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CHILDCARE AND CHILD DEVELOPMENT

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Introduction

Reforms of the public childcare system have ranked high on the political agenda of many countries in recent decades. While expansions of pre-schools (care centers for children aged three-to-five years old) were the major objective in the 20th century,² in the first decade of the 21st century growing attention has been devoted to expanding early childcare (care centers for toddlers aged zero-to-two years old). Barack Obama, for instance, pledged USD 10 billion to early childhood education during his 2008 presidential campaign. In 2005 the German government enacted a day care expansion law to deal with the severe shortages of early care centers. In 2008, the law on support for children also announced that all children aged one year and older would be entitled to a childcare place by August 2013. A similar claim exists in Norway, where children born before September 1 are entitled to a place in childcare by mid-August of the year that they turn two years old. In the UK debates on extensions of free nursery entitlement to disadvantaged two-year-olds are ongoing.

The recent expansions of and interest in early childcare are largely motivated by the widely advertised success of a few model programs, including the Abecedarian and Perry Preschool programs. These programs provide generally large-scale multidimensional packages of interventions to disadvantaged families. Yet such targeted interventions are very different from the care centers at the core of the latest childcare reforms, and extra-

polating their findings may lead to very misleading conclusions. This article therefore provides an overview of the literature on the consequences of implementing or expanding universal childcare. Most of the literature to date has analyzed the consequences of expanding pre-schools. However, findings for pre-school children cannot merely be extrapolated to toddlers, as both are at very different developmental stages. Given that early care constitutes the core of recent and upcoming reforms, this article will pay particular attention to the latter.

Lessons from the last century - reforms of pre-schools (children aged three-to-five years old)

The effects of pre-school on children are almost certainly not the same for every child. The quality of the care provided by the pre-school in comparison to the care provided by the counterfactual care mode – in other words the care mode that is crowded out – shapes the benefits of pre-school attendance. Besides differences in the employed methodologies, differences in the findings of existing studies on the consequences of pre-school on children's development are likely to be attributed to both differences in the quality of pre-schools and in the quality of the counterfactual care mode. However, while there is little information on the quality of pre-schools, existing studies can be classified according to the type of care being crowded out by the expansion of public care: private pre-schools, targeted care, informal care, or family care.

The seminal study by Baker, Gruber and Milligan (2008) focuses on the introduction of highly subsidized child-care in Quebec, a setting in which public childcare replaced mainly private (paid) childcare arrangements. The Quebec Family Policy envisaged an introduction of highly subsidized childcare staggered by age groups, starting with four-year-olds in 1997 and ending with under-two-year-olds in 2000. The authors find negative effects on children's short-run health and well-being. Cascio (2009) documents reductions in high school dropouts and institutionalization after the introduction of public childcare in the United States in the 1960s and 1970s. Yet the positive effects are only found among whites, but not among other groups of the

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² Norway was among the first countries to expand its supply of public pre-school seats in 1975. Many other countries followed suit during the 1990s: in 1996 Germany, for instance, introduced a legal claim on a slot in pre-school for children turning three years old. Similarly, the province of Quebec introduced universal subsidies for childcare over the 1997–2000 period for two-to-five year old children. In the United States, universal preschool initiatives have only been passed by a few states like Georgia (1996) and Oklahoma (1998).

population that are likely to enjoy targeted (and thus higher quality) care. Fitzpatrick (2008) and Havnes and Mogstad (2011) analyze the consequences when public childcare crowds out mainly informal care (that is, nannies or childminders). Both studies document positive effects on children's educational outcomes. Havnes and Mogstad (2011) also report positive effects on children's labor force participation when they reach adulthood. These effects are mostly driven by girls and children raised by low-educated mothers. Moreover, employing a non-linear difference-in-difference method, Havnes and Mogstad (forthcoming) find that effects are only positive in the lower and middle part of the earnings distribution of exposed children as adults, but negative in the uppermost part.

There are also several studies that focus on settings in which public childcare crowds out mainly family care. Datta-Gupta and Simonsen (2010) focus on three-year-old children in Denmark and find no significant short-run impact of attending pre-school on children's socio-emotional development. Dustmann, Raute and Schönberg (2013), who focus on the short-run effects of expanding pre-schools in Germany, do not find any significant effects for native children either. Nevertheless, pre-school attendance significantly reduces language and motor skill problems and improves overall school readiness among children of immigrant ancestry. Drange, Havnes and Sandsør (2012) analyze the consequences of a reform in Norway in 1997 that lowered the mandatory school starting age from seven to six. They find no significant effect on children's cognitive outcomes at the end of mandatory schooling. Yet one should bear in mind that their context was an already high level of initial supply, such that parents might have sorted relatively efficiently into the existing programs, i.e. children who are not in such programs might, in fact, opt out, partly because they stand to benefit little from them. In contrast, Felfe, Nollenberger and Rodriguez-Planas (2014) focus on the expansion of pre-school for three-year-olds in Spain in the 1990s – a context where pre-schools were expanded from zero to basically full coverage over a decade. They find strong evidence for sizeable improvements in children's reading skills at age 15 and weak evidence for a reduction in grade retentions during primary school.³

³ Berlinski, Galiani and Gertler (2009) also find positive effects, both in terms of cognitive skills and non-cognitive skills, of expanding pre-school in Argentina in the 1990s. Unfortunately, the level of initial supply, as well as the counterfactual care mode, is unclear.

Lessons from a decade of early childcare reforms (children aged zero-to-two years old)

The early childcare system is at the heart of recent policy reforms. Yet research on the consequences of expanding early childcare is still scarce. Here again, extrapolating the findings from targeted interventions, or from reforms of the pre-school system may lead to false conclusions. The first years in a child's life are not only a crucial phase for its cognitive, emotional and social development, but also a phase of great attachment to the primary caregiver, typically the mother.⁴

The a priori expectation for early childcare centers is that they represent an intervention with potentially large benefits relative to their cost (Heckman and Masterov 2007). However, analogue to the context of pre-schools, the consequences of early childcare on children's development are likely to depend on the quality of the care provided by the care center in comparison to the quality of the care provided by the counterfactual care mode. The few existing studies on this topic can be basically divided into two types: studies where the quality of the early care is unclear – these are studies in the Canadian and the US American context (Baker et al. 2008; Herbst 2013); and studies where the quality of the early care is heavily regulated, and thus can be assumed to be of higher quality – these are studies in the Chilean, German and Norwegian contexts (Noboa-Hidalgo and Urzua 2012; Felfe and Lalive 2014; Drange and Havnes 2014). Distinguishing between these two contexts is crucial.

Consequences for children's development when the quality of early care is unclear

The aforementioned study by Baker et al. (2008) also analyzed the consequences of expanding public childcare for zero-to-two years old children in Quebec. As mentioned above, highly subsidized childcare for under-two year olds was introduced in 2000. Unlike pre-school children, who were usually placed in care centers, toddlers were usually taken care of with home-based care. Results indicate an overall negative impact of home-based care on children's contemporaneous development: children performed worse in terms of emotional stability, physical aggression, motor and social development, and finally in terms of a variety of health indicators, particularly communicable illnesses.

⁴ For an introduction to the attachment theory, please refer to Bowlby (1969) or Mercer (2006).

Herbst (2013) studies the contemporaneous impact of moving children from parental care to any type of non-parental care including regular care from relatives (inside or outside the focal child's home), non-relatives (e.g., friends, neighbors, nannies, or family-based care inside or outside the focal child's home), or center-based services (e.g., nursery or preschools, for-profit centers, or non-profit church organizations). Using a panel of infants and toddlers from the birth cohort of the Early Childhood Longitudinal Study, he attempts to provide causal estimates by leveraging seasonal variation in childcare participation. His instrumental variable estimates point to the sizeable negative effects of non-parental care on children's cognitive development.

Consequences for children's development when quality of early care is regulated

The few studies that analyze the consequences of early childcare exposure in contexts where early care is strictly regulated draw a more positive conclusion. The context of all these studies is a context where early childcare is still severely rationed, the early childcare system is highly regulated, and the counterfactual care is family care, or more specifically, maternal care. In other words, the findings of the studies described have to be interpreted as the consequences of substituting maternal care with high quality center-based care in a context where the children attending early care are potentially (positively) selected.

Using the exogenous growth in the public supply of childcare centers in Chile as sources of exclusion restrictions, Noboa-Hidalgo and Urzua (2012) find short-term gains from center-based care targeted at children aged 5-14 months, particularly in terms of motor and cognitive skills. They only find negative effects in the area of adult interactions, which they relate to the low quality of individual care provided by a limited number of teachers and caregivers at public childcare centers. In addition, they find strong heterogeneities in the magnitude and significance of the effects depending on the age of the children and the length of their exposure to the program.

A recent study in Norway confirms the positive effects of early childcare exposure on children's cognitive development. Drange and Havnes (2014) use childcare assignment lotteries to estimate the effect of childcare starting age on early cognitive achievement in Oslo. Getting a lottery offer lowers the starting age by about

four months, from a mean of about 19 months in the control group. Lottery estimates show substantial and significant cognitive performance gains for children at age seven.

Both studies, the study on Chile and the study on Norway, explore the impact of expanding childcare on the average child attending the average childcare center. As pointed out above, however, strong heterogeneities may exist in the consequences of early childcare depending on the quality of the care provided by the care center and on the quality provided by the mother. In other words, one cannot simply extrapolate from the average child to the marginal child reacting to alternative reforms of the early childcare system. Felfe and Lalive (2014) address this niche in the literature on this topic and discuss the full range of heterogeneity in the effects of early center-based care exposure on child development using a marginal treatment effect (MTE) framework. They particularly highlight how child or family background, center quality, and parents' demand for early care affect the MTEs. They also use MTEs to simulate the effects of alternative reforms of the early childcare system.

Based on administrative data from school entrance examinations in one large West German state for over 36,000 children and on administrative data on the structural quality features of childcare centers, their empirical analysis yields the following results. First, early childcare is particularly beneficial for children from a family with a low socio-economic status (SES). Early childcare works particularly well for low-SES children whose parents have a high preference for sending their child to early care; in other words in the West German context in the early 2000s sorting into early childcare is based on selection-on-gains (it is worth noting that this finding is in line with the findings by Drange, Havnes and Sandsør (2012), cited above). Effects for low-SES children are quantitatively important: they are large enough to close the development gap between low and high SES children, or between native and immigrant children. Second, centers with smaller playgroups and with older or better-trained staff, or with more full-time staff, produce the best effects. The effects of early center-based care are downward biased without controls for care center quality. Third, simulation of alternative reforms reveals an inverse relation between the number of slots provided and the benefits to the children attending early care: a modest increase in the number of early care places benefits low SES children, whereas a strong expansion has no significant effect. It should be noted

that the differential effects across the alternative reforms reflect the selection into childcare based on gains. Finally, conventional linear instrumental variables (IV) estimates do not measure the effects of expanding the early care system.

Overall, the main lesson to be learned from a decade of childcare reforms is that one cannot simply extrapolate from one context to the other. The following margins are crucial when anticipating the consequences of a specific reform: what is the targeted age group, what is the family background of the targeted children and most importantly, what is the quality of the care centers provided. These margins should be taken into consideration when designing a childcare reform.

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