



# Academic performance and type of early childhood care



Nabanita Datta Gupta<sup>a,b</sup>, Marianne Simonsen<sup>a,b,\*</sup>

<sup>a</sup> Department of Economics and Business Economics, Aarhus University, Fuglesangs Allé 4, 8210 Aarhus V, Denmark

<sup>b</sup> IZA, Bonn, Germany

## ARTICLE INFO

### Article history:

Received 25 June 2015

Revised 22 March 2016

Accepted 27 March 2016

Available online 23 April 2016

### JEL classification:

J13

I24

### Keywords:

Early childhood care

Academic achievement

Danish register data

IV methods

## ABSTRACT

This is one of the few studies that estimate the effects of type of childhood care on academic achievement at higher grade levels by linking day care registers to educational registers. We use entire birth cohorts of ethnic Danish children, enrolled in either center based day care or family day care at age 2. Exploiting municipality variation in the composition of types of child care our results show that center based day care improves grades in Danish language in the final year of compulsory school with around 0.2 standard deviations.

© 2016 Elsevier Ltd. All rights reserved.

## 1. Introduction

A rather large literature exists on the effects of maternal employment outside the home during a child's early years on child development (Blau & Currie, 2006); see for example recent work by Bettinger, Hægeland, and Rege (2014) and Schönberg and Ludsteck (2014). Whether maternal employment has negative or positive effects on child outcomes depends, of course, to a large extent on the quality of counterfactual care. Much of the existing literature on out-of-home child care focuses on targeted child care interventions for children of low-income families, for instance, the Perry Preschool program (Almond & Currie, 2011; Duncan & Magnuson, 2013; Heckman, 2008.) Another relevant body of literature is growing around the effects of *universal* schemes.

Universal child care in Denmark has existed since the 1970s. Evidence from such a regime reliably represents the long-run effects of a scheme that has matured over time as opposed to a scheme in its infancy. The focus on universal care is particularly relevant because of the increased political interest in and support for such programs, not just in Scandinavia, but also in the US, as was highlighted in President Obama's 2013 State of the Union speech. In the EU, as well, policymakers are calling for wider provision of child care, both for the purpose of substantially increasing women's attachment to the labor force, and as a response to declining fertility rates. Because peer effects can be quite different in universal schemes, compared to schemes targeting mainly low SES children,<sup>1</sup> evidence from universal schemes may offer important input to the debate on the potential of institutionalized child care for fostering greater societal mobility (see e.g. Esping-Andersen, 2004).

\* Corresponding author. Tel.: +45 87165556.

E-mail addresses: [ndg@econ.au.dk](mailto:ndg@econ.au.dk) (N. Datta Gupta), [msimonsen@econ.au.dk](mailto:msimonsen@econ.au.dk) (M. Simonsen).

<sup>1</sup> See e.g. Herbst and Tekin (2012), on the effect of CCDF subsidies to low-skilled parents on child development, or Bernal and Keane (2011), on the effects on children's cognitive achievement of child care choices made by single mothers.

This paper is concerned with the consequences of parents' decisions about child care, given that they have decided to place the child in out-of-home care. The paper is thus one of the few to bring evidence on the effects of different modes of child care on child outcomes and our particular study focuses on *center based* day care vs. *family* day care.<sup>2</sup> Our analysis uses comprehensive Danish register data to look at long-term, high-stakes outcomes, i.e. the effects on children's school final year (9th grade) GPA and on the probability of enrolling in the academic track in high school (that qualifies for higher education) before the age of 17,<sup>3,4</sup> while exploiting municipal variation in access to different types of care. Since school starting age in Denmark is 7 (grade 1), students are 16 in the 9th grade, i.e. a year older than their counterparts in many other countries. High school enrollment is thus equivalent to staying in school beyond the minimum requirement. Furthermore, since a number of compulsory school graduates in Denmark take an optional 10th grade that reviews basic academic skills, it is not uncommon that the academically weaker students would be above 17 when they begin high school. Our outcomes are thus intended to capture the effects on long-run academic performance of attending out-of-home care at a young age.

Why should attending formal child care at an early age be expected to impact a child's long run academic achievement? According to the early childhood education view, trained and educated child minders can give children an early start in learning important cognitive skills such as math and language at a stage when neuroplasticity of the brain is at its highest level and the development of synapses in its accelerating phase (ages 0–3) (Shonkoff & Phillips, 2000). Furthermore, being exposed from an early age to various peers fosters the development of valuable socio-emotional or non-cognitive ("soft") skills as well. For children of low educated parents in particular, care of this type could be a way to close socioeconomic achievement gaps that begin to open up from a very early age (Heckman, 2008).

While most studies find early gains in achievement from child care or pre-kindergarten, these effects for the most part seem to fade out, as early as the end of kindergarten (Duncan & Magnuson, 2013). Yet, large positive long-run effects of exposure to child care on employment, crime and welfare have been found (Deming, 2009; Havnes & Mogstad, 2011), presenting a real puzzle in the literature as to their validity. One explanation for finding a long run effect could be that the early exposure to skill formation lays the foundation for greater self-productivity at later stages, for instance when more advanced material is introduced in the curriculum. Another could arise from a dose response relationship in child care, such that high quality,

full time care (such as in Scandinavia) could lead to potentially longer lasting effects (Shonkoff & Phillips, 2000).

The use of register data on the entire population of Danish children is expected to bring more precise and robust evidence to these questions compared to a range of previous studies. By looking over a longer-time span, from age 2 to age 16, we are able to map the longer-run consequences of early childhood care. Because we observe test scores of children at age 16, we are one of the first studies to be able to bring large-scale evidence on the question of the long-run effects of early child care. Also, as opposed to some of the prominent previous papers (Baker, Gruber, & Milligan, 2008; Havnes & Mogstad, 2011) the data permit us to identify direct treatment effects because individual level child care enrollment is registered and can be linked to educational registers.

We find that being enrolled in center based day care at age 2 significantly increases 9th grade overall GPA in Danish language with around 0.2 standard deviations. Effects on overall math GPA are smaller (0.1 standard deviations) and not significant in most specifications. Because most children initially enrolled in family day care eventually enroll in center based care, the appropriate interpretation of our results is the consequence on student outcomes of an additional 1½ years of early center based care. To put the size of the estimated effects into perspective, the results on Danish language correspond to enrolling about seven extra students into a Swedish classroom for children aged 10–13 (Fredriksson, Öckert, & Oosterbeek, 2013) or to about 200 additional school days (Carlsson, Dahl, Öckert, & Rooth, 2015). We also find some evidence that the probability of being enrolled in the academic track in high school at age 16 is increased as a consequence of center based day care. Results are robust to a range of alternative specifications, including a complementary instrumental variables strategy that exploits municipality variation in the size of the population aged 0–6. These findings give important input to the next generation of studies on the quality rather than the quantity of child care.

The paper is structured as follows: Section 1 discusses related literature, Section 2 provides institutional details about Danish child care, and Section 3 describes our data and the empirical methods employed. Section 4 presents results and Section 5 concludes.

## 2. Related literature

Of most interests to us are studies that compare different types of non-parental care. A prominent example is Bernal and Keane (2011) who find negative effects of non-parental care on cognitive outcomes for children of single mothers but conclude that this is completely driven by non-center based care. Center based care, on the other hand, has no adverse effects. Earlier Danish studies (Datta Gupta & Simonsen, 2010, 2012) utilized variation across municipalities in the supply of family day care and pre-school slots to estimate the effects of different modes of care on child outcomes. These studies thus used an IV strategy which informed on the direct effect of a specific treatment. The child outcome was parent-reported SDQ

<sup>2</sup> See also Bernal and Keane (2011) for a study on the effects of mode of care on children born to single mothers.

<sup>3</sup> The alternative high school tracks consist of vocational or technical education that primarily qualifies for access to the labor market.

<sup>4</sup> Completion of (academic) high school given enrolment is also an important outcome. Unfortunately, the children in our estimation sample are still too young to allow for such an analysis.

Download English Version:

<https://daneshyari.com/en/article/354283>

Download Persian Version:

<https://daneshyari.com/article/354283>

[Daneshyari.com](https://daneshyari.com)