

# Incentivizing part-time work: The labour supply effects of Flexible Care Allowance

Background report for the Finnish Economic Policy Council

Tuomas Pekkarinen and Juha Tuomala

VATT Institute for Economic Research

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## 1. Introduction

Policies to improve the overall employment rate have been under intensive debate in recent years in Finland. This debate reflects concerns that are related to population ageing and the sustainability of the current welfare structure. This policy debate has often focused on groups that are seen as "low-hanging fruit" in the sense that their employment rates are notably lower in Finland than in relevant comparison countries such as other Nordic countries. Based on these comparisons, parents of young children have been identified as one group among whom there is scope to increase employment.

It is true that especially the employment rate of mothers of children under age three is lower in Finland than in other Nordic countries. Previous attempts to explain this difference have focused on the features of the social benefits that the Finnish welfare state provides to parents of small children. In Finland parents of children under age three are entitled to a relatively generous Home Care Allowance, if their child does not use municipal day care services. In practice this often implies that mothers stay at home to take care of their youngest child and face strong disincentives to participate in the labour market.

Given the low employment rates and the clear disincentives that the Home Care Allowance creates, incentivizing part-time work has been suggested as a potentially promising policy to increase the employment rates of parents of young children. Part-time work can be a way of combining child care with working. As parents of young children typically want to contribute to the care of their own children, subsidizing the part-time work of this group can be an effective policy to increase their labour supply. Part-time work can also mitigate the potential negative effects that long absences from the labour market may have on the human capital of stay-at-home parents.

However, arguments for subsidizing part-time work build on the neoclassical model of labour supply in which workers are free to choose the hours they work at a given market equilibrium wage. According to this reasoning, subsidizing part-time work will encourage individuals whose opportunity cost of participating in the labour market is high to increase their hours of work. Yet, the assumption that individuals can freely adjust their hours is obviously unrealistic. In most labour markets workers are constrained to choose between "bundles" of hours and wages. In this kind of labour market labour supply may be less responsive to incentives for part-time work than the standard models of labour supply would suggest.

In this background report we examine the effect of the Flexible Care Allowance on the labour supply of the parents of children under age three. This policy was designed to encourage the parents of children under age three to work part-time by introducing a subsidy that mitigated the negative incentives created by the Home Care Allowance. This subsidy was gradually phased out as a function of hours worked so that it specifically incentivized working part-time.

The policy was adopted in 2014 and it replaced the older Partial Care Allowance that had provided weaker subsidies for part-time work for parents of children under age three and between ages seven and eight. In our analysis, we use the parents of children between ages seven and eight as a control group and estimate the effect of the Flexible Care Allowance on labour supply using differences-in-differences identification strategy.

We are especially interested in how the sectoral composition of the labour market and the characteristics of the workers limit the possibilities to work part-time. Therefore, we focus a lot on the heterogeneous effects of Flexible Care Allowance across industries, firms, and types of workers. Low share of part time work is not a peculiar feature of the parents of young children in Finland. Part-time work is rare in general. If low share of part-time work reflects sectoral composition of the economy that, perhaps for reasons related to production technology, encourages full time work, policies that incentivize part time work may have only a limited impact on the employment rate. The evidence on the heterogeneous effects of Flexible Care allowance can shed light on this issue.

Our results show that Flexible Care Allowance had a modest positive average effect on the employment of mothers of children under age three. There was no detectable effect on any outcomes of men. The small positive effect on the mothers' days of employment masks considerable heterogeneity. Flexible Care Allowance succeeded in attracting some low-educated, low-income stay-at-home mothers to work part-time and therefore to increase their labour supply. At the same time, however, this subsidy encouraged some higher educated mothers who were already in full-time employment with relatively high earnings to reduce their working hours by opting for part-time work. Moreover, the effects on labour supply was entirely driven by workers who changed their jobs which is consistent with heterogeneity of the labour supply effects across firms. Part-time work increased in firms where part-time work was common while there was no effect in firms where part-time work was rare. Therefore, mothers responded to the incentives created by Flexible Care Allowance by switching to jobs where part time work was easier to arrange.

The rest of the paper is organized as follows. Next section describes Finnish child care allowances and makes comparison on females' employment in the Nordic countries. The reform of 2014 and implementation of Flexible Care Allowance are described in section 3. Section 4 is a literature review. Data and descriptive statistics are presented in in section 5. Empirical methods and results are presented in sections 6 and 7. Finally, section 8 concludes.

## **2. Employment and childcare allowances**

Incentives for parents with young children to work have been under debate in Finland for a long time. One reason for this is the low employment rate of women at child bearing age in Finland compared to other Nordic countries. Figure 1 shows the employment rates of women aged 26-34 in Norway, Sweden, Finland and Denmark between 1980 and 2017. As the figure shows, the employment rate of women of this age has been lower in Finland than in the other Nordic countries since the recession of the 1990s. In particular, the difference with respect to Sweden is noticeable and has increased since 2010.<sup>1</sup>

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<sup>1</sup> The large difference with respect to Sweden may partly be explained by differences in statistical methods, as unlike those in Finland, those on parental leave are classified as employed in Sweden (Kambur and Pärnänen, 2017).

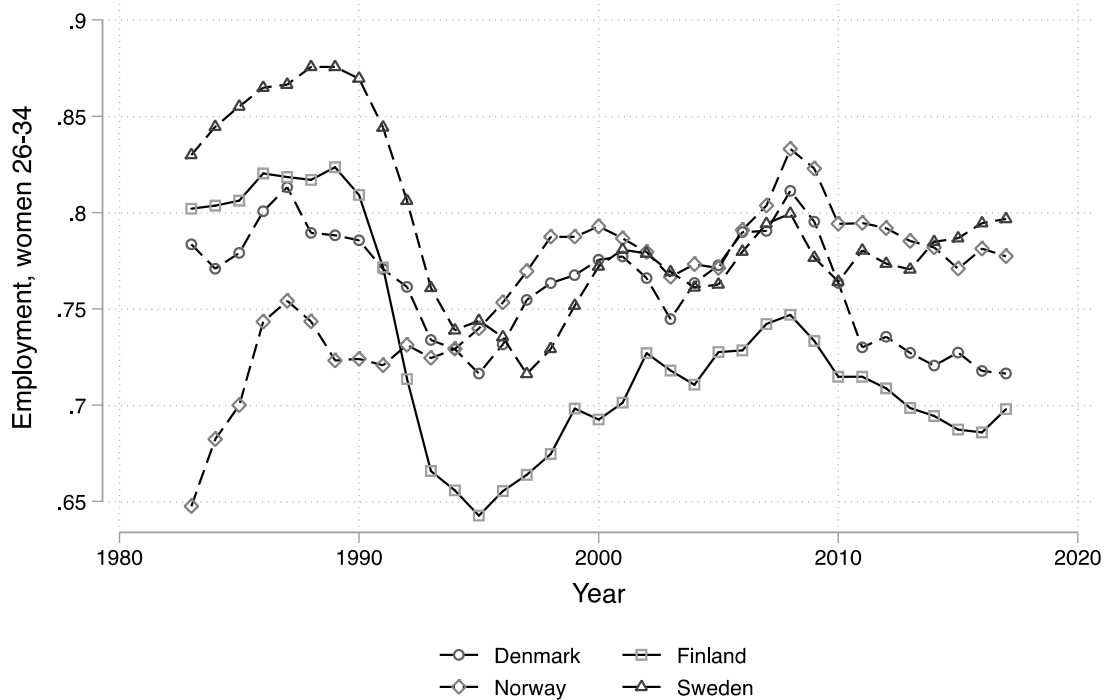


Figure 1. Employment rates of women aged 26-34 in Denmark, Finland, Norway, and Sweden 1984-2017

Although the differences in employment rates between countries are influenced by many factors, the lower employment rate of Finnish women has often been interpreted as indicating that combining work and childcare is more difficult in Finland than in other Nordic countries. For example, lower participation rate in early childhood education in Finland may be an indication of this. While in Norway, Sweden and Denmark over 90% of children aged 3 to 5 years attended early childhood education in 2016, according to the OECD, the corresponding share in Finland was only 84%.

The share of women working part-time is also somewhat lower in Finland than in other Nordic countries, although it has been increasing. In 2017 the share of women working part-time was 22% (of all employed) in Finland, while at the same time the share of males who work part-time was much lower (12%). Figure 2 shows the share of women working part-time in Norway, Sweden, Finland and Denmark between 1983 and 2017 in the age group 25-65. The share of women working part-time has steadily increased in Finland and has already caught up with Sweden but is still lower than in Norway and Denmark.

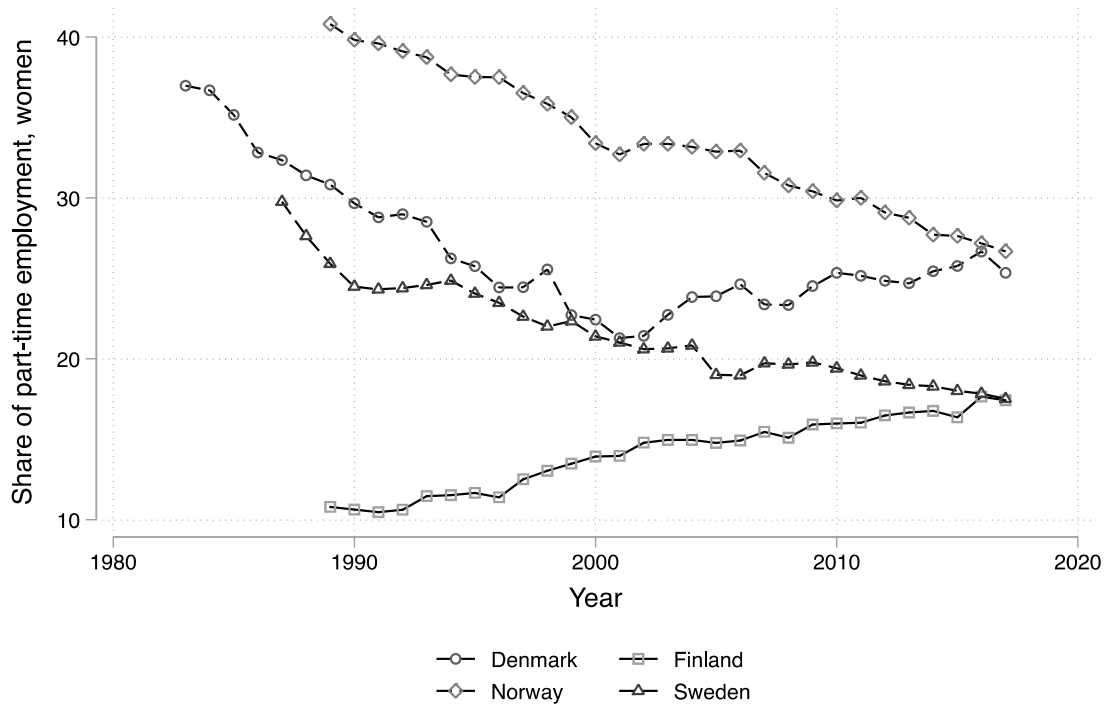


Figure 2 Share of part-time workers among employed women in Denmark, Finland, Norway, and Sweden, 1984-2017

The prevalence of part-time work is strongly correlated with the structure of the industry. Table 1 reports the shares of part-time workers in the most important Finnish industries in 2008 and 2016. Although the share of part-time work has increased in nearly all industries the differences between industries remain remarkably stable. Part-time work is most common in the wholesale and retail trade, the accommodation and food service activities, and the human health and social work activities. These are also industries with large shares of female workers. Large and persistent cross-industry differences in the share of part-time work suggest that the sectoral labour markets where individual workers operate may impose restrictions on their ability to work part-time.

Table 1. Share of part-time work across industries, 2008 and 2016, all workers

Industry	2008	2016
Agriculture, forestry and fishing	0,149	0,241
Mining and quarrying	0,100	0,079
Manufacturing	0,044	0,074
Electricity, gas, steam and air conditioning supply +	0,079	0,103
Construction	0,014	0,129
Wholesale and retail trade; repair of motor vehicles and motorcycles	0,243	0,332
Transportation and storage	0,190	0,266
Accommodation and food service activities	0,266	0,355
Information and communication	0,047	0,068
Financial and insurance activities	0,081	0,083
Real estate activities	0,053	0,104
Professional, scientific and technical activities	0,071	0,105
Administrative and support service activities	0,096	0,295
Public administration and defence; compulsory social security	0,110	0,106
Education	0,146	0,147
Human health and social work activities	0,123	0,144
Arts, entertainment and recreation	0,129	0,274
Other service activities	0,111	0,182

Social benefits that the Finnish welfare state provides for the parents of children under age three have also been suggested as an important factor for explaining the low employment rates and shares of part-time work in this group in Finland. A very common argument is that these benefits disincentivize participation in the labour market. In particular, the Finnish benefit structure differs from other Nordic countries in the case of parents who are no longer entitled to parental allowances which takes place when child turns nine months. Employed parents of children who are older than nine months are entitled to take child care leave. If the child does not attend municipal child care during the child care leave, the parent is entitled to receive Home Care Allowance. This allowance is also extended to parents who are not employed.

Home Care Allowance is a feature of the Finnish social security system that clearly distinguishes it from other Nordic countries. This allowance has been in use since the mid-1980's without any interruption. Unlike in other Nordic countries, Home Care Allowance can be paid for more than one child. In 2019, parents of children under age three were paid € 338 per month for one child and € 103 for every additional child under three and € 65 for every child over three that did not attend municipal day care. Many municipalities have also topped up these allowances with municipality-specific premiums.

Given the generosity of this allowance, it is not surprising that the share of parents, and especially mothers, who stay at home to take care of children is higher in Finland than in other Nordic countries. According to Salmi and Järvi (2017) these mothers are lower educated and have lower earnings than women of their age on average. The use of Home Care Allowance has been declining in recent years. In 2016, 106 300 individuals in Finland received Home Care

Allowance whereas the same figure was 117 835 in 2010. In relative terms, the share of mothers of children under the age three receiving Home Care Allowance has declined from 55 % in 2010 to 51 % in 2016. The majority (92.4%) of recipients of Home Care Allowance were women in 2016.

### ***Incentives to work part-time prior 2014***

As part-time work has long been considered as a way of combining working life and care of children, parents of children under three years old have also been able to apply for benefits that are designed to encourage working part time. Since 1989 parents of small children under age three have been entitled to apply for a Partial Care Allowance if they worked less than 30 hour per week. In 2004 this allowance was also extended to parents of school-age children in the first and second grades of the elementary school. Currently Partial Care Allowance is 96.89 euros per month. The Partial Care Allowance does not exclude the use of municipal or private day care services.

Although Partial Care Allowance was designed to encourage part-time work it is unclear how it succeeded in this goal when it comes to the parents of children under age three. Earlier studies on the labour supply of parents with young children show that the return to working life through part-time work was very low between 1996 and 2006 (Haataja and Juutilainen 2014). The poor effectiveness of Partial Care Allowance has been attributed largely to the low level of financial compensation. Due to this take-up of Partial Care Allowance has remained at quite low level among working parents.

### **3. Reform of 2014: Implementation of the Flexible Care Allowance**

Low take-up rates of Partial Care Allowance among parents of children under age three was one of the main reasons that lead to the decision of introducing the new Flexible Care Allowance in 2014. This new subsidy replaced the Partial Care Allowance for these parents. Flexible Care Allowance improved the labour supply incentives of parents of children under three considerably and its aim was to facilitate the transition from child care back to employment. Parents of school-aged children in the first and second grade of the comprehensive school were not affected by this policy change and were still entitled to the old Partial Care Allowance.

Flexible Care Allowance increased the subsidies that were paid for part-time work considerably. Prior to 2014, parents working less than 30 hours per week where entitled to € 97 of Partial Care Allowance per month. Flexible Care Allowance increased the subsidy by 150 percent to € 243, if the hours per week were less than 22,5 per week or no more than 60 percent of the full weekly working time. For hours of work between 22.5 and 30 hours per week, or at most 80 % of the full weekly working time, the subsidy was now € 162 per month which was still 67 percent higher than what the parent would have received with Partial Care Allowance.

Entitlement conditions for Flexible Care Allowance are very similar to the old Partial Care Allowance. The applicant needs to have an employment contract or be a grant recipient or self-employed. The applicant should reach an agreement about the reduction of working time with his or her employer. However, the reduction of working time is not necessary, if it is already short enough for the entitlement to the allowance. Flexible or Partial Care Allowance is paid only for one child at a time. If applicant is entitled to parental/maternity allowance, she will not be entitled to a Flexible or Partial Care Allowance. In addition, if the applicant takes care of child at home and receives Home Care Allowance, she will not be entitled to Flexible or Partial Care Allowance. Both spouses are entitled to Flexible Care Allowance if they take turns in staying home to take care of their child.

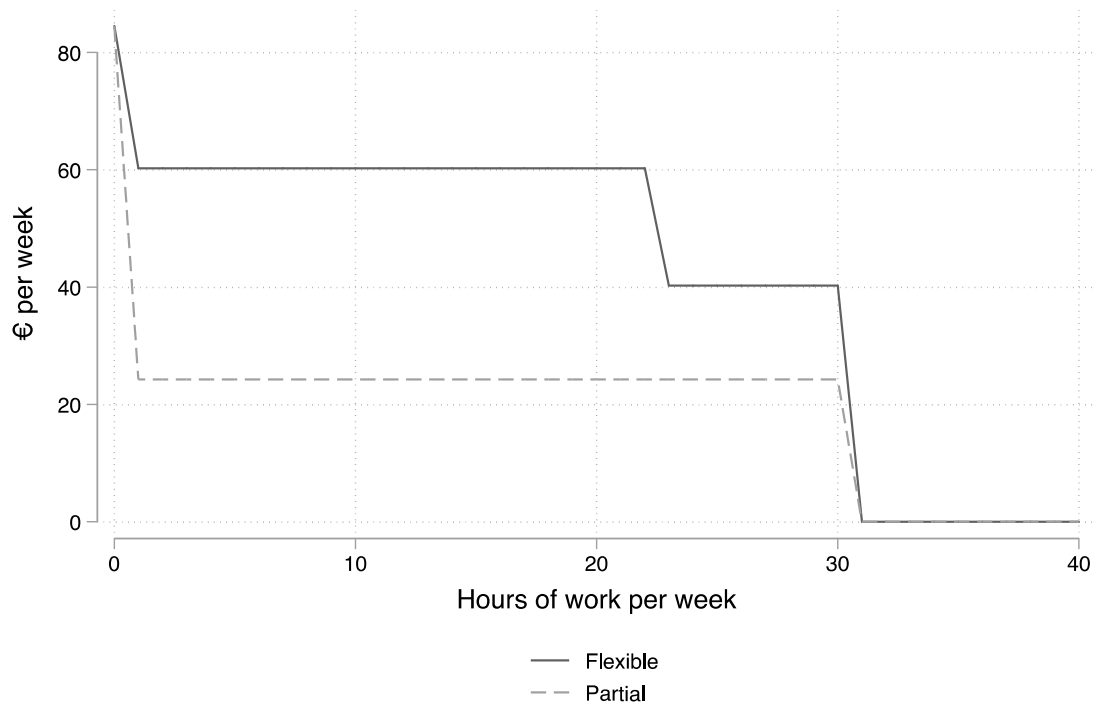


Figure 3 Flexible and partial care allowances as a function of weekly working hours

Figure 3 illustrates how Flexible Care Allowance changed the subsidies paid for part-time work for parents of children under age three as compared to the old Partial Care Allowance. The figure plots the subsidy as a function of weekly working time under both schemes. As Figure 3 makes clear, subsidy decreases less as a function of working time in the case of Flexible Care Allowance. The difference is particularly large at the participation margin when the working hours become positive. The loss of subsidies due to giving up Home Care Allowance is lower when the parent is entitled to Flexible Care Allowance.

The incentive effects of Flexible Care Allowance were discussed in the report of the committee that was set up by the Ministry of Social Affairs and Health to prepare the reform (STM, 2013). The complexity of the social benefit system makes the evaluation of the incentive effects hard. Incentives to work are affected also by benefits such as income support and housing benefits that individuals with low earnings are entitled to. These benefits react sharply to changes in earnings. The committee made calculations based on hypothetical earnings levels using the social benefit structure that was in place in 2012. These calculations revealed that the incentive effects of Flexible Care Allowance are very heterogeneous. Single parents with low earnings are an example of a group whose incentives to work were not changed substantially by the adoption of Flexible Care Allowance. In their case, the reductions in income support and housing benefits were enough to counteract the incentives created by Flexible Care Allowance when hours of work were low. However, in the case of longer weekly hours the incentives to work improved also in this group.

It is easier to evaluate the incentive effects of Flexible Care Allowance in the case of individuals whose earnings are large enough so that they are not entitled to income support or housing benefits. In this case, the incentives are mainly affected by the income tax schedule and the subsidies such as Home Care Allowance and Flexible Care Allowance. Table 2 reports participation tax rates that are calculated based on different hypothetical hourly wages. Participation tax rate is a popular method to describe the way in which the social benefit system and taxation affect incentives to work as earnings increase. It can be interpreted as the share of earnings that individual pays out as taxes or as forgone subsidies.

Table 2. Participation tax rate as a function of the share of weekly hours worked. Example of a parent of a child under age three.

Part-time	Example A: hourly wage 10 €/h		Example B: hourly wage 12,5 €/h		Example C: hourly wage 18,75 €/h	
	Partial Care Allowance	Flexible Care Allowance	Partial Care Allowance	Flexible Care Allowance	Partial Care Allowance	Flexible Care Allowance
20 %	77 %	36 %	65 %	31 %	45 %	23 %
40 %	43 %	22 %	36 %	19 %	29 %	21 %
60 %	31 %	25 %	29 %	25 %	31 %	30 %
80 %	29 %	25%	30%	27 %	33 %	31 %

As table 2 makes clear Flexible Care Allowance decreased participation tax rates especially in the case of short part-time work. If weekly working hours were 20 % of the full working time, participation tax rates were nearly half of what they were in the case of Partial Care Allowance. In the case of short working hours, the child care costs that are not factored in the example calculations are also likely to be low. As the share of hours worked increases, the difference in the participation tax rate becomes smaller but it is always lower under the Flexible Care Allowance.

Better incentives for part-time work may also incentivize individuals who work full time to lower their working hours. As Flexible Care Allowance increased the subsidies that are paid in the case of part-time work it also decreased the cost of lowering one's working hours. Table 3 provides examples of the loss of earnings caused by moving from full weekly working time to part-time work using the same hypothetical hourly wages as in table 2.

Table 3. Earnings losses caused by moving from full working time to part-time work. Example of a parent of a child under age three.

Part-time	Example A: hourly wage 10 €/h		Example B: hourly wage 12,5 €/h		Example C: hourly wage 18,75 €/h	
	Partial Care Allowance	Flexible Care Allowance	Partial Care Allowance	Flexible Care Allowance	Partial Care Allowance	Flexible Care Allowance
20 %	- 72 %	- 60 %	- 71 %	- 63 %	- 71 %	- 64 %
40 %	- 50 %	- 40 %	- 48 %	- 40 %	- 46 %	- 42 %
60 %	- 28 %	- 24 %	- 27 %	- 24 %	- 29 %	- 27 %
80 %	- 14 %	- 11 %	- 15 %	- 12 %	- 17 %	- 14 %

Table 3 makes it clear that reducing working time became less costly as a result of the introduction of the Flexible Care Allowance. Although the effect on costs does not appear to be large when compared to Partial Care Allowance, it is important to remember that the opportunity cost of working is likely to be high for parents of young children who usually appreciate the time spent with their children. Therefore, even a small decrease in the costs caused by the reduction of working hours can make part-time work attractive.

Flexible Care Allowance can therefore affect working hours in two ways. On the one hand, it makes employment more attractive for some stay-at-home parents. On the other hand, it may incentivize some parents of young children to move from full working time to part-time work. Therefore, the net effect of Flexible Care Allowance on labour supply is ambiguous. The size and the sign of this net effect depends on the elasticity of labour supply in different groups and is ultimately an empirical question.



#### 4. Literature

Labour supply of parents with young children has been a topic of active research for a long time. Especially incentivizing labour supply of young women is often seen as an effective way of increasing the overall employment rate. Accordingly, both Finnish and international research has focused on the effects of different family policies on women's labour supply. The difficulty of combining work and family life with small children has also been considered as an important factor in explaining the gender differences in labour market outcomes. Therefore, policies that aim to facilitate combining work and family life can also be a way to enhance gender equality in the labour market.

The association between child birth and the labour market status of men and women is a well-documented fact. The evidence that has accumulated over previous years clearly shows that child birth has a negative effect on female earnings and employment while it hardly affects the labour market outcomes of men at all. Ernjæs ja Kunze (2008) document this with German data. According to their results, female earnings decrease by three to five percent after child birth. Angelov, Johansson and Lindahl (2016) as well as Kleven, Landais and Sjøgaard (2018) have documented similar results with Swedish and Danish data, respectively. These studies also report the effect of child birth on gender differences in earnings. According to their results, the male-female gap in earnings widens to 20 percent after child birth. This evidence clearly shows that child birth affects female labour market prospects negatively and is an important factor in explaining gender differences in labour market outcomes.

The concern about the negative effects of child birth on female labour market prospects has motivated policies that aim to mitigate these negative consequences by facilitating combining child care and employment. Provision of child care services and parental leave arrangements are traditional examples of such policies but also policies that facilitate part-time work can diminish gender gaps. Cross-country comparisons, such as Gutierrez-Domenech (2005) as well as Blau and Kahn (1990), and within-country evaluations of policy reforms, for example Del Boca (2002), show that labour market frictions that hinder part-time work have a negative effect on the participation rate of mothers of young children. These results suggest that policies such as the Finnish Flexible Care Allowance should mitigate the negative labour market consequences of child birth for women.

As stated earlier one peculiar feature of the Finnish social security system is the Home Care Allowance paid for the home care of small children. The labour market effects of Home Care Allowance have been a subject of lively discussion in Finnish research literature. Kosonen (2014) examined the impact of Home Care Allowance on women's labour supply by exploiting the variation in the level Home Care Allowance across municipalities. Municipalities can pay top-up Home Care Allowance by paying municipality specific supplements. As a result, the level of Home Care Allowance varies across areas of residence. According to Kosonen, Home Care Allowance has a large negative impact on female labour supply. According to the results, the increase of the Home Care Allowance of € 100 reduces the employment of mothers by 3 percent. The effects were greater for more educated mothers than for less educated mothers. However, there were no significant effects on fathers' employment. In addition, Kosonen and Huttunen (2018) have shown that municipal supplements paid on top of Home Care Allowance extend the length of home care periods.

The negative effects of Home Care Allowance on the labour market attachment of women has been replicated in Räsänen, Österbacka, Valaste and Haataja (2019) who also show that higher levels of Home Care Allowance delay the re-entry of mothers of small children to the labour market irrespective of whether they were employed before the child birth. However, also contradictory results have been reported. For example, Salmi and Närvi (2017) find no association between the level of home care allowance and the length of absences from the labour market. According to Salmi and Närvi (2017) the group of women whose labour market behaviour can be affected by changes in Home

Care Allowance is very small since most of the women with long spells on Home Care Allowance are low educated and have difficulties in finding employment even if incentivized to do so.

Of the Nordic countries, only Norway has a support system that is similar with the Finnish Home Care Allowance. Since 1998 Norway has paid support for home care for children under the age of 3. However, support has later been limited to children under 2 years of age. Nas (2003) and Drange and Rege (2013) have studied the effects Norwegian support system on women's employment. The short-term results are very similar to those in Finland. The Norwegian Home Care Allowance reduced women's employment in the short-run. However, Drange and Rege (2013) also examined the impact of home care support over the longer term. According to their results, the negative employment effects fade away 6 years after child birth. Drange and Rege interpret the lack of long-term effects as showing that part-time work helps women to maintain their skills and, thus, facilitate the return to work later. Unlike the Finnish Home Care Allowance, the Norwegian support for home care allowed women to work part-time without losing their benefits. These results therefore again suggest that policies like the Flexible Care Allowance should mitigate the consequences of child birth on labour market outcomes.

However, the effects of supporting part-time work on labour supply are not necessarily unambiguous. According to Blau and Kahn (2013), policies that facilitate the reconciliation of working and child care can have opposite effects on groups with different labour market backgrounds. On the one hand, they may facilitate the labour market entry of women whose labour market attachment is weak. On the other hand, long parental leave and support for part-time work can make women in a better position to settle for less demanding jobs and part-time work instead of full-time work. Evidence from United Kingdom shows that reforms that incentivize part-time work can have heterogeneous effects. Blundell, Duncan, McRae and Meghir (2000) and Bewer as well as Duncan, Shephard and Suárez (2005) have examined the employment effects of working families' tax credit reform that affected the incentives for part-time work. According to the results, the reform increased the working hours of single mothers, but at the same time reduced the working hours of married women.

The prevalence of part-time work is also not only driven by supply side factors. Possibilities for part-time work vary across industries and this variation partly reflects differences in production technologies. Therefore, incentivizing part-time work can also lead to an increase in job and sector changes. According to Blundell, Brewer and Francesconi (2008), the employment effects of working families' tax credit in the UK are largely explained by job changers. These results suggest that the industry structure can affect the possibilities to work part-time and stronger incentives for part-time work can cause some workers to switch industries.

## **5. Data and descriptive statistics**

The data used in this study are combined from Statistics Finland's FOLK-modules, The Finnish Structure of Earnings Survey and registers of The Social Insurance Institution of Finland (Kela). Statistics Finland's Folk-modules are population level datasets that combine information from various registers on all persons living Finland starting from year 1987. These data include detailed information on individuals' socio-economic and demographic characteristics including the number of children and their ages. The advantage of the population level Folk-modules is that they enable us follow transitions into and out of the labour market. However, the information on employment in the Folk-modules is only available at annual level and does not include information on working hours or on the full or part-time status.

Finnish Structure of Earnings Survey, on the other hand, contains detailed information on working hours and part-time work. The Structure of Earnings Survey is a 1/3 sample of the population of employees and employers in establishments that employ more than five workers. The reference period of the survey is the final quarter of each year. These data contain detailed information on both contracted and actual working hours, wages paid as well as information on the establishment where the worker is employed. These data allow us to follow the changes in working hours of employed individuals as well as the transitions between establishments and industries. Finally, the registers of the Social Insurance Institution of Finland contain information on the subsidies paid to households. These data allow us to identify the parents who have received different forms of child care subsidies

We combine information from these three data sources by using the social security codes that identify individuals in each data set. The combined data on parents covers the period 2010-2016 and provides comprehensive information on the age, gender, education, area of residence, industry, number of children, and earnings etc. The information on employment includes the number of days the individual has been employed or unemployed on yearly basis for the full population but the information on part-time work and weekly working hours is available only for those individuals who are included in The Structure of Earnings Survey. The data include all parents of children under the age of 3 as well as school aged children in the first and second grades of comprehensive school and allows comparisons before and after the adoption of Flexible Care Allowance.

Figure 4 plots the proportions of mothers receiving different forms of childcare allowances between 2010 and 2016.<sup>2</sup> Mothers are grouped based on the ages of their children. The top left panel in Figure 4 plots the take-up rates of mothers who have at least one child who is under 3 years old. As can be seen from the Figure 4, this group relies mostly on Home Care Allowance and the take-up rate of Partial Care Allowance was relatively low at below 5 percent in this group before 2014. After 2014 these mothers clearly switch to Flexible Care Allowance and the take-up rate increases. However, as these mothers also may have school-aged children the take-up of Partial Care Allowance does not decline to zero after 2014. The top-right panel of Figure 4 plots the take-up rates of mothers who only have children who are younger than 3 years old. For these mothers the change at 2014 is very clear. The take-up of Partial Care Allowance declines to zero and is replaced by Flexible Care Allowance.

The panels on the second row of Figure 4 provide information on the take-up rates of mothers who have school-aged children. As should be expected these mothers rely clearly less on Home Care Allowance. However, the take-up of Partial Care Allowance is more common among these mothers prior to 2014 than among mothers of children under age 3. The lower left panel plots the take-up rates of mothers who have at least one school-aged child. In this group the Partial Care Allowance is clearly the most commonly used subsidy. However, as some of these mothers also have children under age 3 the take-up of Flexible Care Allowance also increases in this group after 2014. The lower right panel plots the take-up rates of mother who only have school-aged children. As this group is not entitled to Flexible Care Allowance the take-up rate of this subsidy remains at zero throughout the period.

Figure 4 clearly illustrates the how the parents can be grouped into treatment and control groups that allow us to estimate the effect of the adoption of Flexible Care Allowance on labour supply. As parents who only have school aged children are not entitled to Flexible Care Allowance at any point during our observation period, they constitute a natural control group with which we can compare the changes in the outcomes of the mothers with only children under aged 3 who become eligible for Flexible Care Allowance after 2014.

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<sup>2</sup> Similar figures for fathers reveal that their use of child care subsidies is negligible. Therefore, we concentrate on mothers in this report.

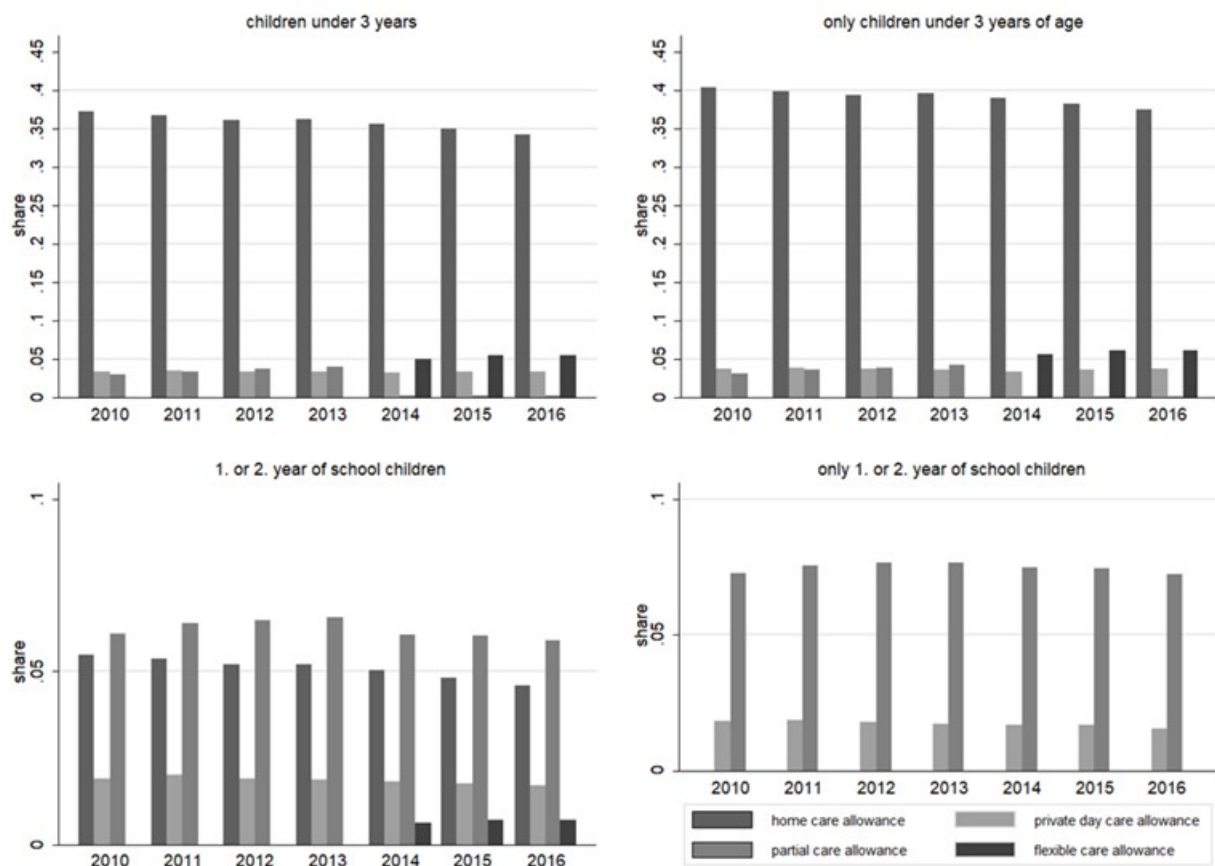


Figure 4. Use of child care allowances in 2010-2016 for mothers of small children and mothers of school age children

In Table 3 we report the descriptive statistics on the mothers in our control and treatment groups before and after the introduction of Flexible Care Allowance in 2014. In addition, we split both groups depending on whether they received Flexible or Partial Care Allowance to illustrate the selection into the subsidy scheme. Table 3 clearly shows that mothers who receive either Partial or Flexible Care allowance are positively selected. They have higher educational attainment and spousal earnings than mothers who do not take-up these subsidies. This is true for both mothers with children under age 3 as well as for mother with school aged children. In the case of mother with children under age 3, those who take-up Partial or Flexible Care Allowance also are more likely to have spent the previous year on Home Care Allowance.

However, Table 3 also shows that the adoption of Flexible Care Allowance seems to change the selection into take-up among mothers with children under age 3. The educational attainment and spousal earnings decline in the take-up group among mothers with children under age 3 after 2014. At the same time, we do not observe similar changes in the descriptive statistics of the mothers with school aged children. This pattern suggests that the introduction of Flexible Care Allowance attracted less educated and low-income mothers to take-up the subsidy.

Table 3 Descriptive statistics

a) Children under 3					
No partial/flexible allowance	pre 2014	post 2014	Partial/flexible allowance	pre 2014	post 2014
	mean			mean	
Age	31,09	31,40	Age	33,57	33,29
Primary	0,14	0,15	Primary	0,02	0,03
			Upper secondary		
Upper secondary education	0,39	0,40	education	0,23	0,29
Tertiary education	0,46	0,45	Tertiary education	0,75	0,68
Immigrant background	0,09	0,12	Immigrant background	0,02	0,02
Spouses' wage	33236,37	34164,77	Spouses' wage	43020,85	42299,89
Home care allowance t-1	0,47	0,46	Home care allowance t-1	0,67	0,67
Obs.	595780	416524	Obs.	33288	38072
Persons	248824	208170	Persons	22090	26059
	mean			mean	
Weekly working hours	34,99	33,77	Weekly working hours	31,41	30,34
Part-time work	0,17	0,18	Part-time work	0,66	0,66
Obs.	185090	124906	Obs.	23918	25415
Persons	68766	58429	Persons	16127	17738
b) School aged children					
No partial allowance	pre 2014	post 2014	Partial allowance	pre 2014	post 2014
	mean			mean	
Age	39,11	39,09	Age	39,69	39,42
Primary	0,11	0,10	Primary	0,02	0,02
			Upper secondary		
Upper secondary education	0,39	0,38	education	0,27	0,28
Tertiary education	0,50	0,52	Tertiary education	0,71	0,70
Immigrant background	0,07	0,09	Immigrant background	0,01	0,01
Spouses' wage	35413,24	37673,73	Spouses' wage	44010,15	45650,48
Obs.	406322	320760	Obs.	45309	35488
Persons	191547	170896	Persons	25106	21645
	mean			mean	
Weekly working hours	35,97	34,59	Weekly working hours	31,76	31,41
Part-time work	0,15	0,15	Part-time work	0,67	0,68
Obs.	224100	177671	Obs.	37431	28896
Persons	103902	93597	Persons	20735	17703

Table 3 also reports the mean weekly working hours and prevalence of part-time work for those mothers who are included in The Structure of Earnings Survey. It seems that weekly working hours have decreased in both groups. This downward trend probably reflects the overall change in the employment situation in 2014-2015. During those the Finnish economy was starting to recover from a prolonged recession, but employment was still generally declining.

We examine the development of take-up of subsidies and our outcome variables of interest in the treatment and control groups more closely in Figure 5 where we plot the take-up and employment rates as well as earnings trends for both groups for years 2010-2016. The take-up rate of care allowance clearly increases in the treatment group after the Flexible Care Allowance is adopted in 2014. While in 2013 approximately 5% of mothers of children under age 3 receive Partial Care Allowance, by 2016 the share of those receiving Flexible Care Allowance has risen to 8%. On the other hand, take-up of Partial Care Allowance remains almost at the same level through years 2010-2016 for mothers of school age children. However, we fail to see clear shifts in the trends of employment and unemployment days or in

earnings in the treatment group after 2014. Prior to 2014 the trends in these outcome variables seem to be quite parallel in the treatment and control group, which is important for our identification strategy.

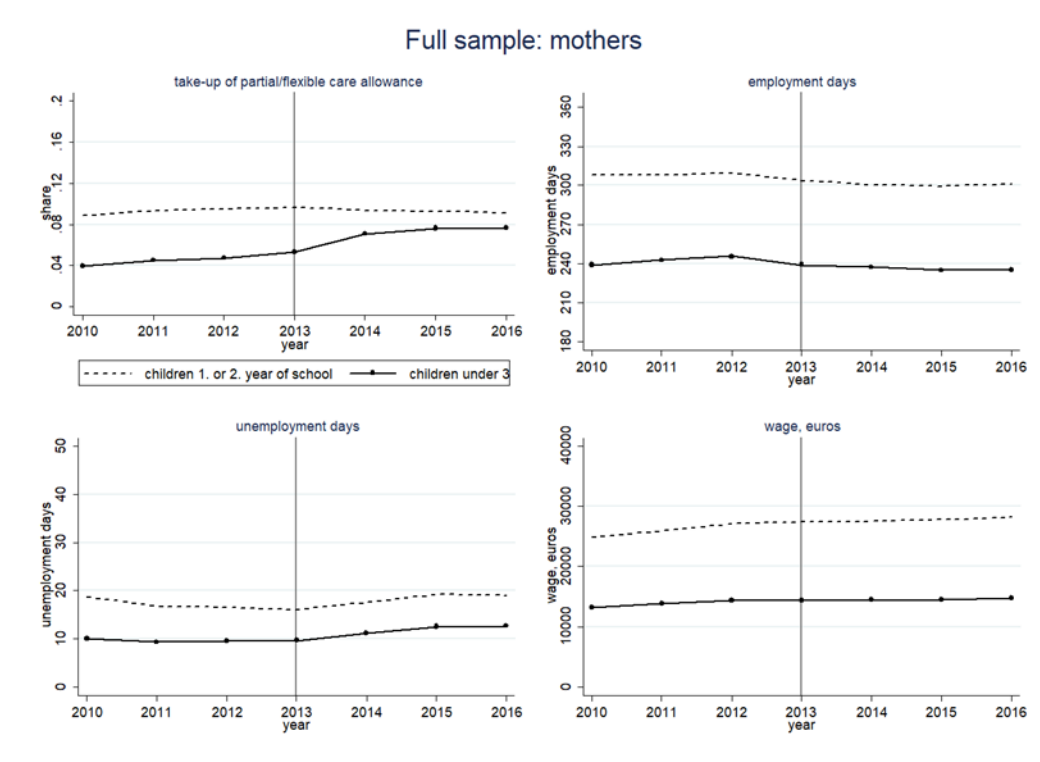


Figure 5 Employment, wage and use of Partial and Flexible Care Allowance in 2010-2016.

Figure 6 plots the trends in the outcome variables that we can observe in the Structure of Earnings Survey for both treatment and control groups. Also in these data the take-up rate of subsidies increases in the treatment group when Flexible Care Allowance is introduced. However, Figure 6 does not reveal any detectable changes in working hours as a result of the adoption of the Flexible Care Allowance. The only outcome where the trends in the treatment and control groups clearly diverge is the part-time work status. The mothers of children under age 3 are more likely to work part-time than the mothers of school-age children at the end of our observation period whereas they were less likely to do so at the beginning of the decade. However, the trends start to diverge already before 2014, which suggests that the parallel trends assumption may be violated in the case of this outcome variable.

## Finnish Structure of Earnings: mothers

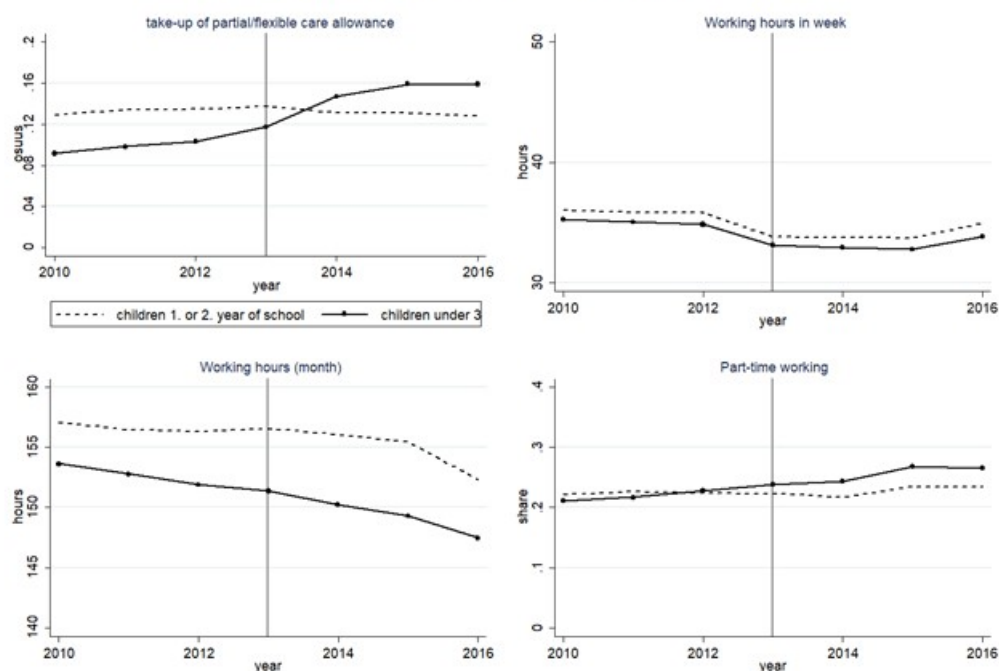


Figure 6 Employment, wage and use of partial and flexible care in 2010-2016.

Although Figures 5 and 6 would suggest that the adoption of Flexible Care Allowance is unlikely to have a large average effect on the labour supply of mothers of young children, it is important to remember that the average effects may mask heterogeneous responses to the incentives created by the Flexible Care Allowance. As was explained above, stronger incentive to work part-time may attract some parents to increase their labour supply while at the same time they may have an opposite effect on other parents. In particular, the mothers who are not working and collecting Home Care Allowance may respond positively to the incentives created by Flexible Care Allowance. At the same time, those mothers who are already working full-time may decide to reduce their working hours. In the analysis that follows, we will estimate the heterogeneous effects of the Flexible Care Allowance by the past labour market status of the parents.

## 6. Empirical methods and identification

A credible assessment of the effects of policy reforms requires a control group that provides information on what would have happened to the affected treatment group in the alternative situation where the policy change did not occur. In this background report we use parents of children aged 7-8 (school-aged children) as a control group. As was explained above, this group of parents was entitled to Partial Care Allowance just like the parents of children aged 3 or less, our treatment group, before 2014. However, Flexible Care Allowance was limited only to our treatment group whereas Partial Care Allowance was still available for the parents in the control group also after 2014.

We estimate the effect of the introduction of Flexible Care Allowance by using differences-in-differences identification strategy. This strategy relies on the assumption that the outcomes of the treatment group would have behaved in the same way as the outcomes of the control group if Flexible Care Allowance had not been adopted. This so-called Common Trends assumption is not testable since it imposes assumptions on outcomes than can never be observed. However, the credibility of the assumption is enhanced if the trends in treatment and control groups move parallel

before the reform. The similarity of the trends before the policy change can be statistically tested but does not actually test the underlying assumption of the method. In addition to the Common Trends assumption, the method requires that there weren't other policy changes that coincided with the adoption of the Flexible Care Allowance and affected treatment and control groups differently.

The effect of the policy change can be estimated in difference-in-differences framework with the following simple regression:

$$Y_{it} = \beta_1 + \beta_2 treat_i + \beta_3 post_t + \beta_4 (treat * post)_{it} + X_{it} + \varepsilon_{it} \quad (1)$$

where  $Y_{it}$  is the outcome variable and  $\varepsilon_{it}$  is error term. The treatment indicator  $treat_i$  is a dummy variable that takes value 1 if individual  $i$  belongs to the treatment group (mothers of small children aged less than 3) and 0 if individual  $i$  belongs to the control group. The variable  $post_t$  is a dummy variable that takes value 1 in the post-treatment period (years 2014-2016) and value 0 for the pre-treatment period. As usual the effect of the reform is identified through the interaction term of variables  $treat$  and  $post$ . This interaction term takes value 1 if individual  $i$  belongs to the treatment group and period  $t$  is a reform period. Therefore, the effect of the reform is  $\beta_4$ .

As the underlying assumption in this so-called differences-in-differences identification strategy is that the observations on the control group provide us information on the counterfactual outcomes of the treatment group in the state of the world where the policy change didn't happen, it is not necessary to include any control variables in the regression. However, often the introduction of control variable increases the precision of the estimates. In what follows the control variables in  $X_{it}$  include dummies for age groups, educational levels, single mother status, reconstituted families, immigrant background, owner-occupied housing, industries, regions of residence, municipality and a continuous variable for total earned income in state taxation. Levels of time-varying covariates are measured at t-1 (except the age measured at t). The regression equation (1) can be estimated by the conventional OLS under quite general assumptions. The standard errors in the regression estimates are clustered at the individual level because repeated estimates of the same individuals are used in the estimation.

As we are interested in the labour supply effects of the Flexible Care Allowance our main outcomes of interest are annual number of days in employment, weekly hours of work and part-time status of the individual. In addition, we also examine the effect of the introduction of the Flexible Care Allowance on the take-up rate of child care subsidies. As stated earlier, the employment effects of Flexible Care Allowance may be heterogeneous. Incentives to enter labour market via part-time work may increase for stay-at home mothers who receive Home Care Allowance, whereas reducing hours of work may become more attractive for fully employed mothers with small children. In what follows, we also examine the effects of introducing Flexible Care Allowance conditional on individuals' employment status and background characteristics in period t-1. For example, we estimate separate models for non-employed mothers and for those who were fully employed with small children under 3 years of age in period t-1. Due to large data set estimations can also be carried out separately for different industries and based on the historical prevalence of part-time working within firms.

Furthermore, we examine the effect of the reform on the probability of changing jobs and on direction of job changes along the part-time prevalence axis. In order to examine the effect of introducing Flexible Care Allowance on job changes we use probability of changing job as an endogenous variable in equation (1) and sample can be divided conditional on historical prevalence of part-time work within firms. Following Blundell et al. (2008) we also estimate model that identifies treatment effects for movers and stayers i.e. for those who have changed job between years t and t-1 and for those who stayed at same firm:

$$Y_{it} = \beta_1 + \beta_2 treat_i + \beta_3 post_t + \beta_4 (treat * post)_{it} + \beta_5 job\_c_{it} + \beta_6 (job\_c * treat * post)_{it} + X_{it} + \varepsilon_{it} \quad (2)$$



where  $job_{c_{it}}$  equals 1 if individual  $i$  changes job between years  $t-1$  and  $t$ , and 0 otherwise. The treatment effect for job movers is identified by  $\beta_6$ . These estimations are carried out for sample of mothers who were employed at labour market in period  $t-1$  and remained employed in period  $t$ .

## 7. Results

Table 4 reports results for difference-in-differences model as outlined in equation (1) for different outcome variables with and without control variables. In table 4, we focus on outcomes that can be measured for the full population using Statistics Finland's Folk-modules.

Table 4. Estimation results for total sample

	Take-up	Take-up	Employment days	Employment days	Annual earnings	Annual earnings
Pre-reform mean	0,04	0,04	235,65	235,65	13159,88	13159,88
Post 2014	-0.001 (0.001)	0.003*** (0.001)	-7.095*** (0.357)	-4.976*** (0.193)	1,473*** (61.28)	-379.5*** (45.79)
Treatment	-0.049*** (0.001)	-0.033*** (0.001)	-71.21*** (0.431)	-22.26*** (0.241)	-13,089*** (55.86)	-6,456*** (46.80)
<b>Treat*Post</b>	<b>0.027*** (0.001)</b>	<b>0.026*** (0.001)</b>	<b>2.472*** (0.578)</b>	<b>1.721*** (0.299)</b>	<b>-837.1*** (77.29)</b>	<b>42.49 (41.91)</b>
Covariates	no	yes	no	yes	no	yes
Observations	2,235,958	2,235,958	2,235,958	2,235,958	2,235,958	2,235,958
R-squared	0.007	0.051	0.052	0.610	0.117	0.639

Standard errors are clustered at individual level

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

According to the results reported in Table 4 take-up of child care subsidies increased by 2.6 percentage points as a result of the adoption of Flexible Care Allowance. This effect is statistically significant and large considering the baseline take-up rate of 4 percent. The reform also increased employment by 2.5 days. Although this effect is also statistically significant its size is modest when compared to the baseline level of 236 days. According to these results, the adoption of the Flexible Care Allowance only increased days of employment by approximately one percent. The effect on earnings is negative and significant when control variables are not introduced in the regression and very small and insignificant when they are. In general, the results do not seem to be sensitive to controls and in what follows we only report results from regressions where controls are included in the regressions. Taken together, these average results seem to confirm the tentative conclusions that could be drawn simply by looking at the Figures 5 and 6. The adoption of Flexible Care Allowance increased the use of subsidies but had a very modest effect on labour market outcomes.

The structure of earnings survey provides us with more detailed measures of working hours and part-time status. In Table 5 we report the regression results from regression (1) using data from the structure of earnings survey.

Table 5. Estimation results for the Structure of Earnings Survey

	Take-up	Part-time work	Weekly hours	Monthly hours	Days of employment	Earnings
Pre-reform mean	0,10	0,22	34,58	152,39	340,00	24994,87
Post 2014	0.003*** (0.001)	0.018*** (0.001)	-1.405*** (0.028)	-3.048*** (0.123)	-1.153*** (0.123)	-246.5*** (27.12)
Treatment	-0.032*** (0.001)	-0.039*** (0.002)	-0.050 (0.036)	-0.311* (0.163)	-3.418*** (0.181)	-3,139*** (40.73)
<b>Treat*Post</b>	<b>0.049*** (0.002)</b>	<b>0.025*** (0.002)</b>	<b>-0.152*** (0.043)</b>	<b>-0.905*** (0.196)</b>	<b>0.210 (0.248)</b>	<b>399.3*** (50.85)</b>
Observations	937,958	937,958	937,958	937,958	937,958	937,958
R-squared	0.052	0.058	0.058	0.094	0.309	0.660

Standard errors are clustered at individual level

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

As is clear from Table 5, the take-up rate of subsidies increased by five percentage points in the structure of earnings survey. This is an effect of similar magnitude as the one reported in Table 4. The adoption of Flexible Care Allowance also seems to have increased the probability of working part-time by three percentage points which is a sizeable effect when compared to the baseline of 22 percent. However, given the evidence on diverging trends in treatment and control groups in Figure 5, this result should be interpreted with caution. The estimates on the hours worked, both weekly and monthly, are small and negative whereas the estimated effect on days of employment is practically zero. However, the adoption of Flexible Care Allowance does have a positive and significant effect on annual earnings in the structure of earnings data although this effect is also quite small at 1.6 percent.

Taken together the results in Tables 4 and 5 provide quite a coherent picture of the average effects of Flexible Care Allowance. The availability of Flexible Care Allowance clearly attracted a larger number of mothers to use the subsidy which is not surprising given its large effect on the size of the subsidy. However, the average effects on labour market outcomes are very modest. The adoption of the Flexible Care Allowance seems to increase the days of employment only by one percent. However, the combination of the small positive effects on employment days in the total data and a positive effect on part-time work and negative effects on hours in the Structure of Earnings data suggest that the average employment effects probably mask very heterogeneous responses to the incentives created by the Flexible Care Allowance.

### Heterogeneous responses by jobs, industries, and firms

The discussion of the incentives created by the Flexible Care Allowance suggested that this subsidy might have opposite effects on the labour supply of mothers depending on their current labour market status. As Flexible Care Allowance made part-time work more attractive it should incentivize those mothers who are currently not working to increase their hours of work. At the same time, mothers who were already working full time might find it more attractive to reduce their working hours as a result of the adoption of Flexible Care Allowance. Furthermore, the possibility of working part-time may be at least partially driven by the characteristics of the industry where the mothers are working and by their individual characteristics. Here we examine the heterogeneous effects of Flexible Care Allowance along these dimensions.

In appendix Table A1, we report the heterogeneous effects of Flexible Care Allowance on take-up, days of employment and earnings by previous labour market status using data on the full population in Folk-modules. As Table A1 makes clear, the adoption of Flexible Care Allowance increased the take-up rate of child care allowances in all groups. However, the effects on employment were very heterogeneous depending on the previous labour market status and

whether the individual had used child care subsidies in the previous year. Especially the mothers who were not employed and were collecting child care subsidies increased their labour supply. In their case, the effect is also sizeable. Days of employment increased by 13 days in this groups which is 18 percent of the baseline of 72 days. On the other hand, mothers who were fully employed and not using child care subsidies in the previous year, slightly decreased their days of employment. The effects on earnings mirror these employment effects closely. These results on heterogenous responses from full population data clearly suggest that the labour supply effects of the Flexible Care Allowance are sensitive to the current labour market status of the parents.

Table 6. Estimation results for the Structure of Earnings Survey, mothers who were not employed at the end of period t-1

	A. Not employed at t-1						
	Take-up	Full-time job	Part-time job	Weekly hours	Monthly hours	Days of employment	Earnings
Pre-reform mean	0,04	0,65	0,25	32,58	143,61	236,79	15275,93
Post 2014	0.002 (0.002)	-0.051*** (0.007)	-0.006 (0.006)	-1.544*** (0.144)	-5.483*** (0.630)	-0.757 (1.289)	423.0*** (123.4)
Treatment	0.020*** (0.002)	0.042*** (0.006)	-0.002 (0.006)	-0.345** (0.141)	-2.424*** (0.615)	-9.367*** (1.296)	-626.8*** (117.6)
<b>Treat*Post</b>	<b>0.036*** (0.003)</b>	<b>-0.012 (0.009)</b>	<b>0.036*** (0.007)</b>	<b>-0.318* (0.187)</b>	<b>0.586 (0.827)</b>	<b>3.198* (1.705)</b>	<b>2.055 (159.3)</b>
Observations	72,357	72,357	72,357	72,357	72,357	72,357	72,357
R-squared	0.031	0.035	0.023	0.039	0.048	0.030	0.215

Standard errors are clustered at individual level

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We get a more detailed picture of the labour supply effects of Flexible Care Allowance if we use the employment outcomes in the Structure of Earnings. Table 6 reports the effects on the labour supply of those mothers who were not employed at the end of the previous year. Although the effect on take-up is very similar to the average effect reported in Table 5, the labour supply effects in general go to the opposite direction. Mothers who were not employed tend to increase their labour supply as a result of the Flexible Care Allowance. This increase in labour supply occurs mainly via increased part-time work. Although the effect on days of employment is now significant and clearly larger than in Table 5, its size is still modest at approximately one percent of the baseline of 237 days. Hence, Flexible Care Allowance seems to succeed in attracting mothers back to employment but it does not lead to large increases in the aggregate employment.

Table 7 provides more detailed information on the labour supply responses of mothers who were fully employed at the end of period t-1 using Structure of Earnings data. Here we also examine the mechanisms through which employed mothers adjust their labour supply as a response to the incentives created by Flexible Care Allowance. The first column in Panel A of Table 7 reports the effect of the Flexible Care Allowance on the probability of changing jobs. The effect is positive but quite imprecisely estimated and its size is modest. Job changes does not seem to respond strongly to Flexible Care Allowance on average. Otherwise, the take-up and labour supply effects in Panel A of Table 7 are similar to the average results reported in Table 5 with the exception of negative and significant effect on monthly hours of work.

Table 7. Estimation results for the Structure of Earnings Survey, mothers who were employed at the end of period t-1

Panel A							
	Job change	Take-up	Part-time	Weekly hours	Monthly hours	Days of employment	Earnings
Pre-reform mean	0,10	0,09	0,17	35,48	156,31	355,12	28453,78
Post 2014	-0.018*** (0.001)	0.005*** (0.001)	0.018*** (0.002)	-1.401*** (0.0285)	-2.829*** (0.128)	-1.122*** (0.112)	-309.1*** (26.88)
Treatment	0.001 (0.001)	-0.044*** (0.001)	-0.065*** (0.002)	0.257*** (0.0385)	0.955*** (0.176)	-2.326*** (0.187)	-2,765*** (47.36)
<b>Treat*Post</b>	<b>0.003 (0.002)</b>	<b>0.0459*** (0.002)</b>	<b>0.0185*** (0.003)</b>	<b>0.017 (0.0469)</b>	<b>-0.457** (0.214)</b>	<b>-0.386 (0.260)</b>	<b>536.0*** (64.66)</b>
Observations	701,496	701,496	701,496	701,496	701,496	701,496	701,496
R-squared	0.011	0.055	0.058	0.048	0.094	0.091	0.684
Panel B							
	Job change	Take-up	Part-time	Weekly hours	Monthly hours	Days of employment	Earnings
Pre-reform mean		0,09	0,17	35,48	156,31	355,12	28453,78
Post 2014		0.004*** (0.001)	0.018*** (0.002)	-1.409*** (0.029)	-2.873*** (0.128)	-1.267*** (0.112)	-290.1*** (26.97)
Treatment		-0.044*** (0.001)	-0.065*** (0.002)	0.256*** (0.0385)	0.954*** (0.176)	-2.318*** (0.187)	-2,763*** (47.31)
<b>Treat*Post</b>		0.045*** (0.002)	0.016*** (0.003)	0.069 (0.047)	-0.271 (0.215)	-0.253 (0.265)	386.2*** (66.02)
Job change		-0.033*** (0.001)	-0.013*** (0.002)	-0.416*** (0.045)	-2.455*** (0.201)	-8.144*** (0.234)	1,034*** (58.50)
<b>Treat*Post*</b>		<b>0.016***</b>	<b>0.037***</b>	<b>-0.612***</b>	<b>-2.159***</b>	<b>-1.334*</b>	<b>1,761***</b>
<b>Job change</b>		<b>(0.004)</b>	<b>(0.006)</b>	<b>(0.123)</b>	<b>(0.560)</b>	<b>(0.700)</b>	<b>(184.3)</b>
Observations			701,496	701,496	701,496	701,496	701,496
R-squared			0.059	0.049	0.095	0.095	0.684

Standard errors are clustered at individual level

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Panel B of Table 7 reports the results from regression (2) that follows Blundell et al (2008) and interacts the policy effect with the job change dummy. The effect of Flexible Care Allowance on labour supply is entirely driven by job changers. The introduction of Flexible Care Allowance seems to induce workers who were employed at the end of the previous year to switch to jobs where they have better opportunities to work part-time and this way to decrease working hours. This pattern of results is remarkably similar with what Blundell et al (2008) when studying the effect of Working Families Tax Credit on the labour supply of single mothers in the UK. They also find that the effect of this subsidy is entirely driven by workers who change jobs.

The fact that the labour supply effect of Flexible Care Allowance seems to be driven by job changers suggests that some jobs constrain the possibilities of working part-time. As was shown in Table 1, the share of workers who work part-time varies considerably across industries in Finland and these cross-industry differences in the prevalence or part-time work have persisted over time even though the share of part-time work has increased on average. One would therefore expect the effect of Flexible Care Allowance to vary across industries. In Figure 7 we plot the industry specific estimates of the effect of Flexible Care Allowance on employment days against the average share of part-time work by industry in 2013. The effects are estimated by running differences-in-differences regressions with industry specific samples from the full population data and the sizes of the circles in Figure 7 reflect the size of the industry.

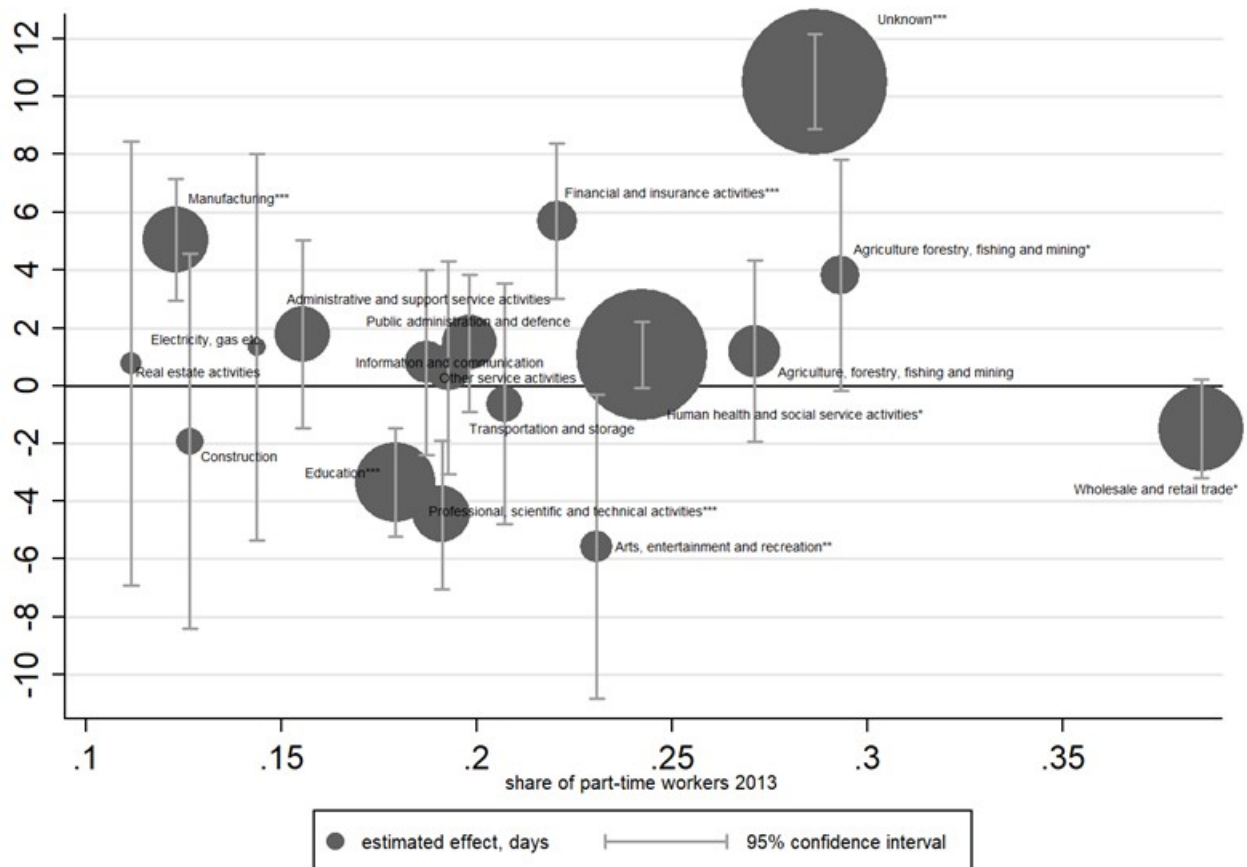


Figure 7. Share of part-time work by industry in 2013 and the estimated treatment effect of Flexible Care Allowance on employment by industry.

Figure 7 reveals that the labour supply effect of Flexible Care Allowance is most positive for mothers whose industry classification at the end of the period t-1 “unknown”. These are mostly mothers who were not employed prior to the introduction of Flexible Care Allowance. This result is consistent with the results in Appendix Table A1 where we also find strongest effects on mothers who were not employed in the previous year. Apart from the “unknown category”, Figure 7 does not really reveal a clear correlation with the size of the labour supply effect and the share of part-time work.

The lack of correlation in Figure 7 suggests that an industry may be too broad a category to adequately capture the constraints on the flexibility of hours. Possibilities to work part-time may vary considerably across firms within industries. In Figure 8 we exploit this cross-firm variation and plot the estimates of the effect of Flexible Care Allowance on the probability of working part-time and employment days by firm-specific part-time share in 2013. In Figure 8 the firms are grouped into ten categories depending on which decile of the cross-firm part-time share distribution they fall in 2013. Top two panels in Figure 8 plot the average shares of part time and employment days in each of these categories while the bottom two panels report the treatment effects.

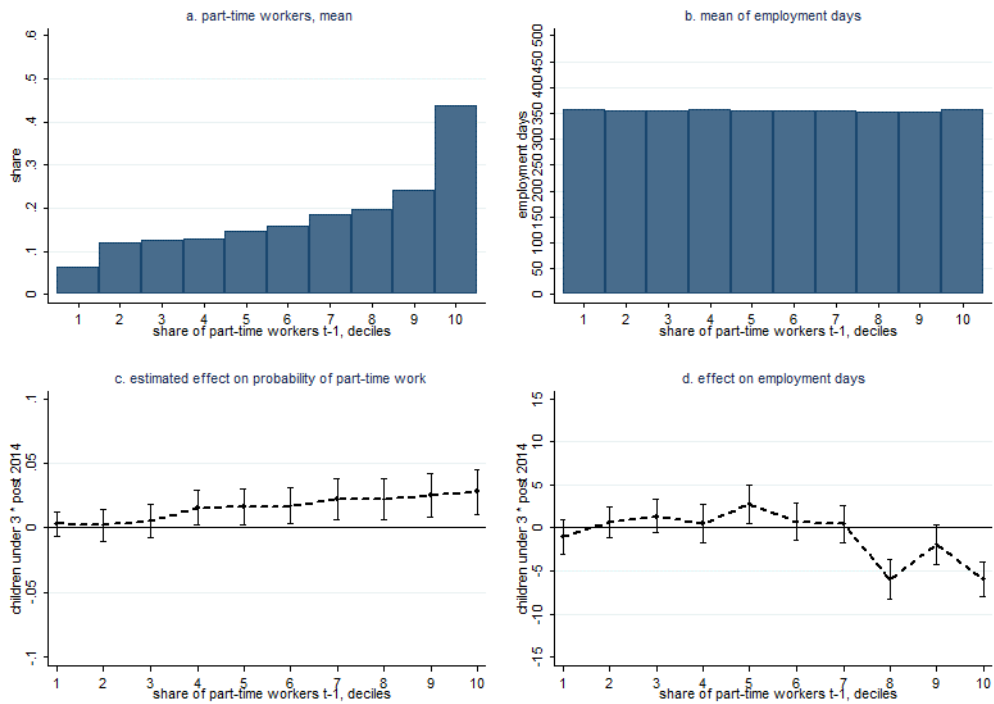


Figure 8 Average part-time share, average employment days, and the effect of Flexible Care Allowance on the probability of working part-time and employment days by firm specific prevalence of part-time in t-1

The pattern in Figure 8 is very clear. The more common the use of part-time is within firm the stronger is the labour supply effect of Flexible Care Allowance. In firms that use part-time a lot Flexible Care Allowance increases the probability of working part-time and decreased the number of employment days. Indeed, the negative effect on employment days seems to be entirely driven by firms where part-time is particularly common. Together, the results in Table 7 and in Figure 8 suggest that jobs impose major constraints on hours flexibility in the Finnish context. Therefore, reforms like Flexible Care Allowance are likely to affect labour supply by inducing workers to switch to jobs where working part-time is easier.

### Heterogeneous responses by worker characteristics

Although results above indicate that the variation of the size of the labour supply effect of Flexible Care Allowance across jobs is considerable, this variation may not necessarily reflect the effect of job characteristics on the flexibility of hours. Different types of workers also select themselves to jobs and the variation of the results discussed above may simply reflect the heterogeneity of workers across jobs. Disentangling whether variation in hours worked reflect job or worker characteristics is inherently difficult, as discussed by Pencavel (2016), since many of the relevant characteristics will inevitably be unobservable to the researcher. However, examining the variation of the effect of Flexible Care Allowance across different types of workers may shed some light on the relevant importance of job and worker characteristics.

In Figure 9 we report the effect of Flexible Care Allowance on the take-up and employment days by the age of the mothers. Mothers are grouped into six different age groups and the figures in the top row of Figure 9 plot the average take-up rates and employment days in each of these groups while the figures in the bottom row plot the treatment effects that are estimated by running regressions of type (1) by age groups.

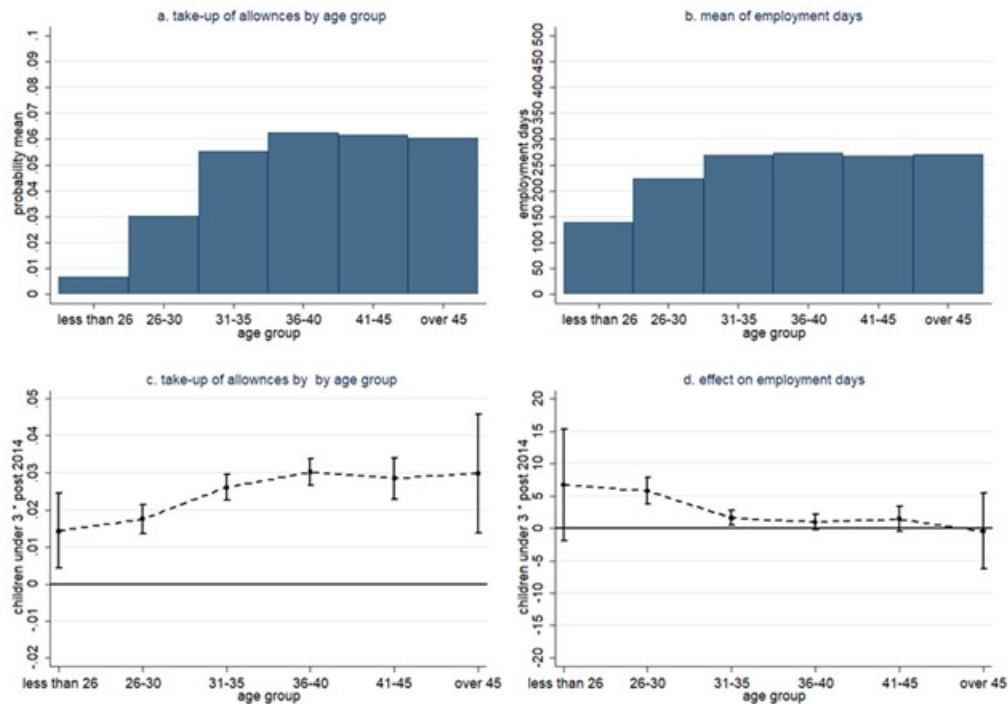


Figure 9 Take-up rate, average number of employment days, and the effect of Flexible Care Allowance on take-up of subsidies and employment days by the age of the mothers

Figure 9 shows that the take-up rate of allowances increases with the age of the mother as does the effect of Flexible Care Allowance on take-up. At the same-time the effect on employment days seems to decrease with the age of the mother while the average number of employment days increases. Flexible Care Allowance seems to affect the employment of young mothers who are working relatively low number of days within a year. These mothers respond to the enhanced incentives by increasing the number of days in employment.

Figure 10 reports the same kind breakdown of the effects of Flexible Care Allowance by income deciles of mothers in period t-1. In this figure mothers are grouped according to their position in the income distribution in the previous year. As is clear from Figure 10, the take-up rate of allowances first increases with the income level of the mothers and then declines while the number of employment days increases with income. The effect of Flexible Care Allowance on take-up follows a very similar pattern by income deciles as the average take-up rate. The effect is strongest for mothers in the fifth and sixth deciles of the income distribution. The labour supply effect, on the other hand, is strongest in the lower income deciles where average number of days are also lower. This pattern of labour supply effects is very similar to the variation of the effect by age reported in Figure 9.

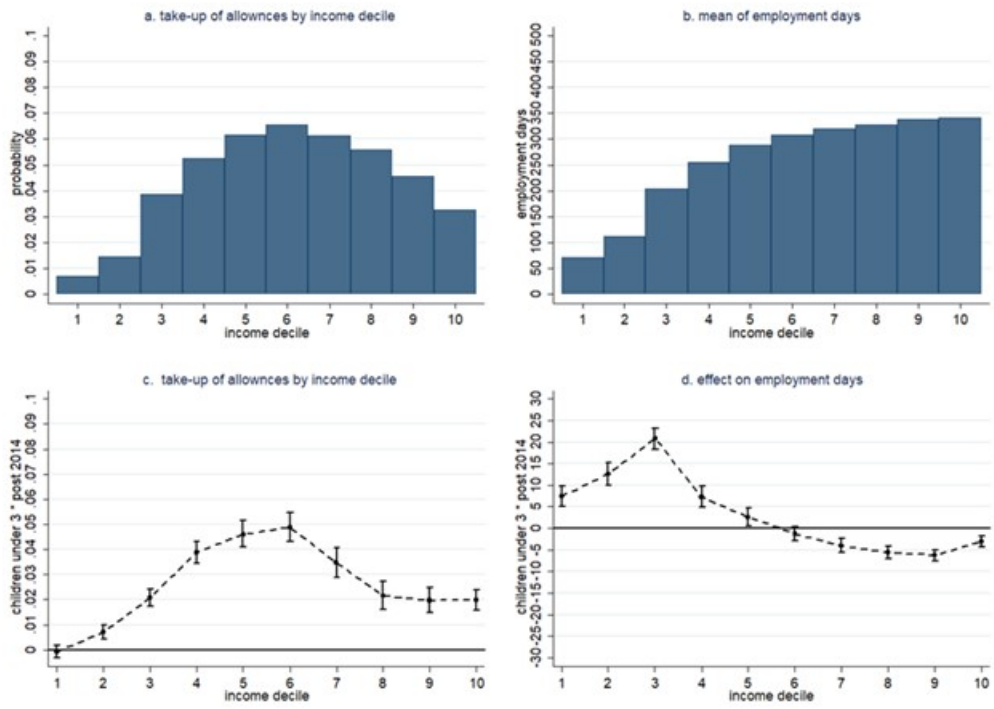


Figure 10. Take-up rate, average number of employment days, and the effect of Flexible Care Allowance on take-up of subsidies and employment days by the income decile of the mothers in period t-1

Finally, we examine the heterogeneity of the effect of Flexible Care Allowance by educational attainment of the mothers. Human capital is typically considered as one of the most important individual characteristics that explain labour market outcomes. Here we examine the variation of the results both by the level and the field of education of the mothers since both of these aspects are likely to affect the possibilities of working part-time.

Table 8 reports the effects of Flexible Care Allowance on the take-up rate of allowances, number of employment days and wages by the level of education of the mothers who are grouped according to their final degrees into groups primary, secondary, and tertiary education. Flexible Care Allowance increases the take-up rate of allowances in all education categories. The effect size is clearly largest among mothers with secondary education who double their take-up rate when Flexible Care Allowance is introduced. However, the effect sizes on take-up rate are also large in other groups.

Heterogeneity by educational attainment is much clearer in the labour supply effects of the Flexible Care Allowance. The employment days of mothers with tertiary degree do not respond at all to the introduction of Flexible Care Allowance whereas the effect on the employment days on mothers with only primary education is clearly significant and sizeable. Low educated mothers increase the number of days worked by seven which amounts to a six percent increase. The effect on the labour supply of mothers with a secondary degree is also positive and statistically significant but clearly smaller. The wage effects of Flexible Care Allowance follow a similar pattern as the labour supply effects.



Table 8 The effect of Flexible Care Allowance on take-up rate of allowances, employment days, and wages by the level of educational attainment of the mother

	Primary education	Secondary education	Tertiary education	Primary education	Secondary education	Tertiary education	Primary education	Secondary education	Tertiary education
	Take-up	Take-up	Take-up	Employment days	Employment days	Employment days	Earnings	Earnings	Earnings
Pre-reform mean	0,01	0,02	0,07	111,99	216,91	285,45	4455,89	9524	18540
Post 2014	0.002*	0.007***	-0.001	-13.76***	-6.695***	-2.913***	-1,276***	-369.4***	-192.9***
	(0.001)	(0.001)	(0.001)	(1.006)	(0.347)	(0.222)	(368.2)	(43.68)	(45.82)
Treatment	-0.002**	-0.019***	-0.051***	-30.36***	-27.70***	-17.08***	-3,463***	-5,714***	-7,621***
	(0.001)	(0.001)	(0.001)	(0.769)	(0.420)	(0.311)	(98.33)	(45.22)	(52.41)
<b>Treat*Post</b>	<b>0.006***</b>	<b>0.020***</b>	<b>0.036***</b>	<b>7.255***</b>	<b>3.647***</b>	<b>-0.107</b>	<b>891.7***</b>	<b>-18.66</b>	<b>-39.19</b>
	<b>(0.001)</b>	<b>(0.001)</b>	<b>(0.001)</b>	<b>(1.012)</b>	<b>(0.522)</b>	<b>(0.393)</b>	<b>(221.9)</b>	<b>(53.10)</b>	<b>(61.47)</b>
Observations	267,253	856,016	1,112,689	267,253	856,016	1,112,689	267,253	856,016	1,112,689
R-squared	0.029	0.034	0.046	0.647	0.570	0.501	0.607	0.544	0.602

Standard errors are clustered at individual level

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 11 plots the effects of Flexible Care Allowance on employment days against the average share of part-time work by fields of education of the mothers following the same logic as was used when examining the heterogeneity of the effect across industries in Figure 7. Again, the sizes of the circles reflect the relative sizes of the field of education categories.

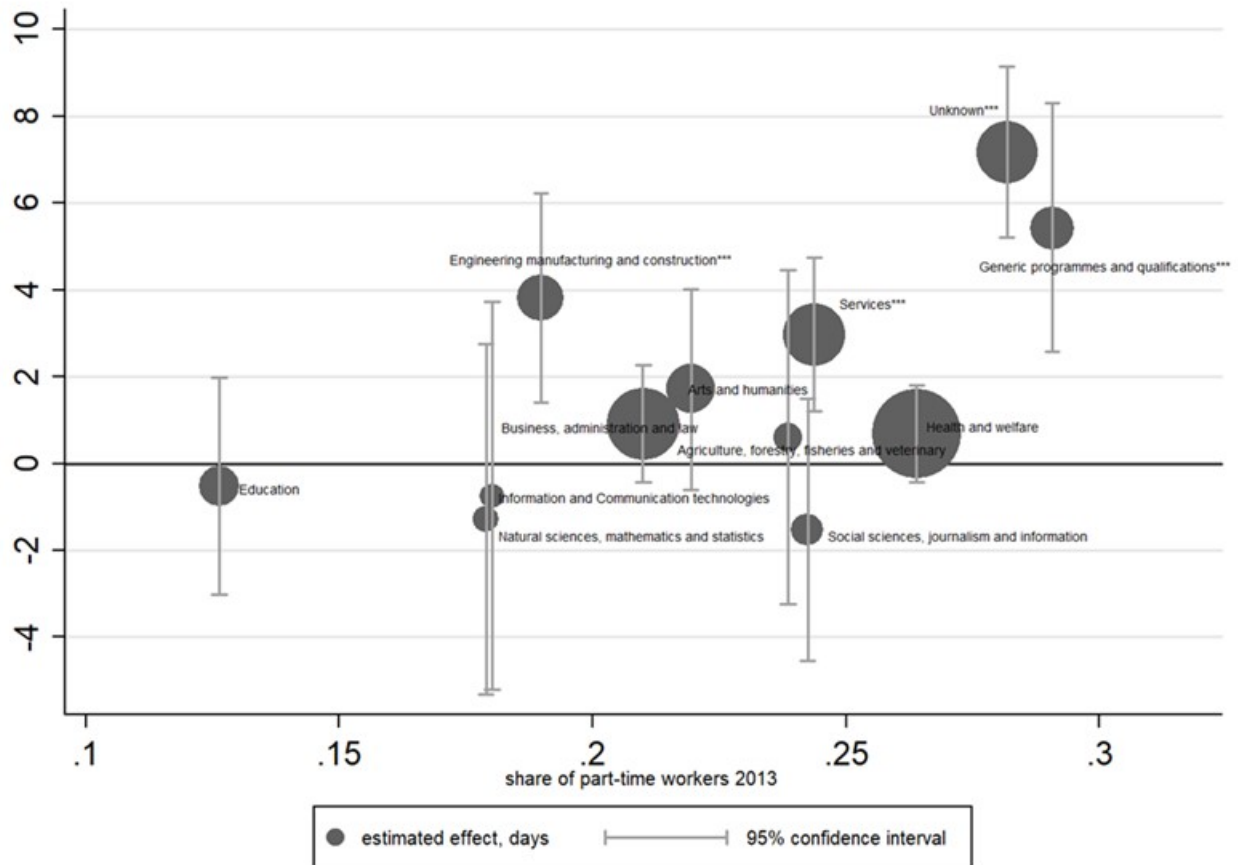


Figure 11. Share of part-time work by industry in 2013 and the estimated treatment effect of Flexible Care Allowance on employment days by field of education

Figure 11 reveals interesting differences across fields of education although the pattern of differences is not as clear as in Table 8. The effect of Flexible Care Allowance on employment days is strongest in categories “Unknown” and “Generic programmes”. These are categories that include individuals who do not have diplomas from secondary or tertiary education. Therefore, the large positive effects estimated in these categories probably reflect the same patterns as was found across levels of educational attainment in Table 8. Otherwise, the correlation between the average share of part-time worked and the effect of Flexible Care Allowance on employment days is weakly positive. The effect is strongest in fields of education such as Engineering and Services where particularly the latter has a relatively large share of workers working on part-time. On the other hand, the effect is low and imprecise in fields such as Education where part-time work is very rare.

## 8. Conclusions

Improving the possibilities and incentives to work part-time has often been suggested as an effective way of integrating marginalized groups to the labour market. Parents, and in particular mothers, of young children are an example of a group that is at the risk of marginalization especially if they spend extended periods taking care of children at home. Possibility of working part-time may make the return to the labour market smoother and can also mitigate the negative human capital effects that lengthy absences from work can cause.

In the Finnish debate mothers of young children are often considered as “low hanging fruit” in the sense that their employment rates can be increased relatively easily by changing incentives and improving child care services. Therefore, subsidies that increase the attractiveness of working part-time have been considered as a policy that has potential to increase the labour supply of this group. However, incentivizing part-time work can have highly heterogeneous effects depending on the current labour market status of the individuals and the flexibility of the hours of work in the establishment where they work. While stronger incentives may attract some stay-at-home parents to increase their labour supply, some employed parents may use this opportunity to decrease their hours. Moreover, as working part-time is not easy in some jobs, individuals may not be able to adjust their hours or may respond to the incentives by changing jobs.

This background report analysed the labour supply effects of Flexible Care Allowance that created strong incentives for part-time work for parents of children under age three. Even though this subsidy was available for both parents our analysis shows that it was only used by mothers. By using mothers of school-aged children as a control group, we show that the introduction of Flexible Care Allowance had a modest positive average effect on the days of employment of mothers. However, this average effects masks considerable heterogeneity. While mothers who were not working prior to the introduction of Flexible Care Allowance increased their labour supply considerably, mothers who were already fully employed decreases their hours. Accordingly, the positive labour supply effect was driven by low-educated and low-income women who are more likely to stay at home to take care of their children. Employed mothers, on the other hand, also sought to respond to the incentives by switching to jobs where part-time work was easier to arrange. Indeed, the labour supply effect on employed mothers was driven by job changers and by firms where part-time work was very common.

The results reported in this background report highlight the complex effects of policies that seek to incentivize the participation of marginalized groups though stronger incentives for part-time work. These kinds of policies are likely to have very heterogeneous effects on labour supply depending on the labour market position of the individuals that are affected. Consequently, the effect on aggregate employment is ambiguous. Our results also imply, in line with the results in Blundell et al (2008), that the traditional model of labour supply that assumes frictionless adjustment of hours is not adequate to describe the labour supply response to policies such as the Finnish Flexible Care Allowance. Workers cannot freely adjust their hours. Rather, they are constrained to choose between bundles of hours requirements and wages. Therefore, workers will respond to these policies also by changing jobs.

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## Appendix A

Table A1. The effects of Flexible Care Allowance by previous labour market status in full population data

Previous labour market status	Received allowances	Fully employed	Not employed	Employed, no allowances	Not empl. received allowances
Outcome	Take-up	Take-up	Take-up	Take-up	take-up
Pre-reform mean	0,06	0,06	0,01	0,03	0,01
Post 2014	0.022*** (0.003)	0.004*** (0.001)	-0.000 (0.000)	-0.004*** (0.001)	0.004** (0.002)
Treatment	-0.202*** (0.002)	-0.053*** (0.001)	0.004*** (0.000)	-0.030*** (0.001)	-0.001 (0.001)
<b>Treat*Post</b>	<b>0.016*** (0.003)</b>	<b>0.033*** (0.001)</b>	<b>0.009*** (0.001)</b>	<b>0.018*** (0.001)</b>	<b>0.007*** (0.002)</b>
Observations	908,002	1,351,180	599,673	867,583	314,634
R-squared	0.152	0.042	0.013	0.017	0.018

Previous labour market status	Received allowances	Fully employed	Not employed	Employed, no allowances	Not empl. received allowances
Outcome	Empl. days	Empl. days	Empl. days	Empl. days	Empl. days
Pre-reform mean	224,96	337,12	67,85	334,94	71,60
Post 2014	-4.668*** (0.414)	-1.313*** (0.126)	-14.47*** (0.732)	-1.250*** (0.143)	-17.04*** (1.891)
Treatment	-15.08*** (0.402)	-12.71*** (0.197)	-36.14*** (0.671)	-14.76*** (0.251)	-28.43*** (1.390)
<b>Treat*Post</b>	<b>3.708*** (0.518)</b>	<b>0.469* (0.267)</b>	<b>9.282*** (0.842)</b>	<b>-3.404*** (0.354)</b>	<b>13.16*** (1.968)</b>
Observations	908,002	1,351,180	599,673	867,583	314,634
R-squared	0.622	0.067	0.119	0.079	0.095

Previous labour market status	Received allowances	Fully employed	Not employed	Employed, no allowances	Not empl. received allowances
Outcome	wage	wage	wage	wage	wage
Pre-reform mean	12330,50	18669,40	3231,38	18934,08	3342,14
Post 2014	-470.8*** (66.84)	-29.98 (56.71)	-355.6*** (47.92)	-143.6* (76.05)	-396.3*** (123.9)
Treatment	-4,593*** (62.34)	-7,645*** (76.29)	-1,921*** (40.53)	-11,368*** (53.62)	-1,536*** (85.57)
<b>Treat*Post</b>	<b>390.9*** (72.48)</b>	<b>-64.33 (55.98)</b>	<b>170.4*** (53.06)</b>	<b>-678.2*** (69.44)</b>	<b>313.3** (127.3)</b>
Observations	908,002	1,351,180	599,673	867,583	314,634
R-squared	0.571	0.598	0.179	0.651	0.143

Standard errors are clustered at individual level

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1