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Costing a feminist plan for a caring economy: the case of free universal childcare in the UK

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Abstract

This chapter makes the case for providing universal and free childcare services in the UK to contribute to building a care economy, one that would foster gender equality and high quality employment, in contrast to the effects of continued austerity and spending cuts. It estimates the total cost of such services using a variety of assumptions on staff pay and coverage and the consequent direct employment effects. It discusses the different multipliers that could be derived from such investment and the related tax revenue for the government. It argues that the net public funding of such an extensive and high quality childcare provision for all children aged 6 months to 5 years (prior to primary school entry) can be achieved by reversing some of the tax give-aways implemented since 2010, which have mainly benefited men. The discussion explores the ways in which universal childcare provision, combined with a reformed parental leave and family benefit system could promote gender equality in both employment and unpaid care.

Introduction

Since 2010, a conservative liberal democrat coalition government followed in 2015 by a conservative majority government implemented a vast austerity plan in the UK to deal with the budget deficit and rising public debt in the aftermath of the financial crisis of 2007-08. The claim at the time the plan was launched was that there was no alternative to this Plan A to rebalance the public finances and the economy. The plan involved drastic spending cuts in social security and public services. Low income households and in particular lone parents and single pensioners – the vast majority of whom are women – have been found to have borne the brunt of the cumulative spending cuts in services and tax-benefit changes (see Reed in this volume (LIST CHAPTER NUMBER and Reed and Portes, 2014). Not only have the changes damaged women's economic security and employment opportunities but they are also disrupting the fabric of the social infrastructure, with potential long-term negative consequences for the economy, while doing nothing to provide upwards convergence in men's and women's economic position.

This chapter examines an alternative settlement for the UK, one that aims at achieving a caring economy that works for people, and for gender equality. Feminist scholars in the UK Women's Budget Group – an independent think tank analysing gender implications of fiscal and social policies – have devised a Plan F, a feminist plan for a caring economy (WBG, 2015a). They argue that investing in care services, guaranteeing decent working conditions in paid care and supporting more equitable sharing of unpaid care between men and women are at the core of such an economy. Part

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of this alternative requires the government to secure funding for the social infrastructure – care, health, education and training services, social security and housing, alongside that already put in place for the physical infrastructure of transport and technology – albeit with modest ambition compared to what the country needs. By fostering social reproduction, investing in social infrastructure – not just building schools and hospitals but paying teachers, nurses and carers – is essential to improving well-being while also instrumental in increasing productivity of the workforce, in the short and longer run (Braunstein et al., 2011). In some ways it is in line with a 'social investment strategy' aimed at increasing equal opportunities of future generations through integrating their parents (and themselves later on) into the labour market (Morel et al., 2012). However, the idea of the care economy goes beyond the often too narrow and instrumental perspective of the social investment approach, which has become the accepted social policy paradigm in Europe since the turn of the century. From a care economy perspective, providing high quality care is not just seen as a means to achieve greater (female) employment by reducing constraints on labour supply, but also as a necessary feature of a civilised society that offers social equality and improves the security and quality of life of its population.

In light of these aims, this chapter investigates the fiscal space available for such an alternative vision and focuses on universal childcare provision for pre-school children as one of the bedrocks of the social infrastructure that is currently deficient. Along with the reduction in working time to accommodate childcare needs and a better sharing of caring tasks between parents, costings are estimated using various assumptions about childcare coverage and staff pay. Funding routes are explored for the UK, including by reversing tax giveaways identified as having benefited men disproportionately such as rises in personal tax allowances and cuts in fuel and alcohol duties. Other options are examined and alternative employment multipliers discussed. The model proposed is one in which dual-earner, dual-carer parents operate in partnership with public care services that are universally provided and of high quality, which could be termed a "triple carer model" (dual carer in the case of lone parents).

Making the case for free universal preschool childcare

The main problems with childcare provision in the UK and elsewhere in Europe have been identified for many years and its accessibility and affordability scrutinised by many researchers (De Henau et al., 2007a). The cost to parents is very high in the UK compared to its European neighbours and cost rises have been outstripping general inflation over the last ten to fifteen years (Rutter and Stocker, 2014; Rutter, 2015). Rutter and Stocker (2014) also point to the lack of places for young children, even among private providers, due to a lack of adequate public funding. Indeed, current state support is too low or inadequate (Rutter and Stocker, 2014; WBG, 2014): in 2015, public subsidies to providers to offer free childcare for 3-4 year olds (and disadvantaged 2 year olds) only covered for 15 hours a week and for 38 weeks of the year.[2] Moreover, the payment to providers per hour of childcare is below their supply cost. This leads them to recoup the shortfall by raising fees for hours purchased by parents, increasing the already high costs of UK childcare yet further. In addition, a complex system of means-tested cash transfers (tax credits) to families with children, including

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[2] This is effectively equivalent to 10h of parental opportunity to take employment if 48 working weeks per annum (p.a.) and commuting time are to be accounted for.

subsidies to pay for childcare expenses, leads to heavy costs being born by second earners if they work more than short part-time weeks. Besides inadequate provision, the UK is also characterised by high levels of inequality in childcare use, partly driven by its high costs, even when subsidised. Van Lancker (2013) calculated using EU-SILC data for 2009 on FTE childcare use by household income quintiles that children under 3 in the top 20% of families were six times more likely than those in the bottom 20% to be in childcare, compared to 1.5 more likely in Germany, Belgium and Italy and 1.2 in Denmark and Sweden.

Research has shown time and again that lack of affordable and accessible childcare provision is associated with lasting negative effects on gender inequalities over the life course, as families adopt a one-and-a-half breadwinner model that reinforces intra-household inequalities (De Henau et al, 2007a and b; Lewis, 2006; De Henau and Himmelweit, 2013). Moreover, access to formal childcare of high quality for a significant number of hours during the week is crucial to improving children's outcomes and life chances, even for very young toddlers and infants, especially those from more disadvantaged backgrounds (Havnes and Mogstad, 2011 and 2014; Karoly et al., 2005, Babchishin et al., 2013; Li et al., 2013; see also Van Lancker 2013 for a fuller discussion).

One solution is thus to invest on a broad scale in free full-time formal childcare for all children, with highly trained and well paid staff (De Henau et al. 2007a; Mohun Himmelweit et al., 2014; Ben Ghalim, 2011). Therefore this chapter looks at the costing and funding possibilities of such investment for children aged between 6 months and 5 years of age (when they enter primary school) in the UK. It also explores the synergies between free formal childcare and a reformed parental leave system for children in their first year. A large part of the cost calculations build on a previous study on costing free universal childcare for children under 3 for England alone, carried out by the New Economics Foundation in 2014 (Mohun Himmelweit et al., 2014). The scope of the NEF study is extended here to all pre-school children in the UK and the chapter further analyses different coverage scenarios. It also goes beyond calculating direct employment effects by investigating indirect and induced employment job creation, interactions with the tax credit system, funding sources from taxation and a reformed parental leave system.

The premise of this chapter is that there is enough fiscal space, even within existing current resources, to fund such radical policy. The chapter explores how this could be done, comparing the childcare funding needs to some of the tax give-aways afforded during successive budgets since 2010, despite a commitment to austerity in public finances. The justification for some of these tax cuts was that they would contribute to boosting employment. Comparatively little 'new' money was invested into childcare support (WBG, 2014).

Costing the free delivery of full-time universal childcare

The cost of providing free childcare for all pre-school children depends on five main criteria:
1. Number of children in each age group
2. Staff ratio per child for each age group
3. Ratio of supervisory care staff (highly qualified) to less qualified staff for each age group
4. Level of remuneration of both levels of staff
5. Opening hours per week (and per year) and percentage of children covered

The maximum scenario assumes 100% of children are covered for a full-time equivalent week of work, accounting for commuting time of one hour per day. A full-time working week is assumed to be of 35 hours in this model, as it represents the average working time of women who were employed full-time in 2014 (ONS, 2014b). Hence childcare is available for 40h per week.[3] Childcare provision is also assumed to be available for 48 weeks p.a., allowing for a conservative 4-week holiday period.

Numbers for the first three criteria are taken from population statistics and existing quality regulations, as shown in Table 1. We also assume that childcare centres have one manager and each centre has 41 children of mixed ages (Mohun Himmelweit et al., 2014). Supervisory staff are assumed to have higher educational qualifications than other caring staff, and more of them are allocated to older children proportionally (Table 1).

Table 1 Number of children aged 6 months to 5 years and staff/child ratios

	No. children in UK (mid-2014)	Staff: child ratio	% staff supervisor	No. places in centre
Children aged 6-12m	*389,183*			
Children aged 12-24m	*799,689*			
Children aged 6-24m	1,188,872	0.333	33%	9
Children aged 24-36m	828,035	0.250	50%	16
Children aged 36-60m	1,620,554	0.125	50%	16

Source: population from ONS (2015a); other data from Mohun Himmelweit et al. (2014)

The fourth criterion for high quality childcare provision relates to staff pay, and thus higher levels of pay for childcare workers are included. We take two possible salary profiles, following some of the suggestions of Mohun Himmelweit et al. (2014). The first, 'high quality', option is based on teachers' salary (in primary school, distinguishing between supervising and non-supervising levels using official pay scales); the second, 'decent quality', option is based on the average living wage. The living wage is paid to the lowest qualified category of staff (other staff) with the wages of supervisory childcare workers and centre managers calculated to maintain the same pay ratio between staff categories observed in the high quality option. Table 2 shows the hours and pay for each category of staff. Comparatively, mean weekly earnings of childcare workers were £224.80 in 2014, about £11,690 annually (ONS, 2014c).

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[3] Note that by taking the women's average as reference instead of the overall average, we do not imply that such a system is designed around childcare remaining a woman's issue that needs to fit around women's typical hours; if men worked shorter hours too, they would have more time to get involved in caring activities and that should be the way forward within a triple carer model.

Table 2 Childcare workers' annual and hourly pay and weekly hours (2014)

	Supervisory staff	Other staff	Centre manager
Teacher salary (£, yearly)	27,105	20,828	48,156
Living wage (£, yearly)	15,760	12,110	27,999
No. hours per week	29.7	29.7	35
Teacher salary (£, hourly)	17.55	13.49	26.46
Living wage (£, hourly)	10.20	7.85	15.38

Source: Department of Education (2014) and Living Wage Foundation (2015)

Notes: Carers' hours are based on teachers' hours in both salary options and calculated as follows: 1265h of teaching for 260 paid days = 82% of working time per day so total per week = 1265/260/0.82*5 = 29.7. This assumes that carers spend 18% of their day on other activities than direct contact with children (administrative, meetings etc.). Teachers' salaries are mid-point of the scale.

This information allows us to calculate a cost per child per hour for each type of staff and for each age group. We assume, following Mohun Himmelweit et al. (2014), that

- Non-wage costs are 23% of unit cost (per child per hour)
- Gross earnings attract pension contributions of 14.1%

Because managers' costs are per centre and not per age group, the following table shows the cost per child per hour with the manager's cost being apportioned per capita to each child.

Table 3 Total cost of free universal full-time childcare

	# children covered	Teacher wage		Living wage	
		Cost per hour per child (£)	Total cost p.a. (£m)	Cost per hour per child (£)	Total cost p.a. (£m)
6-24m	1,188,872	9.89	22,569	5.59	12,760
24-36m	828,035	8.00	12,713	4.53	7,199
36-60m	1,620,554	4.20	13,080	2.38	7,412
All	3,637,461		48,362		27,371

Note: the cost per hour per child is that of hours of direct care of the child, not hours of carer's work.

If childcare workers were paid a teacher's wage, £48bn would be required per annum to provide universal free childcare, reduced to £27bn if workers were paid at living wage levels.

This is a huge amount, equivalent to 3% of GDP in the high quality scenario and compares to a mere £5bn of existing annual current expenditure that goes towards the three main forms of childcare support (tax-free vouchers from some employers, childcare support in the Working Tax Credit and free childcare for 15h for 3-4y olds and 40% of 2y olds), some of which goes to older children.

The net cost to the Exchequer would be reduced through additional revenue raised from newly generated employment in childcare. Spending on means-tested tax credits and cash transfers would also be reduced for those taking up paid employment. Moreover, there would also be indirect and induced multiplier employment effects in the rest of the economy generating further net revenue to the Exchequer. (All this is provided there is spare capacity in the economy, that is enough people

looking for work or wanting to increase their working hours, including parents newly available because of the increased childcare provision, to take up these jobs). These employment effects will be considered next.

Employment effects

Labour demand effects

The main immediate employment effect is to create jobs in the care sector. The number of full-time equivalent (FTE) caring jobs created as a result of the maximum scenario is given in Table 4.

The calculation reflects the number of working hours of staff of each category needed per hour of care per child multiplied by the number of children and the number of hours covered. Total working hours account for regulatory staff/child ratios and non-care time as explained above. The number of jobs created considers childcare workers on a 30h full-time shift (in line with teachers). Therefore the number of FTE jobs created is calculated on a 35h week basis.

Table 4 Number of jobs created in childcare services (universal full-time coverage)

	Supervisory care staff	Other care staff	Centre manager	Total
Children aged 6-24m	217,203	434,405		651,608
Children aged 24-36m	170,189	170,189		340,378
Children aged 36-60m	166,539	166,539		333,078
Total	553,931	771,134	101,393	1,426,457
Total (35h FTE basis)	469,527	653,634	101,393	1,224,554

Source: own calculations

When based on a 35h full-time working week, the 1.2 million new jobs created correspond to 34 full-time jobs for every 100 children offered a full-time slot in a childcare centre.[4]

Of course not all of these jobs would be new since childcare providers already exist. In April-June 2014 in the UK, there were 337,000 people employed in the main three occupations of childcare workers (namely nursery nurses, childminders and playworkers)[5], 98% of whom were women and 55% full-time employed (ONS, 2014b). That's about 260,000 FTE jobs (about 19% of the total FTE jobs that would be created by the universal childcare reform)[6]. Accounting for existing jobs, net job

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[4] This is higher than the headline staff: child ratio derived from Table 1 of 23 carers for every 100 children. The difference is due to the fact that carers' full-time equivalent week is only 35h while children are to be looked after for 40h in the full-time scenario. Also not all the carers' time is used for time with children (18% was factored in for admin and meetings as explained above)

[5] Respectively categories 6121, 6122 and 6123 of the SOC 2010 occupations in the Labour Force Survey.

[6] Although it would be slightly more when accounting for the current teaching professionals in nursery education and managerial staff, the numbers of whom are difficult to estimate given the existing statistical classification that treats, for example, primary school and nursery school professionals (the latter being for some of the 3 and 4 year-olds usually) as part of the same occupation.

creation would be equal to a 3% increase in the FTE employed population of 28 million in 2014 (OECD, 2014b).

A second type of employment effect is the indirect multiplier (also known as Type I multiplier) stemming from employment created through increased demand for inputs from other sectors into the additional childcare services (food, construction, transport, etc.). One method of estimating such effects is by using input-output tables (Antonopoulos et al., 2010; De Henau et al., 2015). The ONS provides estimates on such indirect effects using data for 2010, for different sectors of the UK economy. The social sector classification which includes childcare services had a multiplier of 2.76 (for non-market activities, that is, those that are provided publicly). However, given the structure of childcare services (mainly procured from private providers), it is not clear what this multiplier would be if the childcare provision was fully publicly funded and publicly delivered. In comparison, private sector care services activities (childcare and social care combined) had a multiplier of 1.34. Perhaps the multiplier for the education sector is closer to what this exercise is assuming, that is childcare workforce resembling primary school teachers' workforce (in terms of pay and qualifications). In this sector, the multiplier was much lower at 1.17. This would still add an extra 208,000 FTE jobs to make the total reach 1.43 million.

A third type of employment multiplier (also known as Type II) is the induced impact on economic growth, due to an income effect on consumption and thus internal demand by the newly employed population. Estimates of such multiplier is not available for the UK but Scotland has carried out an exercise in calculating both Type I and Type II multipliers using Scottish input-output matrices. Given the sector analysed – education – which is expected to attract mainly local employment, the Scottish estimate could be used as proxy for the UK induced employment multiplier. In 2010, the indirect multiplier was 1.10, while the induced multiplier was 1.27 (Scottish Government, 2015). Since the induced effect applies to both directly and indirectly generated employment, if the same ratio is applied to the UK indirect multiplier of 1.17, then the induced multiplier for the UK would be 1.35. This means an additional 221,000 FTE jobs[7].

However, estimating such effects with more accuracy would require a full-blown macroeconomic simulation tool outside of the scope of this chapter (see chapters by Bargawi and Cozzi and Hansen and Andersen in this volume). The same goes for estimating a fourth employment effect over the longer run related to improved child outcomes, through increased productivity due to a higher quality and more inclusive early education system.

Table 5 summarises the estimates of these different employment effects.

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[7] Existing jobs were not subtracted from the direct and indirect effects when computing the induced effects since they would experience increased earnings that have induced effects as well.

Table 5 Job creation in childcare and other sectors

	Direct	Direct + indirect	Direct + indirect + induced
No. FTE jobs created			
Direct (care)	1,224,554	1,224,554	1,224,554
Indirect	0	208,174	208,174
Induced	0	0	221,422
Total	1,224,554	1,432,729	1,654,150
Point rise in female employment rate (16-64y)	6.0	7.0	8.1

Source: own calculations using multipliers from ONS and Scottish Government (2015)

Overall female employment rate (aged 16-64) in 2014 was 68% in headcount and 53% in FTE (based on female full-time hours). Depending on the multiplier and if all the new jobs are taken up by women (given the potential supply effect among mothers of young children discussed next), the increase in female employment rate would be between 6 points with only direct effects considered and 8 points if induced effects were included.

The 8 point increase in women's employment rate in the full multiplier scenario of 1.35 would mean nearly closing the ten-point headcount employment gap between all men and women aged 16-64 which remained unchanged since 2009.

Freeing up labour supply

Figures calculated in Table 5 provide only a demand-side picture of the job created. In general, it is possible to assume that any job that cannot be filled by the resident population (that is if there isn't enough spare capacity) would be by calling upon immigrant workforce (as in the case of the healthcare system). Nevertheless it is useful to consider the supply-side effects of such policy, especially given the constraints that childcare costs and availability impose on (mainly) mothers' employment prospects.

Indeed boosting availability of high quality childcare is expected to free up time of the current unpaid carers of pre-school children so that they can take up employment or increase their working time. The magnitude of this supply-side effect will depend on the number of unpaid carers whose time would be freed up relative to the number of jobs created in the childcare sector, and on the unpaid carers' willingness and capacity to supply more labour.

Using data on full-time equivalent employment rates for parents whose youngest child is under the age of 5, we can estimate the employment gap between fathers and mothers and use it as an indicator of the potential increase in labour supply for mothers if we assume that fathers do not face caring time constraints. This is one way of estimating an upper bound of labour supply in a model that assumes fathers' and mothers' characteristics (such as education, skills, motivations and

experience) other than their caring time constraint do not differ, and so employment rates would be the same if this constraint was alleviated. This makes sense insofar as such gender differences in personal characteristics have significantly reduced over the past few decades (Goldin, 2006).

Based on a 35-hour week model, the FTE employment rate of mothers of children aged 0-4 was 41% in 2014 and that of corresponding fathers was 84%[8]. The model assumes that if 84% of such fathers are able to work the equivalent of 35 hours a week then so could mothers if their child caring constraints were fully alleviated, thereby increasing their FTE employment rate by 43 percentage points.

In 2014, there were about 2.9 million mothers of children aged 6 months to 5 years (ONS, 2014b). The supply-side effect would thus be 43% of that figure, that is about 1,269,000 new full-time equivalents. This is just above the direct demand for childcare employment (and 30% more if we account for existing childcare jobs). Overall the remaining demand of just under 400,000 FTE jobs (considering induced effects) would potentially reduce unemployment by a fifth, according to 2014 figures, and by even more (30%) if we consider that the 134,000 unemployed women with a child aged 0-4 would also get a job (ONS, 2014b).

Interaction with means-tested benefits

Providing free childcare to all is expected to increase the labour supply of mothers of young children in both high and low income families. However for the latter, the interaction with means-tested benefits needs to be considered to assess the strength of these supply effects, given that childcare support is intertwined with in-work benefit payments.

The main existing in-work benefit payment, Universal Credit, is a system of cash benefits (tax credits) intended to make work pay for low income households. Because of its household means-tested structure, it provides little incentive to second earners in low income families to take-up employment or work longer hours, up to a certain level of wage rates. The analysis that follows looks at the Universal Credit system since it is meant to overhaul the existing Working and Child Tax Credits system gradually. Universal Credit will reduce the level of benefit paid by 65p for every additional net pound earned by the household, above a certain level of income (known as a "work allowance"), a threshold that is more likely to be attained if one member of the couple is already in (full-time) employment.

There is no single way to analyse work incentives for second earners. One approach examined here is to calculate the gain in net household income after childcare costs for a non-employed partner in a couple to take up paid employment at 35 hours, when the other partner is already in full-time employment, under a regime of Universal Credit and compare this gain with that if in-work benefits were not in place. If the income generated after childcare costs is lower in the former regime, then

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[8] Headcount rates are derived from the ONS series on working families and FTE calculations are based on proportions of employed men and women with young children working part-time (15% and 55% respectively), using average working hours of part-time men and women overall (around 16 hours). We assume a full-time working week based on the female full-time average of 35 hours. All data are from ONS (2014b).

the system is said to create disincentives for the second earner. These effects can then be compared with a system in which provision of childcare is free.

Using an example of couples where both partners' wage rate is the median wage of £11.61 an hour and with two children aged 4 and 1, we can calculate the net household income gain for taking-up 35h employment for the second earner (the first earner being on 40h a week) in four situations to be compared with one another:

a. With existing childcare costs and UC (and thus available childcare support within the UC system)
b. With existing childcare costs but without UC or any other system of in work benefits (and therefore no childcare support)
c. Without childcare costs (free universal provision) but with whatever UC support is available (if any)
d. With no childcare costs and no UC

At median wage rates, the increase in gross annual household income owing to the partner taking up full-time employment (35h) is £21,130 (Table 6). In net terms and after childcare costs then the gain in household income is £2890 (14% of gross gain) under the planned UC system (situation a) and £3199 (15% of gross gain) if there was no tax credit support available (situation b)[9]. At this level of wages, the UC system doesn't do anything to relieve the high costs of childcare on the employment incentives of second earners (though it does make the family better off). Note that in either situation the net gain is rather small (only 15% of additional income retained) and could be entirely swallowed by other work-related costs such as commuting. So as such, high childcare costs don't quite make full-time employment for second earners pay much at median wage levels.

Table 6 Net household income gains from employment with and without Universal Credit and childcare costs (couples on median wages and with 2 pre-school children)

(£, yearly)	(a) Childcare costs with UC	(b) Childcare costs w/o UC	(c) Free childcare with UC	(d) Free childcare w/o UC
Gross income 0h	24,149	24,149	24,149	24,149
Gross income 35h	45,279	45,279	45,279	45,279
Gross income gain	21,130	21,130	21,130	21,130
Net income 0h	24,705	21,147	24,705	21,147
Childcare costs (if 35h work)	14,124	14,124	0	0
Net income 35h	27,595	24,346	38,470	38,470
Net income gain	2890	3199	13,765	17,323
Net income gain (% gross gain)	14%	15%	65%	82%

Source: own calculations based on tax year 2014-15. Couple with two children aged 4 and 1, one partner in full-time employment at 40h. Both partners on median wage rates. Gain is calculated for second partner to move from 0 to 35h employment.

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[9] The planned system of Universal Credit covers 85% of childcare costs up to a limit. In situations a and c childcare costs are assumed to be at an average of £4.4 an hour per child (based on Rutter and Stocker, 2014) for 48 weeks. However 15h of free childcare per week for 38 weeks are taken up by the oldest child aged 4 (the youngest is 1 year old and not entitled to the current provision of free hours).

In comparison, looking at situations c and d, for the same gross gain, the net gain for the household in a world where free universal childcare is provided (full-time) is £13,765 (65% of gross gain) under the UC system (situation c) and £17,323 (82% of gross gain) if there was no tax credit system (situation d). Interestingly, when childcare is free, the disincentive provided by means-testing in the UC system becomes clear. That said, the net gain with free childcare remains higher than in either a or b, which is expected.

Also, within a free childcare system, the lower the wage rate, the larger the disincentive effect of the means-tested benefits. For example, at living wages, the respective net income gains from employment would be 40% of gross gains with UC (situation c) compared to 89% without UC (situation d).

A more complete analysis of the interaction between the different elements of the tax-benefit system that relate to employment disincentives in the presence of young children would require a full-blown tax-benefit simulation tool such as that used in Reed's chapter in this volume, accompanied by an econometric behavioural model of employment. This would also allow a more accurate estimation of the reduction in total spending on tax credits and other means-tested benefits from providing universal childcare and thus increasing employment.

Net funding needs

Given these employment considerations, it is possible to assess the revenue streams that would go to the Treasury, thereby reducing the net bill necessary to fund the investment in free universal childcare.

Firstly the amount currently spent on childcare subsidies (£5bn in 2014-15) would obviously be absorbed by the new investment (apart for a minor part going to some older children using out-of-school childcare). Secondly direct revenue would arise from income tax and national insurance levied on the newly created jobs; tax revenue would also come in the form of indirect taxation as a result of increased consumption. Thirdly, spending on tax credits (Universal Credit) could be reduced as employment and earnings increase.

A rough estimate of the last of these can be calculated as follows, assuming mothers of young children took up employment at earnings levels described above. The total tax credit bill paid to families with children aged between 6 months and 5 years and excluding childcare subsidies was just under £10bn in 2014.[10] As Table 6 showed, couple families at median wage levels would no longer be entitled to any UC if childcare was free and both parents were employed full-time (in fact, at least 30h). Lone parents would still get substantial amounts of tax credit, even if working full-time. Using data from the Family Resources Survey, lone parents accounted for 39% of families with children under 5 receiving tax credits in 2013-14. That's about 600,000 families.[11] Simulating their

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[10] 39% of the non-childcare TC bill went to families with children aged 0-4 in 2012-13 (HMRC, 2014), and total tax credit bill was £30bn in 2014, £2bn in childcare subsidies (DWP, 2014).
[11] Data kindly provided by Howard Reed's Landman Economics simulation model.

entitlement on a 35h working week basis and averaging between one- and two-child families, the remaining total bill in non-childcare UC would be an average £1.7bn at median wages and £3.6bn at living wages.[12] Therefore the tax credit bill excluding childcare subsidies would be reduced by £8bn and £6.1bn respectively.

Revenue from the new jobs in the form of income tax and national insurance contributions of employees and of employers can also be estimated. Jobs resulting from indirect and induced effects are assumed to be paid at the full-time median salary per annum of £23,889. Table 7 summarises the tax revenue from all new jobs created. It also shows the remaining net funding needs for the government, taking into account the current £5bn annual childcare budget and the reduced tax credits bill estimated above. Revenue from indirect taxation has also been considered, using a rough estimate based on the average tax incidence on gross household income (17%) for non-retired households in the middle quintiles (2nd, 3rd and 4th) in 2013-14 (ONS, 2015b)[13].

Table 7 Tax revenue from job creation and net funding needs

Employment effect	Teacher wage			Living wage		
	Direct	Direct + indirect	Direct + indirect + induced	Direct	Direct + indirect	Direct + indirect + induced
Gross funding need (£m)	48,362	48,362	48,362	27,371	27,371	27,371
Tax revenue from jobs (£m)						
Care	10,752	10,752	10,752	3,795	3,795	3,795
Other	0	1,434	2,959	0	1,434	2,959
Total	10,752	12,186	13,711	3,795	5,229	6,754
Indirect tax revenue (£m)	6,113	6,958	7,858	3,554	4,400	5,299
Reduced UC bill (£m)	8,000	8,000	8,000	6,100	6,100	6,100
Current funding cc (£m)	5,000	5,000	5,000	5,000	5,000	5,000
Net funding need (£m)	18,498	16,218	13,794	8,922	6,642	4,218
% of gross funding	38%	34%	29%	33%	24%	15%

Source: own calculations. Note: 'UC' stands for Universal Credit and 'cc' for childcare.

As the net funding needs remain significant in either scenario (£14bn and £4bn respectively, assuming induced effects), funding from other sources would need to be brought in. One possibility would be to reverse some of the main two tax give-aways afforded since 2010. Successive above-inflation rises in personal income tax allowance (and the introduction of a transferable tax allowance for married couples) amounted to foregone revenue of £13bn per year in 2015-16 and freezes or cuts in alcohol and fuel duties added up to £7bn per year (OBR, 2015). These were criticised for being ill targeted, expensive and less advantageous for women (IFS, 2015; WBG, 2014, 2015b).

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[12] These wage rates represent the respective minimum wages assumed in each childcare model (teacher option and living wage option). In the former option, teachers' wages are higher but median wages are assumed for indirect and induced employment effects.

[13] Keeping a constant rate is a plausible method: the incidence is 18% for households in the 2nd quintile and 15% for those in the 4th quintile (so the range around the average is small). Moreover the difference in average gross income between the two groups is just above the median gross earnings, which is in the range of the increase in household income if one member was taking up one of these extra jobs/hours.

Reversing the personal income tax give-away would almost entirely cover for the shortfall in the teacher scenario (induced effects) while reversing the excise duties give-away would more than fill the gap in the living wage scenario (even if only indirect effects were considered).

In addition, companies could fund the shortfall: the successive cuts in the corporation tax rate – which were sold by the government as a job creation policy – were forecast to add up to about £7.6bn per year in foregone revenue in 2015-16 (HMRC and HM Treasury, 2013). The government justified the successive cuts in the corporation tax rate as ways to boost investment and thus employment levels since 2010 (HMRC and HM Treasury, 2013). Together with the other tax reductions, they are claimed to have contributed to the 1.8 million rise in employment observed between 2010 and 2015, which is 1.65 million in full-time equivalents. Interestingly, this is equivalent to the 1.6 million FTE jobs the free childcare plan would create, accounting for its indirect effects.

So if the government claim is correct, the same strong case could be made to reverse these give-aways to fund employment in care, and although the total employment effect might be neutral (same total employment 'created') the gender implications would likely be very different with a large reduction in the gender employment gap in the case of care. Incidentally, if only half of the total amount of these three give-aways was reversed (that is £13.8bn), this would be just as much as the 13.8bn shortfall in the teacher scenario.

In any case, the net funding needs – even in the higher quality scenario – are well below the annual foregone revenue due to tax avoidance and evasion, even using the government cautious estimate of £34bn (which compares to up to £120bn according to Sikka, 2015).

Alternative scenarios for childcare provision

If the sources of additional revenue and funding explored above are too speculative or politically infeasible, other avenues for spending on childcare could be explored. This could be achieved by reducing the number of children or hours provided for by the free high quality childcare places (either by targeting specific children or on the assumption that not all parents will want to take up a full-time childcare place for every child from 6 months old until school age). The third could be to charge a fee to parents, which for the purpose of looking at total costs would be equivalent to reducing the proportion of children that are covered free of charge and/or full-time. If we were to look at distributional and incentive aspects then this third option should be considered separately because of potential differential take-up effects of fees according to parental income levels.[14]

Notwithstanding costing issues, alternative policies could also be designed to require fewer hours in centre-based care and more equally shared parental caring time (for couples).[15] For example for couples, with a reduced working week spanning four days (7 hours a day to tie in with the 35h week discussed above), and assuming alternate days of care by each parent, centre-based coverage would

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[14] Of course, fees could be adapted to parents' income, as in many countries with subsidised childcare places (Van Lancker, 2013).
[15] See also discussion in Mohun Himmelweit et al. (2014)

only be provided for three days a week, thereby reducing total funding needs. Option 2 below is based on this premise. It would be adapted to lone parents' 4-day working week so as to provide 32 hours of childcare. Other options are also discussed below and reflect what some political parties have pledged to achieve (albeit at a different – lower – level of wages).

The following options are examined:
- Option 1 is the scenario above with 40h coverage including one hour per day for commuting
- Option 2 covers all children for three days a week, 8h a day, and four days a week for lone parents (averaging 26h in total[16], in line with Labour and SNP 2015 general election proposals of 25h)
- Option 3 is the existing (pre-2015 election) provision of 15h free but extended to all pre-school children (and at higher wage levels)
- Option 4 is the planned (2015 Conservative government) provision of 30h free for working parents (assumed to cover 75% of children in each age group)

Note that option 4, the current government's proposal, offers longer hours than option 2 but is restricted to working parents. This can be an issue for parents looking for work or in full-time education but also a questionable assumption for those parents at home with disability or long-term conditions who may need help with looking after their child. It would also imply that childcare was a benefit for the parents, not the child.

All of the options offer a more generous scenario than any party's proposal in their 2015 election manifesto. The Conservative government elected in May 2015 is committed to offer 30 hours free childcare for 3-4 year olds (which is also SNP policy in Scotland). Labour proposal was for 25 hours (supported by the SNP for England). The Liberal Democrats' long term plan was to aim for 20 hours for all children aged from 9 months to 5 years, starting with 15 hours to all 2y olds. However, all explicitly focused on access to children whose parents are both in paid employment. Only the Greens pledged a free childcare scenario for all children regardless of the working status of their parents but they did not give a figure of hours per week. None of these parties made clear whether they would extend the free hours offer from 38 weeks to 48 weeks a year (as in the options above). Given some of the costing included in some of the manifestos, it is unlikely that the proposals envisaged subsidising the care staff at rates corresponding to a living wage, let alone a teacher's wage.

Table 8 summarises the main results for each option and for both types of pay for carers, using the full (induced) employment multiplier.

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[16] 80% of parents on 24h (couples) and 20% on 32h (lone parents), as per ONS figures (ONS, 2014a).

Table 8 Cost of free childcare for alternative hours and coverage

	Option 1 100% cov. / 40h per week	Option 2 100% cov. / 26h per week	Option 3 100% cov. / 15h per week	Option 4 75% cov. / 30h per week
Total cost (£m)				
Teacher wage	48,362	31,435	18,136	27,204
Living wage	27,371	17,791	10,264	15,396
No. FTE care jobs	1,224,554	795,960	459,208	688,812
No. FTE non care jobs	429,596	279,237	161,098	241,648
Tax revenue from jobs (£m)				
Teacher wage	18,609	12,096	6,978	10,468
Living wage	11,652	7,574	4,370	6,554
Reduced UC bill (£m)				
Teacher wage	8,000	6,800	4,600	5,100
Living wage	6,100	5,300	2,100	3,975
Net funding need (£m)				
Teacher wage	13,794	5,616	448	4,971
Living wage	4,218	-343	-1,356	-359

Source: own calculations

The net cost (net funding need) of £6bn in option 2 (teacher's salary) is below the £7bn annual tax give-aways in excise duties cumulated between 2010 and 2015. It is entirely self-funded form increased direct adn indirect tax revenue and reduced Universal Credit bill, as are options 3 and 4.

The 'cheapest' option is obviously Option 3 and the teaching wage scenario would require a net amount (£450m) that is less than the extra £1bn commitment by the government in 2015 to fund the extra hours of free childcare. However, providing 15h of childcare, albeit with well-paid staff, failing to even cover two days of work including commuting time, would not be considered sufficient to promote a triple-carer dual-earner model, as it is unlikely that both parents would reduce their hours in equal measure to fill in the gap.

On the other hand commitment could still be made to find additional funding (from reversing tax give-aways or curbing tax avoidance schemes) so that option 1 is pursued. Then if option 2 was eventually chosen as a better way to foster gender equality and parental involvement in sharing some caring time, the difference in funding requirement between the two options (£8bn of net funding needs) could be directed to investing in other aspects of the caring economy and its social infrastructure. An obvious area that crucially needs additional funding is adult social care services. The final report of the independent Commission on the Future of Health and Social Care in England estimated that making sufficient care to provide for all critical and substantial needs free at the point of use for older people would require about £3bn in the short term rising to £14bn by 2025 (Barker, 2014).

Besides providing high quality childcare to all children, promoting a more gender equal care and employment system would also require reforming the maternity and paternity leave system so as to enhance the chances of equal parenting in the first months of a child's life. This might have knock-on effects on the time organisation of both parents when the child enters formal childcare, improving the chances of adopting a reduced 4-day working week as in the model of option 2 above (or even option 1 with a 35h week for men too). Research showed that relatively short periods of individual well-paid leave were attractive to fathers and beneficial to mothers' long-term prospects (see De Henau et al., 2007b, for a discussion).

Therefore one possibility could be offering six months of individual leave to each parent paid as a relatively high proportion of earnings, to accompany universal childcare provision. A fiscally neutral solution could be to use the amount spent per child during the first year (from existing parental leave spending and the first six months of the gross funding of free childcare provision). This would be equivalent to £347 per week on average per child over the first year (and thus for each parent), using option 1 costing. That's 70% of median full-time earnings (ONS, 2014c), and is more than double the current amount of statutory maternity and paternity leave available per child over the first year. The amount could be allocated on a flat-rate basis (thus more generous for lower earnings) or as a proportion of earnings (as in Germany and Sweden), between certain limits. This would affect take-up incentives for parents on different income levels and thus the way children of different socio-economic backgrounds are looked after. However if the leave period is limited to six months per parent and generous high quality childcare was offered afterwards, limited differential impact on children's outcomes and career prospects of parents between those choosing the leave and those opting for formal childcare would be expected (Ray et al., 2010).

Conclusion

This chapter has demonstrated that investing in free childcare is a costly but feasible endeavour using existing resources more effectively. The UK Chancellor claimed in his 2015 summer budget that the 2.3m jobs created since he took office in 2010 (2m FTE) were made possible by the tax and spending cuts his government introduced. Whether they have caused the increase in employment remains to be shown but in any case, the childcare policy presented above shows that almost the equivalent in terms of FTE employment could be created, with much clearer causal effects (given the direct investment in public employment), and with more decent working conditions and earnings than many of the private sector jobs (25% of which were self-employment, many with low earnings) created since 2010 (WBG, 2015b). Moreover such investment would in particular improve women's employment opportunities and earnings. It would promote more equal employment and working hours between men and women. It would also reduce spending on means-tested social security benefits.

Be that as it may, building the social infrastructure and providing the care that people need is not just about creating employment, boosting economic growth and therefore investing in productive assets – children – for the return they can bring. The case made here is about what a civilised society needs to do. Providing free and universal childcare will enhance children's social interaction and education, which may have positive knock-on effects on their future outcomes. Significant amounts of resources are required – full-time universal childcare coverage at teacher wages amounts to 3% of

GDP. However between 70% and 100% of the gross amount could be self-funded through tax revenue stemming from direct and indirect job creation and subsequent consumption and reduced social security benefit payments, while reversing some of the main three tax give-aways of the coalition 2010-2015 government could fund the remaining shortfall. Even if it wasn't strictly self-funding (as in option 1 or option 2 at teachers' wages), investing in free universal childcare of high quality would still be worth on the grounds of improving well-being, quality of life and social cohesion.

The chapter also explored issues around fostering more equal parenting time. Transforming labour markets, childcare provision and parental leave systems could contribute to developing a high quality triple-carer/dual-earner model that fosters gender equality in both spheres of paid and unpaid work. At the core of this plan would be the move towards reducing the full-time working week to a four-day week, so that parents of young children can alternate one day of full-time care at home. This is an essential step towards building a caring economy that doesn't only rely on formal services but also on providing quality time and protection to unpaid carers, both men and women.

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