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Does professional development of preschool teachers improve children's socio-emotional outcomes?

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ABSTRACT

From 2011 to 2013 a randomized controlled trial has been run in Danish preschools to obtain evidence on improvements of early childhood education by providing training to the preschool teachers. The purpose of the intervention is to improve children's socio-emotional outcomes (measured by SDQ), especially for socially disadvantaged children. The teachers in intervention preschools received extra training in implementation of new pedagogical activities and principles, whereas teachers in control preschools did not receive any training. The results show improvements in several subscales of the SDQ scale. However, heterogeneity analysis is not able to demonstrate larger improvements for socially disadvantaged children than for other children.

1. Introduction

In recent years, it has become increasingly clear that the foundation for children's future success in life is laid very early in life (see e.g. Cunha et al., 2006). All children, and socially disadvantaged children in particular, benefit from early childhood education and care (Blau and Currie, 2006; Burger, 2010; Duncan and Sojourner, 2013). Positive effects of early childhood education and care are observed for cognitive skills as well as for socio-emotional skills of the children (Pianta et al., 2009; Heckman et al., 2010) and socio-emotional skills actually seem to be as important as cognitive abilities (Heckman and Kautz, 2012). Several studies have focused on long-term effects, documenting the importance of early childhood education for later life outcomes.¹ Much of this evidence relates to the US (see e.g. Duncan and Magnuson, 2013), but there is also evidence from Europe showing that early childhood education and care has positive effects (Anders et al., 2016; Melhuish et al., 2015).

The advantages gained from effective early interventions are best sustained when they are followed by continued high-quality learning experiences (Heckman, 2008). Hence, it is very important to provide high-quality childcare and to obtain more knowledge of how to design early childhood education programs to improve school readiness, increase educational attainment, and lay the foundation for future

labor market success. Datta Gupta and Simonsen (2010) and Duncan and Magnuson (2013) point out that center-based care is generally more beneficial than home-based care and family daycare. Thus, a logical next step is to investigate possibilities for improving the quality of existing programs of formal center-based early childhood education and care in order to further enhance child outcomes.

In this study, we focus on professional development (PD) of preschool teachers as a potential route to improved childhood education in formal center-based care. PD can take many different forms and can occur as either pre-service or in-service programs, and the aim is to increase the knowledge and skills of preschool teachers. It can take the shape of workshops or collaborative group work between teachers, or be framed around technological innovations improving accessibility to and content of professional development interventions. Thus, PD covers a widespread range of activities such as formal coursework, consultation, coaching, and reflective supervision, and politicians increasingly express interest in and earmark resources for PD interventions in early childhood education settings, often focusing at disadvantaged children (Farran and Hofer, 2013).

Professional development is a promising way of improving the teaching quality of early childhood education and care and thereby improving both child outcomes (Schachter, 2015) and the quality of teacher-child interactions in preschools (Mashburn et al., 2008). Pianta

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¹ A survey of many of these studies is given by Almond and Currie (2011).

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et al. (2009) give an extensive survey of the (primarily US-based) evidence on the effects of preschool teacher qualifications showing that teacher qualifications and PD of preschool teachers are important for child development. Powell and Diamond (2010), Schachter (2015), and Zaslow et al. (2010) provide recent reviews of professional development interventions in which PD is associated with better child outcomes. For Denmark, Bauchmüller et al. (2014) find that a high percentage of BA-educated staff is positively associated with child development. Chetty et al. (2011) also find that teacher qualifications are positively associated with better cognitive outcomes. However, the literature on the effects on children of PD interventions is scarce if focus is not on US interventions. Results from a meta-analysis focusing on European PD interventions point in the direction of positive short-run effects on child outcomes (Jensen and Rasmussen, 2016), i.e. confirming the positive results found in US interventions.

In this study, we provide evidence from a randomized controlled trial on the effects of a PD intervention in Danish preschools, VIDA.² The intervention is targeted at all 3–5-year-old children in universal daycare but with special focus on disadvantaged children. The objective is for teachers to provide the individual child with learning opportunities in ways that match the child's skill level. During a total of 17 days distributed across two years, preschool teachers are trained to improve their practices, refresh and update their pedagogical knowledge and expertise, and thereby improve child outcomes. The intervention trains preschool teachers to work on an evidence-based platform. The training sessions focus on theoretical aspects, and they further include educational training targeting the interplay between theoretical knowledge and practice. As an important part of the implementation into practice, the teachers learn to reflect on how to transfer the theoretical knowledge into practice. This final part is crucial to ensure that the teachers are able to implement the pedagogical methods and tools into renewed practices. A focus point is to improve every child's skills by being responsive to the child's needs and potentials, working with the individual child and peer groups (inclusion), and thus enhance the well-being and learning of *all* children, but hopefully with a relatively larger effect for socially disadvantaged children.

Our contribution is to investigate the effect of the VIDA intervention on children's socio-emotional outcomes and thus provide new empirical evidence on the effects of targeting children through professional development of preschool teachers. Furthermore, we focus on the effect of PD on children's socio-emotional outcomes, which is an under-investigated area, especially compared to studies on children's language and literacy skills (Schachter, 2015). The evidence is from a relatively large randomized controlled trial taking place in Denmark. The specific research questions are: does pedagogical training based on learning and knowledge sharing (the VIDA intervention) improve socio-emotional outcomes of children in preschools? If yes, does the effect vary among different groups of children (e.g. due to gender) or based on differences of preschools (e.g. turnover rate of staff)?

Our results show that an intervention based on professional development of preschool teachers leads to improvements in the socio-emotional skills of the children, especially as regards emotional symptoms and conduct problems. However, we *cannot* conclude that the intervention is successful in producing larger improvements for socially disadvantaged children than for other children.

The remainder of the paper is structured as follows. In Section 2, we briefly describe the institutional settings of preschools in Denmark, before we describe the VIDA intervention in detail in Section 3. Section 4 includes information on the experimental design and data along with tests on attrition and balancing of the sample. We present the empirical framework in Section 5 and the main results are presented in Section 6. Results on heterogeneity are included in Section 7, before the

sensitivity analysis in Section 8. Section 9 discusses the various results and finally concludes with some policy recommendations.

2. Institutional settings of preschools in Denmark

In this section, we briefly present the organization of Danish preschools in the relevant period, 2011–2013. Danish parents use organized childcare on a large scale. For example, in 1998, almost 70% of 1-year-old children attended a formal childcare arrangement, and more than 90% of 3–5-year-olds attended childcare. Attendance rates have continued to rise and today 97% of 3–5-year-olds attend childcare (Statistics Denmark, 2015).

The majority of Danish childcare facilities are organized and operated by the municipalities. They organize family daycare where young children (typically 0–2-year-olds) are cared for by a child-minder, usually in her or his private home. Moreover, they provide center-based early childcare at nursery centers for the 0–2-year-olds, center-based preschools for children aged 3–5, and age-integrated institutions (for the 0–5-year-olds) with separate nursery and preschool compartments. In this study, we focus on 3–5-year-old children in center-based preschools and age-integrated institutions. These children are most often cared for in groups across ages, i.e. they are generally not subdivided into groups of 3-year-olds, 4-year-olds, and 5-year-olds.

Children are allocated to the institutions by the local municipality. On average, half of the institutions are run directly by the municipality; the others are independent but heavily subsidized by the municipality. The latter can be considered semi-private non-profit organizations, and they have more autonomy and more parental influence than a municipality-run institution, but they basically function as a municipal institution as they are under municipal monitoring and supervision and also subject to the same legislation on educational quality and provisional conditions for hygiene and safety.

Parental payment is the same for institutions within a municipality, but fees vary across municipalities. The municipality decides how much of the cost parents should bear, subject to an upper cap set by national law. Thus, parents usually pay around 20–30% of the actual cost of a preschool slot,³ but the price is reduced if siblings attend preschool at the same time, and there is no fee for very low-income families. A free slot is provided to families with an income level below DKK 164,101⁴ (for the year 2015). For single parents (sole providers) the income level below which a free slot is provided is further adjusted upwards to DKK 221,508.

3. The VIDA Intervention

The VIDA intervention is rooted theoretically in the bioecological model of human development, which focuses on the social contexts in which children live and views the child as an inseparable part of a wider system (Bronfenbrenner and Morris, 2006). According to this approach, the child's context (family, daycare, school, or neighborhood) is critical for understanding the child's learning and development. Recent research on life cycle skill formation focuses on dynamic complementarity with early investments in children generally making later investments more beneficial and also emphasizes that non-cognitive skills, such as the child's socio-emotional skills, can enhance the cognitive skills (Heckman, 2006; Cunha et al., 2006).

The VIDA intervention focuses on improving the quality of the preschool environment by training the preschool teachers instead of targeting the children directly. Since the effects of the intervention on the children are indirect, it is crucial for the success of the intervention that the training and implementation in the preschools builds on

² VIDA is a Danish acronym for *Knowledge-based efforts for socially disadvantaged children in daycare*.

³ With some variation across municipalities.

⁴ This is equivalent to USD 24,275 (July 26, 2016: USD 100–DKK 676).

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