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Gender and education inequalities in parental employment when having a young child with increased care needs: Belgium and Norway compared

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ABSTRACT

Caring for a child with increased care needs can be a demanding task and the time required to provide such care hampers their parents' employment participation. Especially mothers and lower educated parents are affected by the increased care burden and reduce or stop their employment participation. So far, the literature lacks studies investigating the employment impact in a comparative perspective, however. We fill this gap with a comparative study of Belgium and Norway. We use comparable administrative datasets, identifying children with increased care needs as those receiving a cash benefit designed to financially compensate for the extra private care. The results confirm that gender and education inequalities exist in both countries. Moreover, the gender inequalities are stronger in Belgium than in Norway, while this is not true for the education inequalities. Our analyses suggest that increased support on multiple fronts is needed for families with children with increased care needs.

Keywords: children, education, gender, increased care needs, inequality, parental employment

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Points of interest

- Parents of children with increased care needs find it difficult to work as they have to spend more time on the care for their children. Especially mothers and parents who are lower skilled bear the burden of the child's increased care needs.
- We investigate the impact on employment participation and labour earnings when parents have a child with increased care needs comparing Belgium and Norway.
- We show that mothers and low-skilled parents are indeed affected more than fathers and higher-skilled parents.
- Also, Belgian mothers experience a higher employment impact than Norwegian mothers, but we do not find a stronger effect on low-skilled parents in Belgium when we compare them to low-skilled parents in Norway.
- We believe that families with children with increased care needs should receive more support from the welfare state (both care and cash) and from their employer to make the work-family life combination possible.

Introduction

In this article, we investigate how and in what way parental employment and labour earnings are influenced by having a child with increased care needs. To add to the existing research, we are particularly interested in how mothers and fathers with various educational levels cope differently with the increased care burden in a comparative study of Belgium and Norway.

Over the last decades, welfare states have increasingly embraced a political commitment to full employment. Nowadays, policy making is dominated by the social investment perspective in Europe, Australia, Canada, and in some less developed welfare states of Asia and Latin America (Hemerijck 2017). In addition to investment in human capital from early childhood onwards, social investment also places individual responsibility and social inclusion through labour market participation at the forefront (Hemerijck 2017). The European Commission and OECD have adopted this perspective on policy making and emphasised the importance of activation to achieve economic growth and combat poverty and social exclusion in today's society (European Commission 2013; OECD 2006). Working-age adults are expected to participate in gainful employment and work-facilitating family policies, such as childcare and parental leave, are pushed forward as the key to accomplish this. As a matter of fact, people who were spared from activation policies before (e.g. single mothers, people with disabilities and people giving care), are nowadays increasingly included (Good Gingrich 2008; Lindsay et al. 2015; Roets et al. 2012). In fact, disability policies were mainstreamed into regular labour market programmes throughout European welfare states (Burkhauser et al. 2016).

In families with children with increased care needs, employment participation is challenging for the parents, however (Cantillon and Van Lancker 2013). Caring for a child with increased care needs can be demanding in terms of both time and resources. These children usually require more care than typically developing children, and the time required to provide such care hampers the parents' employment participation. Previous research has highlighted that gender and education inequalities in this employment impact exist. Especially mothers are affected by the increased care burden as they, rather than fathers, reduce working hours or retract completely from the labour market (Brown and Clark 2017; Stabile and Allin 2012). In fact, gender inequalities in

the division of care and work are more apparent in families with children with increased care needs than in families with typically developing children. Moreover, the effect of having a child with increased care needs on parental employment seems to be stronger among less educated parents, signalling the existence of education inequalities (DeRigne and Porterfield 2017; Lu and Zuo 2010; Vinck and Van Lancker forthcoming; Wasi et al. 2012). On top of these indirect costs, parents also face direct costs related to the child's medical and care needs which impose an additional burden on the household budget. Together, these costs cause that these families have to make ends meet with lower incomes (Larkins et al. 2013). Yet, their poverty risk is also strongly tied to processes of social stratification (Shahtahmasebi et al. 2011): parents have on average lower levels of education; a higher risk of divorce; and are more likely to be disabled themselves (e.g. Blackburn et al. 2010; Sebrechts and Breda 2012).

Yet, the literature on the employment impact when parents have a child with increased care needs is short of comparative studies. We contribute to the existing research by investigating how mothers and fathers with various educational levels cope differently with the increased care burden in Belgium versus Norway. Therefore, we use comparable administrative datasets defining children with increased care needs as children who receive a cash benefit that partially compensates the extra care needs they impose on their environment. Comparing these two countries is interesting as they represent two different welfare regimes. The Norwegian work-family policies promote a dual earner-dual carer family model for all, while in Belgium, more traditional family support policies are combined with a weaker form of dual earner policies which are more socially unequally distributed than in Norway (Korpi 2000; Korpi et al. 2013; Ghysels and Van Lancker 2011). We expect that combining work with increased care responsibilities may be less challenging in Norway, hence, we suppose a stronger and more unequal care burden effect in Belgium than in Norway.

Theoretical framework, previous research and hypotheses

Although gender inequalities in paid employment have substantially decreased in western countries over the last 50 years, mothers still tend to reduce their paid work upon parenthood, even in welfare states with elaborated dual earner policies (Uunk et al. 2005). This indicates that gender inequalities in the division of care and work still exist (Sullivan 2000). Especially when children have increased care needs, mothers are likely

to scale down their working hours or retract completely from the labour market to bear the burden of their child's increased care needs (Brown and Clark 2017; Stabile and Allin 2012). This pattern is found in Australia (Crettenden et al. 2014; Gordon et al. 2007; Zhu 2016), Belgium (Debacker 2007; Van Landeghem et al. 2007), Norway (Brekke and Nadim 2016; Hauge et al. 2013), Sweden (Olsson and Hwang 2006), Taiwan (Chou et al. 2018) and the United States (DeRigne and Porterfield 2010, 2017; Porterfield 2002; Powers 2001, 2003; Wasi et al. 2012). This gendered division in paid work can be explained from different angles.

According to the specialisation theory (Becker 1991), the division of paid and unpaid work is a rational contract between the partners motivated by a utility maximisation. The partner who earns less, often the woman, is expected to do a larger share of the housework and caring tasks, while the partner who earns more, often the man, will specialise in paid employment. According to this perspective, the expectation is that caring for a child with increased care needs will mainly have a negative effect on maternal employment and to a lesser degree on paternal employment.

The gendered division between work and care can also be explained from a gender role perspective. The question of how to balance work and parenthood is tied to people's identities as moral beings and their understanding of 'the proper thing to do' in given circumstances (Finch 1989). It invokes notions of what a good mother or father is, what is best for the children, and what makes for a meaningful life. Expectations to gender roles held by others are important in this context. Although women have massively entered into paid employment and men have increasingly taken on household chores and childcare duties, the behaviour typically associated with being a 'good mother' still differs from the expectations of being a 'good father': it is generally expected from mothers to have main caregiving responsibility, while fathers have the main breadwinning responsibility (Duncan et al. 2003). In other words, traditional views on gender roles persist. On this background, we again expect that having a child with increased care needs will negatively affect maternal employment and to a lesser degree affect paternal employment.

H1: The negative care burden effect is stronger for mothers than for fathers

Previous research has shown that a number of factors at the household, organisational and welfare state level influence the employment participation among parents with children with increased care needs. At the household level, the household

type, age, number of children, severity and type of increased care needs are found to be important factors in this context, though the results are generally inconclusive (Brown and Clark 2017; Stabile and Allin 2012). Only regarding the severity of the child's increased care needs, previous research consistently reports a positive relationship (Powers (2003) being an exception): the more severe the child's increased care needs, the more challenging it will be to participate in the labour market for the parents (Chou et al. 2018; Crettenden et al. 2014; DeRigne 2012; Gordon et al. 2007; Hauge et al. 2013; Leiter et al. 2004; Lu and Zuo 2010; Vinck and Van Lancker forthcoming; Wasi et al. 2012). Moreover, organisational level factors such as supervisory support and workplace flexibility as well as welfare states' policy measures like good quality, available and affordable childcare and paid parental leave, are also essential in understanding the impact on parental employment (Brown and Clark 2017).

Some studies also look into the mitigating role of parents' educational qualifications on the care burden effect when the child has increased care needs. The results generally show that the effect on parental employment is stronger among less educated parents (DeRigne and Porterfield 2017; Lu and Zuo 2010; Vinck and Van Lancker forthcoming; Wasi et al. 2012), only Leiter et al. (2004) report the opposite. According to human capital theory (Becker 1985), individuals who invest in their education and training anticipate a return on investment in terms of higher future pay. Hence, parents with high educational qualifications have higher opportunity costs of staying at home. This means that highly educated parents have a stronger attachment to the labour market and thus will withdraw to a lesser degree than lower educated parents when having a child with increased care needs. Moreover, higher educated individuals hold other types of jobs than lower educated individuals. They have more choice in how they control their tasks and working time which makes it easier to combine work and care. On this basis, we suppose that the adverse employment effect of having a child with increased care needs will be stronger for lower than for higher skilled parents.

H2: The negative care burden effect is stronger for lower skilled parents

The existing literature remains short of comparative studies on the parental employment impact of having a child with increased care needs, however. In fact, to our knowledge no such studies exist. Yet, one could expect that these patterns differ between welfare states as the level and type of social support provided by the state influence the parental labour market attachment (Gornick and Meyers 2003). Welfare

states have different histories, different sets of normative expectations about gender roles, and different sets of policy measures that contribute to this employment obligation. In the Nordic welfare states, here represented by Norway, both full employment and gender equality have historically been high on the political agenda (Esping-Andersen 1990). From the beginning, Nordic countries, especially Sweden and Norway, incorporated activation and work-facilitating policy measures into their income maintenance systems to ensure high labour market participation by both men and women (Kautto et al. 2001). Norway supports the dual earner-dual carer household that encourages the sharing of care and paid work obligations between men and women (Korpi 2000). This is exemplified by the right to and high availability of public childcare for the youngest children (Haug and Storø 2013) and the extensive and generous parental leave scheme, with a substantial number of weeks reserved for fathers. These policies have led to changing gender role perspectives in Norway: mothers are nowadays supposed to work whereas fathers have to take on part of daily care work when they have young children (Ellingsæter and Gulbrandsen 2007). Still, we should be careful attributing the comparatively high employment rates in the Nordic countries solely to the provision of work-facilitating policies. Havnes and Mogstad (2011) show that the large expansion of publicly provided childcare during the 1970s in Norway has not resulted into a higher net employment rate as it mainly replaced the use of informal childcare.

Belgium represents the conservative-corporatist welfare states. It is characterised by a traditional family support model combined with a weak type of a dual earner model (Korpi 2000). When the conservative-corporatist countries designed their welfare states after the Second World War, they saw the family as the cornerstone of their income maintenance systems (Esping-Andersen 1990). A division of labour was envisioned by a male breadwinner-female carer household. Men were expected to fully participate in employment, through which they built up social rights for themselves and for their wives who were responsible to care for the young and the old in their household. Only when the family was not able to provide the aid themselves, the welfare state stepped in. This stands in sharp contrast to the social democratic welfare states of Northern Europe that socialised care for children, the elderly and the disabled from the onset (Esping-Andersen 1990). Since the mid-1990s, Belgium has made the turn to an 'active' welfare state and later to a 'social investment state' which implied a stronger emphasis on

activation and human capital investment from early childhood onwards instead of solely focussing on passive income protection (Esping-Andersen et al. 2002; Vandebroucke 2013). Today, childcare is largely publicly provided and parents pay an income-related fee, though there remains a lack of availability and the use of the existing places is largely socially stratified (Van Lancker 2013). The parental leave scheme has similar characteristics to the Norwegian system, though it is less extended in duration and pay. Appendix 1 presents an overview of the relevant family policy measures in both Belgium and Norway.

As combining paid work and increased care responsibilities may be less challenging in Norway, we expect a stronger negative care burden effect in Belgium than in Norway. Specifically, we suppose that the gender and education inequalities are larger in the former compared to the latter country. Regarding the gender inequalities, the Norwegian welfare state is characterised by a stronger gender equality ideology and stronger women-friendly policies than the Belgian welfare state. Korpi et al. (2013) show that dual earner-dual carer family policies, particularly prevalent in the Nordic countries, have contributed to higher female employment rates and smaller gender inequalities in employment than in countries where family policies are more traditional as they focus on supporting women's unpaid care work. This result mainly applies to women with low and medium educational qualifications (Korpi et al. 2013). Hence, we expect that, in addition to larger gender inequalities, the education inequalities are also larger in Belgium.

H3.1: The negative care burden effect is more unequal in term of gender in Belgium than in Norway

H3.2: The negative care burden effect is more unequal in terms of education in Belgium than in Norway

Data, variables and methods

Hitherto, comparative studies on the parental employment impact of having a child with increased care needs are scarce due to the lack of sufficient, reliable and comparable data. In fact, to our knowledge no such studies exist. We draw on two comparable administrative datasets to gain insight into this. For Belgium, the microdata consists of a cross-sectional random sample of children below 21 from the Datawarehouse Labour

Market and Social Protection (DWH LM&SP) on 31 December 2010. The DWH LM&SP compiles administrative data from Belgian social security agencies as well as information on personal and household characteristics from the National Register. To this, parental education information is added from the 2011 Census, a snapshot of the Belgian population on 1 January 2011. For Norway, the administrative data are obtained from the Medical Birth Registry of Norway (MBRN), containing information on all births in Norway, and is linked to the National Education Database (NUDB) and Historical Event Database (FD-Trygd) of Statistics Norway. The FD-Trygd panel has information on personal and household characteristics along with income from employment. The Norwegian sample consist of all children born in Norway between 2000 and 2005 as well as their mothers and fathers. The last observation point we have at our disposal is 2008.

Both datasets allow us to compare families with and without children with increased care needs to each other. To do so, we define children with increased care needs as children receiving a non-means-tested cash benefit designed to financially compensate for the extra private care. This corresponds to children receiving the supplemental child benefit in Belgium and children receiving the attendance benefit in Norway (see Appendix 1). The control groups are those children who do not receive these benefits.

In Belgium, to be entitled to the supplemental child benefit, children need to receive the regular child benefit, should be less than 21 years old and their increased care needs must be assessed by a medical doctor of the Federal Government Service for Social Security. These doctors score the child on a 36-point scale for which they make use of standardised criteria. The scale gauges the impact of the child's increased care needs in terms of (i) the physical and mental consequences (maximum 6 points), (ii) the consequences for the child's participation in daily life (maximum 12 points), and (iii) the consequences for the family (maximum 18 points). The higher a child scores on the scale, the higher the alleged impact on the family's care burden and the higher the supplemental child benefit will be. The supplement ranges from €80 for the lowest scores up to more than €500 per month if the child scores at least 18 points (Famifed 2018). Of all Belgian children under the age of 21 in 2015, 2.37% receive the supplemental child benefit (Famifed 2016). In Norway, children who need long-term private care and supervision due to a medical condition may be entitled to attendance

benefits from the Norwegian Labour and Welfare Administration (NLWA). The application form needs to specify the private care arrangements taken to cope with the child's increased care needs. To assess the eligibility for attendance benefits at different rates, NLWA considers the degree of physical and psychological functional impairment, the scope of care and supervision needed, the need for stimulation, training and physical activity, and the extent to which providing the care limits the caregiver. The overall workload of the person providing care or supervision is the determining factor. The benefit is paid at four different rates, reflecting mild to severe care needs and ranging from €128 up to €770 per month (NLWA 2018).

To harmonise both datasets, we focus on children born between 2000 and 2005 in Belgium and Norway respectively, living together with two parents to understand which parent bears the burden of the increased care needs within the household. We randomly select one focal child per household in both the treatment and control group. The sample sizes after deleting observations with missing information on one of the variables of our interest (see Table 1) are $n=5789$ children with and $n=4671$ children without increased care needs in Belgium, and $n=7680$ and $n=231746$ in Norway. Information of other household members is added to the sample and a population weight is applied to the Belgian data to represent the full population of children with and without increased care needs.

Table 1. Overview variables

	Belgium	Norway
Source	DWH LM&SP (2010) and Census (2011)	MBRN (2000-2005), NUDB and FD-Trygd (2008)
Dependent variables		
Employed (0/1)	1 = working as an employee or self-employed (31 March 2010) (n=10460)	1= working as an employee or self-employed in 2008 (n=227786)
Employment earnings	Simulated gross yearly employment income, PPP adjusted ^a , ln transformed, employees only (n=13683)	Gross yearly employment income, PPP adjusted ^b , ln transformed, employees only (n=379503)
Independent variables		
Children with increased care needs (CICN)	Receiving supplemental child benefit	Receiving attendance benefit
Gender inequalities		
Mother	Female partner in the household (or second male partner)	Biological mother
Mother x CICN	Does the increased care burden differently affect the employment/earnings of mothers versus fathers?	
Education inequalities		
Parental education	Highest ISCED level obtained on 1 January 2011 (low (0-2), medium (3-4), high (5-6))	Highest ISCED level obtained on 1 October 2008 (low (0-2), medium (3-4), high (5-6))
Parental education x CICN	Does the increased care burden differently affect parental employment/earnings by the educational level of the parent?	
Controls		
Age, age ²	At birth of focal child, centred around the mean ^c	At birth of focal child, centred around the mean ^c
Age child	In 2010, centred around the mean ^c	In 2008, centred around the mean ^c
Gender child	Boy/girl	Boy/girl
Number of siblings	Number of siblings (< 18) living at the same address	All children born with the same mother
Age youngest child	Age in 2010 of youngest child in the household	Age in 2008 of youngest child in the household
Partner employed (0/1)	1 = partner worked as an employee or self-employed (31 March 2010)	1= partner worked as an employee or self-employed (1 October 2008)
Country of birth	BE; EU27 + Iceland, Liechtenstein, Norway, Switzerland; non-EU27	NO; EU27 + Iceland, Liechtenstein, Switzerland; non-EU27
Region of residence	Brussels, Flanders, Wallonia	Operationalised by controlling for the county unemployment rate, centred around the mean

Source: compiled by the authors

Notes: (a) 2010 conversion factor = 0.836; (b) 2008 conversion factor = 8.859. Accessed at <https://data.oecd.org/conversion/purchasing-power-parities-ppp.htm>. (c) Centred around the mean for children with and without increased care needs respectively.

We estimate two linear regression models to get insight into how and in what way parental employment and earnings are affected by having a child with increased care needs. For that, we contrast families having a child with increased care needs to a control group of families without a child with increased care needs, in both countries. To be able to compare the effect sizes across the two countries, and to overcome the problem of unobserved heterogeneity, we follow Mood (2010) and estimate a linear probability model for the first dependent variable ‘parental employment’. In the second model, we run an OLS regression on ‘parental earnings’ (i.e. gross yearly employment income, PPP-adjusted, ln transformed) for employees only. In this regression, we use parental earnings as a proxy for working hours since the Norwegian data does not allow to directly assess the impact on the hours worked. Hence we suppose that a difference in parental earnings corresponds to a reduction in hours worked. Both models taken together will enable us to shed light on whether parents respond to the increased care burden by cutting down the hours they participate in the labour market (i.e. regression 2) and/or by retracting from the labour market altogether (i.e. regression 1).

In both models, we are particularly interested in the gender and education inequalities of having a young child with increased care needs in a comparative perspective. For that, we include interactions between having a child with increased care needs on the one hand, and the gender and educational level of the parent on the other. We are aware that other intersections might exist (e.g. Vinck and Van Lancker forthcoming). We control for the parent’s country of birth, age at the child’s birth, age and gender of the child, number of siblings, age of the youngest child in the household, employment status of the partner, and the region of residence. To answer H3.1 and H3.2, we test the significance of the difference between Belgium and Norway applying a two sample t-test (see Appendix 2 for underlying calculations).

Table 2 and 3 present descriptive information for the Belgian and Norwegian sample. 2.4% of Belgian children and 3.2% of Norwegian children are identified as children with increased care needs in 2010 and 2008 respectively.

Table 2. Descriptive information Belgian data, 2010

Children born in Belgium in 2000-05, living in two-parent household	CICN		No CICN	
Child characteristics				
Age (mean)	7.79		7.47	
Gender				
Boys	65.65%		50.80%	
Girls	34.35%		49.20%	
Region of residence				
Brussels	5.17%		7.00%	
Flanders	63.27%		59.86%	
Wallonia	31.56%		33.14%	
Increased care needs	2.42%		97.58%	
Household characteristics				
Number of siblings (mean)	1.50		1.39	
Age youngest child (mean)	5.71		5.46	
Parental characteristics				
	Mothers		Fathers	
	CICN	No CICN	CICN	No CICN
Age (mean)	29.82	28.87	32.92	32.62
Country of birth				
BE	86.55%	86.23%	85.28%	84.83%
EU27	3.67%	4.29%	3.52%	4.17%
Non-EU27	9.77%	9.48%	11.21%	11.00%
Education				
Low-skilled	26.18%	16.01%	32.93%	22.03%
Medium-skilled	42.23%	37.22%	41.48%	39.85%
High-skilled	31.60%	46.77%	25.58%	38.12%
Partner employed	81.74%	88.88%	62.31%	75.40%
Outcome variables				
Employed (2010Q1)	62.31%	75.40%	81.74%	88.88%
Gross employment income (mean)	28208.57	33889.47	44562.29	50242.85

Source: authors' calculations on DWH LM&SP (2010) and Census (2011)

Note: CICN = child with increased care needs.

Table 3. Descriptive information Norwegian data, 2008

Children born in Norway in 2000-05, living in two-parent household	CICN		No CICN	
Child characteristics				
Age (mean)	5.88		5.49	
Gender				
Boys	62.03%		50.93%	
Girls	37.97%		49.07%	
Region of residence				
Unemployment rate county (2008Q1)	2.48		2.47	
Increased care needs	3.21%		96.79%	
Household characteristics				
Number of siblings (mean)	1.31		1.07	
Age youngest child (mean)	5.33		5.15	
Parental characteristics				
	Mothers		Fathers	
	CICN	No CICN	CICN	No CICN
Age (mean)	29.65	29.74	32.69	32.69
Country of birth				
BE	85.77%	84.87%	86.46%	86.10 %
EU27	2.96%	4.12%	2.90%	4.10%
Non-EU27	11.28%	11.01%	10.64%	9.80%
Education				
Low-skilled	20.22%	16.26%	21.13%	17.20%
Medium-skilled	39.68%	37.00%	49.63%	47.38%
High-skilled	40.10%	46.73%	29.24%	35.42%
Partner employed	88.70%	91.92%	77.86%	83.88%
Outcome variables				
Employed	77.86%	83.88%	88.70%	91.92%
Gross employment income (mean)	32799.25	36223.92	55637.40	60234.73

Source: authors' calculations on MBRN (2000-05), NUDB and FD-Trygd (2008)

Note: see Table 2.

Results

The employment probabilities and predicted gross labour earnings of parents with and without a child with increased care needs are presented in Tables 4 and 5 respectively.

First, the results show that, in both Belgium and Norway, parents experience a negative care burden effect on their employment probability when they have a child with increased care needs, except fathers holding high educational qualifications (Table 4). Belgian mothers who have a child with increased care needs have a 7 percentage points (pp) lower employment probability compared to mothers without a child with increased care needs, all else being equal. For Belgian fathers, it depends on their educational qualifications. In fact, if they hold high educational qualifications, their probability of employment is 2 pp *higher* when their child has increased care needs. In Norway, the employment differences between the two groups of mothers equals 4 pp,

whereas for high-skilled fathers this difference is not significant. The significant interaction effects between having a child with increased care needs and being a mother prove that gender inequalities exist when parents have a child with increased care needs, in both countries. Hence, we can accept H1: the care burden effect is stronger among mothers than among fathers. Moreover, the results show that these gender inequalities are significantly larger in Belgium compared to Norway (-4 pp), confirming H3.1 (see Appendix 2).

Similar patterns are true when we look at parental earnings in Table 5. Among parents who are in employment, parents having a child with increased care needs earn less than parents of typically developing children, though for Belgian fathers this only applies when they are low-skilled. Compared to mothers without a child with increased care needs, Belgian mothers with a child with increased care needs have 22% lower earnings, all else being equal. In Norway, the earnings difference equals 10% for mothers and 3% for fathers. Again, the significant interaction effects between having a child with increased care needs and being a mother in both countries prove that the increased care burden effects are unequal in terms of gender in both countries. Once more, this gives us support for H1. Comparing Belgium to Norway also confirms that these gender inequalities are significantly more pronounced in the former (-15 pp, see Appendix 2), again confirming H3.1.

Second, Tables 4 and 5 demonstrate that the care burden effect differs according to the parent's educational level. This care burden effect is stronger among parents holding lower educational qualifications compared to high-skilled parents in both countries, supporting H2. Among low-skilled parents in Belgium, parents with a child with increased care needs have a 8 pp lower employment probability compared to high-skilled parents (Table 4). The corresponding number for Belgian medium-skilled parents is 6 pp. Low and medium-skilled Norwegian parents on the other hand experience a negative care burden effect on employment that is 5 pp and 2 pp larger than the care burden effect for high-skilled parents. Only for medium-skilled parents, the education inequalities are significantly larger in Belgium than in Norway (-3 pp, see Appendix 2), meaning that we can only accept H3.2 for parents with medium educational qualifications, not for low-skilled parents.

When we look at parental earnings among employed parents in Table 5, we also find that the care burden effect is stronger for low-skilled parents compared to high-

skilled parents in both countries, but the difference is not significant for medium-skilled compared to high-skilled parents. Belgian low-skilled parents have 16% lower employment earnings than parents with high or medium educational qualifications. In Norway, the earnings difference equals 7%. Hence, this gives us support for H2. Comparing these education inequalities between Belgium and Norway, we do not find significantly larger differences in the former compared to the latter country though (see Appendix 2). Therefore, we have to reject H3.2 in the case of parental earnings.

Table 4. Linear probability model on parental employment

<i>Employment regression</i>	<i>Belgium</i>	<i>Norway</i>
Constant	1.003*** (0.016)	0.928*** (0.003)
Child with increased care needs (CICN)	0.020* (0.009)	0.006 ^{ns} (0.005)
Gender inequalities		
Mother	-0.170*** (0.007)	-0.089*** (0.001)
Mother x CICN	-0.073*** (0.010)	-0.036*** (0.006)
Education inequalities		
Education (high-skilled ref.)		
Medium-skilled	-0.076*** (0.008)	-0.030*** (0.001)
Low-skilled	-0.164*** (0.011)	-0.138*** (0.002)
Education (high-skilled ref.) x CICN		
Medium-skilled x CICN	-0.055*** (0.011)	-0.022*** (0.006)
Low-skilled x CICN	-0.078*** (0.015)	-0.049*** (0.009)
Controls		
Age	-0.000 ^{ns} (0.000)	0.001*** (0.000)
Age ²	-0.001*** (0.000)	-0.000*** (0.000)
Age child	-0.003 ^{ns} (0.002)	0.004*** (0.000)
Gender child (Boy ref.)	-0.002 ^{ns} (0.005)	-0.001 ^{ns} (0.001)
Number of siblings	-0.050*** (0.003)	-0.011*** (0.001)
Age youngest child	0.002 ^{ns} (0.001)	-0.001* (0.000)
Partner employed	0.126*** (0.007)	0.092*** (0.002)
Country of birth (BE/NO ref.)		
EU27	-0.118*** (0.017)	-0.022*** (0.003)
Non-EU27	-0.149*** (0.011)	-0.143*** (0.002)
Region of residence (Flanders ref.)		
Brussels	-0.091*** (0.013)	n/a
Wallonia	-0.101*** (0.006)	n/a
Unemployment rate county	n/a	-0.015*** (0.001)

Source: authors' calculations on DWH LM&SP (2010) and Census (2011) for Belgium, and on MBRN (2000-05), NUDB and FD-Trygd (2008) for Norway.

Notes: *** p < 0.001, ** p < 0.01, * p < 0.05, ns = not significant. Robust standard errors are in parentheses. R² is 0.2428 for Belgium and 0.0871 for Norway. N is 20920 for Belgium and 457675 for Norway.

Table 5. OLS regression on gross parental employment income, ln transformed and ppp-adjusted

<i>Earnings regression</i>	<i>Belgium</i>	<i>Norway</i>
Constant	11.078*** (0.061)	11.133*** (0.008)
Child with increased care needs (CICN)	0.013 ^{ns} (0.028)	-0.027* (0.010)
Gender inequalities		
Mother	-0.540*** (0.022)	-0.576*** (0.002)
Mother x CICN	-0.222*** (0.039)	-0.070*** (0.012)
Education inequalities		
Education (high-skilled ref.)		
Medium-skilled	-0.495*** (0.023)	-0.241*** (0.002)
Low-skilled	-0.712*** (0.043)	-0.419*** (0.003)
Education (high-skilled ref.) x CICN		
Medium-skilled x CICN	-0.071 ^{ns} (0.037)	-0.008 ^{ns} (0.013)
Low-skilled x CICN	-0.155* (0.064)	-0.070*** (0.019)
Controls		
Age	0.001 ^{ns} (0.002)	0.016*** (0.000)
Age ²	-0.002*** (0.000)	-0.001*** (0.000)
Age child	-0.002 ^{ns} (0.006)	0.021*** (0.001)
Gender child (Boy ref.)	0.018 ^{ns} (0.020)	-0.002 ^{ns} (0.002)
Number of siblings	-0.067*** (0.013)	-0.029*** (0.001)
Age youngest child	-0.002 ^{ns} (0.005)	-0.004*** (0.001)
Partner employed	0.084** (0.032)	0.037*** (0.004)
Country of birth (BE/NO ref.)		
EU27	-0.023 ^{ns} (0.060)	-0.035*** (0.006)
Non-EU27	-0.237*** (0.053)	-0.199*** (0.005)
Region of residence (Flanders ref)		
Brussels	0.029 ^{ns} (0.056)	n/a
Wallonia	-0.066** (0.022)	n/a
Unemployment rate in the county	n/a	-0.068*** (0.002)

Source: authors' calculations on DWH LM&SP (2010) and Census (2011) for Belgium, and on MBRN (2000-05), NUDB and FD-Trygd (2008) for Norway.

Notes: *** p < 0.001, ** p < 0.01, * p < 0.05, ns = not significant. Robust standard errors are in parentheses. Effects need to be interpreted as percentage differences. R² is 0.1415 for Belgium and 0.2445 for Norway. N is 13683 for Belgium and 379503 for Norway.

Conclusion and discussion

In this article, we investigate how and in what way parental employment and labour earnings are affected by having a child with increased care needs, comparing Belgium to Norway. To our knowledge, this is the first comparative study of its kind. We draw on two comparable administrative datasets to gain more insight into this topic.

The article has three objectives. First, we take a gender perspective as we are interested in which parent mainly bears the burden of the increased care needs (H1). Second, we want to gain more insight into how parental employment and earnings are affected differently according to the parents' educational level (H2). Third, we are interested in whether the strength of these relationships differs between Belgium and Norway (H3.1 and H3.2).

The results show that parents having a child with increased care needs have lower employment participation and lower earnings compared to parents with typically developing children. However, our analyses confirm that gender and education inequalities as well as cross-country differences exist in this employment impact. First, our results show that the care burden effect is stronger among mothers than among fathers, and this holds true for both Belgium and Norway. This is in line with previous research on the two countries (e.g. Hauge et al. 2013; Van Landeghem et al. 2007) as well as for other countries (e.g. Chou et al. 2018 for Taiwan; Crettenden et al. 2014 for Australia; DeRigne and Porterfield 2017 for the United States; Olsson and Hwang 2006 for Sweden). This demonstrates that mothers are more impacted by their children's extra care needs than fathers, supporting H1.

Second, the care burden effect is found to be stronger among low-skilled compared to high-skilled parents, in both Belgium and Norway, confirming H2. Parents with lower educational qualifications are more likely to reduce or stop their labour market participation compared to parents with higher educational qualifications. The finding is in line with previous research on this topic (e.g. Vinck and Van Lancker forthcoming; Wasi et al. 2012). This suggests that highly educated parents, even those who have to take on increased care needs, have a stronger attachment to the labour market than lower educated parents. This can be due to the type of job they hold: parents with higher educational qualifications might hold more flexible jobs which make it easier to combine work and increased care responsibilities. According to Brown

and Clark (2017), the organisational culture at work is essential when it comes to work and family balance among parents with disabled children.

Regarding the country differences, we find that the gender inequalities in the care burden effect are stronger in Belgium compared to Norway, and thus support H3.1. This indicates that Belgian mothers are more inclined to scale back their hours of work or retract completely from the labour market than Belgian fathers when they have a child with increased care needs, and they do so to a larger extent than Norwegian mothers. This result corresponds with the fact that the Norwegian welfare state is characterised by a stronger gender equality ideology than in Belgium. Though, we find that, even in an equality promoting welfare states as Norway, gender inequalities do exist when parents are confronted with an increased care burden.

However, the results in this study show no general support that the care burden effect is more unequal in terms of education in Belgium than in Norway, hence we cannot accept H3.2.

As families with children with increased care needs experience an additional challenge in combining work and family life, our analyses suggest that increased support on multiple fronts is needed for these families, particularly for mothers and low-skilled parents. First, improved access to and use of high-quality care services could allow parents to partly outsource the care for their child and hence increase their labour market participation. In this respect, Belgium can learn from Norway as the more elaborated and equality promoting family policies in Norway seem to pay off. The larger provision, higher use and less socially stratified uptake of childcare services in Norway lowers the inequalities in employment participation for all families, including families with children with increased care needs.

Second, even if care provisions are improved, still not all families will be able to outsource the care of their child. We demonstrate that families with children with increased care needs have to get by on lower incomes as a consequence of reduced labour earnings, but they are probably also confronted with higher direct costs related to the child's medical and care needs putting an additional burden on the household budget (Mitra et al. 2017). Extra financial support by the welfare state could be provided to these families to (partly) compensate the income loss they experience and, hence, (partly) offset the increased poverty risk they possibly face.

Finally, more workplace support could be crucial in coping with the increased care burden. Equipping parents with increased flexibility in their jobs will provide them with more opportunities to combine work and family life. This will probably be the most challenging for jobs occupied by people holding lower educational qualifications (Kossek and Lautsch 2018).

We should note that the analyses presented in this article are constrained by some limitations. First, we only consider children with increased care needs if they receive a cash benefit because their increased care needs are administratively recognised. This definition does not represent *all* children with increased care needs in the two countries, however. For Belgium, Vinck et al. (2018) estimate the non-take up rate of the supplemental child benefit to be at least 10%. Nevertheless, our findings are consistent with previous qualitative or quantitative studies applying a more extensive definition of children with increased care needs (Albertini Früh et al. (2016) for Norway; Sebrechts and Breda (2012) for Belgium). Therefore, the results presented here can be extended to children with increased care needs who are not administratively recognised.

Second, we make the assumption that lower earnings in the second regression correspond to a reduction in the hours parents spend in employment, but they might also earn less as they turn down promotions to lower their job demands. The Norwegian data does not allow to directly assess this, but analyses for Belgium presented in Appendix 3 illustrate that this assumption partly holds true.

Third, the Norwegian data only allows to observe a household's composition at the birth of the focal child. In our analyses we assume that the same situation still holds true in 2008. This could imply that the Norwegian mothers and fathers in our data are in reality single parents and therefore face an additional challenge of combining work and family life as they are the sole carers of the child. However, Tøssebro and Wendelborg (2017) report a lower separation risk for families caring for children with intellectual and developmental disabilities than for families with children in general. Hence, we are confident in the reliability of our results, but this issue could be addressed in future research.

Finally, the use of formal and informal care, both general and disability-specific, could not be taken into account in the analyses. Without a doubt, using these care services is helpful for parents to combine work and care. Future research should look

into whether the gender and education inequalities reported here still hold if the children's care use is controlled for.

However, the most important strength of this study is its comparative set-up, using comparable, large-scale, administrative datasets with a wide range of socioeconomic and demographic variables in both Belgium and Norway.

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Appendix 1: The family policy packages in Belgium and Norway

Table A1. Overview selected Belgian and Norwegian policies

	Belgium	Norway
All children		
Child benefits	<ul style="list-style-type: none"> • National competence^a • Age 0-18 and students <25 • Age and rank supplement • Not income-tested universal amount • Income-tested supplement for vulnerable groups^b 	<ul style="list-style-type: none"> • National competence • Age 0-18 • Equal amount per child • Not income-tested
Single parents	<p><i>Single parent supplement</i></p> <ul style="list-style-type: none"> • Income-tested supplement within child benefit system 	<p><i>Extended child benefit</i></p> <ul style="list-style-type: none"> • Non-income-tested child benefit for one additional child <p><i>Transitional benefit</i></p> <ul style="list-style-type: none"> • Age 0-8 in general • Benefit period limited to 3 years • Work requirements when child is one year or older • Income-adjusted <p><i>Infant supplement</i></p> <ul style="list-style-type: none"> • Age 0-3 • Within child benefit system • When receiving extended child benefit and full transitional benefit
Maternal, paternal and parental leave	<p><i>Maternal leave</i></p> <ul style="list-style-type: none"> • 15 weeks: 1-6 weeks prior to birth, 9-14 weeks after birth <p><i>Paternal leave</i></p> <ul style="list-style-type: none"> • 10 days, free to choose within 4 months after birth <p><i>Parental leave</i></p> <ul style="list-style-type: none"> • Prior gainful employment • Age 0-12 or 0-21 if child is ≥66% disabled and receives supplemental child benefit • Temporarily suspend or reduce work • Benefit period: 4 months 100%, 8 months 50% or 20 months 20% • Part-time employees can only choose 100% option 	<p><i>Parental benefit</i></p> <ul style="list-style-type: none"> • Prior gainful employment • Age 0-2 • Benefit period: 49 weeks 100% or 59 weeks 80%, split between parents • Mothers: 3 weeks prior to birth + 15 weeks after (6 weeks reserved immediately after birth) • Fathers: 15 weeks • 16 or 26 weeks to share • Paternal quota is transferred to mothers if sole carer <p><i>Lump-sum grant</i></p> <ul style="list-style-type: none"> • When not entitled to parental benefit
Care benefits	<p><i>Career break</i></p> <ul style="list-style-type: none"> • Temporarily suspend or reduce work • 100%, 50% or 20% • Care-related reasons, 51 calendar months^c: (1) caring for children under 8; (2) providing palliative care; (3) caring for severely ill family member; (4) caring for disabled child under 21; (5) providing assistance or care to 	<p><i>Cash-for-care benefit</i></p> <ul style="list-style-type: none"> • Age 1-2 • Not attending full-time government subsidised kindergarten • Benefit period limited to 11 months <p><i>Childcare benefit</i></p> <ul style="list-style-type: none"> • Single parents only • Help to pay for childminding when at work

	Belgium	Norway
	<p>severely ill child under 18</p> <ul style="list-style-type: none"> • Education-related reason, 36 calendar months^c: (6) following recognised training <p><i>Leave for medical assistance</i></p> <ul style="list-style-type: none"> • Temporarily suspend or reduce work to assist severely ill family member • Benefit period: 12 months 100%, 24 months 50% or 20% • Single parents with severely ill child under 12: 24 months 100%, 48 months 50% or 20% <p><i>Palliative care leave</i></p> <ul style="list-style-type: none"> • Temporarily suspend or reduce work to provide palliative care to person suffering from an incurable disease • Maximum 3 months per patient 	<ul style="list-style-type: none"> • Age 0-10 in general • Extended if child needs more care or if irregular working hours (proof needed) • Income-tested
Childcare	<ul style="list-style-type: none"> • Regional competence • Age < 3 for day care and ≥ 3 for after-school care • No formal right to childcare • Income-adjusted fee • Prioritisation for specific groups 	<ul style="list-style-type: none"> • Municipal competence • Incorporated into national education system • Formal right to kindergarten • Age 1-5 for pre-school care and 6-10 for after-school care • Income-adjusted fee • Prioritisation for specific groups
Children with increased care needs		
Cash benefits	<p><i>Supplemental child benefit</i></p> <ul style="list-style-type: none"> • Age 0-21 • Top-up of regular child benefit • Not income-tested • Federal Government Service for Social Security recognition needed • Severity-adjusted <p><i>Personal assistance budget</i></p> <ul style="list-style-type: none"> • To buy personalised care (at home or in institutions) • Flemish Agency for Persons with a Disability (FAPD) recognition needed <p><i>Financial support</i></p> <ul style="list-style-type: none"> • To buy devices or do adaptations to the house • FAPD recognition needed 	<p><i>Attendance benefit</i></p> <ul style="list-style-type: none"> • No age limit • Not income-tested • Norwegian Labour and Welfare Administration (NLWA) recognition needed • Severity-adjusted <p><i>Basic benefit</i></p> <ul style="list-style-type: none"> • No age limit • To cover additional expenses related to medical condition (excluding medication) • NLWA recognition needed • Adjusted to severity of expenses
Care services	<p><i>Integrated childcare</i></p> <ul style="list-style-type: none"> • Integrated into regular childcare system • No prioritisation solely on the basis of increased care needs • Parents have to ask childcare provider <p><i>Other care services</i></p> <ul style="list-style-type: none"> • Regional competence 	<p><i>Integrated childcare</i></p> <ul style="list-style-type: none"> • Integrated into regular childcare system • Prioritisation of children with increased care needs over other children <p><i>Other care services</i></p> <ul style="list-style-type: none"> • Municipal competence • Duty to organise coordination

	Belgium	Norway
	<ul style="list-style-type: none"> • FAPD recognition needed • Subsidised care services (residential, semi-residential or ambulatory care) 	units <ul style="list-style-type: none"> • Municipal NLWA recognition needed • Support personnel, relief and personal assistance
Education	<ul style="list-style-type: none"> • Regional competence • Since 2015, priority given to inclusive education • Advice needed from Pupil Guidance Centre for needed support measures in inclusive educational setting or access to special education • In 2014, 7% of children 6-11 enrolled in special education (EASIE 2017) 	<ul style="list-style-type: none"> • Public special education schools closed down in 1992 • Inclusive education is widespread • Only 0.26% of children 6-11 is enrolled in special education (EASIE 2017)

Source: compiled by the authors

Notes: (a) The regions will gain competences for regulating child benefits from 2020 onwards (Béland and Lecours 2018). (b) Social assistance recipients, long-term unemployed, long-term sick and single parents. (c) Throughout the employee's entire career, non-cumulative.

Appendix 2: Significance tests of cross-country differences

Table A2. Two-sample t-tests of cross-country differences in interaction effects tables 4 and 5

	<i>Belgium</i>	<i>Norway</i>
Gender inequalities (H3.1)		
Employment regression	DF 20901	DF 457657
Mother X CICN	-0.073 (SE 0.010)	-0.036 (SE 0.006)
Difference (Belgium – Norway)	-0.037 (SE difference 0.012)	
T-test difference	-3.182**	
Earnings regression		
Employment regression	DF 13664	DF 379485
Mother X CICN	-0.222 (SE 0.039)	-0.070 (SE 0.012)
Difference	-0.152 (SE difference 0.041)	
T-test difference	-3.758***	
Education inequalities (H3.2)		
Employment regression	DF 20901	DF 457657
Medium-skilled x CICN	-0.055 (SE 0.011)	-0.022 (SE 0.006)
Difference	-0.033 (SE difference 0.012)	
T-test difference	-2.638**	
Low-skilled x CICN	-0.078 (SE 0.015)	-0.049 (SE 0.009)
Difference	-0.029 (SE difference 0.017)	
T-test difference	-1.682 ^{ns}	
Earnings regression		
Employment regression	DF 13664	DF 379485
Medium-skilled x CICN	-0.071 (SE 0.037)	-0.008 (SE 0.013)
Difference	-0.064 (SE difference 0.039)	
T-test difference	-1.630 ^{ns}	
Low-skilled x CICN	-0.155 (SE 0.064)	-0.070 (SE 0.019)
Difference	-0.086 (SE difference 0.066)	
T-test difference	-1.290 ^{ns}	

Source: authors' calculations on DWH LM&SP (2010) and Census (2011) for Belgium, and on MBRN (2000-05), NUDB and FD-Trygd (2008) for Norway.

Notes: DF = degrees of freedom. SE = standard error. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ns = not significant.

Appendix 3: Sensitivity check for labour earnings

Table A3. OLS regression on percentage worked of full-time employment, Belgium, 2010

<i>Regression on % of full-time employment</i>	<i>Belgium</i>
Constant	1.031*** (0.009)
Child with increased care needs (CICN)	-0.002 ^{ns} (0.005)
Gender inequalities	
Mother	-0.171*** (0.004)
Mother x CICN	-0.043*** (0.006)
Education inequalities	
Education (high-skilled ref.)	
Medium-skilled	-0.030*** (0.004)
Low-skilled	-0.029*** (0.006)
Education (high-skilled ref.) x CICN	
Medium-skilled x CICN	-0.011 ^{ns} (0.006)
Low-skilled x CICN	-0.011 ^{ns} (0.008)
Controls	
Age	-0.001** (0.000)
Age ²	-0.000*** (0.000)
Age child	-0.000 ^{ns} (0.001)
Gender child (Boy ref.)	0.003 ^{ns} (0.003)
Number of siblings	-0.019*** (0.002)
Age youngest child	-0.002** (0.001)
Partner employed	-0.009* (0.004)
Country of birth (BE ref.)	
EU27	-0.006 ^{ns} (0.008)
Non-EU27	-0.009 ^{ns} (0.006)
Region of residence (Flanders ref.)	
Brussels	0.018* (0.007)
Wallonia	0.002 ^{ns} (0.003)

Source: authors' calculations on DWH LM&SP (2010) and Census (2011).

Notes: *** p < 0.001, ** p < 0.01, * p < 0.05, ns = not significant. Robust standard errors are in parentheses. R² is 0.2688. N is 13683.