

The Impact of Center-Based Early Care and Education on Child Development and Family Behavior

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Families' use of center-based early education and care for four-year-old children has become increasingly commonplace in the United States. In 2005-06, 57 percent of four-year-olds experienced center-based care as their primary child care arrangement.¹ Public programs in particular have been used with increasing frequency. Enrollment rates for state preschool programs have doubled over the past decade, from 14% in 2002 to 28% in 2012, and in 2012 42% of four-year-olds were enrolled in public preschool programs, including state pre-k and the federal Head Start program. However, recent public funding cuts have led to stagnation in enrollment rates. For example, under sequestration, the Head Start program was forced to cut services, close centers, and eliminate more than 51,000 slots for the 2013 academic year.²

Although there is some early experimental evidence about the impacts of center-based early education on low-income children suggesting benefits to these populations (Administration for Children and Families, 2010; Currie 2001), relatively few studies have been able to draw plausibly causal inferences about the effects of center-based early education and care on child development outcomes for representative samples of children. A quasi-experimental evaluation of the state preschool program in Tulsa, OK suggested substantial cognitive and socioemotional benefits to children from all socio-economic groups (Gormley, Phillips, & Gayer, 2008; Gormley, Phillips, Newmark, Welti, & Adelstein, 2011). A limitation of the Tulsa study, however, is that its design provides little insight into the potential mechanisms giving rise to these effects. Baker, Gruber, and Milligan (2008) produced causal estimates of publicly-provided universal child care in Quebec, Canada on the developmental outcomes of children ages 0-4 and provided some insights into the underlying mechanisms. In contrast to the Tulsa study, Baker et al. found universally *worse* outcomes for children on a wide range of measures of emotional adjustment and health, though the reduced form effect sizes were small (~ .10 standard deviations). The new child-care program also led to increased maternal labor supply but more hostile, less consistent parenting, worse parental health, and lower-quality parental relationships. An important difference between these studies, however, is the age of the children sampled. It is possible that extended time in child care for very young children (aged 2-3) has quite different effects than preschool participation for 4-5 year olds. Moreover, the child care slots in Quebec took the form of center-based and regulated home-based slots whereas the state preschool programs focus on high-quality center-based early education and care. Finally, Baker et al. restrict their sample to children from two-parent families, which may limit the generalizability of the results.

The present paper takes up this question with new data from Australia, taking advantage of a major policy change that contracted (rather than expanded) publicly funded preschool in 2007. In order to align itself with a national curriculum, the large Australian state of Queensland eliminated its public provision of preschool for four-year-olds in 2007, funding, instead, a kindergarten, or "Preparatory," year of schooling for five-year-olds. The policy change was associated with dramatic changes in families' child care decision-making, including decreases in a child's likelihood of experiencing non-parental care or formal child care and reductions in the intensity of child care use (Chor, 2013). These decreases were largely offset by increases in parental care. We capitalize on this natural experiment in Queensland to

¹ U.S. Department of Education, National Center for Education Statistics. (2012). *Digest of Education Statistics, 2011* (NCES 2012-001), Chapter 2.

² National Head Start Association, <http://my.nhsa.org/download/states/sequestercuts/National%20Summary%20FS.pdf>.

estimate the causal impact of preschool-aged childcare usage on children's socioemotional and cognitive outcomes. We also draw on rich survey data to examine possible mechanisms of effects. As such, ours is one of the only studies providing experimental evidence on the impact of preschool participation for a nationally-representative sample of children.

Our analysis is based on data from the Australian Institute of Family Studies' *Growing Up in Australia*, the Longitudinal Study of Australian Children (LSAC). The LSAC tracks (to the present day) two birth cohorts of approximately 5,000 children each—the K cohort of children born between March 1999 and February 2000 and the B cohort of children born between March 2003 and February 2004—in order to understand the relationships between children's social, economic, and cultural environments and development. Detailed data on child care experiences, as well as a wealth of control variables, are collected at each wave., as are detailed measured of family processes (e.g. maternal labor supply) that might serve as mechanisms linking child care participation to child development outcomes.

Our analysis makes use of the exogenous variation in the timing of the policy change in Queensland as an instrument for the use of center-based care, which we define as preschool and center-based day care. We compare the outcomes of four-year-old children in Queensland after the reform to their counterparts before the reform (i.e., children in the B cohort to their counterparts in the K cohort) to that same difference for mothers in the other Australian states and territories, and in turn instrument for the use of center-based care. Our preliminary analyses do not find evidence that the use of formal, center-based care at age four significantly affects age-four cognitive outcomes, measured by the Peabody Picture Vocabulary Test (PPVT), although the effect sizes for PPVT scores were nevertheless substantial (.33 standard deviations). However, our evidence suggests that the use of center care at age four improves age-four socioemotional outcomes. We find that center-based care reduces children's total score (i.e., improved children's emotional adjustment) on the Strengths and Difficulties Questionnaire by .81 standard deviations, with reductions in the hyperactivity scale of .71 standard deviations and in the conduct problems scale of .75 standard deviations. Additional analyses will explore the impact of the policy change on potential mechanisms giving rise to these effects, including maternal labor supply, family income, and maternal stress.