1993, the concept of “reconciliation of working and family life” was invoked in the context of concerns about developing an EU labour market policy to boost growth and tackle unemployment. Individualisation of taxation and social security systems was proposed. Flexibility was emphasised and this signified a shift from gender equality in the labour market to helping women through flexible working conditions and the introduction of family policies.

In 1996, a Parental Leave Directive was adopted which set out minimum individual rights to three months parental leave for both men and women (in addition to maternity leave). It

was supposed to be non-transferable, but the absence of remunerations specifications made it de facto less likely to be deployed by men (Lewis 2009, Henderson and White 2004). The European Commission's recognition that women's labour market entry and the new gender balance necessitated modernisation of social protection was registered as early as 1997 and a subsequent text emphasised that the familist ideology of the old welfare establishment, which was based on the traditional roles of men and women and the male breadwinner model was detrimental to both labour market supply and family formation (Esping-Andersen 1999).

The European Employment Strategy after the Treaty of Amsterdam introduced measures for work/family reconciliation and aimed at strengthening equal opportunities in the context of flexible female employment. Member states were to design and implement family-friendly policies, including affordable and high quality child care and parental and relevant leave schemes (Commission of the European Communities 2001). The Lisbon agenda treated reconciliation as a dimension contributing to a good work environment and facilitated by flexible work organisation (Stratigaki 2004). A new 'flexicurity' strategy connecting social policy with flexible labour markets, as well as economic with demographic policies, was established. Since 2005, the issue of increasing fertility has been part of the agenda.

Overall, the EU childhood policy consists of the legal right to maternity and parental leave, public support for working parents and for early education for all children (Pascall and Lewis 2004). The goal of promoting gender equality has been sidelined and policy has focused on the provision of childcare services, rather than long childcare leaves (Lewis 2009). Directives on the regulation of working time and parenthood have started to incorporate the concept of the worker-parent in employment law. However, implementation of EU equality directives is uneven and conditioned on national differences in legal arrangements, political will and different ways of transposing EU law, while care subsidisation rests with the authority of the member states. In addition, the EU strategy of gender mainstreaming is supported only by "soft" law interventions, i.e. advisory rather than enforceable (Walby 2004).

3. DIVERSITY IN THE MEMBER STATE CONTEXT

Family policies are an amalgam of policies, programmes and laws targeting families. State support for families can be of the following form:

a) Direct and indirect subsidies for parents (family allowances, childcare benefits, vouchers, tax benefits)
b) Provision of childcare and education services in public nurseries, pre-schools etc.
c) parental leave policy (maternity, paternity, parental and child-rearing leaves)
d) Direct and indirect subsidies for private services provided by individual, NGOs, enterprises (grants, tax benefits and credits) (Rostgaard 2004).

In many European countries, "parental leave" refers to leave granted to mothers/fathers for longer term care of children after the initial maternity/paternity leave period (Ray et al 2008). In most cases, it is gender-neutral, job-protected leave from employment. For mothers, it usually follows after the exhaustion of maternity leave. Child rearing leave is a supplemental leave added to maternity leave. Family leave includes maternity, paternity, parental, child-rearing, care for an ill-child or personal leave (Tanaka 2005; Haas 2003).
National states are characterised by particular gender regimes, namely 'interconnected systems, through which paid work is connected to unpaid work, state services and benefits

are delivered to individual or households, costs are allocated, and time is shared between men and women in households, as well as between households and employment' (Deven and Moss 2002, p.247).

Maternity and parental leaves are part of the arrangements provided by the state to give to mothers and fathers the opportunity to take time off work after childbirth whilst maintaining job security and minimising the risks of losing one's job (Han et al. 2009). State regulation of the relationship between the family and the market responsibilities has shaped maternity leave legislation and parliamentary representation of women can among other factors explain variations in paternity leave arrangements, as well as the deployment of them in different countries (Rostgaard 2002, (O'Brien 2007). Cultural parameters, such as attitudes to family or religious dispositions, can also mark the profile of the state/family relationship and will interact with contemporary cross-country tendencies (often emanating from the EU), e.g. the promotion of gender equality.

One way to approach family policies is through the perspective of the "caring dimension of the welfare states". Relevant questions in this respect include: whether care is private or public responsibility, whether it is paid or unpaid, whether it contributes to the dependence or independence of caregivers (Haas 2003). Daly and Lewis (2000) identify a tendency to collectivise care by providing tax-funded parental leave and subsidised public child care, as well as a tendency to privatise care, by encouraging family members or volunteers to provide it.

Using care as an analytical category, Haas (2003) classifies the EU-15 welfare states in four main clusters. In the ***privatised care model*** (Greece, Italy, Portugal, Spain),[1] care is a privatised responsibility, primarily by mothers or extended family members, while men are oriented towards the labour market; private and public spheres are starkly differentiated. Fathers are not encouraged to take leave (because either it is unpaid, or not guaranteed in all companies or not a non-transferable right). In the ***family-centred care model*** (Austria, Germany, Belgium, France and Luxembourg),[2] family values are central in society, the preservation of the family is important to policymakers, women's contribution is more recognised, but men are still held responsible for the family income. Fertility is promoted and there is public support for care-giving. Parental leave can be seen as childbearing leave and can theoretically be taken by either parent, while some incentives are given to fathers to take leave. In the ***market-oriented model*** (Ireland, UK, Netherlands),[3] parental leave policies are limited and there are no incentives for fathers to

1 Southern European countries are characterised by the centrality of family in social arrangements, together with the notably underdeveloped family policy, which through its inactivity reproduces the ideological assumption of the family as main provider in society (Ferrera 1996, Rhodes 1997, Flaquer 2000, Darmanin 2006).

2 In France, family is the major issue for public policy, rather than the individual, and family policy implies the legal recognition that family plays a major role in the maintenance of social cohesion. The state is considered to have a great responsibility vis-à-vis children. Much of the support for women's employment has been of a pronatalist, rather than gender equality orientation. State nurseries are well-organised and nearly all children from age three to six, as well as substantial numbers of two-year olds, attend state nursery schools. There are also crèches for the under-2s and also tax relief on childcare expenses. Women have benefited from the child care provided by the state and the majority of them are in employment, often full-time. France presents a good example of a holistic approach to work/family policies, in that the introduction of the 35-hour week was intended to alleviate the unemployment problem, but also to respond to the employees' requests for better work/family balance (Crompton and Lyonette 2006, Letablier 2004).

3 UKis a neo-liberal regime, where flexibility in the labour market is encouraged; British women have among the highest levels of part-time work in the EU. With the election of the New Labour government in 1997, family policy was placed at the centre of the agenda for the first time, a major obejctive being the reduction of child poverty through increase in parental employment. Cash transfers to low-income families

take unpaid parental leave. Instead of designing state policies to financially support employees (childcare, paid maternity leave, paid paternity leave), these countries have been working on convincing employers to become more involved in helping employees combine work and family through flexible work arrangements. Finally, the ***valued care model*** (Denmark, Sweden, Finland),[4] implies that care is a joint public/private responsibility, provides to parents the opportunity to take parental leave in order to care for young children, offers financial compensation and guarantees job security, gives access to affordable care services and encourages fathers to take parental leave so as to help divide care responsibilities equally.

The ambiguous function of family benefits, often maintaining the segmentation between labour market employment and domestic care work and the associated gendered divisions, has often been stressed (Bieback 1993). Other commentators (Henneck 2003, Gangl and Ziefle 2009, Spiess and Wrohlich 2006) argue that generous maternity leaves, alongside the absence of childcare provisions as additional support, have socially conservative effect, as they create economic incentives for women to stay out of the labour market during childbearing with obvious implications for experience and promotions.

The post-communist countries are of particular interest, as they are still in a transitional phase and are following quite different trends, despite their common past. At the point of transition, labour market participation rates of women were quite high.[5] Social assistance schemes became central in the process of transformation into market economies (Cerami 2008). After the collapse of communism, a male breadwinner model was assumed to be the dominant model and state policies included the closing down of childcare centres and the withdrawal of financial support. Refamilialisation has been emphasised as the common feature in the former communist countries, but diversity of policies have started to be also an object of study (Szelewa and Polakowski 2008; Saxonberg and Szelewa 2007).[6] Great

have been introduced, including childcare allowances. Work/life balance has been on the agenda, but provision of childcare centres has been limited; parents of children under six have the right to request flexible working hours (Crompton and Lyonette 2006).

4 In Denmark, public funding of childcare is developed, a high proportion of mothers are in the labour force, and there is paid parental leave for families and paid childcare leave. Fathers are given some incentives to take parental leave, but only low percentages take it because of low compensation rates, employer resistance and fear of dismissal. As a result, it is mainly mothers who use parental leave. Finland is characterised by more traditional family arrangements, with little interest in the redistribution of childcare. Public childcare is available, while only low percentages of fathers taking parental leave (which is available only on a full-time basis). Sweden is considered the most gender-egalitarian welfare state, which reconciles demands of the market with the demands of children. Some of its dimensions include: an individualised taxation system; equal employment legislation, which supports equal pay for equal work and enables women to enter male-dominated occupations; heavily subsidised high quality childcare; parental leave packages, whereby fathers are given incentives through non-transferable adequately paid paternal leave with maximum flexibility. These arrangements have promoted high labour participation of women and greater involvement of men in family life (Haas 2003).

5 About 80% in Czechoslovakia, Estonia, Latvia and Lithuania, and about 70% in Poland, Hungary and Romania, while the pay gap was about 11% in Hungary and 13% in Poland (UNICEF 1999).

6 Szelewa and Polakowski (2008) argue that some post-communist nations have followed different paths of familialisation, while others have stressed defamilialising elements. In their typology they identify four policy-types: a) ***explicit familialism*** (Czech Republic, Slovakia, Slovenia), where the state pursues more active policies to support the family model; paid periods of parental leave are longer, there is no subsidisation of childcare centres, women are perceived of as carers and are given incentives with long periods of paid leave; b) ***implicit familialism*** (Poland) or ***private maternalism*** (Fodor et al. 2002; Glass and Fodor 2007), where policies are residual, there is lack of childcare centres and care is de facto left to families and in particular women; c) ***female-mobilising*** (Estonia, Latvia), where generosity of parental leave provisions are low, quality of childcare is high and care is not considered the responsibility of the family and access to commodification is considered important and indeed women are not given incentives to leave the labour market d) ***comprehensive support*** (Lithuania, Hungary), where quality of childcare services is high, parental leave is generous, policies are more diversified and families and women are both

support was provided to large families for demographic purposes (Fultz and Steinhilber 2003).

National variations in maternity and parental leave arrangements are to be anticipated and taken seriously, not least because of different social constructions of motherhood, fatherhood and childhood, which have an 'important bearing in our understanding both of leave policies themselves and how and why leave policies are used' (Deven and Moss 2002, p.247).

4. A MULTI-DIMENSIONAL OVERVIEW OF THE BENEFITS OF MATERNITY/PARENTAL LEAVE

Certain facts are independent of any national welfare context, such as the need of parents to spend time with their newborn children so that bonds are formed and parenthood develops. The significance of maternity/parental leave to this aim is indisputable and multi-faceted. This section presents some of the maternity/parental leave benefits that relate to the spheres of health, economy and society.

4.1. Health-related Benefits

Staying at home for some weeks after birth offers mothers the opportunity to recover, helps breastfeeding and can also contribute to the prevention of certain health problems both for the mother and the child (Berger et al. 2005). Extended parental leave periods impact positively on children's health due to direct parental care (e.g. breastfeeding or systematic vaccination), as well as later enrolment into group childcare or into care provision by non-relatives (Han et al 2009).

Public health agencies have in the recent years emphasised the benefits of breastfeeding for children's subsequent health and have recommended six months of exclusive breastfeeding (e.g. US, Canada).[7] Studies have reported benefits for children associated with breastfeeding, such as decreases in ear infections, gastro-intestinal diseases, asthma, lower respiratory infections, sudden infant death syndrome and chronic digestive diseases.

paid and relieved as far as care is concerned and thus both earners in the family can be mobilised but have also more options for resolving the problem of employment and childcare. However, tax policies have not been an obstacle for women, as they have followed the communist tradition of individual taxation that does not discourage women from entering the labour market.

Bulgaria and Romania have presented the common trend of retrenchment of the formal labour market. Bulgaria, in particular has entered a vicious circle of negative population growth, mass impoverishment, unemployment, deteriorating health status of the population and high emigration rates. Still, there is strong protection for working mothers, but this might be a disadvantage a privatised firms cannot meet the costs of extended maternity and parental leave in Bulgaria and Romania. Slovenia suffered job losses under privatisation and restructuring in the 1990s, together with withdrawal of women and older workers from the labour market and towards informal economies, but has recovered since the mid-1990s and by the mid-200s only 12 per cent of women with young children were at home caring for them (Tang and Cousins 2005).

7 The International Labour Organisation (ILO) recommendation on breastfeeding includes: a) the provision of a minimum of 14 weeks of paid maternity leave; b) entitlement to one or more paid breast-feeding/lactation breaks or reduction of working hours daily (without pay loss) to continue breastfeeding for longer periods; c) job protection and non-discrimination of breastfeeding workers. The ILO also suggests that maternity leave payments should be at least two thirds of previous earnings. Some countries go beyond these recommendations, yet some others have not fully implemented them legally. The standard of breastfeeding breaks is not frequently met. Overall, breastfeeding rates fall short of the recommended targets set by national policies, international agencies and professional associations (Cattaneo et al. 2005).

For mothers, benefits include improved bone mineralisation and a reduced risk of ovarian and breast cancer (Baker and Milligan 2008).

Data have consistently attributed the decision of some mothers to stop breastfeeding (or not start at all) to the need to return to work and to economic considerations; as a result, employment after birth is associated with a shorter breastfeeding period, while maternity leave legislation has proven to give rise to longer periods out of work and longer periods of breastfeeding (e.g. the case of the Canadian leave reform in 2000). Labour market policy seems a viable way of achieving breastfeeding objectives (Baker and Milligan 2008).

Several studies have found that longer job-protected paid maternal leave has significant effects on reducing infant mortality rates, even after controlling for other factors like expenditure on family services (Tanaka 2005). Winegarden and Bracy (1995) and Ruhm (2000) have used time-series data on European countries to show that longer leave is associated with lower rates of infant and young child mortality. However, non-paid leave or not job-protected leave does not seem to have any significant effect, which suggests that these circumstances may result in an early return to work.

Certain studies have shown that parental leave policies would impact positively on infant health through increased parental time, but not on medical care or household commodities, unless they have a significant effect on income (Ruhm 2000, Tanaka 2005). Other have pointed out that maternal return to work within the first six weeks of a baby's life might be associated with less adequate health screening, immunisation etc. Parental time and health-related goods, such as vaccines, nutritious foods etc., enhance a child's health capital, which suggests that parental leave (particularly the paid type) has positive effects on child health (Tanaka 2005).

Maternal work during the first year of a child's life is associated with lower cognitive test scores during childhood, as well as with behaviour problems (Han et al 2009, Baum 2003). There is increasing evidence that parental care and bonding affect positively the cognitive, behavioural and social development of the child (Baker and Milligan 2008, 2010), as well as their emotional welfare. Possible reasons for the association between early maternal employment and poor child cognitive outcomes can be: a) women who return to work earlier might not be able to provide a stimulating home environment because of stress or fatigue b) women who return to work earlier are less likely to breastfeed c) children whose mothers work in the first year are more likely to be placed in non-maternal care (Waldfogel et al. 2002). Research has shown that 'children whose mothers spend more time at home in the first months of life may benefit in the longer-run, through having fewer behavioural problems and better language and verbal abilities, because they have the chance to develop more sensitive and responsive relationships with their mothers and/or because the quality of care they receive at home is better than what they would have received in non-parental child care' (Berger et al. 2005, p.F34). Generally speaking, children do better if their mothers do not work full-time in the first year (Waldfogel 2006), as their developmental outcomes are better served by having a one-to-one interaction (Lewis and Campbell 2007). There is also evidence that the involvement of the father in the early years is very significant for a child's later emotional, cognitive and social welfare (Lamb 2004, O'Brien 2007). Non-parental care, on the other hand, seems to be leading to problem behaviour, namely disobedience and aggression, and these effects are more intense the more non-parental care is received in the first year (Belsky 2006, Loeb et al. 2007).

The effects of maternal employment on mothers' own health have been relatively understudied. Very few, if any, economics studies have investigated the effect of the length of maternity leave on the well-being of the mother. Most economics studies have examined the impact of maternal leave and relevant policies on labour market outcomes (types of job, wages, job continuity) (Chatterji and Markowitz 2005). Still, research (e.g. Gjerdingen et al. 1995, using a sample of Minnesota mothers) have indicated that women who are employed soon after childbirth suffer more physical health problems than other women, possibly due to increased stress. Such problems include respiratory infections, breast symptoms and gynaecological problems. Children and other family members can also suffer emotional and financial distress under such circumstances. In their US study, Chatterji and Markowitz (2005) focus on depression among women in childbearing age and have discovered that returning to work one week later is associated with 6-7% reduction in depressive symptoms; in addition, longer maternity leave tends to increase outpatient visits. In a Wisconsin study, Hyde et al (1995) have found that shorter leaves and lower rewards were linked with poorer mental health at four months postpartum. McGovern et al. (1997) have indicated that the length of maternity leave has a positive effect on the welfare of the mother, measured at seven months after birth with respect to mental health, vitality and role function.

Klein et al. (1998) investigated the effect of employment status, maternity leave and role quality on women's mental health one year after delivery in a sample of US women. Their study showed that at twelve months postpartum the length of maternity leave did not have significant effects on mental health and that there were no differences among homemakers and women in part-time or full-time employment regarding four measures of mental health, namely depression, anxiety, anger and self-esteem. The quality of multiple roles (family and work) that women occupied, as well as the relative emphasis they placed on each of them, turned out to be quite important for the mental health state of women during their transition from leave to the labour market. Klein et al. emphasise the significance of different individual responses to maternity leave and suggest that policy (either government or corporate) should allow long and paid maternity leaves so that women can have a real choice as to how much leave they take. Similar suggestions derive from a growing body of literature which highlights the huge value of parental presence in the home after the arrival of a child and the ways in which policies can facilitate this.

4.2. Socio-economic Benefits

Governments across Europe encourage women's employment, even when their children are young. Work/family balance has become a policy priority, as it is argued that women's employment will create more and new jobs to meet the requirements for the caring and (unpaid) domestic work once previously carried out by women. Female earnings are expected to help families stay out of poverty and make a contribution to rising welfare costs (Crompton and Lyonette 2006). Maternity leave arrangements should work towards the same effect.

Family policies are an important policy tool to reduce the risk of poverty for families with children, redistribute income from childless households to those with children and also grant recognition to families for the societal benefits that children generate (Rostgaard 2004). Policies about family and work have also demographic dimensions to the extent that they have been regarded as tools addressing the challenges of an ageing society and the falling fertility rates (Lewis 2006).

In economic terms, children are often seen as "public goods" for the whole society and therefore state provisions for their rearing and education are required. Recognition of the public benefits of children entails the establishment of institutions to alleviate parents from associated costs and to socialise the costs of children; parental leave and universal entitlement to childcare are measures towards this direction. Limited public responsibility for childcare costs brings income problems, time poverty, gender inequality, problematic childcare arrangements and poor outcomes for the children (Gornick and Meyers 2003). [8] Since dual-earner families are common, women should be granted entitlements as individuals, rather than mothers or wives (Bittman 1999).

'Social investment' has emerged in recent years as an ideal promoted by the OECD and the EU among else. The term 'social investment state' (Giddens 1998) was proposed as an alternative to the traditional welfare state to emphasise investment in human capital, rather than direct provision of economic maintenance. Publicly supported early childcare (and education), both parental and non-parental, is the instrument that serves the children-as-social-investment perspective and its future focus. It is supposed to serve three goals: fight the long-term effects of child poverty; help parents balance work and family; prepare children for the labour market of the future. Implicit in the social investment perspective is the provision of equal opportunities for all children regardless of their family background, as well as investment to avoid anti-social behaviour and poor citizenship in the future. Investing in children's schooling will help make them well-prepared workers and responsible citizens, which will benefit society on the whole (Jenson 2006). However, it is equally important to make sure that the present well-being of the children, rather than their future prospects, is given more serious consideration and that policies enable them to flourish (Lister 2006).

Child day care is important both in terms of socialisation and learning and as a tool for children's general welfare, having positive impact on survival, growth, development and learning (UNESCO 2003). High childcare costs have been found to keep certain women from joining the labour market, while making others leave their job prematurely; childcare benefits result in women being more likely to enter the labour market, as well as being more likely to be employed full-time (Crawford 2006). The logic behind cash transfers is to increase parental choice regarding childcare, as well as giving parents more time to stay at home; however, parents may choose to use the cash to receive private day care and continue employment, which will boost informal markets of childcare rather than state-run centres, or may seek additional income, often through the male breadwinner, thus reproducing the traditional gendered division of labour (Leira 1998). Cash-for-care has often be seen as supporting traditional family arrangements, although this depends on the whole package of family benefits that is offered (Crompton and Lyonette 2006).

[8] Of interest here is the differentiation between a 'pedagogical' discourse and 'childcare' discourse. The former is dominant in the Nordic countries and is about the provision of a service for all young children and families irrespective of parental employment status. This service is seen as complementary to the home and offers children 'qualitatively different experiences and relationships'. The latter, dominant in liberal, English-speaking states, is about the transfer of domestic care to the market. This clearly liberates women from childcare provision, but it is questionable whether it is right to assume that the experiences and relationships in early childhood services can be a substitute for those developed at home care (Moss 2006, p.158). On the other hand, formal care can provide a raised standard for children from disadvantaged or problematic backgrounds (e.g. illiterate, poor or violent parents) who would be worse-off in family care alone. A combination of both the opportunity to care at home (through maternity and parental leave package) with formal childcare, as exemplified in France, seems to be necessary for the development of the child.

Paid leave gives parents financial security and supports children. Family allowances are an anti-poverty tool for children. A 2000 study of child benefits and child poverty across Europe divided countries into three groups: a) Denmark and Luxembourg, where child poverty rates are low regardless of (quite generous) family benefits b) Spain, Italy, Greece, Portugal, where child poverty rates are high but are affected little by the removal of (small) family benefits c) UK, Belgium, Austria, France, the Netherlands, where family benefits are relatively large and relatively successful in keeping children out of poverty; poverty rates rise significantly if benefits are removed (Immervoll et al. 2000). Unpaid leave is not helpful for low and middle-income families, as they cannot afford to take it.

In the EU maternity and parental leaves are seen as parts of strategies to increase women's employment, facilitate work-family balance and encourage couples to have children and counter the low fertility rate, which threatens future economic productivity (Haas 2003). It has been documented that the availability of maternity leave may be important in the decision of a woman to participate in the labour force, either through initially drawing her to paid employment or through enabling her to return after birth (Averett and Whittington 2001). Waldfogel (1997) finds that maternity leave is associated with higher pay for working mothers, partly because returning to the same employer leads to work experience and job tenure. Joesch (1995) uses event history analysis to demonstrate that women who are given the option to take paid leave increase their attachment to the labour market.

Several studies have demonstrated that women's return to employment increases alongside the duration of parental leave (e.g. Ruhm 1998, Lalive and Zweimüller 2005, Rönsen and Sundström 1996), that maternity leave has very small long-term effects on subsequent earnings of mothers (Albrecht et al. 1999), or that it does not have a significant negative impact on subsequent employment (Gutierrez-Domenech 2005). Ondrich et al (2003) link the reduced returning to work for mothers to general attitudes about motherhood which may function as social pressures keeping mothers at home. In general, they dissociate the trend of mothers not returning to work from maternity leave policy and attribute this trend to broader social and political circumstances; in this sense, maternity policy might be seen as reacting so as to help mothers' employment (e.g. through helping them find day care).

As Sen (2006) has shown, the market works better when it is supported by a framework of social entitlements (education, health etc.), which protect the individual and ensure well-equipped and productive workers. Studies have shown that work/family conflict for women is related to health problems, higher healthcare costs, lower organisational commitment and job satisfaction (Allard et al. 2007).

Flexible leave arrangements, on the other hand, and the possibility of combining leave with part-time work enables parents to stay close both to their children and to their jobs, which has benefits for both the employees and the employers. Some countries, permit parents to be on parental leave and collect full benefits while working part-time, e.g. the UK's up to 10 'Keep in Touch' days during maternity leave. Flexible arrangements reduce barriers to take leave, as well as employers' resistance (Ray et al. 2008). Indeed, parental leave policies help employers retain their human capital investment, instead of hiring and training new employees. They also decrease the cost of labour and labour market inflexibility (Ondrich et al. 2003). Leave benefits in most cases are financed through social insurance schemes; as a result, costs are distributed across all employers, rather than paid by individual employers (who might otherwise discriminate against leave-takers). Further, they are

administered at the national and regional level so that individual employers do not have to pay benefits directly to each employee (Ray et al. 2008).

Additionally, employers increasingly realise that when fathers take leave they build more skills and have greater potential as workers, especially at the managerial level, as they become more adept to handling stress, engaging in multiple tasks and responsibilities, developing interpersonal abilities (Haas 2003).

Companies have been forced to rethink the way work is organised and this has been often beneficial for them through cross-training, telecommuting, fathers keeping in touch while on leave, flexible work arrangements, teleworking etc. (Haas 2003). These trends are compatible with broader transformation in the world of work and are enabled/facilitated by advances in ICTs that make various forms of work possible through networking and the rise of new business models and the network enterprise (Castells 1996).

Not only is flexibility compatible with the increasing salience of individual decision-making, autonomy and reflexivity in late modernity (Giddens 1990), but it might also prove to be rewarding from the point of view of employers, if parental leave takers achieve emotional and personal fulfilment through their time out of work and return to work rejuvenated and happier. Flexible labour market arrangements combining work with leave arrangements might be the way forward for employers, employees, children, families and communities. Having said that, the state needs to set limits and give incentives to parents, so that not too much of negotiation is left between employees and employers (Brandth and Kvande 2002). The compulsory parental leave quota for fathers improves their negotiating position vis-à-vis employers (Leira 1998).

From a demographic viewpoint, higher fertility rates are often associated with longer maternity leaves but lower maternity benefits, as this way states can keep expenses low. However, higher fertility rates tend to be accompanied by better child benefits (Henderson and White 2004).

Post-communist countries present some of the lowest birth rates in the EU, with Christian Orthodox countries (e.g. Bulgaria, Romania) having lower rates than the others. Declining marriage rates mean that in the end more children are born out of wedlock. Many of them grow up with single parent. Teenage mothers are about 50% in these countries compared to 33% in the EU. Children in single parent households are four times more likely to live in poverty compared to those in two-parent families (UNICEF 2000), which necessitates an effective family support framework. Strong social attitudes about having children are in conflict with peoples' concern that they will not be able to provide adequate economic resources for their children (Robila 2004).

Demographic changes in families and increased labour market participation for women have forced governments to change their family policies; however, conflicting demands, such as those from a growing elderly population, have also been a constraining force in family policy-making.

5. LEAVE BENEFITS AND WORK/FAMILY BALANCE

The modernisation of the gender regime, which is taking place in Western countries, involves the increasing participation of women in the labour market, their augmenting presence in the state, the increased permeability of the family. The role of the state in gender relations is often seen in literature in relation to whether or not it provides

substitutes for domestic forms of caring. However, it is also important to consider the role of the state in the regulation of the labour market and to assess the gender implications of this role (Walby 2003).

Two approaches to care can be identified from the perspective of policy. On the one hand, policies strengthening the traditional gender arrangements, including the expansion of the rights of carers through cash transfers and social security benefits for informal carers. On the other hand, policies challenging traditional arrangements through the provision of state-sponsored day care centres, alongside generous rights to maternity, paternity and parental leave which facilitate care-sharing responsibilities (Leira 1998).[9]
Work/life balance has become a 'hegemonic value', a functioning in advanced industrialised societies, the lack of which can affect one's health and well-being (Hobson et al. 2010). A way of assessing the degree to which different member states facilitate work/family reconciliation is the concept of 'defamilisation', meaning the extent to which the welfare state promote women's economic independence (Taylor-Gooby 1996; Bambra 2004), using the criteria of female labour participation, maternity leave compensation and average female wage. The results have shown high defamilisation scores for the Nordic countries, which treat women as workers, but also make allowances for care work for single or partnered women (Lewis 2006).

Policies to promote the reconciliation of work and life in reality help reproduce and consolidate women's responsibilities as primary carers (Stratigaki 2004). In this sense, it becomes a crucial question whether women should be given the choice to do care work, rather than paid work, although the former might be arresting the evolution of their career and their pension entitlements. This becomes a more complicated policy question if men choose not to care and thus constrain women's choices (Lewis 2009).

Work/family policies are framed in both economic and social terms. In economic terms, the consideration is to increase employment in ways to achieve growth and competitiveness,

9 A survey on childcare across Europe has shown that while in West European countries childcare rests with mothers, shared between partners, or the immediate family, in Eastern Europe there is greater reliance on other family members. East European women have reported less work/family conflict than those in the west. Household chores are overwhelmingly undertaken by women in the East European countries, with the exception of Slovenia (Tang and Cousins 2005).

Best practices, observed mostly in Finland and Sweden include: a) generous paid leave b) non-transferable leave quotas for each parent c) universal coverage with modest eligibility rules d) financing structures that distribute risk among many employers e) flexibility in the scheduling of leave. They show that a generous, universal, gender egalitarian and flexible parental policy, financed through social insurance would contribute a great deal in spreading childcare costs more equitably between mothers and fathers, parents and non-parents, employers and employees (Ray et al 2008).

Netherlands is the only country to have established the universal citizen worker/carer model, which promotes part-time work and part-time care as the ideal situation for men and women (Lewis 2006). This has involved changes in taxation policy and policies on working time, but is still far from realised: it has come into line with the Western European norms of a one and a half worker pattern, with women predominantly still doing the care work and a strong ideology behind (Pascall and Lewis 2004).

It is important to note that in the post-communist context both the liberal model (Poland) and the conservative model (Czech Republic) have failed to allow women to balance work and family. The pronatalist principles of the communist era have been abandoned in favour of budget cuts following the recommendations of the World Bank; as a result, both countries have experienced a significant drop in fertility, as well as a moderate reduction in female employment. Governments are aware of the need to promote gender equality, but defamilialisation is facing budget constraints. Recently, EU pressures have resulted in the adoption of extended parental leave rights, with low compensation rates, which, together with the anti-feminist ideological legacy, discourage fathers from making use (Kocourkova 2002, Saxonberg and Szelewa 2007, Saxonberg and Sirovatka 2006, Heinen and Wator 2006).

which means taking into account the viewpoints of employers and businesses. In social terms, the family is given priority and employment is seen as a means for social inclusion and children welfare. The two logics are in conflict, e.g. regarding the time to work and the time spent with the family and the process of negotiation is quite intense and involves the state, employers and employees (or parents); the resulting policy packages are contentious and often ambiguous regarding their gender equality aspiration and effectiveness (Lewis and Campbell 2007).

The EU has been ambitious in promoting equal employment opportunities, but has neither contested the division of domestic unpaid work nor promoted enough the involvement of fathers. The Parental Leave Directive acknowledged that unless men share care work women will not be able to enter paid employment on equal terms. However, it does not give right to remuneration while on leave, leaving out the most important consideration for a family to take parental leave (Fredman 2006).

Social conceptions of gender and parenthood play an important role in the paternity and parental leave arrangements across national contexts. Leave schemes themselves contribute to social constructions of motherhood and fatherhood and create norms as to what it means to be a good parent (Rostgaard 2002). The parameter of gender culture is important in examining the different social understandings of men's and women's roles, which underpin the organisation of family and work across different national settings (Tang and Cousins 2005).

A recent survey showed that work/family reconciliation, a dominant element in EU discourses, has been internalised by both men and women as a norm, though not as a practice; between 85 and 95 per cent of fathers and mothers with children under 12 claimed that the ability to combine employment with family was a serious consideration in their choice of work (Hobson et al. 2006). A longitudinal study of post-pregnancy work outcomes demonstrated that women's attitudes towards work and childcare may change when there is dissonance between one's initial idea of work/family reconciliation and the reality of the situation they are in; in the absence of facilitating factors, women showed that they were adaptive and viewed the situation positively. Moreover, the study showed that women's return to employment was conditioned by income, the level of support provided by the employer, but also their emotional and physical condition (Houston and Marks 2003).

The decision to take parental leave is a family decision that is dependent on a number of factors. If the amount of compensation is minimal in relation to the wages (of both parents) then the couple might go for a shorter leave period. By contrast, if the parental benefit compares favourably to the foregone income (to which a potential day care cost should be added) then one of the couple (in most cases the woman, who tends to have lower wages) will probably opt for taking longer periods of leave. Logistically the decision might be complex, but in any case the compensation rate is an important parameter to consider, not least because it puts into consideration the issue of whether men should take advantage of paternity and parental leaves. This unravels the gender dimensions of the economics of the household, as it concerns both the future employment prospects of the woman, as well as the chance of the man to learn how to be a father. In addition, both men and women risk losing their job, even under good job protection conditions, while they might also face discrimination from employers, particularly if the leave arrangements are generous in time and/or remuneration (Rostgaard 2004)

Recently, Nordic countries have moved towards parental leave arrangements that include periods of time that can be taken by the father only; these are supposed to strengthen the role of the father in childcare, as well as moving towards a more equitable distribution of care work between women and men (O'Brien 2007, Haas 2003). The introduction of the 'daddy quota' represents the institutionalisation of the right of employed fathers to care for their children and signals a state intervention in employment arrangements with the intention of influencing the gendered division of caring responsibilities (Leira 1998). As a result of these policies, employers are under more pressure to help fathers with taking their parental leave, as families lose significant benefits otherwise. Greedy organisations and firms which represent the intensification of working life stand in contrast to demands for flexibility in combination of work and family life (Brandth and Kvande 2002).[10]

The portion of leave available to fathers or reserved exclusively for fathers and the generosity of parental leave in terms of wage replacement are the main factors used in assessing the gender equality of policy. If parental leave for fathers is of limited duration and/or does not replace a substantial portion of fathers' earnings then it is the mothers who will tend to take leave, rather than the fathers. The period in which parental leave is available is also a factor affecting father's uptake of leave; flexibility would increase uptake. Single parents have the right to use the full share of paid leave of two parents in Sweden, but in other country cases they try to balance concerns about extended leave periods, particularly of mothers, with concerns about child welfare (Ray et al. 2008).

In EU countries, where compensation rates are earnings-related, deployment of paternity and parental leave is high. Lower uptake of paternity or parental leave by fathers in less secure and poorly regulated occupations remind of the importance of financial considerations in the question of leave-taking. Infants in poor households may experience less parental involvement than those whose parents enjoy paid job-protected leave (O'Brien 2007, Whitehouse et al. 2007). According to other studies, fathers who had a supportive workplace environment regarding parental leave were much more likely to interact with their children at the age of 3 months and 9 months. Policies providing parental leave or flexible working arrangements may result in fathers being more involved in childcare (Tanaka and Waldfogel 2007).

6. CONCLUDING REMARKS

The benefits of maternity/parental leave to society are multifarious. Parental leave contributes to increasing fertility rates which counteract the increasing numbers of retired employees. Children who are well cared for in their early life are less likely to suffer health problems that society would have to pay for later on. Parental leave can reduce unemployment through cross-training and can help individuals cope with increasing demands in work and life (Haas 2003).

Parental leave policy can contribute to gender equality, both regarding the labour market and the care-giving dimensions. However, it can also have the opposite effect, if restricted to mothers only. Policies that divide leave and payments between mothers and fathers on a

[10] Doucet and Merla (2007) have studied the work/family practices fathers engage in, including working from home, working according to more flexible schedules, or even assuming the main child-caring tasks. Allard et al. (2007) have studied work/family practices of Swedish fathers in managerial posts and concluded that those having flexible work arrangements experience less work/family conflict and promote gender equality in their family life.

non-transferable basis work towards gender equality in terms of roles and labour market participation. They also provide to fathers the opportunity (and possibly the financial support) to care for and spend time with their children (Ray et al 2008). Cross-national evidence shows clearly that parental leave should have a high rate of compensation, be an individual entitlement and be flexible, if fathers are to use it (Lewis and Campbell 2007).

On the level of the individual, parental leave should be seen as part of individual circumstances during a particular period in one's life, namely the early years of parenthood. Recognising these circumstances as individual should inform policies to empower people to use their time in their own way with a view to achieving what they think is a good life (including employment and other activities and also relationships and activities with their children) (Deven and Moss 2002).

Maternity, paternity and parental leave on their own are not a panacea; they can work together with other instruments, notably state-subsidised day care, to ensure that women do not sacrifice child-bearing for the purpose of remaining active in an increasingly competitive labour market. School scheduling in accordance with working hours, family leave, after-school services, flexible parental leave, working time spreading over a number of flexi-years, but also flexibility of place (home or workplace or somewhere else) and flexibility of contractual conditions, all can be used as devices to maximise people's control over their working and family lives (Pascall and Lewis 2004, Tang and Cousins 2005).

Social integration processes in the EU are facing conflicting policies between member states' legislation and EU directives. A possible welfare scenario would be a levelling-up of various national welfare states to simulate the advanced Nordic welfare model (through exchange of ideas and practices, as well as pressures from the European Commission (Henderson and White 2004).

All member states have a policy agenda for employment and the family, but more holistic policy approach is required to address both the care and the work sides. Parental leave provisions and day-care arrangements are considered the most important pillars of childcare policies.

If care is a universal human need (Nussbaum 2003), then it should be possible for anyone to be able to exercise this choice, which in turn presupposes adequate wages, generous family policies and secure work and family conditions. The nature of the policy package (which needs to combine childcare and parental leave) and the parameters of male and female entitlements, compensation rate and duration should be considered carefully for genuine choices regarding paid and unpaid work and care to be materialised (Lewis 2006, 2009), as the way a policy is shaped often determines whether it can be taken (Hobson et al. 2010). The politics of time and money are also a considerable dimension to be looked into (Lewis and Campbell 2007).

Clearly the need to support families will persist and, if anything, will become increasingly important under the contemporary conditions of low fertility. There might be risks of many sorts, not least economic, in the attempt to provide suitable arrangements for families to be supported. However, the biggest risk of them all might be that 'you cannot support the family if there is no family to support and the only way to encourage women to have children is by making it easier and not more difficult to balance work and family life' (Saxonberg and Szelewa, p.372).

It is in the best interests of children if mothers take a substantial leave of 12 months. Fathers are not as likely to take up parental leave, so, as Lewis puts it, 'it is arguably a pragmatic policy decision in the interests of children at present to focus work/family balance policies on women, rather than men' (Lewis 2009, p.198). Reconciliation policies for women provide a way of both maintaining informal care and of promoting labour market re-entry and they are easier to implement than policies addressing fathers.

The imposition of a common model across the EU might be futile, due to the mosaic or practices, institutional traditions, attitudes and behaviours. However, achieving common denominators and guaranteeing social minima, such as a longer maternity leave, are both a realistic prospect and a socially beneficial one in terms of the organisation of family and work in meaningful, economically viable, healthy, child-friendly, balanced and gender-equitable ways.

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EUROPEAN PARLIAMENT

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT C: CITIZENS' RIGHTS AND CONSTITUTIONAL AFFAIRS

GENDER EQUALITY

FULLY PAID PATERNITY LEAVE OF 2 WEEKS
- Impact Assessment -

STUDY

Abstract

The background for this Impact Assessment is the Commission's proposal for a Directive of the European Parliament and of the Council amending Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers, as well as workers who have recently given birth or are breastfeeding. The Women's Rights and Gender Equality Committee has proposed several amendments to the Commission's proposal, and has requested a medium term ex-ante impact assessment of the introduction of a fully paid paternity leave of two weeks in ten EU Member States.

PE 425.630 EN

This document was requested by the European Parliament's Committee on Women's Rights and Gender Equality.

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LINGUISTIC VERSIONS
Original: EN
Translation: FR

ABOUT THE EDITOR
To contact the Policy Department or to subscribe to its newsletter please write to:
poldep-citizens@europarl.europa.eu

Manuscript completed in September 2010.

This document is available on the Internet at:
http://www.europarl.europa.eu/studies

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CONTENTS

ABBREVIATIONS

GDP : Gross Domestic Product
IA : Impact Assessment
LFPR : Labour Force Participation Rate
NPV : Net Present Value

1. INTRODUCTION

The background for this Impact Assessment (IA) is the Commission's proposal for a Directive of the European Parliament (EP) and of the Council amending Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers, as well as workers who have recently given birth or are breastfeeding. The Women's Rights and Gender Equality (FEMM) Committee has proposed several amendments to the Commission's proposal, and has requested a medium term ex ante IA of the introduction of a fully paid paternity leave of two weeks in different EU Member States (in the following referred to as "member states").

The IA has been prepared by Ramboll Management Consulting according to the provisions of the framework contract IP/A/ALL/FWC/2006-105, LOT 2. The IA has been conducted on the basis of the Terms of Reference and the information received through e-mail correspondence and telephone conversations with the Policy Department C, "Constitutional affairs and Citizens' Rights", European Parliament.

1.1. Aim and scope of the study

The IA shall determine the economic and social costs and benefits of introducing the said provision for the employees, employers, governent budgets and society as a whole in ten member states:

- Belgium
- Denmark
- Estonia
- France
- Germany
- Hungary
- Poland
- Spain
- Sweden
- United Kingdom

Eight of these member states[1] were subject to a study on the costs and benefits of options to improve provisions for the reconciliation of work, private and family life; a study ordered by the European Commission in 2008 and prepared by a consortium of COWI and Idea (provided in electronic version). In the Terms of Reference the study was referred to as a possible basis for this current report and was made available to Ramboll Management Consulting. In the following, this report is referred to as "the 2008 report".

1.2. The applied approach

As mentioned, the IA will determine the costs and benefits of introducing the proposal to the employees, employers, government budgets and society as a whole. These costs and benefits will depend on the exact way the proposal is implemented in line with existing national schemes.

[1] Belgium, Denmark, Estonia, France, Hungary, Poland, Spain, and the UK

As a first step, the baseline situations in each of the ten member states are outlined, and the assumptions regarding the implementation of the proposed changes in the paternity leave schemes will be described. This establishes a common basis for the assessment and estimate of qualitative and quantitative benefits and costs of the revisions.

As mentioned in the 2008 report, the nature of the costs and benefits differs considerably. It is possible to estimate and quantify the costs per member state, provided that the necessary assumptions are established. However, the benefits are more difficult to identify and quantify.

As in the 2008 report, the economic costs are identified as the value of the loss of production when the period of leave is extended, as well as by the tax distortion resulting from increased public expenditures, financed by increased taxes.

In order to compare costs and benefits across member states, a simplified scoring system was applied in the 2008 report, i.e.:

- Gender equality at work
- Gender equality at home
- Child development and health
- Parent health
- Fertility
- Participation of women in the labour market

The same scoring system has been applied in the current study. Minor deviations are made in only a few instances.

1.3. Structure of the report

After the introduction, the baseline situations and proposed changes as a result of the proposal in each of the member states are presented. In chapter 3, the qualitative impacts are assessed, and the quantitative, economic and financial effects for employees, employers, government budgets and society as a whole are presented in chapter 4. The qualitative and quantitative impact estimates are established on the basis of the descriptions of baseline situations and the assumptions concerning the implementation of the proposed amendments to the Commission's proposal. Finally, after summarising and comparing the results of the quantitative estimates and the qualitative assessments, the conclusions are presented in chapter 5.

2. BASELINE SITUATIONS AND PROPOSED CHANGES

In the following, a brief description of the current situations concerning paternity leave and take-up rates are given for each of the ten member states covered by the study. The descriptions also include information on existing parental leave schemes that may affect the implementation of the proposed amendments. The descriptions are based on information gathered from the 2008 report, official national websites, and telephone and e-mail correspondence with contact persons in each of the ten member states. In addition, contributions forwarded by the Policy Department from the member states have been received and taken into consideration in relation to the description of the baseline situations and the study in general.

Based on descriptions of present situations in the ten member states, the expected implications of the proposed amendments and the assumed implementation patterns are outlined as a basis for the assessment of benefits and costs.

In some instances, the patterns of implementation for the proposed paternity leave scheme might be affected by the combination of existing paternity, maternity, and parental leave schemes. This is due to the fact that several options are available for the member states to pursue. The implications include increased period of leave, increased compensation levels, financing, as well as the impact on the future take-up rate, as described in the following.

The described baseline situations and assumptions regarding the implementation of the proposed new paternity leave scheme in each of the ten member states will form the basis for the assessment of benefits and costs.

2.1. Belgium

A 10day paternity leave is available for fathers employed in the private sector. No paternity leave is available for public sector employees.

Paternity leave is fully compensated by 100% of wages for the first 3 days, and by 82% of wages to a ceiling for the remaining days. The ceiling is currently regulated, and the average compensation, estimated at 73% in the 2008 report, has also been applied in the calculations here.

The full compensation during the first 3 days is paid by the employer, and the lower compensation during the remaining 7 days is paid by the state.

The take up rate is about 70%.

The consequence of the current proposal will be an increased compensation from the present average of 73% to 100%. As Belgium has mixed financing with public and private contributions, the increased compensation under an improved scheme may be financed by the state or by the employers, or it may be shared between the two in multiple ways. Public sector financing is the main assumption, but the consequences of both options will be determined.

2.2. Denmark

In Denmark, the length of paternity leave is 2 weeks.

The compensation is 90% of salary with a ceiling of 100 EUR per week. This compensation is paid from the public budgets, but a supplementary compensation ensures a full compensation for the period of paternity leave for part of the labour market, depending on collective agreements between trade unions and employers' organisations. According to the 2008 report, the compensation was on average 66% for the labour market as a whole.

A relatively large number of fathers, estimated at 89% in 2008, made use of the scheme.

The consequence of the current proposal will be an increased compensation from the present average of 66% to 100%.

The increased compensation is assumed to be financed by the state This will be in line with the current system, where the overwhelming majority of the compensation is paid by the state, with no legal obligation for payment by employers. The consequences of leaving the full burden of a higher compensation on the employers will also be determined.

2.3. Estonia

The length of paternity leave, in Estonia is 2 weeks.

There have previously been fluctuations in the compensation rates for the paternity leave scheme. In 2007, it was 66 Krooni (4.2 EUR) per day (about 20% compensation), and in 2008 and 2009 it was 100% compensation. Today, in 2010, it has returned to 4.2 EUR per day (or 126 EUR per month, equivalent to about 15% of earnings). It is expected, however, to be back at 100% compensation from 2013 onwards.

The proposal will affect 2011 and 2012 only. From 2013, the economic effects of the EU provision will be zero, as it is assumed that Estonia will, independently of the proposal, offer full compensation from this year.

The paternity leave is paid by the Health Insurance Fund, which is financed by employer contributions of 13% from the payroll. The take-up rate was 14% in 2006 and 2007, but in 2008, when the paternity leave was fully compensated, the take-up rate rose to 50%.

The proposed scenarios will have a limited, preliminary effect in Estonia, as there are already plans for a fully compensated paternity scheme in 2013. In practise, it will therefore have no effect in Estonia.

2.4. France

The paternity leave in France is a total of 11 days to be taken on consecutive days within 4 months after birth.

On average, the compensations are about 72%. They are paid by the Caisse Primaire d'Assurance Maladie, which is a tax-financed public fund.

The take-up rate is estimated at 70%.

The consequences of the current proposal are assumed to be increased compensation from the present average of 72% to 100%, paid by the same public fund that finances the existing leave compensations. The take-up rate is assumed to remain unchanged.

2.5. Germany

Germany has no specific paternity leave. A two month parental leave however, is available for parents during the first 12 months after birth.

A 67% compensation rate is available for both men and women, to whichever one makes use of the parental leave. The compensation is at least 300 EUR, with a maximum of 1,800 EUR per month. The average compensation is about 996 EUR per month (net of taxes and social security), corresponding to a compensation of about 50%.

The compensation is paid by a tax-based public fund.

The take-up rate for men in the parental leave is only 18%. A specific paternity leave with individual rights and a higher compensation rate may attract more fathers to such a scheme.

The proposal concerning paternity leave will imply the implementation of a new paternity leave scheme with 100% compensation. The parental leave scheme is assumed to continue unchanged. The take-up rate for the paternity leave scheme is assumed to be 70%. The compensation is assumed to be financed by tax-based public funds similar to the parental leave scheme.

2.6. Hungary

In Hungary, paternity leave amounts to a total of 5 days.

Compensation is 100% of salary and paid by the National Health Insurance Fund via employer (32%) and employee (68%) salary contributions. Compensation for the uninsured is financed directly from the state budget.

The take-up for the paternity leave in Hungary is estimated at 20 - 25% in 2008 and 2009. It will be assumed in the calculations that the take-up rate will remain at this level, 25%.

The consequences of the proposal concerning paternity leave will be an increased length of the paternity leave from 5 days (1 week) to 2 weeks. The take-up rate is assumed to be an unchanged 25% in the period considered. The increased costs for the longer period of leave including full compensation are assumed to be financed by employers (32%) and employees (68%), as under the current scheme.

2.7. Poland

A one week paternity leave scheme was introduced in Poland by January 2010, and will be extended by one additional week in 2012. The compensation rate is 100%.

The leave is financed by the Social Security Fund (ZUS), which is funded by employer (47%) and employee contributions/public funds.

Previously, part of the maternity leave could be transferred to the father, but less than 1% of the potential beneficiaries made use of this. It is therefore difficult to estimate the future take-up rate among fathers, but the introduction of individual rights and a designated paternity leave scheme may encourage the development towards a pattern closer to that of other member states.

The proposed amendments concerning paternity leave will not have any consequences for Poland, as a paternity leave scheme offering 2 weeks of fully compensated previous earnings will be in place by early 2012.

2.8. Spain

There is a 2 week paternity leave in Spain. The length of paternity leave will increase to 4 weeks in 2011.

In addition, up to ten of 16 weeks maternity leave in Spain may be transferred to the father. There is also an individual period of unpaid, parental leave (3 years) available for both parents, but very few make use of this.

The compensation is 100% without a ceiling.

The schemes are financed through contributions to the Social Security Fund by 4.7% of employee salaries and 23.6% of salaries paid by employer.

The take-up rate for paternity leave has recently been estimated[2] at 56%. This seems low, taking the full compensation into account, but is explained by various cultural and socio-economic barriers.

The proposal does not imply any changes to be made in Spain, as the proposed minimum standards are already in place.

2.9. Sweden

Designated maternity or paternity leave schemes do not exist in Sweden. Instead, a parental leave system provides practically the same rights for both parents. The mother and father are both entitled to 240 optional days of parental benefit (in total 480 calendar days). 60 of these calendar days are reserved for each parent, while the other days can be transferred to the other parent provided that the first 60 days have already been used. Parents with sole custody are entitled to all 480 days. In addition, the father has another ten optional nursing days at his disposal.

A compensation of 80% of salary with a ceiling of 44,300 EUR per year for the first 390 days is followed by a fixed compensation of 18.8 EUR per day for the remaining 90 days. The paternity leave scheme compensates an average of 72.6% of father's previous earnings, but collective agreements often provide supplementary pay during a certain amount of time, varying depending on sector from 3 to 11 months. Many employees therefore receive 90 percent of their former salary during, at least part of, their parental leave.

The parental benefit scheme is part of the Swedish Social Security scheme which is financed with the social security charges, paid to the government by employers.

The take-up rate for fathers is high; however it has not been possible to establish a calculated figure. Statistics show that 48% of all fathers with at least one child between 0 and 8 years old had received leave compensation at some point in 2009. This shows that the use of the parental leave is very high, and it may be assumed that it is in the region of 90%. No documentation for this figure exists but the estimate has been confirmed as a realistic figure by our Swedish sources.

[2] Anna Escobedo in Moss P. and Kocourkova, J. (eds): International Review of Leave Policies and Related Research (to be published) 2010. Employment relations Research Series, Department for Business Enterprise and Regulatory Reform, UK.

The immediate consequences of the proposal will be an increased compensation from the actual 72.6% of previous earnings to 100%. This is assumed to be financed by social security charges considered as an income tax.

For the calculations, the non-transferable period of parental leave reserved for each parent is used as the basis for which the extra cost for implementing EU minimum schemes is calculated.

2.10. United Kingdom

In the UK, men are entitled to a two week period of paternity leave. From 2011, part of the maternity leave may be transferred to the father if the mother returns to work after six month of maternity leave.

From April 2010, the father is compensated with a standard amount of 150 EUR per week. This corresponds to a compensation rate of about 20%.

The paternity leave compensation is paid by the employers, however about 93% is subsequently reimbursed by the state.

The take-up rate is currently at 79%.

The existing scheme already meets the requirements concerning the length of the period of leave, and the consequences of the proposal concerning paternity leave will be an increased compensation. The higher compensation rate from 20% to 100% is assumed to increase the take-up rate from 79 to 90%. The funding is assumed to follow the financing of the existing scheme, i.e. 93% statefinanced and 7% employerfinanced.

2.11. Summary of baseline situations and expected changes

The main characteristics, expectations, and proposed assumptions concerning increases in the lengths of paternity leaves, increased compensations and take-up rates as described in the previous sections are summarised in the following table.

The increases in the length of the leave periods for the proposal are listed in the first column, and the foreseen developments in compensation levels are shown in the second column. Finally, the table indicates the current and expected future take-up rates.

Table 2.1 Summary of baselines and expected changes in response to the proposal

Paternity leave	Increased length of paternity leave (weeks)		Existing and increased compensation levels		Existing and increased take-up rates (A/B)	
	Baseline	Expected	Baseline	Necessary increase	Baseline	Expected
Belgium	2	2	73%	+ 27%	70%	70%
Denmark	2	2	66%	+ 33%	89%	89%
Estonia	2	2	100%	0%	50%	50%
France	2	2	72%	+ 28%	70%	70%
Germany	0	2	50%	50%	18%	70%
Hungary	1	2	100%	0%	25%	25%
Poland	2	2	100%	0%	1%	50%
Spain	2+	2+	100%	0%	56%	56%
Sweden	2+	2+	73%	+ 27%	90%	90%
United Kingdom	2+	2+	20%	+ 80%	79%	90%

Note: For Germany and Sweden, the indicated compensation and take-up rates are estimated parameters for men under the paternity leave schemes.

3. QUALITATIVE IMPACT ASSESSMENTS

An assessment of the qualitative benefits will be presented in this chapter, followed by a quantification of the benefits in terms of a scoring of qualitative changes.

In economic cost-benefit analysis, benefits are usually measured in terms of willingness to pay for the improvements under the study, or estimated by other similar methods. The idea is to include the economic value to those directly involved as well as to others in society. In this case, the take-up rates provide some information on the value of the leave to the beneficiaries. Low take-up rates are a sign of a low perception of value among the beneficiaries. However, more information would be needed to get a full picture of the perceived value of the compensation to beneficiaries, e.g. by conducting a survey among parents.

In addition, a number of external benefits may include the benefits to the children and to society at large, such as the possible impacts on gender equality, health and fertility. may influence the perceived value of the compensation.

As in the 2008 report, this study does not attempt to make a full assessment of all benefits of changes in the paternity leave schemes. The qualitative assessment will focus on a number of qualitative benefits that are judged and scored with the aim of comparing the positive impacts to the net economic costs, as well as comparing costs and benefits among the ten member states included in the study.

The aspects considered as important benefits to the citizens and society of changed paternity leave schemes are the same as considered in the 2008 report, namely the following:

- Gender equality at work
- Gender equality at home
- Child development and health

- Parent health
- Fertility
- Participation of women in the labour market

The 2008 report was based on a study of available research literature in the respective field.

In the following, the main conclusions on the potential qualitative benefits of changed paternity leave schemes and main principles of the applied scoring system in the 2008 report are briefly presented (alongside the scoring of selected states of paternity leave schemes). The scoring system will be used as a basis for assessing the benefits for comparison with the cost estimates of the proposed changes in the paternity leave schemes.

a. Gender equality at work is mainly affected by the **individual entitlement** and the **compensation rate**. Individual rights to the father and a medium compensation is given a medium score, whereas individual rights and full compensation is given a high score.

b. Gender equality at home, according to the 2008 report, may be positively affected by **individual entitlement** and **high compensation** rates for men, but the impact is assumed to be **limited**. It has only been rated a low score.

c. Child development and health may be affected by changes in the paternity leave schemes. The 2008 report assumes that **fathers' individual rights** and **full compensation** through a **higher take-up rate** lead to early bonding, which again is assumed to increase child welfare. This is given a medium score.

d. Parent health may be affected by **the existence of a paternity leave scheme** through a short-term reduction in stress. This is given a medium score.

e. Fertility is in the 2008 report assumed to be **unaffected** by paternity leave schemes.

f. Impact on women's labour force participation was not assessed in the 2008 report. The assumed impact of paternity leave schemes on **gender equality at work and at home** points towards a positive, albeit small, impact on women's labour force participation rates, mainly stemming from **individual entitlements** and the **rate of compensation**.

Based on the findings from the 2008 report, the most important factors for the various aspects are the compensation rates and the individual entitlement and rights for the father which will also be reflected in the estimation of qualitative benefits below.

In order to follow these principles as closely and transparently as possible, the following scoring grid has been developed. Weights of 1, 2, or 3 are assigned to the main characteristics of the proposed changes. The sum of assigned weights is transformed into a total score by dividing the achieved weights by the maximum possible figure.

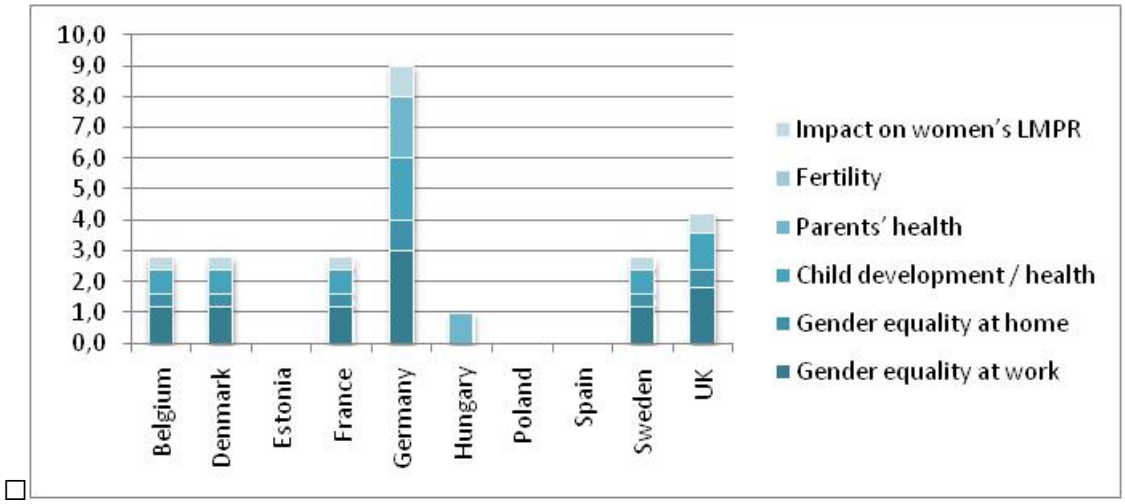
Table 3.1 Scoring grid – qualitative impacts

	Increased compensation rate	Given individual rights to fathers	Increased length of paternity leave, weeks	Weights	Max point
Gender equality at work	From 75-95%	-	-	1	3.0
	From 50-74.9%+	+/-	-	2	
	From 0-49.9%	-	-	3	
Gender equality at home	From 75-95%	-	-	1	1.0
	From 50-74.9%+	+/-	-	2	
	From 0-49.9%	-	-	3	
Child development / health	From 75-95%	-	-	1	2.0
	From 50-74.9%+	+/-	-	2	
	From 0-49.9%	-	-	3	
Parent health	-	-	From 0	2	2.0
			From 1	1	
Fertility	-	-	-	0	0.0
Impact on women's LFPR	From 75-95%			1	1.0
	From 50-74.9%+	+/-		2	
	From 0-49.9%			3	

By using "Gender equality at work" as an example, it is possible to get a weight 3 in the category "better compensation", and a weight 2 in the category "fathers' individual rights". This creates a maximum total of 5. For a country like Belgium, the compensation level increases from 68% to 100%. This gives a weight of 2. As Belgium has already a paternity leave scheme with individual rights to the father set in place prior to the proposal, additional weights are not given. The total number of achieved weights is thus 2 out of the possible 5, and the total score is 2/5 of the maximum of 3, or 1.20.

The scores are calculated on the basis of the description of the baseline situations and on the expected direct consequences of the proposal in the member states. The results are shown in the chart below. The values do not reflect the size of the member states and shall therefore be seen as economic benefits per birth. In order words, they should be compared to the costs per birth rather than the net present values of total economic costs at the macro level.

Chart 1: Estimated qualitative benefits of the proposed changes to the paternity leave schemes



Source: Rambøll Management Consulting

If the proposal is introduced, the benefits will be the highest in Germany, where there is currently no paternity leave, and in the UK, where the compensation rate is low. Increased compensation rates lead to lower benefits in member states like Belgium, Denmark, France and Sweden, and the modest improvement in Hungary is the result of a longer period of leave under the proposal.

The details of the benefit estimates are given in Annex 2.

4. QUANTITATIVE IMPACT ESTIMATES

4.1. Applied methods and scope of calculations

The estimated quantitative effects are the monetary costs and benefits to the various stakeholders of the proposed fully paid 2 week paternity leave. They will be estimated in relation to the following main stakeholders:

- employees who will receive increased compensation payments and childcare expense savings,
- employers who may be affected by increased payments for paternity leave compensation,
- the government budget that will have to pay its part of compensation payments as public authority and as employer, depending on the funding model. On top of this, the public sector may receive some of the savings concerning childcare,
- society as a whole, which includes the above-mentioned impacts, as well as the resulting production loss of longer paternity leave periods and the economic costs of tax distortion. These will be further described in the following.

The calculations include only the above-mentioned initial, first-round effects. Second-round derived effects, such as increased taxes, turnover and employment as a result of increased

earnings, further impacts of increased tax rates to finance higher government budgets, or demographic effects are not included in the calculations.

The compensations paid to the leave beneficiaries are income transfers and are therefore not included in the estimation of costs and benefits to society. They are costs to the public sector or to the employers, but at the same time they also constitute a corresponding benefit to the beneficiaries, and the overall net effect is zero. Still, they will be part of the impact on public budgets and on employers' expenditures.

The direct cost elements are further described below.

4.2. Production losses

The production losses occur as a result of a longer period of leave. They are measured as the average labour costs per day, which are assumed to be the best estimate of the marginal value of one working day. The labour costs per birth are then estimated by adjusting for labour force participation, employment, and the percentage of fathers making use of the leave scheme, i.e. the take-up rates. The costs cover only the estimated paternity leaves held, but they are estimated per birth (total number of children born) in order to be able to determine total figures on the basis of birth forecasts.

In order to get a more precise estimate of the production loss per birth, it is also adjusted for the possible substitution on the workplace or in society as a whole. When a person's paternity leave starts, he may be substituted by another person who might otherwise have been unemployed. If this happens, there may not be any production loss. The situation and the practises vary by sectors of the economy and by types of jobs. Some jobs, such as teachers, will have to be replaced by a successor or a temporary staff. This means a 100% substitution and no production loss if substitutes are available, and the unemployment will in such cases be reduced by the total length of the paternity leave.

In other jobs where the duties are not so clearly defined, the employer may seek to do without the person for the duration of the leave. This may result in a busy period for the remaining staff and there will be various different ways to respond to this. Paid overtime may be increased, members of staff may be moved between departments, or activities may be reduced for the period in question. If activities are reduced, the consequence may be a transfer of activities to competitors who may temporarily increase their staff. If this is the case, a substitution will take place, but outside the workplace of the leave beneficiary. Only to the extent that (1) the external substitution implies moving activities to competitors abroad, (2) the issue of capacity is resolved by increasing the activity level of existing staff, or (3) the replacement staff is less productive than the staff on leave, will the effective substitution be considerably lower than 100%.

The description of the substitution process shows how difficult it is to estimate the average level of substitution. However, it also shows that the substitution will appear to be higher when the broader view is taken and that conclusions cannot be made at only the workplace level.

As a starting point, the 2008 report assumed that there is no substitution for men on paternity leave as the two week period is often considered as too short for replacements. It was also mentioned that the assumptions concerning substitution were "connected with much uncertainty", and a sensibility analysis was made to illustrate the sensibility of the results to this parameter.

In the 2008 report, two parallel calculations were therefore made based on substitution rates of both 0 and 30%. The same methodology will be used in the present report. A broader range of variation could be chosen, but the calculations based on assumptions of 0 and 30% substitution will indicate the relative importance of the substitution rate for the final results.

4.3. Tax distortion costs

The second part of the estimated economic costs is that of tax distortion. This occurs as a consequence of the increased need for public financing and due to the fact that public financing through income taxes distorts the market and reduces social benefits. The tax distortion costs are the economic costs resulting from an increase in the funding of government expenditures by income taxes. They are also called the marginal excess burden of taxation and reflect the costs in excess of the taxation itself that taxpayers bear as a result of increased taxes.

The tax distortion costs are determined as 20% of the increase in government budget impacts, for example the increased compensation payments as compared to the existing compensation period and rate. This is in line with the 2008 report, where this cost category is introduced. It is inspired by the practises in economic cost-benefit analyses in various countries such as Denmark, Norway and the US. The cost of tax distortion has been estimated in various international studies, at about 20%. The recommended tax distortion cost in cost-benefit analysis has been 20% of government budget increases in Denmark and Norway, and a 25% cost has been applied in the US[3].

The increased government budgets include higher payment of benefits in terms of income compensation to the father making use of new or extended paternity leave schemes. Increased payments to paternity schemes by public funds, to the extent they are financed by tax-like contributions from citizens, shall also be considered as a public budget impact. However, impacts on taxes from income reductions (or increases) shall not be seen as a subject for tax distortion costs, even if the resulting lower tax incomes will have to be replaced by higher taxes somewhere else. The net effect on taxes and tax distortions from such two developments will be zero.

4.4. Case calculation: Denmark

In order to illustrate the details of the cost estimation, the calculations of the costs of paternity leave are shown in the following case. The introduction of the proposal in Denmark with an applied substitution rate of 0% has been used here as an example.

Denmark currently has a two week period of paternity leave. The average compensation rate is 66% (including 100% compensation to public sector employees). In addition, it has a 32 weeks parental leave scheme under the same conditions.

[3] In some countries and some cost-benefit analyses, this cost category is instead included indirectly by increasing the discount rate (the applied interest rate), which does not give the same result, but in cases of large public investments, the results of the two approaches are very similar. It will be inappropriate in this study for two reasons. Firstly, changes to the paternity leave schemes result in a mixture of private and public, tax-financed costs, and secondly, the results shall also be seen as annual costs and benefits, not only as the net present value of costs and benefits over a long period. When annual figures are considered, a higher discount rate, however, will not have any impact.

Production loss

The first key figure is the production value per person, calculated using the monthly labour costs of 5,057 EUR or 1,167 EUR per week.

Next, the share of active and employed fathers and those who choose to take the paternity leave is calculated. This is done by multiplying the activity rate of 92% (the percentage share of men at 25-54 years that are in the labour force) by the employment rate (1 minus the unemployment rate) of 95%, and the take-up rate of 89%. This shows that 78.0% of all fathers take the paternity leave.

A substitution rate of 0% is applied here. This means that the production loss will be equal to the production value (the labour costs) of all the 78% of fathers taking leave. If instead, the substitution rate was 30%, this share of fathers who make use of the paternity leave, would be substituted in their jobs and the production loss would be reduced correspondingly.

Table 4.1 Calculation of production losses

Calculation of lost production value per birth in Denmark	
Labour costs/month, EUR (a)	5,057
Labour costs/week, EUR (b)	1,167
Activity rate (c)	92.4%
Employment rate (d)	94.8%
Take-up rate (e)	89.0%
Share of fathers taking leave (f=c x d x e)	**78.0%**
Substitution rate (g)	0.0%
Production loss pct. per birth (h=f x (1-g))	78.0%
Production loss/week per birth, EUR (i = b x h)	910
Number of weeks added to the paternity leave (j)	0
Production loss per birth according to the new proposal, EUR (k= i x j)	**0,00**

A birth is here defined as the number of mothers delivering one or several babies.
Source: Rambøll Management Consulting

With a production value per person per week of 1,167 EUR, and with 78% of fathers taking leave from a job where none of them are substituted, the production loss will be 78% of 1,167 EUR, or 910 EUR per average birth. If the activity rate was lower or the substitution rate higher, the loss per birth would be less due to the fact that a lower percentage share of fathers would leave a job without substitution.

The total production loss per birth, per week of paternity leave, (910 EUR) is multiplied with the number of births and with the total number of weeks with which the paternity leave is extended. In the case of Denmark the latter is zero, which means that there will be no production loss as a result of the requirements of the proposal.

If there was an extension, for example of one week, the production loss per average birth would be 910 EUR. This should then be multiplied with the total number of births to get the production loss per year for the whole country.

If improvements of the paternity leave scheme led to an increase in the take-up rate, the production loss for the increased number of fathers taking leave for the entire two week period should be added.

Public expenditure and tax distortion

The second element in the analysis is the calculation of the public expenditure and the costs of tax distortion from the implementation of a changed paternity scheme. The rationale behind this cost component is described above.

As the period of leave is unchanged in this case, the public expenditure will only be the additional compensation payments over a two week period after the increasing average compensation rate from 66% in the baseline, to the 100% of the proposal. Both figures include 100% compensation to the public sector employees. The increase in public expenditure will be 34% of the average salary per person on paternity leave, or 920 EUR per week. This is multiplied with 78%, as only this share of men is active and takes leave. The average public expenditure per birth, per week is thus 265 EUR, which shall be multiplied with the number of weeks for which the increase is valid, i.e. two weeks. The resulting increase in public expenses for increased compensations is 529 EUR, and the estimated tax distortion costs over a two week leave are 20% of this (or 106 EUR) which is also the total economic cost per birth.

Table 4.2 Tax distortion cost calculation

Calculation of tax distortion costs per birth in Denmark	
Average wage per month, EUR (l)	3,985
Average wage per week, EUR (m=l x 12/52)	920
Compensation rate before (n)	66%
Existing leave period, weeks (o)	2
Share of fathers taking leave (f)	78%
increased comp. existing leave period per week (p= m x (1-n)*f)	265
Increased length of leave period (100%)	0
Total increased compensation per birth, 2 weeks (q=o x p)	529
Tax distortion per birth, 2 weeks, 20% of q	106

Source: Rambøll Management Consulting

In this case, public expenditures increased only as a result of a higher compensation rate. In other cases where the length of the paid paternity leave was increased, the full compensation per week must be added for the increased period. Similarly, if the take-up rate is supposed to be increased as a result of the changes, the full compensation for all 20 weeks is added.

Finally, if there is a contribution by the employers, the part concerning private sector employees must be deducted from the estimated public expenditure, and the tax distortion costs must be reduced correspondingly.

Total economic cost

The total socio-economic cost from increasing the compensation of the 2 week paternity leave from 66% to 100% is 106 EUR per birth. By multiplying this unit cost with the total number of births in a given year, the total economic costs are determined. As seen above,

the annual unit costs per birth have already taken into account that some are not in the labour force, some do not have a job, or will not make use of the paternity leave.

According to Eurostat, the forecasted numbers of children born in Denmark from 2011-2030 are as follows:

Table 4.3 Forecasted number of births in Denmark

Number of births per year, 2011 - 2030			
2011	62,434	**2021**	63,794
2012	61,699	**2022**	64,582
2013	61,132	**2023**	65,303
2014	60,785	**2024**	65,928
2015	60,666	**2025**	66,435
2016	60,775	**2026**	66,810
2017	61,099	**2027**	67,048
2018	61,613	**2028**	67,152
2019	62,263	**2029**	67,141
2020	63,004	**2030**	67,032

Source: Eurostat

The number of births as defined above (number of fathers and mothers)[4] is slightly less, as on average 100 children are born by around 98 mothers. This may vary over time and across countries, but it has been assumed that this relationship is the same for all ten member states considered.

To determine the economic costs per year for the period, the number of children born per year from 2011 to 2030 is multiplied with 98% and the economic costs per birth.

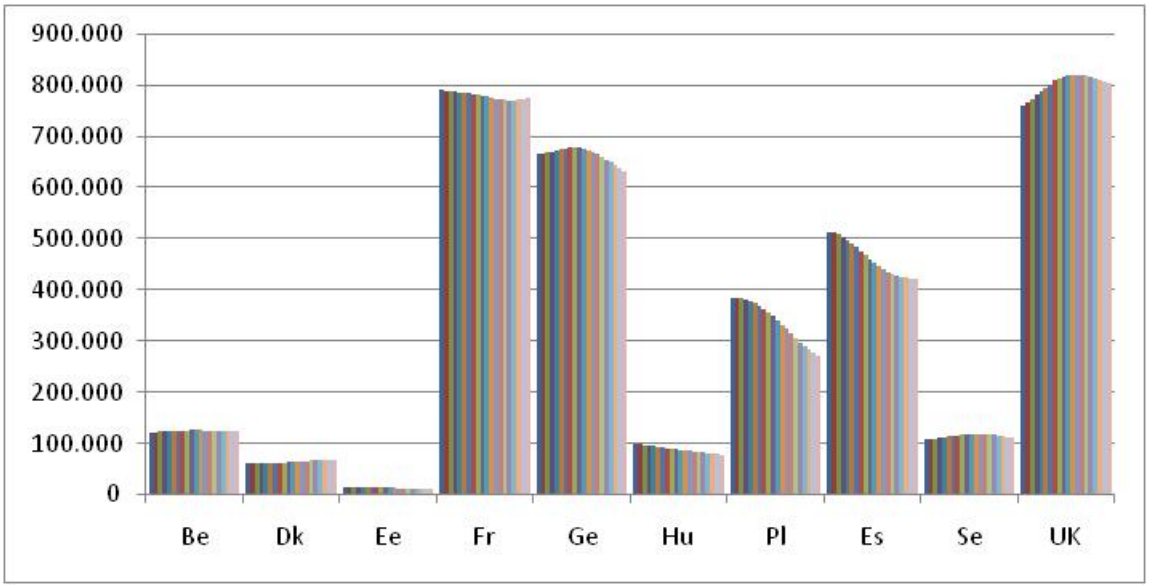
The net present value of total costs of the proposed changes in Denmark has been determined on the basis of the above calculations and by applying a real discount rate (economic interest rate in real terms) of 6% per annum for the period from 2011 to 2030. The discount rate, or the social discount rate, attempts to reflect the social view on how future benefits and cost should be valued against present ones. It may differ from the financial discount rate when the capital market is imperfect (which is always the case in reality)[5]. The European guidelines from 1997 recommended a 5% real discount rate, but were open for deviations. As there has been a trend towards higher economic discount rates since 1997, a 6% discount rate has thus been applied.

The discount rate is only important to the extent that the profile of costs and benefits varies over time among the projects and countries considered. The different profile among the ten member states is seen from the forecasted number of births (the number of children under the age of one), as illustrated below.

[4] Parents with sole custody have not been taken into account.

[5] European Commission, DG Regional Policy, Evaluation Unit (1997): Guide to cost-benefit analysis of investment projects

Forecasted number of children under the age of one, per member state 2011 - 2030



Source: Eurostat

The net present value of the economic costs is an expression of the value of the costs today. It may be compared to a bank account with a 6% real interest rate and with an amount corresponding to the net present value. This would be sufficient to pay the estimated annual costs year-by-year during the 20 year period.

The net present value of the economic costs of implementing the proposal in Denmark is thus estimated to be EUR 75 million for the 20 year period. This corresponds to an average annual cost of EUR 6.5 million. (The NPV of 6.5 million EUR per year over a 20 year period is 75 million EUR). The impact on public expenditure has been determined as a net present value amounting to EUR 375.4 million. This corresponds to an average annual cost of EUR 32.7 million.

4.5. Results of the calculations

The application of the described methodology and data to all countries provides a long list of impact estimates. The result is presented in tables 4.4 and 4.5 below and with further details in Annex 3. The key results are the following:

- The total benefit score for each member state as presented chapter 3 and Annex 2 are shown in the first line of tables 4.4 and 4.5. The interpretation is given in chapter 3. For each of the member states it indicates to what extent the proposal is good for gender equality, child and family health, and for the incentive for women to increase their labour force participation.

- Total economic costs per birth are the unit costs for each member state, calculated as the sum of 'production loss' per birth and tax distortion. This indicator is the best for comparing different sized member states. Noteworthy, the costs per birth are highest in Germany and the UK.

- Total economic cost per year is the result of the multiplication of the economic costs per birth and the average number of births per year in each member state.

Table 4.4 Main results of the Impact Assessment: Fully compensated 2 week paternity leave, 0% substitution

Benefits and costs of full paternity leave of 2 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Sweden	UK
Benefits	2.8	2.8	0.0	2.8	9.0	1.0	0.0	0.0	2.8	4.2
Value of production loss per birth	*0*	*0*	*0*	*0*	*1216*	*106*	*0*	*0*	*0*	*208*
Tax distortion costs per birth	*45*	*106*	*0*	*47*	*187*	*12*	*0*	*0*	*67*	*212*
Total economic cost, EUR pr. birth	45	106	0	47	1,403	177	0	0	67	421
Total economic costs per year, (mill. EUR)	5	7	0	36	917	16	0	0	7	329
Income from 1% increase in lmpr (mill. EUR)	1,081	569	29	5,494	7,140	251	953	2,724	925	5,933
NPV total economic costs as percentage of GDP	0,016%	0,029%	0,000%	0,019%	0,381%	0,169%	0,000%	0,000%	0,025%	0,210%
Compensation increase per birth	225	529	0	234	0	38	0	0	334	963
NPV total economic costs, (mill. EUR)	63	75	0	410	10513	180	0	0	85	3769
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	0	23	0	0	0	617
NPV: public expenditure (mill. EUR)	313	375	0	2,050	6,991	92	0	0	426	9,516

Table 4.5 Results of the Sensitivity Analysis: Impact Assessment: Fully compensated 2 week paternity leave, 30% substitution

Benefits and costs of full paternity leave of 2 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Sweden	UK
Benefits	2.8	2.8	0.0	2.8	9.0	1.0	0.0	0.0	2.8	4.2
Value of production loss per birth	*0*	*0*	*0*	*0*	*851*	*37*	*0*	*0*	*0*	*146*
Tax distortion costs per birth	*45*	*106*	*0*	*47*	*187*	*6*	*0*	*0*	*67*	*212*
Total economic cost, EUR pr. birth	45	106	0	47	1,038	43	0	0	67	358
Total economic costs per year, (mill. EUR)	5	7	0	36	678	4	0	0	7	280
Income from 1% increase in lmpr (mill. EUR)	1,081	569	29	5,494	7,140	251	953	2,724	925	5,933
NPV total economic costs as percentage of GDP	0.016%	0.029%	0.000%	0.019%	0.282%	0,041%	0.000%	0.000%	0.025%	0.179%
Compensation increase per birth	225	529	0	234	0	38	0	0	334	963
NPV total economic costs, (mill. EUR)	63	75	0	410	7,779	44	0	0	85	3,209
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	0	0	0	0	8	0	0	0	617
NPV: public expenditure (mill. EUR)	313	375	0	2,050	6,991	31	0	0	426	9,516

- Income from a 1% increase in women's labour force participation rate has been determined to illustrate what the possible effect of an improved paternity leave on women's activity rate should be to reach a balance between costs and benefits. This amount is independent of substitution rates and all other assumptions regarding the paternity leave. In all cases, it is seen that the annual costs are less than 10% of the value of a 1% increase in women's labour force participation. In most cases they are considerably lower. However, the possible link between a fully compensated paternity leave and the labour force participation of women, as mentioned in chapter 3, is weak and the low costs of the paternity leave as compared to the value of increased labour force participation should therefore not be taken as a strong argument.

- NPV economic cost is the net present value of total economic costs in real terms over a 20 year period, determined on the basis of a 6% discount rate. It is an expression of the total cost value today of introducing the proposal as suggested. The net present value of economic costs varies primarily with the size of the member states, and the highest figures are seen in the UK and France. The total economic costs are divided by the GDP of each member state to get the NPV as a percentage of GDP. This illustrates the size and importance of the costs as compared to the size of the respective economies. The percentage share of the national GDP is only 0.2% of GDP, or well below this level in most cases. It is also noted that in countries with increasing length of the paternity leave (UK, Germany and Hungary), the percentage share is lower, when the substitution is high.

- The increased compensation per birth is the total increased compensation to the individual father in connection with the proposed changes, determined per birth in the country.

- NPV employer cost and NPV public expenditure are the respective net present values of costs carried by the employers and the public sector. In a few cases, it is difficult to suggest how the funding of improved schemes will be shared; therefore a sensitivity analysis is made and presented below. The public sector expenditure is the tax-financed costs of the proposals, including the costs of the public sector as an employer. The employers' costs are estimated exclusive of the contributions by the public sector as an employer.

The calculations show that the costs per birth and per year vary significantly across countries. The member states with a scheme in place at the required level in terms of duration and compensation, and member states that can easily adjust to, and achieve, the proposed requirements of the proposal, show a zero or a low impact.

The tax distortion reflects a high public expenditure increase, typically resulting from improved compensation. The highest tax distortions per birth are seen in the UK and France. This element is affected by different assumptions concerning the division of costs between employers and the public sector. This is a result of the tax distortion costs resulting from the tax-financed part of the funding.

The loss of production value is the dominant economic cost in the member states that need to extend the period of paternity leave, whereas the tax distortion part of the cost follows the size of compensation as a result of increased compensation rates, resulting in higher take-up rates and an extended leave period. The highest loss of production is seen in Germany, where no paternity scheme exists today. Only three of the ten member states, Germany, France and Hungary will experience a production loss from the proposal.

The net present value of economic costs varies primarily with the size of the member states, with the highest figures seen in Germany, the UK, and France. The net present value as a share of the national GDP indicates the economic costs of introducing the proposed paternity scheme in relation to the size of the economies. They are relatively high in Germany (0.4%) and the UK (0.2%).

The NPV of costs to the employer varies according to the different funding schemes. Only employers in the UK and Hungary are expected to be affected.

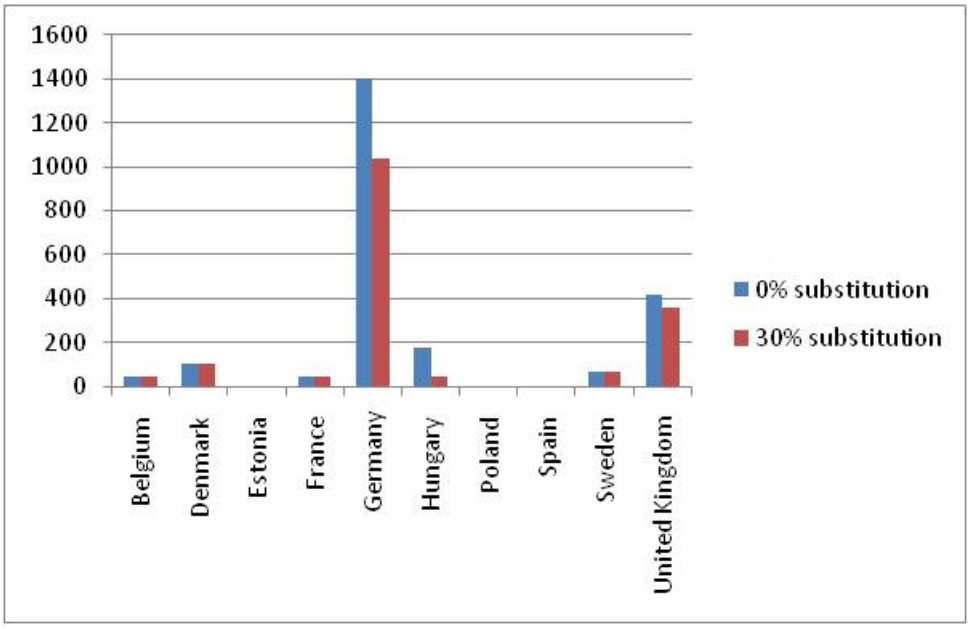
The NPV of public expenditures reflects the amount of total compensations paid by the public budgets. These figures are also affected to some extent by the size of the member states; the highest public expenditures for the proposed changes to the paternity leave scheme in absolute terms are carried by the UK.

4.6. Sensitivity to changes in substitution

The calculations have been made on the assumption of a substitution rate of 0% and 30%, and as mentioned above, there is a high degree of uncertainty in this parameter. The argument for the absent substitution rate in the main calculation is that the paternity leave is very short, and in many cases it will therefore not be possible to find another short-term employee as a replacement. However, it may still be argued that a replacement by temporary staff will be necessary in some jobs, and that even a short break could lead to the direct or indirect transfer of activities to competitors. This will not be seen as a substitution at the workplace, but for society as a whole, it is.

The consequences of using a substitution rate of 30% instead of 0 are shown in tables 4.4 and 4.5 above and in Annex 3. The economic costs per birth are shown for the two alternatives in the following chart.

Chart 4.1 Sensitivity: Economic costs per birth, 0 and 30% substitution



As all other assumptions are the same, only the parts of the results related to the substitution have changed. The production loss is lower when the substitution is increased, but the tax distortion and compensation expenditures are not affected. This means that the member states that will have a production loss in relation to the new paternity scheme, i.e. UK, Germany and Hungary that need to introduce or extend periods of paternity leave, would gain from a higher substitution rate. For these three member states an even higher substitution rate would further

reduce the economic costs of implementing the proposal, and as mentioned the uncertainty is considerable regarding this parameter.

4.7. Sensitivity to changes in the funding of expenses

The NPV of costs to the employer varies according to the different funding schemes, and they are only relevant for the UK and Hungary. This figure is somewhat uncertain as some social security funds are very close to the public sector and the contributions are often very similar to a tax payment. However, in the calculations such funds are considered as paid by the employer, with the exception of the parts paid by employees or from other public budgets.

In some cases, the pattern of funding and the extent to which the costs of an improved scheme will actually be tax-financed is uncertain. This is the case in Belgium and Denmark. In the first calculation, it has been assumed that all extra costs for compensation will be tax- financed in those two member states. By changing this assumption, the resulting tax distortion and hence the economic costs will be affected.

Table 4.6: Sensitivity analysis: Funding from taxes or employers

	Belgium		Denmark	
	Tax-financed	**Employer-financed**	**Tax-financed**	**Employer-financed**
Total economic cost, EUR pr. Mother	45	0	106	0
Total economic costs per year, (mill. EUR)	5	0	7	0
Income from 1% increase in Impr (mill. EUR)	1,081	1,081	659	659
Annual econ. costs as percentage of GDP	0.016%	0.000%	0.029%	0.000%
Compensation increase per birth	225	225	529	529
NPV total economic costs, (mill. EUR)	63	0	75	0
NPV employer cost excl. publ.sector empl.(mill. EUR)	0	313	0	375
NPV: public expenditure (mill. EUR)	313	0	375	0

Economic costs are reduced to zero in both cases by placing the burden on the employers. As there is no extension of the paternity leave in either of the two examples, there are no economic costs from production losses. Furthermore, since both member states pay full compensation to their public employees, there are no additional public expenditure and resulting tax distortion costs. The possible dynamics of the increasing costs of labour however, have not been taken into account.

5. CONCLUSIONS

The costs of the proposal vary considerably between member states, both in absolute figures and in economic costs per birth. This is a natural occurrence as long as the current status of the paternity leave schemes differ in the various countries.

For three member states, Estonia, Poland, and Spain, the proposals will not have any economic consequences as they already meet the required 2 week, fully compensated paternity leave.

Germany on the other hand will carry the largest economic costs. They will include both production loss from the introduction of a paternity leave scheme and tax distortion costs from the tax financed compensations. The same picture is seen in Hungary and the UK. For these

member states, a high substitution rate will considerably reduce the production losses and the economic costs.

The remaining four member states, Belgium, Denmark, France and Sweden will not experience any production losses, but increased public expenditures and hence tax distortion costs will result from the increased compensation rates.

The benefits have not been quantified in monetary terms. Scores have been given in chapter 3 to the various aspects of the qualitative benefits expected to be affected as a consequence of the implementation of the proposal in the various member states. The calculations showed that the implementation of the proposal will provide the highest benefits in Germany, where there is no paternity leave today, and in the UK, where the compensation rate is low. Member states with higher compensation rates (Belgium, Denmark, France and Sweden) will not benefit as much from the proposal.

The highest benefit scores are to be found in the member states with the highest economic costs per birth. This may be a sign that the resources to be spent on the proposal will be reflected in the resulting benefits.

The possible impact of the proposal on women's labour force participation is questionable, in particular when the short period of the paternity leave is taken into consideration, but an alternative comparison of costs and such potential benefits may be done by comparing the annual economic costs with the income from a 1% increase in the labour force participation rate of women. This potential benefit, which is given as an annual income, i.e. for only one year, is relatively large compared to the annual economic costs of public expenditures. This means that only a very minor impact would be required to cover the costs of the proposal. E.g. in the UK where the annual costs are estimated at 280 million EUR, the economic value of 1% increase in the labour force participation is 7,400 million EUR. This means that if the proposal leads to a 0.04% increase in the labour force participation of women, the economic costs would be covered. However, it is important to stress that we have no evidence or reason to assume that this impact, even if it is very low, would be possible to achieve.

ANNEX 1: STATISTICAL DATA

The calculations are mainly based on data from three sources:

1. Updated statistical data from Eurostat;
2. Information and data collected from the 2008 report;
3. Information and data collected through telephone interviews with resource persons from all 10 member states;
4. Contributions forwarded by the Policy Departments of member states.

Latest updates of Eurostat data were applied when possible, which is in line with the 2008 report. Eurostat data was used from the most recent available year. Data from different years have been used for different datasets, but not within the same data sample. For example, for monthly labour costs, the most recent available data for all countries was 2007 (even though some countries had published 2008 data, only 2007 data was used to ensure that results could be compared across countries). For the activity rates and unemployment figures, 2009 data has been used.

The main data from Eurostat is presented below:

Labour costs:

Monthly labour costs, EUR	2007	Gender pay gap
Belgium	4,171	9.0
Denmark	4,659	17.1
Estonia	1,006	30.3
France	3,983	19.2
Germany	3,892	23.2
Hungary	1,055	17.5
Poland	997	9.8
Spain	2,280	17.1
Sweden	4,677	17.1
United Kingdom	4,298	21.4

Source: Eurostat

Labour market activity rates

Labour force participation rates (25 to 54 years), pct. 2009		
	Females	**Males**
Belgium	79.2	91.8
Denmark	87.0	92.4
Estonia	83.9	91.9
France	83.6	94.4
Germany	82.5	93.4
Hungary	73.6	86.9
Poland	77.5	89.4
Spain	76.7	92.3
Sweden	87.1	92.8
United Kingdom	78.7	91.7

Source: Eurostat

Unemployment rates, males

Unemployment rate (25 to 54 years) – Males	
Pct.	**2009**
Belgium	6.1
Denmark	5.2
Estonia	14.5
France	6.8
Germany	7.2
Hungary	8
Poland	5.7
Spain	15
Sweden	5.9
United Kingdom	6

Source: Eurostat

Wages as percent of labour costs

Total wages and salaries as pct. share of total labour costs	2007
Belgium	68.7
Denmark	85.5
Estonia	73.6
France	67.2
Germany	76.7
Hungary	71.1
Poland	-
Spain	73.3
Sweden	66.2
United Kingdom	80.5

Source: Eurostat

Average monthly wages

Monthly average wages, gender gap adjusted, EUR per month, 2007		
	Men	Women
Belgium	2,994	2,737
Denmark	4,326	3,644
Estonia	853	629
France	2,934	2,420
Germany	3,331	2,639
Hungary	816	685
Poland	776	704
Spain	1,814	1,528
Sweden	3,360	2,831
United Kingdom	3,830	3,090

Sources: Poland: Central Statistical Agency, Poland, 2008.
Other member states: Own calculations on the basis of data from Eurostat.

GDP at market prices

Gross domestic product at market prices, millions of EUR, 2009	
Belgium	337,088
Denmark	222,731
Estonia	13,729
France	1,906,036
Germany	2,407,699
Hungary	92,780
Poland	309,407
Spain	1,050,540
Sweden	292,138
United Kingdom	1,564,410

Source: Eurostat

Total number of children at the age of 0

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Belgium	121,500	121,990	122,472	122,953	123,435	123,934	124,445	124,942	125,354	125,616
Denmark	62,434	61,699	61,132	60,785	60,666	60,77	61,099	61,613	62,263	63,004
Estonia	15,074	15,105	15,087	15,031	14,930	14,78	14,580	14,331	14,037	13,706
France	790,152	788,576	787,433	786,405	785,448	784,4	783,472	782,393	781,016	779,436
Germany	665,610	665,953	667,304	669,305	671,635	673,8	675,825	677,208	677,703	677,206
Hungary	98,981	97,982	96,898	95,698	94,476	93,23	91,992	90,801	89,731	88,703
Poland	382,490	383,797	383,715	382,150	379,161	374,8	369,492	363,176	356,068	348,323
Spain	511,853	510,860	508,060	503,594	497,700	490,7	482,994	474,944	466,911	459,194
Sweden	108,261	108,855	109,663	110,646	111,764	112,9	114,200	115,408	116,527	117,463
UK	761,054	766,708	773,186	780,161	787,477	794,8	801,967	808,248	813,364	817,131
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Belgium	125,690	125,567	125,295	124,936	124,539	124,1	123,783	123,487	123,254	123,093
Denmark	63,794	64,582	65,303	65,928	66,435	66,81	67,048	67,152	67,141	67,032
Estonia	13,345	12,975	12,609	12,262	11,936	11,64	11,411	11,210	11,057	10,951
France	777,613	775,677	773,780	772,076	770,863	770,3	770,608	771,645	773,392	775,663
Germany	675,636	672,993	669,333	664,833	659,813	654,4	648,869	643,300	637,846	632,532
Hungary	87,618	86,507	85,350	84,171	82,998	81,85	80,752	79,699	78,792	77,989
Poland	340,128	331,564	322,814	314,098	305,543	297,3	289,683	282,690	276,447	270,994
Spain	452,003	445,493	439,731	434,754	430,583	427,2	424,810	423,275	422,637	422,877
Sweden	118,157	118,521	118,504	118,092	117,288	116,1	114,840	113,397	111,981	110,730
UK	819,550	820,696	820,655	819,602	817,739	815,2	812,198	808,883	805,439	802,118

Source: Eurostat

ANNEX 2: SCORING OF BENEFITS

	Gender equality at work	Gender equality at home	Child development / health	Parents' health	Fertility	Impact on women's LFPR	Total
Belgium	1.2	0.4	0.8	0.0	0.0	0.4	2.8
Denmark	1.2	0.4	0.8	0.0	0.0	0.4	2.8
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	1.2	0.4	0.8	0.0	0.0	0.4	2.8
Germany	3.0	1.0	2.0	2.0	0.0	1.,0	9.0
Hungary	0.0	0.0	0.0	1.0	0.0	0.0	1.0
Poland	0.0	0.0	0.0	0.0	0.,0	0.0	0.0
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sweden	1.2	0.4	0.8	0.0	0.0	0.4	2.8
UK	1.8	0.6	1.2	0.0	0.0	0.6	4.2
10 member states, average	1.0	0.3	0.6	0.3	0.0	0.3	2.5

Source: Assumptions are described in chapter 3

ANNEX 3: QUANTITATIVE IMPACT ESTIMATION

Table A.2.1 Results of Impact Assessment: Fully compensated 2 week paternity leave, 0% substitution

Full paternity leave 2 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Sweden	UK
Labour costs/week	1,005.88	1,167.03	267.38	1,007.47	1,002.34	264.86	241.33	571.09	1,171.59	1,097.87
Average wage/week	691.04	998.28	196.84	677.12	768.79	188.32	179.14	418.61	775.36	883.90
Existing leave period (average)	2	2	2	2	0	1	2	2	2	2
Leave extensions, weeks	0	0	0	0	2	1	0	0	0	0
Activity rate	91.8%	92.4%	91.9%	94.4%	93.4%	86.9%	89.4%	92.3%	92.8%	91.7%
Employment rate	93.9%	94.8%	85.5%	93.2%	92.8%	92.0%	94.3%	85.0%	94.1%	94.0%
Take-up rate, present	70.0%	89.0%	50.0%	70.0%	0.0%	50.0%	50.0%	56.0%	90.0%	79.0%
Take-up rate, expected	70.0%	89.0%	50.0%	70.0%	70.0%	50.0%	50.0%	56.0%	90.0%	90.0%
Substitution rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Average compensation rate, present	73.0%	66.0%	100.0%	72.0%	50.0%	100.0%	100.0%	100.0%	72.6%	20.0%
Production loss per birth/week	606.95	909.81	105.05	620.47	0.00	105.88	101.72	250.91	920.78	747.61
Production loss from increased leave period/birth	0.00	0.00	0.00	0.00	0.00	105.88	0.00	0.00	0.00	0.00
Production loss from higher take-up rate/birth	0.00	0.00	0.00	0.00	1,216.29	0.00	0.00	0.00	0.00	208.20
Percentage of increase paid by employers	0%	0%	100%	0%	0%	32%	47%	0%	0%	7%
Tax distortion, 20%, EUR/birth	45.03	105.84	0.00	46.71	186.58	12.07	0.00	0.00	66.79	212.36
Total economic cost, EUR per birth	**45**	**106**	**0**	**47**	**1,403**	**118**	**0**	**0**	**67**	**421**
Total economic costs per year, (mill. EUR)	**5**	**7**	**0**	**36**	**917**	**10**	**0**	**0**	**7**	**329**
Income from 1% increase in Impr (mill. EUR)(mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**925**	**5,933**
NPV total economic costs as percentage of GDP	**0.016%**	**0.029%**	**0.000%**	**0.019%**	**0.381%**	**0.113%**	**0.000%**	**0.000%**	**0.025%**	**0.210%**
Compensation increase per birth	**225**	**529**	**0**	**234**	**0**	**75**	**0**	**0**	**334**	**963**
NPV total economic costs, (mill. EUR)	**63**	**75**	**0**	**410**	**10,513**	**120**	**0**	**0**	**85**	**3769**
NPV employer cost excl. publ.sector empl.(mill. EUR)(mill. EUR)	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**617**
NPV: public expenditure (mill. EUR)(mill. EUR)	**313**	**375**	**0**	**2,050**	**6,991**	**61**	**0**	**0**	**426**	**9,516**
Benefit score	**2.8**	**2.8**	**0.0**	**2.8**	**9.0**	**1.0**	**0.0**	**0.0**	**2.8**	**4.2**

Table A.2.1 Results of Impact Assessment: Fully compensated 2 week paternity leave, Sensitivity analysis: 30% substitution rate

Full paternity leave 2 weeks	Belgium	Denmark	Estonia	France	Germany	Hungary	Poland	Spain	Sweden	UK
Labour costs/week	1,005.88	1,167.03	267.38	1,007.47	1,002.34	264.86	241.33	571.09	1,171.59	1,097.87
Average wage/week	691.04	998.28	196.84	677.12	768.79	188.32	179.14	418.61	775.36	883.90
Existing leave period (average)	2	2	2	2	0	1	2	2	2	2
Leave extensions, weeks	0	0	0	0	2	1	0	0	0	0
Activity rate	91.8%	92.4%	91.9%	94.4%	93.4%	86.9%	89.4%	92.3%	92.8%	91.7%
Employment rate	93.9%	94.8%	85.5%	93.2%	92.8%	92.0%	94.3%	85.0%	94.1%	94.0%
Take-up rate, present	70.0%	89.0%	50.0%	70.0%	0.0%	50.0%	50.0%	56.0%	90.0%	79.0%
Take-up rate, expected	70.0%	89.0%	50.0%	70.0%	70.0%	50.0%	50.0%	56.0%	90.0%	90.0%
Substitution rate	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Average compensation rate, present	73.0%	66.0%	100.0%	72.0%	50.0%	100.0%	100.0%	100.0%	72.6%	20.0%
Production loss per birth/week	424.86	636.87	73.53	434.33	0.00	74.11	71.21	175.64	644.55	523.33
Production loss from increased leave period/birth	0.00	0.00	0.00	0.00	0.00	74.11	0.00	0.00	0.00	0.00
Production loss from higher take-up rate/birth	0.00	0.00	0.00	0.00	851.40	0.00	0.00	0.00	0.00	145.74
Percentage of increase paid by employers	0%	0%	100%	0%	0%	32%	47%	0%	0%	7%
Tax distortion, 20%, EUR/birth	45.03	105.84	0.00	46.71	186.58	12.07	0.00	0.00	66.79	212.36
Total economic cost, EUR pr. birth	**45**	**106**	**0**	**47**	**1,038**	**86**	**0**	**0**	**67**	**358**
Total economic costs per year, (mill. EUR)	**5**	**7**	**0**	**36**	**678**	**8**	**0**	**0**	**7**	**280**
Income from 1% increase in Impr (mill. EUR)	**1,081**	**569**	**29**	**5,494**	**7,140**	**251**	**953**	**2,724**	**925**	**5,933**
NPV total economic costs as percentage of GDP	**0.016%**	**0.029%**	**0.000%**	**0.019%**	**0.282%**	**0.082%**	**0.000%**	**0.000%**	**0.025%**	**0.179%**
Compensation increase per birth	**225**	**529**	**0**	**234**	**0**	**75**	**0**	**0**	**334**	**963**
NPV total economic costs, (mill. EUR)	**63**	**75**	**0**	**410**	**7,779**	**88**	**0**	**0**	**85**	**3,209**
NPV employer cost excl. publ.sector empl.(mill. EUR)	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**617**
NPV: public expenditure (mill. EUR)	**313**	**375**	**0**	**2,050**	**6,991**	**61**	**0**	**0**	**426**	**9,516**
Benefit score	**2.8**	**2.8**	**0.0**	**2.8**	**9.0**	**1.0**	**0.0**	**0.0**	**2.8**	**4.2**

ANNEX 4: SOURCES OF INFORMATION

Main sources of information

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POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

EMPLOYMENT AND SOCIAL AFFAIRS

The consequences of the extension of the maternity leave on women's participation on the labour market

NOTE

Abstract

This brief note reviews the evidence on the consequences of the extension of maternity/parental leave entitlements on women's labour market outcomes. We first briefly remind the mix of positive and negative impact which can be expected from the provision of leave entitlements. Then, current situation of leave entitlements and mothers' employment are presented, before reviewing evidence on the impact of the design of parental leave entitlements on female labour market outcomes and gender equity.

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October 2010

This document was requested by the European Parliament's Committee on Employment and Social Affairs.

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LINGUISTIC VERSIONS

Original: [EN]

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Manuscript completed in October 2010.

This document is available on the Internet at:
http://www.europarl.europa.eu/activities/committees/studies.do?language=EN

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Contents

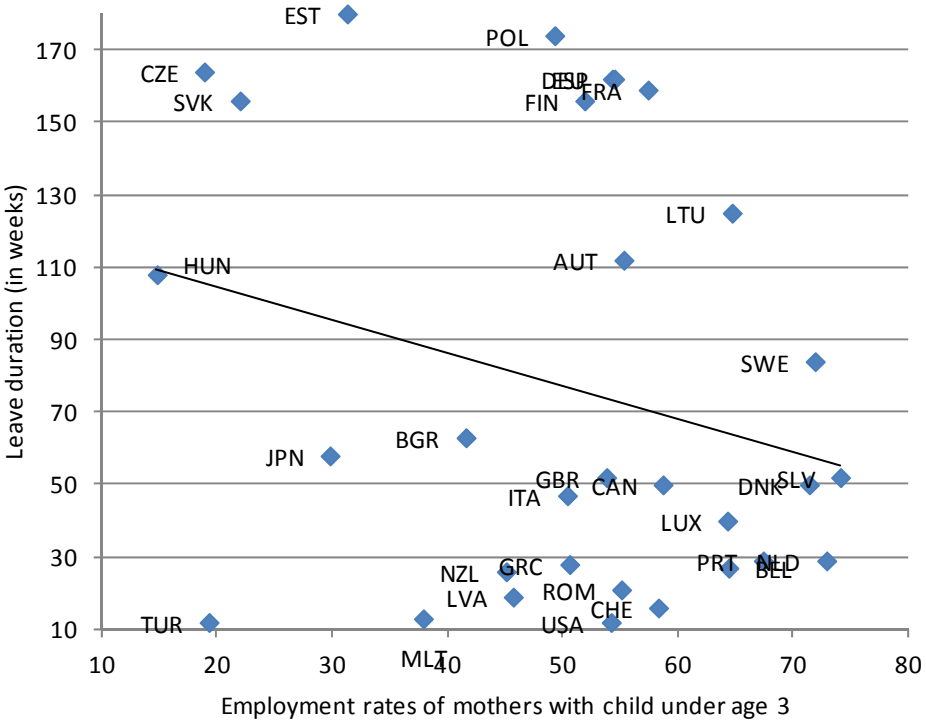
1. THEORETICAL BACKGROUND

A mix of positive and negative outcomes can be expected from leave mandates. On the positive side, leave mandates are expected to enhance women's labour market attachement: by securing employment, the job-protection guaranted leave entitlements encourage women to return to work after an interruption following childbirth. Young women may even be encouraged to relatively postpone childbirth in order to secure job and guarantee that they are entitled to temporarily leave work after the birth of their child. In the long run, firms providing extended leave entitlements may be more attractive for qualified and productive young adults who aspire to have children. However, two kinds of adverse effects can also be expected, on the negative side. First, firms may be discouraged to recruit women, if they know that women will leave employment for a certain period of time after the birth of children. Second, extended rights to leave for a long period of time may impact career as well as earnings progression (see Klerman J. A.and Leibovitz A.,1997; Ruhm, 1998 for extensive discussion).

2. CHILD-RELATED LEAVE – CURRENT SITUATION ACROSS OECD

The Chart 1. below plots countries according to how combine the total duration of the period of time that women can spend out of work by the addition of maternity and parental leave (on the vertical axis) with employment rates of women with a child under ag 3 (horizont axis). Both period of maternity and parental leave are added, whether paid or unpaid. It shows that leave entitlments vary quite widely with some countries providing long periods of leave (around or above 3 years in total) and an large set of countries limiting leave entiltlements to a maximum of one year. It also shows quite obviously that employment rates of mothers with young children are higher (above 60%) when leave duration is limited to maximum one year – Sweden being the only exception.

Chart 1: The shorter leave entitlements, the higher employment rates of mothers with children below age 3 – 2007.



3. EVIDENCE ON THE IMPACT OF LEAVE ON FEMALE LABOUR MARKET OUTCOMES

Cross-national research provides some evidence that the provision of minimal leave mandates has a positive impact on female labour market participation and attachement after childbirth. An extension above have marginal adverse effect, however. Country-specific evaluation of reforms introduced over the last decades shows more detailed impact on take-up rates and on outcomes, and sheds light on some differentiation of behaviours by social groups. Both short and longer-term consequences can be assessed.

3.1. Leave expansion increases take-up rates (of affluent families especially)

The US illustrates how the expansion of leave entitlements can increase take-up. Parents are entitled by the Federal Family and Medical Act to 12 weeks of unpaid leave, but many States top up this minimum requirement by supplementing leave entitlements with payment, or by extending rights to a period of paid parental leave. These expansions of rights are associated with increased leave taking by both mothers and fathers (Han et al., 2008)[1]. The magnitudes of the changes are small in absolute terms but large relative to the

[1] Espinola-Arredondo and Mondal (2009) add that the impact of FMLA on female employment rates has been positive and significant for some states when they complement the benefits and eligibility criteria of FMLA. They also stress the interplay of leave entitlements with other insurance scheme : the impact of FMLA in those states which did not previously enact Temporary Disability Insurance is significantly more positive on

baseline for men, and much greater for college-educated or married mothers than for the less educated or single counterparts. Moreover, the effect is confine to the months of birth for men. A parental leave law is predicted to increase the percentage of the birth month employed fathers spend on leave from 7 to 11 %, representing approximately two extra days off work.

All social groups do not identically respond to these entitlements, however. Higher educated parents and married women respond with higher take up, as expected since married women are more likely to be eligible under the laws and to be able to afford a period of unpaid leave.

3.2. But decreases 'after-birth' female employment rates

A logic consequence of taking leave is that female employment rates are reduced in the period following childbirths. Work interruption is sensitive to payment that can be obtained during this period. Recent reform in parental leave entitlements or experience of baby bonuses illustrates this relation. Gonzalez (2008) found that the baby bonus (€2,500 per childbirth) introduced in 2007 in Spain had a negative (income) effect on mother's in-work probability. He found also some persistent effects through time: four months after birth, mothers are more likely to be on leave. By the 7th month, mothers were 9 points less likely to hold a job, and this effect was still there 13 months after the birth. It is likely, however, that this effect persists either because the job is protected for a longer period or because households have difficulties to get a satisfying childcare solution.

The provision of (paid) leave can also encourage women to anticipate the time at which they leave employment. The French case illustrates this with the extension of the right to home care allowance to women having a second child that accured in 1994. Before this date, only parents with 3 children could benefit from a three-years period of leave, but this right has been extended thereafter. Moschion (2008) found that this extension of rights encouraged women to reduce employment after the birth of a second child, and not after the birth of a third as this was more likely to be the case before the reform. This may work as a short term incentive, however, since employment rates of women with 2 and 3 children have significantly increased since the mid-1990s (Thévenon, 2009).

Such a negative impact of care allowances have also been documented in Norway after the adoption of 1998 cash-for-care reform. Schone (2004) found that Cash for care payment induced a reduction of labour force participation with children below age 3 by 4%. With a longer time distance, Ronsen (2009) estimated it took some time before the reform produced all its effects. In the short run, the main effect seemed to be a shift from full-time to part-time work, but the effect declined after 4 years for women with 1 to 2 years old children. Women are more likely to be on full-time leave than being at work, while the risk of being inactive remained quite constant.

3.3. But leave facilitates return to work…

After this 'after-birth' negative impact, the provision of job-protected leave entitlements increases the probability of returning to work and accelerates its timing. Some evidence for European countries is given by Pronzato (2009) who analysed the impact of parental leave

female employment than in States which already had TDI; and the impact is higher in States which expanded the benefits and eligibility criteria.

legislation on the pace of return to work of women. Two key parameters were considered: job protection and the opportunity to receive transfers. She found that job-protection has a positive impact on the return to work mainly after the first birthday of children, while no difference during the first year of life of the child between women with and without the right to a job-protected leave. The propensity to return to work is higher for those with a protected job during the 2nd and 3rd year. In contrast, the possibility of receiving transfers affect labour market behaviour especially during the first year of life of the child, women returning to work at a slower rate if payment is received.

The impact varies with socio-economic status and evolves through time. Thus, the impact of job-protection is larger for medium and highly educated women whith a 2 years old child, while its influence on the return to work becomes more important for low educated as child ages up to 3 years.

This positive impact of leave entitlements on the probability to return to work after the birth of a child is also found in the US : among mothers who were employed pre-birth, those in jobs that provided leave coverage are more likely to take a leave of up to 12 weeks, but return quickly after 12 weeks (Berger and Waldfogel, 2004). Han et al. (2009) found that State level introduction of parental leave were associated with a statistically significant 6.7 percentage point reduction on the work probabilities within 12 weeks of birth but a 4.7 point increase at 9 months. They found higher effect on women with college graduation or more than those with lower education.

Similar positive impact on female labour market attachement is found in Canada by Baker and Milligan (2005) who found that modest mandates of 17-18 weeks do not increase the time mothers spend at home. The physical demands of birth and private arrangements appear to render short mandates redundant. These mandates do, however, decrease the proportion of women quitting their jobs, increase the proportion employed and on leave, and increase the proportion returning to their pre-birth employers. In contrast, expansions of job-protected leaves to lengths up to 70 weeks do increase the time spent at home as well as leave taking. Nevertheless, the probability to return to the pre-birth employer is also increased.

Reforms implemented in the 1990's in Austria have also been scrutinized. Lalive and Zweimüller (2005; 2007) have anlaysed the impact of policy change enacted on July 1, 1990 which increased the maximum duration of parental leave from the child's first to the child's second birthday; in 1996 the maximum duration of parental leave was reduced from 24 to 18 months. They estimated that the 1990 Austrian increase in parental leave by one year had significant impact on time off work (Lalive and Zweimüller, 2005) : per additional month of maximum parental duration, the time off work increases by 0.4 to 0.5 months. Moreover, parental leave entitlements lead to substantial delay in taking up employment after birth: the probability of being back at work 36 months later after the birth was almost 11 percentage points lower after the 12 months extension of leave entitlements in 1990 and roughly 6 percentage points smaller after the 6-months reduction of maximum duration of leave enacted in 1996.

However, the quality of the jobs held after the return to work appear to be quite similar to those hold before the birth (Lalive and Zweimüller, 2007): parental leave does not appear to adversely affect re-entry wages, especially for those women who take full advantage of parental leave. For this group, post-birth earnings and post birth durations are not different after the 1990 PL extension. By contrast, some women delayed their return to work much after leave termination and were marked by lower outcomes.

3.4. But a long-interruption of work has a negative impact on labour market outcomes

The impact of leave mandates on post-birth employment and career prospects depends on the total length for which work is interrupted. The extension of the period of leave gives incentives to delay the return to work. The successive reforms regarding parental leave in Germany provide some evidence that this incentive is strong when parents are entitled to a relatively short period of leave, and decreases as the period of leave is extended. Schönberg and Ludsteck (2006) found that the return to work has been most delayed when job-protected leave has been increased from 2 to 6 months, and weakest for the increase from 18 to 36 months. Here again, social groups do not respond similarly to these extensions, however: highly educated show the strongest response for the increase from 2 to 6 months but the weakest for the increase from 18 to 36 months. Thus, low educated women are more likely to delay their return to work when leave is entitled for a period exceeding 18 months.

Cross-national comparison suggests that the effect of parental leave on female labour market participation is positive up to a certain duration of the leave, since the margimal extension become negative beyond 15-20 weeks paid at full-average rate in OECD countries (Jaumotte, 2003). Ruhm (1998) found that parental leave mandates are associated with an increase in total employment rates but appear to have a modest negative impact on weekly working hours and there is some evidence that women pay for entitlements to extended leaves by receiving lower relative wages. The OECD is currently investigating if these negative effects are still found when reforms of this last decade are taken into account.

3.5. Persistent impact of leave-related interruptions on career?

The evidence on the long-term consequences of leave-related interruption of employment are more diverse. For the US, Han et al. (2009) found that most of the positive effect of leave expansion found in the short term still persists when children reach the age of 4. Women with (paid) job-protected employement return more rapidly to work and are more likely to remain employed after a couple of years. This holds here in a country where leave is entitled for a short period (12 weeks).

Persistent negative impact is conversely found in countries where leave is entitled for a longer period of time. For Germany – before the recent 2007 reform – Schönberg and Ludsteck (2006) estimated that each increase in maternity leave, in particular from 6 to 10 months, reduced women's earnings, even 8 years after childbirth. More time out of the labour market has long-lasting negative consequences on women's career prospects.

Furthermore, there is a very wide set of evidence showing that interruption on the labour market participation following childbirths have long-term negative consequences on earnings progression – the so-called "family earnings gap" (Harkness and Waldfogel, 2003; Davies and Pierre, 2005; Sigle-Rushtown and Waldfogel, 2007).

4. CONCLUSION

- "Job-protection", payment and duration are key parameters of leave entitlements that impact positively take up rates.
- Job protection increases the chances of having women going back to work, especially after a long interruption of work (of one year or more);
- Higher payment rates slow down the pace of the returns to work, but increase the chances that mothers or fathers with high earnings take leave.
- An extension of leave duration increases the chances that leave is taken up, but a too long period of leave (around 20 full-paid weeks) have negative impact on career prospects.
- Leave entitlements can be made more "efficient" regarding labour market outcomes (e.g. inducing more return to work and having less detrimental outcomes for women's career):
- By making periods of payment and of job protection consistent.
- By making part of the payment conditional to the return to work.
- By encouraging/forcing fathers to share leave entitlements.
- By making alternatives to personal care available just after leave termination.
- Additional information on leave entitlements available online:
- OECD Family Database, via www.oecd.org/els/social/family/database.
- Babies and Bosses Reviews.

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