

Childcare Policies in Different Countries

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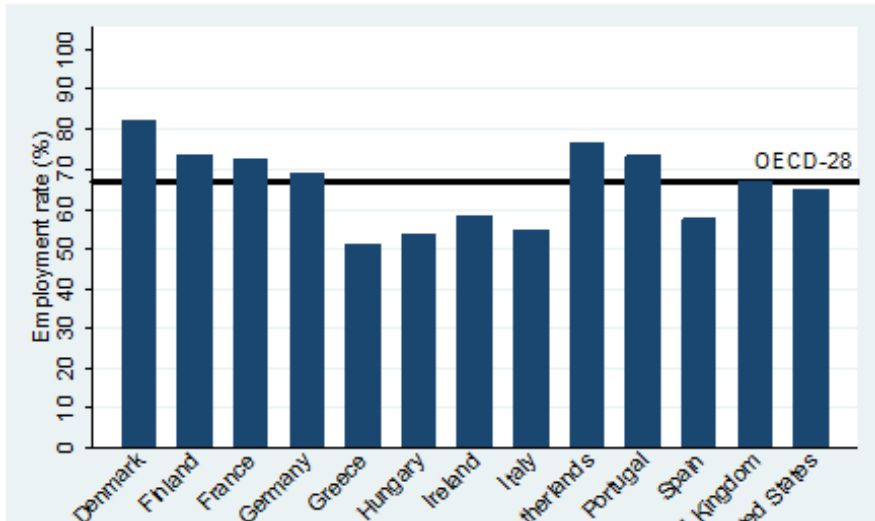
- Motivation
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Motivation - 1

- The interest of economists in fertility and child development began with the seminal work of Becker (1973), whose quantity-quality theory provided important insights in the human capital investment process.
- In recent years, numerous theoretical and empirical papers have expanded this field and increased our understanding of cognitive and non-cognitive development in childhood and adolescence.
- One of the reasons for the renewed interest in this area is the concern about the potential negative impact of the increasing number of mothers at work on the development of their children.

- The growth of mothers working has been quite heterogenous across countries:
- Denmark, Finland, and the Netherlands (80 percent) are the countries where mothers' participation rates are highest.
- In the U.K. and the U.S. mothers' employment rates are similar, and are roughly equal to the OECD average (68).
- The Mediterranean countries of Italy and Greece have the lowest rates of maternal employment (50-52)

Figure 1
Maternal Employment Rates



- Some speculate that the growth of mothers' participation in the labor market is associated with the worsening performance of children in school.
- Some evidence from the PISA-OECD test scores cast doubts on this claim.
- In Northern European countries, where mothers employment rates are the highest, test scores are also the highest.
- In the U.K. and U.S., scores are around the average.
- The countries with the lowest scores, Italy and Greece, are also the countries with the lowest employment rates of mothers.

Figure 2
Performance on Standardized Tests

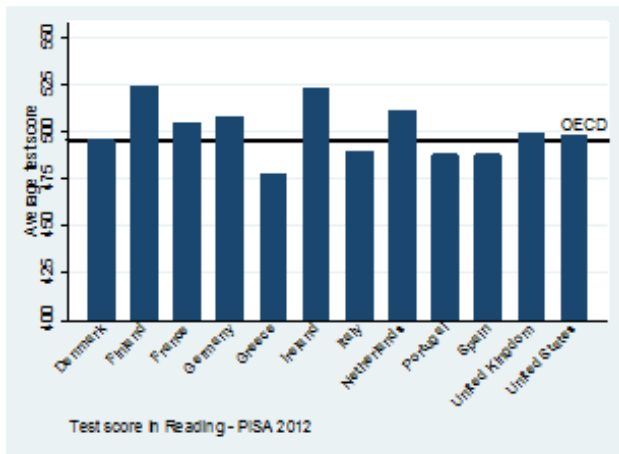
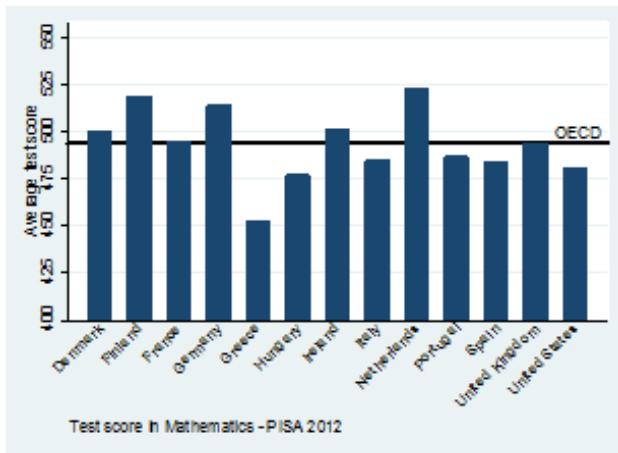
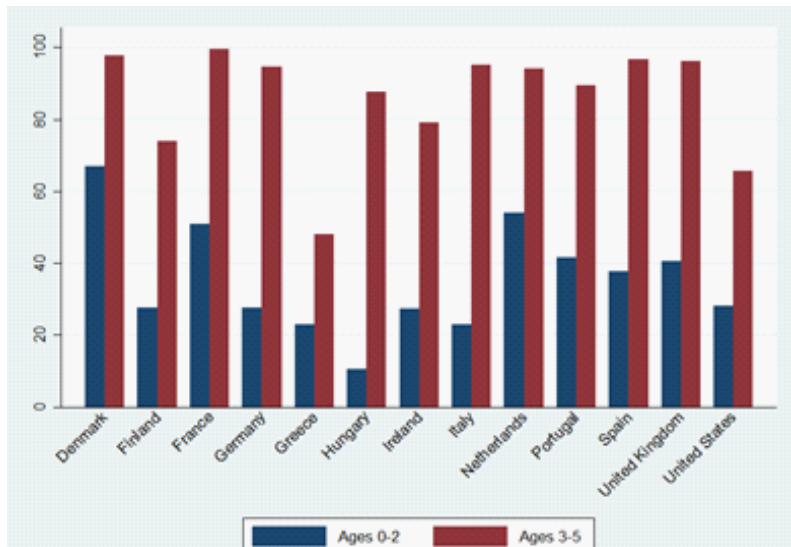


Figure 3
Performance on Standardized Tests



- One potential explanation of the differences in students' performance is the type and amount of investment in early education across countries.
- Empirical evidence points to formal child care as being the best substitute for parental time investments, especially for children from low-income families.
- While child care availability for children over the age of 3 is quite high, the availability of child care for children under the age of three has remained quite low in several countries

Figure 4
Enrollment in Formal Child Care by Age and Country



- Formal child care enrollment is higher in Denmark and Norway, where test scores are the highest.
- It is somewhat lower in the United Kingdom and the United States.
- It is quite low in Italy and Greece where test scores are the lowest.
- What mechanisms can generate these links and rationalize these different results?

The economic approach to child care -1

- Economists use variants of a growth model to analyze the child development process which is inherently dynamic (Carneiro and Heckman (2003), Todd and Wolpin (2003, 2007), and Del Boca, Flinn and Wiswall (2014, 2015)).
- This growth process is considered to be separable over time, with the level of child development at age $t + 1$ being a function of the child's state of development at the beginning of age t and investments in the child when she is age t .
- These investments are taken to be made by several types of agents, all of whom have (differing) preferences over child outcomes (parents, relatives, schools, and the child herself).

The economic approach to child care - 2

- Since we are focusing here on early childhood development, the most relevant actors are parents, other relatives, and child care providers
- The growth model of child development has the general form

$$k_{t+1} = g_t(x_t, k_t)$$

k_t is the child's cognitive ability at age t , x_t is a vector of investments and g_t is a function that maps the age t investments for k_{t+1}

- The vector of inputs at age t , x_t , are chosen by one or more agents in a manner consistent with their objectives regarding child development.

- In terms of the estimation of the relationship $g_t, t = 1, ..M$:
 - Households are extremely heterogeneous, both in terms of observable and unobservable characteristics, so that there are, many production technologies to be estimated.
 - Inputs are not chosen randomly by parents and by other agents involved in the child development process
 - Even under the strong assumption that all households share the same development technology, one cannot estimate these functions without taking into account endogeneity of the inputs.

The economic approach to child care - 4

- This problem can only be dealt with by either having access to instrumental variables or by fully modeling the household investment process
- The results reported below use both approaches and it is important to emphasize how the results obtained can be related to a specific economic behavioral framework.
- Several empirical studies have analyzed both the role of parental care and the role of formal child care.

The role of parental care - 1

- Several recent studies (for the United States and the United Kingdom) have analyzed the impact of parental inputs on child outcomes.
- The results are often mixed concerning the size and the sign of the impacts.
- Most socioeconomic surveys lack appropriate measures of parental time spent in child care, and so researchers have been forced to use proxy measures, such as mothers' employment.

The role of parental care - 2

- Bernal (2008) using NLSY data estimates a model of work and child care decisions of mothers and their effect on the cognitive development of her child.
- However, her model does not allow for fathers to impact child development, and also assumes that all time of the mother not working is spent in child investment.
- Her results indicate that mother's time in employment and child's time in formal child care have a negative impact on child's cognitive ability.
- The time diary information available in PSID-CDS data show that mothers spend considerable amounts of time away from their children and that fathers spend considerable amounts of time with their children (DFW (2014) and Brillì (2015)).

The role of parental care - 3

- While the mother's time is widely recognized as a crucial input to a child's cognitive development, the father's time may be equally productive, especially at some stages of a child's life.
- Fathers spend more time with their children as their children age, partly offsetting the decline in the effect of the time spent by mothers.
- When children grow older, their own inputs into their cognitive development become very important, even more important than their parents' inputs (Del Boca, Monfardini, and Nicoletti, 2016).

The role of parental care - 4

- Using UK data, Hansen and Hawkes (2009) and Del Boca, Piazzalunga and Pronzato (2014) analyzed the impact of different types of child care on several child outcomes.
- Children cared for by grandparents have better results in some outcomes such as naming objects, but worse in others such as problem-solving and school readiness than children cared for in child care centers.
- This negative association is more significant for children in disadvantaged households.

The role of formal child care -1

- Other studies focused on child care in child centers. The results for the US, where child care is mostly private and unevenly regulated, are quite mixed.
- Bernal and Keane (2011) show that informal care has a significant negative effects on cognitive achievements, while formal center-based care has no adverse effect
- Other studies find positive results. Using Early Childhood Longitudinal Study, Loeb et al. (2007) find that reading scores of children who attended a center-based arrangement were 1.2 points higher than those of children cared for their parents, and their Math scores were 2 points higher.
- Gormley (2008) evaluates a public program, the Tulsa Pre-Kindergarten program, and finds that high quality preschool increases children's cognitive outcomes with stronger effects for black children and for children of immigrant parents

The role of formal child care - 2

- In North European countries, where formal child care is mainly public, most analyses find consistent positive impact in areas where public child care is more widely available and of higher quality.
- A large increase in the supply of childcare in Norway in the 1970s shows strong and positive impacts on long term child outcomes (such as years of education, college attendance, and earnings), especially for children of low-educated parents (Havnes and Mogstad, 2011)
- In Denmark, formal child care attendance has positive effect on children's behavior mostly for boys from low educated mothers (Datta-Gupta and Simonsen, 2010).

The role of formal child care - 3

- For the Italian case only a few studies explore the effect of public childcare on child outcomes.
- Brilli et al (2016), using INVALSI data, show that childcare coverage at the provincial level positively affects child performance as measured by the Language test score taken when the child is in the second grade of primary school.
- Using ISFOL data, Del Boca et al. (2016) provide evidence on the long term impact of childcare attendance by using children's grades in high school as the outcome of interest. They address the issue of endogeneity of childcare attendance using instrumental variable methods, and they find a positive and significant impact of childcare attendance on high school grades.

- Our research focuses on three countries US, the UK, and Italy.
- In the first part, we focus on the US and use the PSID-CDS data, which provide time diaries on parental and child's time use, and focus on the impact of parental care on child cognitive outcomes.
- This part, based on DFW (2014), takes into account the endogeneity of parental investments in their children and choice of child care.

- In the second part, we focus on the UK using the Millennium Cohort Survey.
- We analyse the link between formal child care and cognitive outcomes and simulate the impact of an expansion of child care on cognitive inequality among children.
- Our results show that early formal care attendance is positively correlated with several cognitive outcomes and expanding formal child care contributes to reduce inequality.

- In the third part, we examine the case of Italy.
- We explore the impact of child care provision both on mothers' work decisions and child cognitive outcomes, taking into account peculiar characteristics of the child care system.
- Public child care is undersupplied at the prices charged, giving rise to rationing and selection criteria that differ across local areas.
- When we take into account these varying selection criteria, we find that the positive impacts of childcare on child outcomes and mothers' employment seem to be stronger in municipalities where the selection criteria give priority to more disadvantaged households.

- The results of the analyses and policy simulations reported in the next three presentations suggest potential positive impacts of:
 - Policies supporting both parents' efforts to spend more time with their children during early stages of development (parental leave)
 - Policies promoting the development of high-quality formal child care.
- The results also show that the positive association between formal child care and positive child outcomes is stronger for children in more disadvantaged homes.

Conclusions

- This research has focused only on cognitive outcomes, but also non cognitive outcomes are important, such as motivation, perseverance, self-control, resilience, and creativity which may impact cognitive outcomes (Kautz et al 2014).
- However, despite growing interest in this topic, the causal relationship between non-cognitive skills and later cognitive outcomes is not well established due to the lack of a reliable means of measuring them
- More research on non-cognitive outcomes is important for the development and estimation of household investments models.