Preparing the Future Workforce

Early Care and Education Participation among Children of Immigrants

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Abstract

Children of immigrants will make up a critical share of our nation's future workforce, but they are less likely than other children to participate in early education programs known to support school readiness and long-term productivity. This study describes the characteristics and enrollment of children of immigrants using the most current and comprehensive dataset available: the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11. We find that children of immigrants tend to have fewer resources and greater need than children of US-born parents but lower rates of enrollment in center-based preschool. However, programs such as Head Start and state prekindergarten, as well as public kindergarten programs, are making progress in closing gaps in access. These findings suggest that current investments in early education are helping prepare the future workforce for success in 2050 and that expanded investments are warranted.

Introduction

Today, one in four young children in the US is the child of an immigrant parent. Children of immigrants will make up a critical share of the 2050 workforce, yet they have been less likely than other children to enroll in early education programs that can support their long-term development and productivity (Corcoran, Steinley, and Grady 2017; Grunewald 2018; Hanson, Adams, and Koball 2016; Karoly and Gonzalez 2011). Research shows that persistent barriers to access, rather than preferences for familial care, explain these gaps (Gelatt, Adams, and Huerta 2014; Greenberg, Adams, and Michie 2016; Greenberg, Michie, and Adams 2018; Huston, Chang, and Gennetian 2002; Park and McHugh 2014; Zucker, Howes, and Garza-Mourino 2007). And these gaps are costly: children of immigrants experience substantial gains in early reading, writing, and math after attending high-quality early education (Crosnoe 2007; Currie and Thomas 1999; Gormley 2008; Loeb et al. 2007; Magnuson, Lahaie, and Waldfogel 2006; Phillips et al. 2017; Votruba-Drzal et al. 2015). Without opportunities for early learning, many young children of immigrants start school at a disadvantage (Crosnoe and López Turley 2011; Fortuny, Hernandez, and Chaudry 2010; Hull and Norris 2018).

This descriptive study examines the demographics of young children of immigrants, their patterns of participation in early education programs, implications for future economic growth and the fiscal sustainability of the US, and policies that can help produce a stronger workforce at midcentury. We employ quantitative description and statistical analyses using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011). The ECLS-K:2011 is a nationally representative study of more than 18,000 children entering kindergarten in fall 2010. These children will be in their forties in 2050. We use the ECLS-K:2011 to examine characteristics of young children of immigrants and their enrollment in early care and education (ECE) programs, including preschool and related arrangements.

This paper centers on three research questions:

1. What are the demographics of children of immigrants entering kindergarten in fall 2010?
2. What are the patterns of early care and education participation for children of immigrants in the year before kindergarten entry?
3. What are the implications of these findings for the long-term economic growth and well-being of the US, and for federal, state, and local policies related to program access and quality?

We address each research question in turn. Throughout, we compare children of immigrants to children of US-born parents, shedding light on the remainder of our future workforce. And we pay special attention to low-income children of immigrants, whose participation in high-quality ECE programs (e.g., state prekindergarten and Head Start) is most likely to improve their short- and long-term outcomes.

In all, this paper provides rich demographic and socioeconomic information on today's children of immigrants and describes the use of programs and policies in place to help them achieve. These investments focus on participating children and their families, but their benefits extend more broadly. In

the coming decades, all net growth in the American economy is slated to come from immigrants and their children (National Academics of Sciences, Engineering, and Medicine 2017). Preparing this segment of our future workforce to thrive is likely to produce far-reaching ripple effects for the US at midcentury.

Literature Review and Background

Immigrants and their children are key to America's social and fiscal future (Frey 2018; Pew Research Center 2013).[1] Immigrants include naturalized citizens, lawful permanent residents, asylees and refugees, people with temporary protected status, and unauthorized individuals, who make up less than one-quarter of the total immigrant population.[2] This study focuses on young children of immigrants. These children were born in the US or were born abroad and immigrated before age 5, or the start of kindergarten. Based on current immigration trends and birthrates, the share of working-age adults, ages 18 to 64, with this immigrant background will more than double between 2015 and 2050, increasing from 8 percent to 19 percent (Pew Research Center 2015). The share of younger workers in 2050, ages 18 to 44, with this background will be even higher: 22 percent. Accordingly, our study represents roughly one in five working-age adults at midcentury.[3]

A growing body of evidence demonstrates that high-quality early care and education can prepare children for success in kindergarten and beyond (Phillips et al. 2017; Shonkoff and Phillips 2000; Yoshikawa et al. 2013). As Rob Grunewald (2018), an economist with the Federal Reserve Bank of Minneapolis, explains, "The first few months and years of a child's life establish the building blocks for skill development during school and at the workplace. With a strong foundation, the workforce development pipeline can build on early gains." Here, we focus on formal center-based programs (located in schools and child care centers) that demonstrate higher quality and effectiveness than home-based and parental care, on average. In particular, we highlight center-based programs such as state prekindergarten and the federal Head Start program that are especially likely to support children's growth and development (Bassok et al. 2016; Greenberg, Healy, and Derrick-Mills 2018). While they vary widely in teacher requirements, operating schedules, curricula and assessments, eligibility criteria, and overall resources (Friedman-Krauss et al. 2018), these programs can improve school readiness and put students on a path to future work success.

Children of immigrants, dual-language learners, Hispanic students, and economically disadvantaged students experience benefits from high-quality ECE programs equal to or greater than those of than their peers (Bassok 2010; Dodge et al. 2016.; Gormley 2008; Gormley et al. 2005; Ladd, Muschkin, and Dodge 2014; Magnuson, Lahaie, and Waldfogel 2006; Phillips et al. 2017; Puma et al. 2012; Weiland and Yoshikawa 2013). These benefits are important because children of immigrants are more likely to grow up in less-educated and linguistically isolated families and start school at a disadvantage (Crosnoe and López Turley 2011; Ha, Ybarra, and Johnson 2017; Magnuson, Lahaie, and Waldfogel 2006; Votruba-Drzal et al. 2015). Two recent, nationally representative studies find that center-based preschool attendance is related to gains in math, reading, and expressive language, and reductions in aggressive behaviors, for children of immigrants (Magnuson, Lahaie, and Waldfogel 2006; Votruba-

Drzal et al. 2015). Similarly, three studies find that center-based programs have larger impacts on reading and math skills for dual language learners compared to non-dual language learners (Magnuson, Lahaie, and Waldfogel 2006; Morris et al. 2018; Puma et al. 2012). After participating in higher-quality preschool programs, children of Mexican immigrant families experience gains in math achievement, along with aggressive behaviors (Crosnoe 2007). While not focused on children of immigrants, specifically, a quasi-experimental study of public preschool in Tulsa, Oklahoma found positive effects on reading, writing, and math skills among Hispanic children (Gormley 2008).

Although high-quality ECE programs may benefit children of immigrants, research documents historic gaps in enrollment between children of immigrants and children of U.S.-born parents. Enrollment gaps have been explained by persistent barriers to access and characteristics of disadvantage, rather than preferences for familial care (Gelatt, Adams, and Huerta 2014; Guzman, Hickman, Turner, and Gennetian 2016; Greenberg, Adams, and Michie 2016; Greenberg, Michie, and Adams 2018; Huston, Chang, and Gennetian 2002; Johnson, Padilla, and Votruba-Drzal 2017; Park and McHugh 2014; Zucker, Howes, and Garza-Mourino 2007). These barriers to access include oversubscribed programs; inadequate outreach by programs; inconvenient locations, hours, and schedules; insufficient translation and interpretation services; and distrust of government entities (Adams and McDaniel 2012; Gelatt, Adams, and Huerta 2014; Greenberg, Adams, and Michie 2016; Hanson, Adams, and Koball 2016; Park and McHugh 2014). A recent study found that immigrant parents with low English proficiency are less likely to enroll their children in center-based programs compared to immigrants with English proficiency (Sandstrom and Gelatt 2017).

Growing public investments in ECE may be working to close gaps in access between children of immigrants and children of U.S.-born parents. State prekindergarten and Head Start programs now spend nearly $14 billion and enroll almost 2.2 million children, reaching historic highs (Friedman-Krauss et al. 2018). Some of these programs focus recruitment efforts and programming on immigrant families (Greenberg, Michie, and Adams 2018). Recent research on low-income Hispanic families in Chicago suggests that center-based ECE access gaps are narrowing in publicly funded programs—and rates of ECE participation are rising for Hispanic families, nationwide (López et al. 2017; Mendez, Crosby, and Siskind 2018). We build on these findings by examining detailed patterns of ECE participation among all children of immigrants using recent, nationally representative data.

Data and Methods

Our primary data source is the nationally representative Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011). This restricted-use dataset includes rich information on more than 18,000 children attending kindergarten in the 2010–11 school year (Tourangeau et al. 2013). Information was collected through an integrated set of parent and teacher surveys and direct child assessments. While sample sizes differ across variables of interest, we used sample weights throughout to account for differential response rates along with design-based sampling. We used paired jackknife replication to adjust the standard errors in all analyses.

Key variables for this study come from surveys administered to parents in the fall and spring of their children's kindergarten year. Parents are first asked about their countries of origin in the spring survey. We used their responses to identify whether a child is a child of at least one immigrant parent or a child of US-born parents (including US territories). We defined *children of immigrants* as those with at least one foreign-born parent. We also focused on fall parent survey questions regarding children's early care and education participation in the year before kindergarten entry. These questions allowed us to identify children who enrolled in formal arrangements, such as state prekindergarten, Head Start, and child care centers, as well as those who experienced relative, nonrelative, and parental care in that year. We classified early care and education into three main sectors: center-based care, home-based care, and parental care.

Center-based care is defined as a program that "may be in a child's school or in another location, such as a church or a free-standing building." We further disaggregated center-based care into three types of arrangements:

- ***State prekindergarten.*** Parent identified the arrangement as a "state-sponsored preschool or state sponsored prekindergarten program."
- ***Head Start.*** Parent identified the arrangement by name as a "federally sponsored preschool program primarily for children from low-income families."
- ***Other center-based care.*** Parent identified the arrangement as neither state sponsored or federally sponsored but still based in a center.

Within *home-based care*, the ECLS-K defined two arrangements:

- ***Nonrelative care.*** Parent identified the arrangement as one provided by someone not related to the child in a private home, which may be the child's home, the caregiver's home, or another home. This arrangement includes licensed home child care providers, informal care by friends or neighbors, and a range of other nonrelative care settings based outside of child care centers.
- ***Relative care.*** Parent identified the arrangement as one provided by a relative other than the child's parents in a private home, which may be the child's home, the caregiver's home, or another home.

All children not in center-based or home-based care were classified as receiving *parental care* only.

Because a large portion of children were in multiple nonparental care arrangements, we systematically assigned them to a single main care arrangement. First, we used the primary care arrangement, as defined in the ECLS-K:2011 manual and constructed based on the greatest number of hours the child spent in each nonparental care arrangement in a given week. This information helped classify the vast majority of children in the sample. For the remaining children, who experienced two types of care for the same number of hours each week, we developed a hierarchy of assignment: we assigned to center-based care first (if they experienced any center-based care), followed by relative care, and nonrelative care last. Finally, we assigned a small number of children identified as being in both

state prekindergarten and Head Start. These children were assigned to state prekindergarten because combined programs typically conform to state rules and program structure, using Head Start for supplemental support (Friedman-Krauss et al. 2018).

In addition to examining child and parent demographic characteristics, we also assessed household characteristics and features of the early care and education experience (i.e., caregiver language and half- or full-day schedules) that may be salient to immigrant families. Finally, we assessed the relationship between early education experiences and kindergarten performance in key areas like math, reading, socioemotional domains, and executive function, which includes the skills and processes that govern learning (e.g., working memory, mental flexibility, and self-control).

Child demographic characteristics. These characteristics were often collected from multiple sources, including school administrative data and fall and spring parent surveys. For ease of analysis, we used the composite variables that were derived by the National Center for Education Statistics (NCES). These variables include the child's race or ethnicity (defined in mutually exclusive categories by the NCES), sex, and age at kindergarten entry, along with the region and location type (urban, suburban, town, or rural) of the child's school in kindergarten. Using the fall parent survey questions on the age of each member of the household, we derived a variable that identified children who are the oldest of their siblings. Additionally, we used the spring parent survey to provide more detailed information on whether the child is a child of immigrants in a one-parent household with one immigrant parent, two-parent household with one immigrant parent, or two-parent household with two immigrant parents.

Parent demographic characteristics. We focused on the spring parent survey to determine the age at which immigrant parents moved to the US. Using the age they moved to the US and their current age, we determined how many years it has been since the immigrant parent moved to the United States. When two parents are immigrants, we use the years since "parent 1" (generally the mother or maternal parent figure) moved to the United States. Additionally, we used the spring parent survey to determine the parents' region of origin. For a child with parents from different regions of birth outside the United States, we created a separate category to indicate that their parents were born in two different regions. Although parents reported specific countries of origin, we classified countries into regions based on those available in the American Community Survey. Additional parent characteristics were aggregated at the household level (e.g., parents' highest educational attainment) and reported as household characteristics.

Household characteristics. Similar to the child demographic characteristics, most of the characteristics in this section relied on composite variables derived by the NCES. These include the household poverty level, number of siblings in child's household, and primary language spoken at home.

We also used the fall parent survey to determine

- if the child received WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) benefits as an infant or child;

- if any person in the household received TANF (Temporary Assistance to Needy Families) in the past 12 months, and the number of months that the person in the household received TANF; and
- if any person in the household received SNAP (Supplemental Nutrition Assistance Program, also known as food stamps) benefits in the past 12 months, and the number of months that the person received SNAP.

To determine the household food security status, we used the derived variable from the spring parent survey. This variable was determined using responses to 18 food security questions designed to measure the households' food security.[4] We also examined residential mobility using an included variable on the number of places that the child lived for four months or more since the child was born. Detailed variables on primary home language allowed us to explore children's formative linguistic environments, but the ECLS-K:2011 does not include enough information to determine whether households have limited English proficiency or linguistic isolation.[5]

To determine the number of parents in a household, we used a simplified version of a derived composite variable from the fall parent survey. We defined two-parent households as those with two biological, adoptive, step-, or foster parents or one biological, adoptive, step-, or foster parent and one other partner. One-parent households include only one biological, adoptive, step-, or foster parent and no other parent figures. We defined children without any biological, adoptive, step-, or foster parents present in their household as having one or more related or unrelated guardians. This allowed us to derive three household categories: one or more related or unrelated guardians only, one parent, and two parents.

We also look at other adult nonparent family members in the household, which provides important contextual information on potential caregivers. For these variables, we use the fall parent survey's detailed information on up to 25 household members and their relationships with the child. Using these survey questions, we derived five variables on adults (ages 18 and older) in the household:

- Whether an adult grandparent lives with the child
- Whether an aunt or uncle lives with the child
- Whether an adult sibling lives with the child
- Whether an adult cousin or other relative lives with the child
- Whether any nonparent adult relative, including grandparents, aunts, uncles, siblings, cousins and other relatives, lives with the child

Additional household characteristics follow our main definition of parents. We used parental employment from the fall parent survey to define four categories of the household's employment status: no parent employed, one parent employed in a one-parent household, one parent employed in a two-parent household, and two parents employed. We used the same parental employment information from the fall parent survey to define a more detailed version of the household's employment status that

takes part-time and full-time status into account. To define household educational attainment, we used the educational attainment of the parent in a one-parent household or highest educational attainment in a two-parent household. In households with "other guardians," we used the employment status or highest educational attainment of their guardians.

Early care and education and kindergarten characteristics. For these characteristics, we used the fall parent survey to examine whether children were in their primary early care and education arrangements part time (up to 20 hours a week) or full time (more than 20 hours a week), and what the ECE caregiver's primary language was. We used a composite variable primarily based on a school administrator questionnaire to determine whether the child later attended kindergarten in a private school or public school.

Child school performance indicators. These indicators are derived from direct child assessments and teacher survey data collected in the fall of kindergarten. In the ECLS-K:2011, children were assessed based on their initial performance on a language screener. All children were administered two tasks from the Preschool Language Assessment Scale (preLAS 2000) to determine if children understood English well enough to take subsequent assessments in English. Regardless of home language or performance on language screening, all children also received the first 18 items of the English basic reading skills (EBRS) assessment in English. Those who did not know English well enough, based on the language screening, and whose home language was Spanish were given Spanish-language versions of their mathematics and executive function assessments and a different reading test that measures Spanish early reading skills (SERS). Children who did not understand English well enough, based on the language screening, and whose home language was not Spanish or English were not given any additional assessments after the EBRS.[6]

For reading and math assessments, we used the item response theory–based scores, which transformed children's scores to be on the same scale. Children's executive function was measured using the Woodcock-Johnson numbers reversed task. For all other outcomes, we used the fall teacher survey data to determine whether the child was retained in kindergarten, whether the child has an Individualized Education Program or Individualized Family Service Plan on file, and measures of the child's socioemotional skills. Children's socioemotional skills were measured using the Social Skills Rating System, which has four measures: self-control, interpersonal skills, externalizing problem behaviors, and internalizing problem behaviors. We selected the pair of measures with highest reliability and strongest links to the literature on preschool efficacy (Moffit et al. 2011): self-control (alpha of 0.81 in the ECLS-K:2011, above the standard threshold of 0.8) and interpersonal skills (alpha of 0.86).

Additional considerations. The ECLS-K:2011 includes a national sample of children entering kindergarten in the fall of the 2010–11 school year. The timing of data collection warrants two contextual points important for this study. First, the Great Recession made more families eligible for means-tested public early learning programs but decreased resources for these programs and left more parents unemployed and therefore available to provide parental care. Second, this school year occurred during a period of unusually high unauthorized immigration and immigration enforcement (Pew

Research Center 2015). These dynamics could have affected whether sampled families participated in the ECLS-K:2011, as well as the information they shared. We encourage readers to keep these points in mind in interpreting study findings.

In addition, though the ECLS-K:2011 is considered a nationally representative data source, its data collection methods differ from those in the American Community Survey (ACS) and other census-type sources. We compared kindergarteners in the ECLS-K:2011 with those in the 2010 ACS and 2016 ACS on several key demographic characteristics to identify contemporaneous differences along with recent changes among this population. Children of immigrants appear substantively similar across the ECLS-K, 2010 ACS, and 2016 ACS on most characteristics. We note important differences alongside related findings, below.

What Are the Demographics of Children of Immigrants Entering Kindergarten in Fall 2010?

Nationwide, nearly one-quarter of all kindergarteners (23 percent) in fall 2010 had at least one immigrant parent. Among low-income families (earning up to 200 percent of the federal poverty level), the share is higher: close to one-third (31 percent) of low-income kindergarteners were children of immigrants, reflecting their relative economic disadvantage. Table 1 captures rich information on the characteristics of children of immigrants, comparable information on children of US-born parents, and the results of statistical tests of differences between these groups.

TABLE 1

Descriptive Characteristics of Children of Immigrants, Children with US-Born Parents, Low-Income Children of Immigrants, and Low-Income Children of US-Born Parents

Children entering kindergarten in fall 2010

	All Children			Low-Income Children		
	Children of immigrants (*N*=3,950)	Children of US-born parents (*N*=9,470)	*T*-test (*p*-value)	Children of immigrants (*N*=2,380)	Children of US-born parents (*N*=4,020)	*T*-test (*p*-value)
Child's demographic characteristics						
Child's race or ethnicity						
White, non-Hispanic	17%	69%	0.00	7%	53%	0.00
Black or African American, non-Hispanic	6%	14%	0.00	7%	24%	0.00
Hispanic	58%	11%	0.00	77%	15%	0.00
Asian, non-Hispanic	14%	1%	0.00	7%	0%	0.00
American Indian, Alaska Native, Native Hawaiian or Pacific Islander, non-Hispanic	1%	1%	0.19	1%	2%	0.09
Two or more races, non-Hispanic	4%	4%	0.51	1%	5%	0.00
Child is female	49%	48%	0.40	50%	49%	0.46
Child is the oldest of their siblings	40%	43%	0.04	35%	41%	0.00
Child was born outside the US and US territories	7%	1%	0.00	7%	0%	0.00
Child of immigrants, detailed						
No immigrant parents		100%			100%	
One immigrant parent in a one-parent household	13%			18%		
One immigrant parent in a two-parent household	31%			20%		
Two immigrant parents in a two-parent household	56%			63%		
Child's age (years) at kindergarten entry	5.43	5.54	0.00	5.42	5.53	0.00
Census region of child's school in kindergarten						
Northeast	14%	14%	0.73	11%	11%	0.97
Midwest	14%	27%	0.00	12%	25%	0.00
South	34%	39%	0.10	38%	45%	0.13
West	39%	19%	0.00	39%	19%	0.00
Location type of child's school in kindergarten						
City	48%	25%	0.00	55%	31%	0.00
Suburb	36%	35%	0.88	30%	26%	0.23
Town	5%	13%	0.00	4%	14%	0.00

	All Children			Low-Income Children		
	Children of immigrants (*N*=3,950)	Children of US-born parents (*N*=9,470)	*T*-test (*p*-value)	Children of immigrants (*N*=2,380)	Children of US-born parents (*N*=4,020)	*T*-test (*p*-value)
Rural	11%	27%	0.00	10%	28%	0.00
Parent demographic characteristics						
Years since immigrant parent moved to the US[a]	16.38			14.38		
Age mother moved to the US[b]	19.34			19.76		
Age father moved to the US[c]	19.90			20.13		
Parents' region of origin						
United States and territories		100%			100%	
Africa and West Indies	6%			6%		
East Asia and Pacific	8%			3%		
Europe, Canada, and Australia	11%			4%		
Mexico	36%			51%		
Middle East and South Asia	7%			3%		
Other Central America and Spanish-speaking Caribbean	6%			6%		
Parents born in two different regions of the world	17%			22%		
South America	4%			3%		
Southeast Asia	3%			2%		
Household characteristics						
Poverty level						
<100% of FPL	39%	20%	0.00	63%	48%	0.00
100–200% of FPL	23%	22%	0.23	37%	52%	0.00
≥200% of FPL	38%	58%	0.00			
Household food security status						
Food secure	81%	89%	0.00	72%	79%	0.00
Low food security	15%	8%	0.00	23%	15%	0.00
Very low food security	3%	3%	0.18	5%	5%	0.65
Parents' highest educational attainment						
No high school diploma or equivalent	22%	4%	0.00	34%	8%	0.00
High school diploma or equivalent	22%	17%	0.00	31%	30%	0.55
Some college, vocational or tech program, associate's degree	20%	35%	0.00	22%	47%	0.00
Bachelor's degree	17%	23%	0.00	9%	10%	0.58
Graduate, master's, doctoral, or professional degree	18%	21%	0.10	4%	5%	0.24
Any person in the household has received TANF in the past 12 months	6%	6%	0.91	9%	12%	0.04

	All Children			Low-Income Children		
	Children of immigrants (*N*=3,950)	Children of US-born parents (*N*=9,470)	*T*-test (*p*-value)	Children of immigrants (*N*=2,380)	Children of US-born parents (*N*=4,020)	*T*-test (*p*-value)
Number of months in the past 12 months the household received TANF	9.18	8.22	0.09	9.29	8.19	0.06
Any person in the household has received food stamps in the past 12 months	28%	26%	0.40	43%	56%	0.00
Number of months in the past 12 months the household received food stamps	9.56	9.63	0.74	9.68	9.80	0.52
Child received WIC benefits as infant or child	59%	44%	0.00	82%	78%	0.05
Number of parent figures in the household						
No resident parents in the household	1%	3%	0.00	1%	4%	0.00
Single parent in the household	14%	22%	0.00	19%	40%	0.00
Two parents in the household	85%	75%	0.00	80%	56%	0.00
Households' employment status						
No parent employed	9%	11%	0.02	13%	23%	0.00
One parent employed, one-parent household	9%	15%	0.00	13%	24%	0.00
One parent employed, two-parent household	45%	28%	0.00	49%	29%	0.00
Two parents employed	37%	46%	0.00	25%	24%	0.20
Households' employment status, detailed						
No parent employed	9%	11%	0.02	13%	23%	0.00
One parent employed part time, one-parent household	3%	4%	0.11	5%	8%	0.00
One parent employed full time, one-parent household	6%	11%	0.00	8%	16%	0.00
One parent employed part time, two-parent household	6%	2%	0.00	8%	3%	0.00
One parent employed full time, two-parent household	39%	26%	0.00	41%	26%	0.00
Two parents employed part time	2%	1%	0.00	3%	1%	0.00
One parent employed part time and one parent employed full time	14%	17%	0.00	11%	9%	0.03
Two parents employed full time	21%	28%	0.00	11%	13%	0.11
Number of places that the child has lived for 4 months or more	1.84	2.07	0.00	1.85	2.38	0.00
Number of siblings in the household	1.57	1.45	0.03	1.80	1.63	0.01
Whether other nonparent adult relatives live in the household						
A grandparent lives with the child	11%	11%	0.99	13%	18%	0.00
An aunt or uncle lives with the child	9%	4%	0.00	13%	7%	0.00
An adult sibling lives with the child	6%	3%	0.00	8%	4%	0.00
Some other adult relative (not sibling, aunt, uncle, or grandparent) lives with the child	2%	2%	0.68	2%	3%	0.49

	All Children			Low-Income Children		
	Children of immigrants (*N*=3,950)	Children of US-born parents (*N*=9,470)	*T*-test (*p*-value)	Children of immigrants (*N*=2,380)	Children of US-born parents (*N*=4,020)	*T*-test (*p*-value)
An adult nonparent relative lives with the child	23%	16%	0.00	29%	26%	0.06
Any language other than English is spoken at home	79%	6%	0.00	89%	10%	0.00
Primary language spoken at home						
African language	1%			1%		
Arabic	1%			1%		
Can't choose primary, two languages equal, or multiple languages	5%			5%	1%	0.00
Chinese	2%			1%		
Eastern European language	1%			1%		
English	41%	99%	0.00	26%	98%	0.00
Filipino	1%					
Indian subcontinent language	3%			1%		
Korean	1%					
Other language	1%			1%		
Spanish	42%	1%	0.00	61%	1%	0.00
Vietnamese	1%			1%		

Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.

Notes: FPL = federal poverty level; TANF = Temporary Assistance for Needy Families; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children. Estimates are weighted by the appropriate sample weights. All *N*s have been rounded to the nearest 10 in accordance with National Center for Education Statistics requirements.

[a] In instances where two parents are immigrants, we use the years since the first responding parent, most often the mother, moved to the United States.

[b] This is the age that the first responding parent, who is usually the mother, moved to the United States. When there is no mother in the household, this represents the age that the father moved to the United States.

[c] This is the age that the second responding parent, who is usually the father, moved to the United States.

Children of immigrants are diverse. In terms of race and ethnicity, 58 percent are Hispanic, 17 percent are non-Hispanic white, and 14 percent are non-Hispanic Asian. Smaller shares are non-Hispanic black (6 percent), two or more races (4 percent), or American Indian, Alaska Native, Native Hawaiian, or Pacific Islander (1 percent, with most children having parents from Pacific Island nations). Children from low-income immigrant families are more likely to be Hispanic (77 percent) than their high-income peers. These patterns are substantively similar in the 2010 ACS, though the 2016 ACS shows declines in the share of children who are Hispanic (52 percent versus 57 percent; table 2).

Nearly all young children of immigrants are US citizens, having been born in the US, but 7 percent are immigrants themselves. Among children of immigrants with two parents in the household, 64 percent have two foreign-born parents, but 36 percent have one foreign-born and one US-born parent. Children of immigrants are far more likely to be in the West and in urban areas and are less likely to be in the Midwest, South, and rural areas and small towns. They start kindergarten about a month younger than children of US-born parents, on average.

TABLE 2

Select Descriptive Characteristics of Children of Immigrants in the ECLS-K:11 and ACS

	ECLS-K:11		2010 ACS Kindergarteners		2016 ACS Kindergarteners	
	All children of immigrants	Low-income children of immigrants	All children of immigrants	Low-income children of immigrants	All children of immigrants	Low-income children of immigrants
Child's race or ethnicity						
White, non-Hispanic	17%	7%	15%	8%	17%	11%
Black or African American, non-Hispanic	6%	7%	7%	6%	9%	9%
Hispanic	58%	77%	57%	74%	52%	68%
Asian, non-Hispanic	14%	7%	16%	8%	17%	9%
American Indian, Alaska Native, Native Hawaiian or Pacific Islander, non-Hispanic	1%	1%	1%	1%	1%	1%
Two or more races, non-Hispanic	4%	1%	3%	2%	4%	2%
Child is female	49%	50%	49%	49%	49%	50%
Child was born outside the US and US territories	7%	7%	9%	10%	11%	11%
Parents' region of origin						
Africa and West Indies	6%	6%	8%	7%	11%	10%
East Asia and Pacific	8%	3%	9%	4%	9%	5%
Europe, Canada, and Australia	11%	4%	10%	4%	10%	5%
Mexico	36%	51%	43%	59%	36%	51%
Middle East and South Asia	7%	3%	9%	5%	11%	6%
Other Central America and Spanish-speaking Caribbean	6%	6%	11%	12%	13%	16%
Parents born in two different regions of the world	17%	22%				
South America	4%	3%	6%	5%	5%	4%
Southeast Asia	3%	2%	4%	3%	4%	3%
Poverty level						
<100% FPL	39%	63%	27%	49%	24%	46%
100–200% FPL	23%	37%	28%	51%	28%	54%
≥200% FPL	38%		44%		48%	
Number of parent figures in the household						
No resident parents in the household	1%	1%	1%	1%	1%	1%
Single parent in the household	14%	19%	16%	22%	16%	23%
Two or more parent figures in the household	85%	80%	83%	77%	83%	76%
Parents' highest educational attainment						
No high school diploma or equivalent	22%	34%	26%	39%	20%	33%
High school diploma or equivalent or some college	43%	53%	43%	50%	43%	52%

	ECLS-K:11		2010 ACS Kindergarteners		2016 ACS Kindergarteners	
	All children of immigrants	Low-income children of immigrants	All children of immigrants	Low-income children of immigrants	All children of immigrants	Low-income children of immigrants
Bachelor's degree or higher	35%	14%	31%	11%	37%	14%
Household's employment status						
No parent employed	9%	13%	10%	15%	7%	11%
One parent employed, one-parent household	9%	13%	11%	14%	12%	16%
One parent employed, two-parent household	45%	49%	44%	51%	44%	52%
Two parents employed	37%	25%	35%	20%	37%	21%
Census region of child's school in kindergarten						
Northeast	14%	11%	18%	15%	19%	17%
Midwest	14%	12%	12%	11%	12%	12%
South	34%	38%	34%	36%	35%	36%
West	39%	39%	37%	38%	34%	35%

Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11, and 2010 American Community Survey and 2016 American Community Survey Public Use Microdata Samples downloaded from IPUMS-USA.

Notes: ACS = American Community Survey; ECLS-K:11 = Early Childhood Longitudinal Study, Kindergarten Class of 2010–11; FPL = federal poverty level. Estimates are weighted by the appropriate sample weights. All *Ns* have been rounded to the nearest 10 in accordance with National Center for Education Statistics requirements.

Immigrant parents are diverse. On average, they moved to the US around age 19 and have been living in the country for about 16 years when their children enter kindergarten, but there is a considerable range in both arrival age and duration of stay. Thirty-six percent of all immigrant parents, and 51 percent of low-income immigrant parents, come from Mexico. The next most common origin is two parents born in different regions of the world (17 percent of all children of immigrants and 22 percent of low-income children of immigrants); while these regions may be Mexico and Central America, there are also people from opposite sides of the globe whose children start school in the US. Smaller shares of immigrant parents come from Europe, Canada, and Australia; East and Southeast Asia; the Middle East and South Asia; and South America, and they tend to be higher-income. Immigrant parents from Africa and the West Indies and Central America and the Spanish-speaking Caribbean are equally likely to be low or high income.

Many immigrant families have substantial economic need, but some are highly advantaged. Children of immigrants are nearly twice as likely as children of US-born parents to live in poverty (39 percent versus 20 percent). Even among low-income families (earning up to 200 percent of the federal poverty level), a much higher share of children of immigrants falls below the federal poverty level (63 percent versus 48 percent). Children of immigrants are nearly twice as likely to live in households with low food security (15 percent versus 8 percent among all children; 23 percent versus 15 percent among low-income children). We note some caution in interpreting these findings: the ECLS-K:2011 captures a higher share of children living in poverty than does the ACS (39 percent versus 27 percent in 2010 and 24 percent in 2016; table 2). This is partially the result of intentional oversampling, and may suggest that the ECLS-K:2011 is more effective at capturing hard-to-count populations,[7] but differences remain after using design-based weights.

Immigrant parents have substantially less formal education than US-born parents, on average, providing some explanation for these patterns. Thirty-four percent of low-income immigrant parents have less than a high school diploma or equivalent—more than four times the rate among low-income US-born parents (8 percent). But immigrant parents are nearly identical to US-born parents in their share of graduate, master's, doctoral, and professional degrees (about 20 percent), and low-income immigrant and US-born parents are equally likely to have bachelor's (10 percent) and advanced degrees (5 percent). Among highly skilled immigrant families, a substantial share is higher income (Hanson, Adams, and Koball 2016).

Despite their economic need, low-income immigrant families draw on fewer public resources than their US-born peers. Immigrant households with young children are less likely to receive TANF (9 percent versus 12 percent) and SNAP (43 percent versus 56 percent) during the preschool year—even though they often include more potential beneficiaries (e.g., two parents and additional adult siblings, aunts, and uncles). Spells on each program are roughly equivalent for both groups. The exception to this pattern is WIC: children of immigrants are more likely to receive this benefit as an infant or child than children of US-born parents (82 percent versus 78 percent).

Eligibility rules related to immigration status and citizenship play a role in explaining these patterns. Eligibility for WIC depends on family income and "nutritional risk" but does not take into account the

immigration status of parents or children.[8] Conversely, immigration status is a key criterion for determining SNAP and TANF eligibility. Parents and children can qualify separately for SNAP and (in most states) TANF, meaning that citizen children are typically eligible even if mixed-status families are less familiar or less willing than others to participate in these programs (Cohen et al. 2016; NIF 2018).[9] In addition, lawful permanent residents are ineligible for federal SNAP and TANF benefits in the five years following green card receipt, though in some states, they are eligible for state-funded benefits.[10] Refugees, immigrant military personnel and veterans and their families, and other select categories of noncitizens are eligible for these benefits regardless of length of time in the US.

Immigrant families draw on considerable strengths. Children of immigrants are more likely to have two parents in the household (85 percent versus 75 percent). This advantage grows among low-income families (80 percent versus 56 percent). In two-parent households, children of immigrants are more likely to have one nonworking (stay-at-home) parent than children of US-born parents (45 percent versus 28 percent among all children; 49 percent versus 29 percent among low-income children). This arrangement can alleviate the need for child care but also explains some of the economic hardship described above. Nearly identical shares of children from low-income immigrant and US-born families have two working parents (25 percent versus 24 percent), but immigrant families are slightly more likely to have at least one employed parent working part-time (3 percent versus 1 percent having two parents employed part time; 11 percent versus 9 percent having one parent employed full time and one employed part time). Low-income children of immigrants are about half as likely to have one parent working in a one-parent household (13 percent versus 24 percent) or no parents working (13 percent versus 23 percent).

At kindergarten entry, children of immigrants have slightly less residential mobility than children of US-born parents (1.84 versus 2.07 places of living for four months or more, on average). They have slightly more siblings (1.57 compared with 1.45, on average) and are somewhat more likely to have an adult sibling (6 percent versus 3 percent) or adult aunt or uncle (9 percent versus 4 percent) living the household, though no more likely to live with a grandparent (11 percent for all children). These findings suggest the possibility of greater division of resources but also greater availability of in-home caregivers than US-born families, though many adult relatives may be employed and unable to provide consistent care.

Immigrant families speak a wide variety of languages at home. Seventy-nine percent of children of immigrants, and 89 percent low-income children of immigrants, live in households where languages other than English are spoken. Smaller shares of children of US-born families experience other languages at home (6 percent of all children and 10 percent of children from low-income families). Children of immigrants are equally likely to have Spanish and English as their primary home language (about 40 percent for both), but Spanish is substantially more likely among low-income immigrant families (61 percent versus 26 percent). The remainder of American kindergarteners speak a wide array of languages at home: Indian subcontinent languages (3 percent) and Chinese (2 percent) are among the more common, while some children (5 percent) speak two or more languages. One percent of children speak each of the following: an African language, Arabic, an Eastern European language, Filipino,

Korean, or Vietnamese. While these shares are low, in general, speakers may be concentrated in local communities, creating demand for translation and interpretation in languages other than English and Spanish (Gelatt, Adams, and Monson 2014).

Children of immigrants entering kindergarten in 2010 are demographically, socioeconomically, and linguistically diverse. They are more likely than children of US-born parents to be Hispanic, located in the West, attending school in cities and suburbs, and living in two-parent households of low income and low educational attainment, but there are many children of immigrants who do not conform to these tendencies. Thirty-eight percent of children of immigrants are not low income, and some of these children live in highly educated, high-earning households. Eleven percent of children of immigrants have at least one parent from Europe, Canada, or Australia, and 8 percent have at least one parent from East Asia or the Pacific. Because of this diversity, immigrant families may bring different needs and preferences to their search and selection of early care and education.

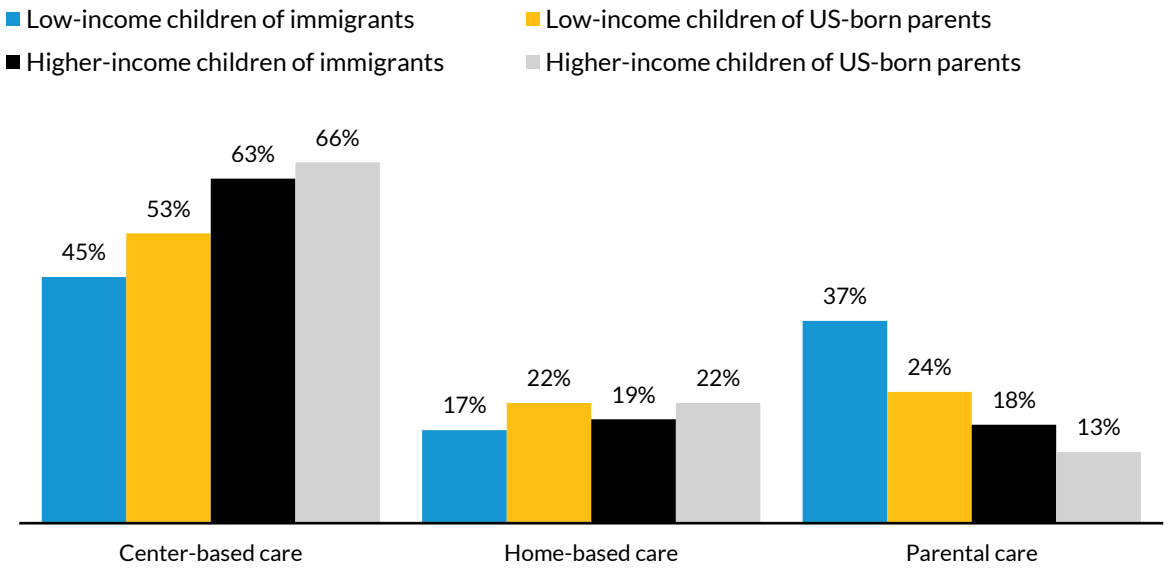
What Are the Patterns of Early Care and Education Participation for Children of Immigrants in the Year before Kindergarten Entry?

Children have a variety of experiences in the year before kindergarten. Some participate in structured programs in child care centers and schools, others attend licensed or legally unlicensed programs in child care providers' homes, others are cared for in their own homes by relatives or paid caregivers, and still others are cared for by parents. Children may have multiple child care arrangements over the course of a day or a week or experience frequent changes in their arrangements, with implications for their growth and development (Morrissey 2009; Ros Pilarz 2018). The ECLS-K allows us to identify children's primary early care and education arrangements (attended the greatest number of hours per week, in general) and examine features of that arrangement like operating schedule and caregiver language.

Children of immigrants are less likely to enroll in center- and home-based programs and more likely to experience parental care in the year before kindergarten. Figure 1 shows participation in each sector among children of immigrants and children of US-born parents, by income. Among low-income children, we find a gap of 8 percentage points (45 percent versus 53 percent) in center-based enrollment between children of immigrants and children of US-born parents. The gap is smaller but persists among children from high-income families (earning more than 200 percent of the federal poverty level): a difference of 3 percentage points (63 percent versus 66 percent). Children of immigrants are also less likely to participate in home-based programs (gaps of 3 to 5 percentage points, depending on children's family income). These gaps are explained by greater use of parental care: in the year before kindergarten, 37 percent of low-income children of immigrants are primarily cared for by their parents, compared with 24 percent of children of US-born parents—a 13 percentage-point gap. The gap for high-income children is smaller (5 percentage points, or 18 percent versus 13 percent). These gaps are similar to others observed in recent research (Corcoran, Steinley, and Grady 2017; Hanson, Adams, and Koball 2016).

FIGURE 1

Early Care and Education Participation in the Year before Kindergarten



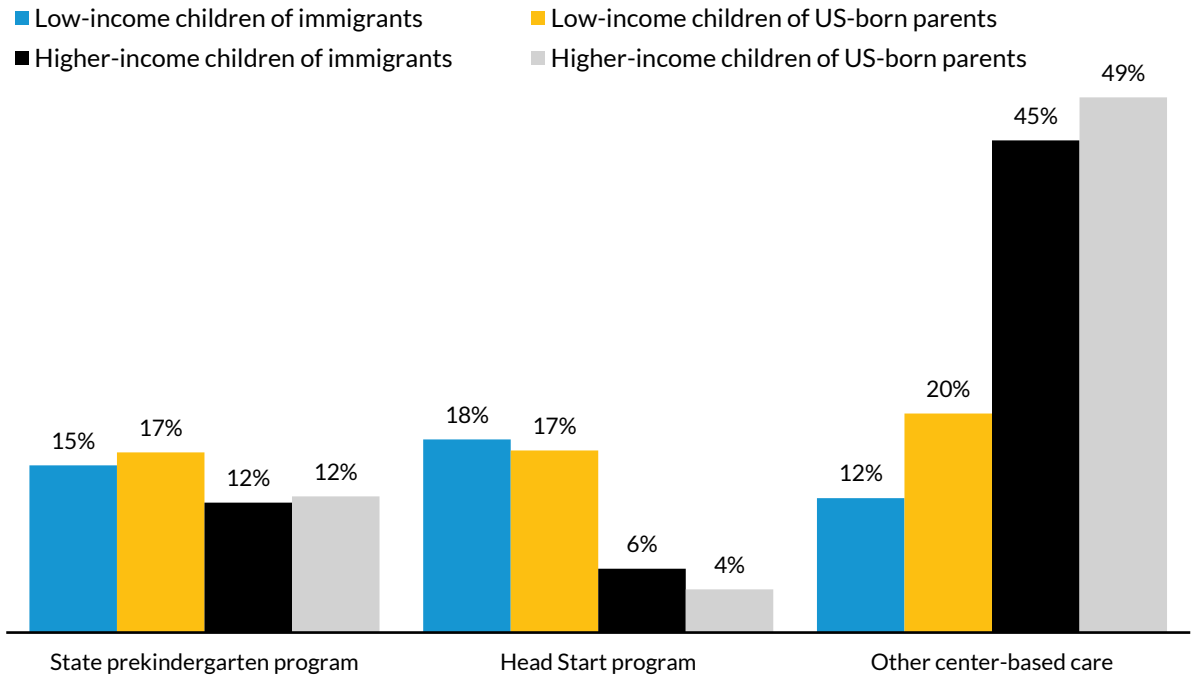
Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.
Note: Estimates are weighted by the appropriate sample weights.

Next, we investigate participation in specific center-based programs and find a surprising reversal of trends. Children of immigrants are nearly as, if not more, likely than children of US-born parents to participate in state prekindergarten and Head Start (figure 2). These programs are publicly funded and generally found to be of higher quality than others (Bassok et al. 2016; Greenberg, Healy, and Derrick-Mills 2018). Low-income children of immigrants are nearly as likely to attend state prekindergarten programs (15 percent versus 17 percent) and slightly more likely to attend Head Start (18 percent versus 17 percent) than low-income children of US-born parents. We observe no enrollment gaps among high-income children: 12 percent of high-income children of immigrants and children of US-born parents attend state prekindergarten (open to children of all incomes in a growing number of states), and small shares of high-income children attend Head Start (6 percent of children of immigrants versus 4 percent of children of US-born parents, eligible based on lower incomes during the preschool year or other criteria, such as involvement in the foster care system). It appears that public investments in early care and education have reduced long-standing enrollment disparities among immigrant families—and that disparities would be substantially larger without these investments.

FIGURE 2

Center-Based Early Care and Education Participation in the Year before Kindergarten

Children of immigrants and children of US-born parents, by income, entering kindergarten in 2010



Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.
Note: Estimates are weighted by the appropriate sample weights.

Overall gaps in center-based care participation come from child care programs other than state prekindergarten and Head Start. These programs are primarily designed to support parents' employment and education and include a diverse mix of for- and nonprofits funded through private tuition, public subsidies, and philanthropic donations (Chien 2015; Greenberg, Healy, and Derrick-Mills 2018). Among these programs, gaps are larger for low-income children (8 percentage points, with 12 percent of children of immigrants and 20 percent of children of US-born parents enrolled) than high-income children (4 percentage points, with 45 percent of children of immigrants versus 49 percent of children of US-born parents enrolled). These findings spur questions about the role of family needs, preferences, and resources in enrolling in other center-based care programs.

To address these questions, we modeled selection into center-based care, in general, and each of its component arrangements. We fit multinomial logistic regression models that use a rich set of child and family background characteristics to predict enrollment in center-based and home-based care (relative to parental care) and state prekindergarten and Head Start (relative to other centers, and conditional on participation in center-based care). Results are estimated for all children of immigrants and low-income children of immigrants (table 3).

TABLE 3

Associations between Child and Family Characteristics and Early Care and Education Participation

Children entering kindergarten in fall 2010

	All Children of Immigrants				Low-Income Children of Immigrants			
	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start
Child's race or ethnicity								
Black or African American, non-Hispanic	0.90	1.01	1.35	4.79***	1.42	2.54	3.06	7.42***
	(0.31)	(0.48)	(0.79)	(2.21)	(0.60)	(1.54)	(2.23)	(4.35)
Hispanic	1.43	2.00***	2.70***	3.61***	2.27***	3.78***	3.00**	2.84*
	(0.31)	(0.50)	(0.77)	(1.30)	(0.67)	(1.73)	(1.43)	(1.50)
Asian, non-Hispanic	1.30	1.15	0.87	1.18	1.89*	1.93	1.73	1.36
	(0.30)	(0.32)	(0.28)	(0.40)	(0.72)	(1.00)	(1.16)	(0.91)
American Indian, Alaska Native, Native Hawaiian or Pacific Islander, non-Hispanic	0.28**	0.80	0.31	5.20	0.62	1.89	0.38	4.39
	(0.17)	(0.56)	(0.30)	(5.84)	(0.44)	(1.50)	(7.27)	(85.54)
Two or more races, non-Hispanic	0.89	0.81	0.97	1.74	0.95	2.17	0.54	3.03
	(0.26)	(0.37)	(0.39)	(0.74)	(0.53)	(1.78)	(9.58)	(2.14)
Child is female	1.08	1.21	0.82	0.61***	1.27*	1.05	1.05	0.76
	(0.12)	(0.18)	(0.17)	(0.11)	(0.16)	(0.19)	(0.27)	(0.15)
Child was born outside the US and US territories	1.14	1.07	0.77	0.45*	1.07	1.43	0.70	0.49
	(0.22)	(0.30)	(0.36)	(0.21)	(0.22)	(0.54)	(0.36)	(0.27)
Child is the oldest of their siblings	1.30**	1.63***	1.20	0.93	1.09	1.78***	1.48	1.27
	(0.16)	(0.24)	(0.24)	(0.21)	(0.16)	(0.30)	(0.41)	(0.35)
Child's age (years) at kindergarten entry	1.29*	1.05	0.83	0.78	1.58***	1.34	0.49**	0.55
	(0.19)	(0.21)	(0.26)	(0.20)	(0.23)	(0.27)	(0.17)	(0.21)
Child participates in an English language program for ELLs	0.99	1.32	2.24***	1.78***	0.91	1.32	2.16***	1.46
	(0.14)	(0.27)	(0.43)	(0.38)	(0.15)	(0.30)	(0.61)	(0.34)
Primary language spoken at home is not only English	0.61***	0.54***	0.83	1.37	0.58***	0.56**	1.08	1.77*
	(0.10)	(0.11)	(0.24)	(0.30)	(0.10)	(0.16)	(0.31)	(0.52)
Log family income in 2011	1.23***	1.37**	0.75**	0.60***	1.04	1.42	1.18	0.76
	(0.09)	(0.18)	(0.10)	(0.09)	(0.11)	(0.36)	(0.37)	(0.16)

	All Children of Immigrants				Low-Income Children of Immigrants			
	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start
Number of parent figures in the household								
Single parent in the household	1.30	4.09**	0.64	0.59	1.01	2.34	1.54	2.86
	(0.56)	(2.86)	(0.68)	(0.72)	(0.46)	(1.43)	(1.78)	(2.39)
Two parents in the household	1.16	1.71	0.50	0.22	1.07	0.98	1.62	1.32
	(0.48)	(1.26)	(0.54)	(0.25)	(0.47)	(0.72)	(1.88)	(1.07)
Years since immigrant parent moved to the US	1.01*	1.02**	0.99	0.97***	1.00	1.01	0.99	0.98*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
An adult nonparent relative lives with the child	0.84	1.87***	1.00	1.28	0.93	1.81***	0.74	1.05
	(0.11)	(0.32)	(0.21)	(0.29)	(0.14)	(0.33)	(0.19)	(0.24)
Households' employment status, detailed								
One parent employed part time, one-parent household	1.72	3.77***	0.49	1.22	1.74	3.67***	0.68	1.16
	(0.68)	(1.71)	(0.39)	(0.78)	(0.70)	(1.80)	(0.58)	(0.68)
One parent employed full time, one-parent household	1.86	6.17***	0.76	0.91	2.01*	4.93***	0.79	0.99
	(0.72)	(2.59)	(0.42)	(0.51)	(0.80)	(2.28)	(0.46)	(0.58)
One parent employed part time, two-parent household	1.29	2.30	1.49	3.50**	1.28	2.16	1.28	3.41*
	(0.44)	(1.32)	(0.96)	(2.12)	(0.46)	(1.25)	(0.76)	(2.16)
One parent employed full time, two-parent household	1.23	1.78	1.94	3.49**	1.44	1.86	1.50	3.06**
	(0.33)	(0.91)	(0.94)	(1.69)	(0.40)	(0.96)	(0.71)	(1.47)
Two parents employed part time	1.52	7.90***	1.34	2.85	1.51	9.11***	0.83	2.23
	(0.67)	(5.20)	(1.08)	(2.35)	(0.80)	(5.82)	(0.87)	(1.98)
One parent employed part time and one parent employed full time	1.57	7.05***	1.52	1.75	1.40	8.27***	0.96	1.70
	(0.48)	(3.81)	(0.65)	(0.96)	(0.51)	(4.92)	(0.46)	(0.97)
Two parents employed full time	2.86***	14.99***	1.58	3.13**	2.29**	14.51***	0.79	1.83
	(0.89)	(7.74)	(0.82)	(1.56)	(0.74)	(7.83)	(0.51)	(0.98)
Parents' highest educational attainment								

	All Children of Immigrants				Low-Income Children of Immigrants			
	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start	(1) Center-based care	(2) Home-based care	(3) State pre-K	(4) Head Start
High school diploma, some college, or vocational education	1.30	1.51*	1.05	0.78	1.44**	1.37	0.96	0.71
	(0.22)	(0.32)	(0.28)	(0.20)	(0.25)	(0.28)	(0.29)	(0.19)
Bachelor's degree or higher	2.24***	1.40	0.46**	0.25***	2.33***	1.26	0.62	0.28***
	(0.49)	(0.37)	(0.16)	(0.08)	(0.60)	(0.46)	(0.22)	(0.10)
Census region of child's school in kindergarten								
Midwest	1.18	1.36	0.62	1.44	1.01	1.24	0.73	2.54*
	(0.31)	(0.42)	(0.24)	(0.47)	(0.36)	(0.47)	(0.42)	(1.26)
South	0.67*	0.57**	1.65	0.89	0.61*	0.51**	1.43	0.84
	(0.15)	(0.15)	(0.59)	(0.28)	(0.18)	(0.17)	(0.59)	(0.34)
West	0.88	1.30	0.89	1.28	0.84	1.27	1.10	1.86
	(0.23)	(0.36)	(0.27)	(0.38)	(0.27)	(0.42)	(0.45)	(0.82)
Location type of child's school in kindergarten								
Suburb	1.52**	1.36*	0.62**	0.92	1.78***	1.45**	0.73	0.99
	(0.29)	(0.22)	(0.13)	(0.22)	(0.33)	(0.25)	(0.21)	(0.30)
Town	0.74	1.22	1.73	1.99	0.94	1.61	0.86	1.00
	(0.30)	(0.44)	(1.17)	(1.14)	(0.43)	(1.05)	(0.88)	(0.66)
Rural	0.85	0.79	1.04	1.94	0.87	0.51	0.78	1.88
	(0.20)	(0.24)	(0.35)	(0.84)	(0.25)	(0.23)	(0.52)	(1.02)
Constant	0.02***	0.00***	42.62*	700.77***	0.02**	0.00***	2.15	62.33
	(0.02)	(0.00)	(93.10)	(1,528.09)	(0.03)	(0.00)	(8.56)	(196.73)
N	3,150	3,150	1,770	1,770	1,890	1,890	940	940

Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.

Notes: ELLs = English language learners. Standard errors in parentheses derived from jackknife replication variation estimation. Parental care is the reference category in Models 1 and 2. Models 3 and 4 are conditional on enrollment in center-based care; centers other than Head Start and state prekindergarten centers form the reference category. Estimates are weighted by the appropriate sample weights. All *N*s have been rounded to the nearest 10 in accordance with National Center for Education Statistics requirements.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

In line with expectations, the strongest predictor of center-based participation is having two parents employed full time (a nearly three times higher likelihood of participation, compared with children with no parents employed). Parents of higher formal education and income and children who are located in the suburbs, are the oldest of their siblings, and are older at kindergarten entry are also more likely to enroll in center-based programs (between 20 percent and 220 percent more likely than their peers). These findings hold for low-income children of immigrants, with three additions: low-income girls, low-income Hispanic children, and low-income children in one-parent households with a full-time working parent are all more likely to participate in center-based programs (between 27 percent and more than twice as likely as their peers).

Among children of immigrants enrolled in center-based programs, several child and family characteristics predict participation in state prekindergarten and Head Start relative to other centers. Here, we focus on results for low-income children most likely to be eligible for all three arrangements. Hispanic children are more likely to participate in state prekindergarten or Head Start than other center-based care (roughly three times as likely). Otherwise, selection patterns appear to differ between these two public programs. Black children are more than seven times more likely to participate in Head Start but no more likely to participate in state prekindergarten than other centers. State prekindergarten is more likely to enroll children with limited English skills (who participate in an English language program for English language learners in kindergarten) and children young for their grade at kindergarten entry (more than twice as likely than rates of enrollment in other center-based programs, possibly because of age-related eligibility rules). Children with one nonworking parent in a two-parent household, those whose primary home language is not English, and those who are located in the Midwest are all more likely to participate in Head Start than other centers (between 77 percent and 341 percent more likely).

In addition to child and family background characteristics, early care and education program features affect participation. We cannot observe the often-complex search and selection processes undertaken by young families but find, for example, that children of immigrants who experience nonparental care are slightly more likely to enroll in programs full time than part time (68 percent versus 64 percent of children of US-born parents). This difference appears to be driven by higher-income families, because 70 percent of all low-income children (from immigrant and US-born families) attend early care and education full time.

While most caregiving may be done in English, caregivers with diverse language capabilities can bridge children's home and early learning experiences and may help make preschool programs functionally accessible and welcoming for immigrant families. Children of immigrants are more likely to have a caregiver whose primary language is one other than English (27 percent among all children of immigrants and 13 percent of children of immigrants enrolled in center-based care, versus 2 percent for children of US-born parents). This difference increases among low-income children (36 percent for all low-income children of immigrants and 20 percent of low-income children of immigrants enrolled in center-based care, versus 3 percent of children of US-born parents). Caregivers speak a range of

languages, most commonly Spanish and Chinese (accounting for about 18 and 1 percent of children of immigrants, respectively).

Participation in center-based preschool matters for children of immigrants—particularly low-income children of immigrants. While this study is primarily descriptive, and others cited above provide rigorous causal evidence of program effectiveness, ECLS-K:2011 data provide a rare opportunity to examine associations between participation and outcomes for children who will be prime working age at midcentury. Accordingly, we estimate regressions of children's academic performance and educational trajectories on early care and education sector, controlling for child and family background characteristics. Because center-based programs often blend funding from state prekindergarten, Head Start, and other sources, and because we cannot fully control for the eligibility criteria that determine selection into many state prekindergarten and Head Start programs, we model associations for all center-based programs relative to home-based programs and parental care.

Consistent with prior research, we find significant, positive associations between center-based preschool participation and children's performance at kindergarten entry (table 4, panel 1). Our preferred models (with controls) show center-based participation is associated with higher math scores (2.22 item response theory scale points or 0.21 standard deviations; $p < 0.01$), lower rates of in-grade retention in kindergarten (6 percentage points; $p < 0.01$), and a higher likelihood that children have an Individualized Education Program (4 percentage points; $p < 0.10$). These findings are both statistically and practically significant. Associations between center-based participation and performance in reading, executive function, self-control, and interpersonal skills are indistinguishable from chance.

Center-based preschool appears to benefit low-income children of immigrants and US-born parents similarly, with one important exception: in-grade retention. We fit the same models as above, this time expanding the sample to include all low-income children, and add interactions between early care and education sector and immigrant background to test differential benefits for children of immigrants (table 4, panel 2). Interactions are generally indistinguishable from chance after including the rich set of available controls (as in Magnuson, Lahaie, and Waldfogel 2006). But center-based care participation is associated with a larger reduction in rates of in-grade retention in kindergarten for children of immigrants compared with children of US-born parents (4 percentage points versus 2 percentage points; $p < 0.10$). While our findings are not causal, they are promising and suggest a need for future research.

TABLE 4

Associations among Early Care and Education Participation and Fall Kindergarten Outcomes among Low-Income Children

Children entering kindergarten in fall 2010

	Math		Reading		Executive function		Retained in kindergarten		Child has IEP		Self-control		Interpersonal skills	
	(1) Basic	(2) With controls	(3) Basic	(4) With controls	(5) Basic	(6) With controls	(7) Basic	(8) With controls	(9) Basic	(10) With controls	(11) Basic	(12) With controls	(13) Basic	(14) With controls
Panel 1. Associations among children of immigrants														
Center-based care	3.22*	2.22*	2.00*	0.71	2.82‡	1.75	-0.08*	-0.06*	0.04†	0.04†	-0.01	-0.10	-0.00	-0.12
	(0.69)	(0.78)	(0.47)	(0.51)	(1.07)	(1.15)	(0.02)	(0.02)	(0.02)	(0.02)	(0.05)	(0.07)	(0.05)	(0.07)
Home-based care	0.54	0.12	-0.19	-0.67	0.06	-1.07	-0.08‡	-0.04‡	-0.02	-0.02	0.02	-0.01	0.02	-0.04
	(0.67)	(0.75)	(0.60)	(0.56)	(1.28)	(1.40)	(0.03)	(0.02)	(0.02)	(0.02)	(0.06)	(0.07)	(0.06)	(0.07)
Constant	23.11*	-1.39	32.50*	18.52*	85.50*	106.57*	0.12*	2.12*	0.06*	0.28	3.06*	1.81*	2.93*	1.02‡
	(0.68)	(8.09)	(0.46)	(5.60)	(0.76)	(12.67)	(0.03)	(0.35)	(0.01)	(0.24)	(0.05)	(0.46)	(0.04)	(0.49)
N	1,210	1,210	1,210	1,210	1,100	1,100	1,260	1,260	1,200	1,200	1,050	1,050	1,050	1,050
R-squared	0.03	0.21	0.02	0.19	0.01	0.20	0.02	0.33	0.01	0.05	0.00	0.09	0.00	0.10
Panel 2. Differences in associations between children of immigrants and children of US-born parents														
Center-based care and child of immigrants	2.27*	0.77	1.08	-0.01	2.22	0.85	-0.07*	-0.04†	-0.01	-0.01	0.07	0.02	0.05	-0.00
	(0.82)	(0.87)	(0.69)	(0.69)	(1.42)	(1.18)	(0.02)	(0.02)	(0.03)	(0.03)	(0.05)	(0.06)	(0.06)	(0.06)
Home-based care and child of immigrants	0.07	-1.47†	-0.41	-1.36‡	-0.46	-1.59	-0.08*	-0.04	-0.07‡	-0.06‡	0.02	-0.02	0.04	-0.01
	(0.86)	(0.80)	(0.78)	(0.65)	(1.64)	(1.36)	(0.03)	(0.03)	(0.03)	(0.03)	(0.07)	(0.07)	(0.07)	(0.06)
Center-based care	0.94‡	0.78†	0.92‡	0.76	0.60	0.43	-0.01	-0.02†	0.05‡	0.06‡	-0.08*	-0.08*	-0.06‡	-0.04†
	(0.47)	(0.42)	(0.46)	(0.46)	(0.85)	(0.85)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)

	Math		Reading		Executive function		Retained in kindergarten		Child has IEP		Self-control		Interpersonal skills	
	(1) Basic	(2) With controls	(3) Basic	(4) With controls	(5) Basic	(6) With controls	(7) Basic	(8) With controls	(9) Basic	(10) With controls	(11) Basic	(12) With controls	(13) Basic	(14) With controls
Home-based care	0.47	0.68	0.23	0.39	0.52	0.43	0.01	-0.00	0.04‡	0.06*	-0.00	0.02	-0.02	-0.00
	(0.60)	(0.46)	(0.41)	(0.33)	(1.01)	(0.96)	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)	(0.03)
Child of immigrants	-4.44*	0.32	-2.60*	0.41	-4.92*	-0.29	0.05†	0.03	-0.03	0.01	0.01	0.00	-0.04	-0.05
	(0.70)	(0.79)	(0.64)	(0.64)	(1.16)	(1.15)	(0.03)	(0.02)	(0.02)	(0.03)	(0.05)	(0.05)	(0.04)	(0.05)
Constant	0.94‡	0.78†	0.92‡	0.76	0.60	0.43	-0.01	-0.02†	0.05‡	0.06‡	-0.08*	-0.08*	-0.06‡	-0.04†
	(0.47)	(0.42)	(0.46)	(0.46)	(0.85)	(0.85)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
N	0.47	0.68	0.23	0.39	0.52	0.43	0.01	-0.00	0.04‡	0.06*	-0.00	0.02	-0.02	-0.00
R-squared	(0.60)	(0.46)	(0.41)	(0.33)	(1.01)	(0.96)	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)	(0.03)

Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.

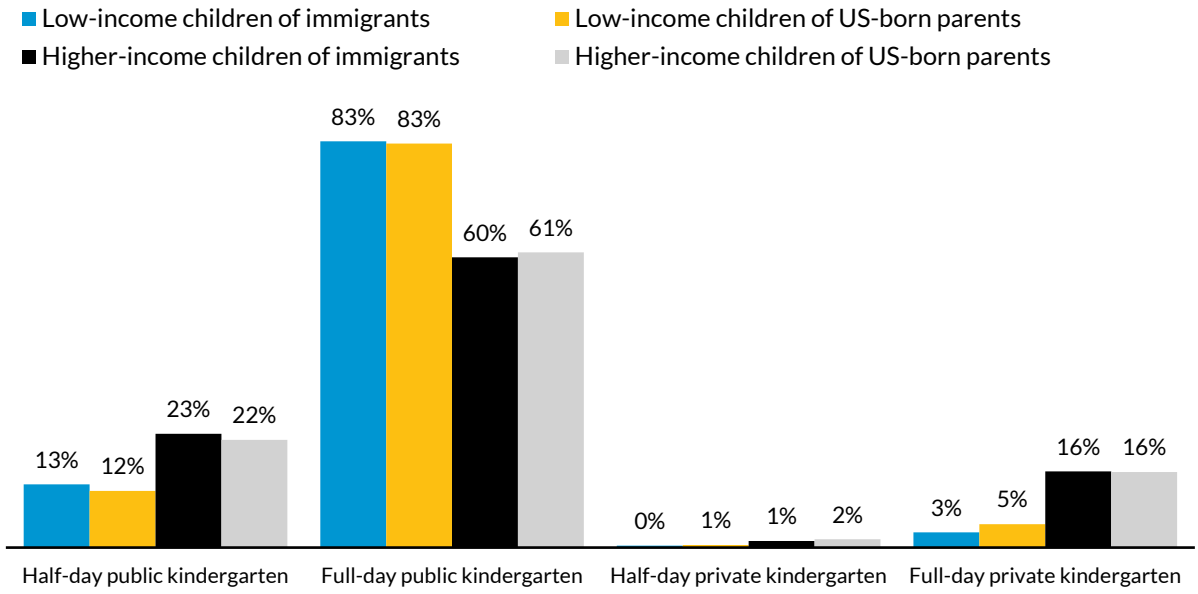
Notes: IEP = Individualized Education Program. Standard errors in parentheses derived from jackknife replication variation estimation. Parental care is the reference category. All models control for child age, sex, race and ethnicity, whether the child is an immigrant, whether the child is the oldest of their siblings, primary home language, log family income, number of parent figures in the household, employment status of the household, household food security, census region of child's kindergarten school, whether the child attended early care and education full- or part-time, and whether the child has an IEP (in all models except where IEP status is an outcome). Estimates are weighted by the appropriate sample weights. All *N*s have been rounded to the nearest 10 in accordance with National Center for Education Statistics requirements.

* $p < 0.01$, ‡ $p < 0.05$, † $p < 0.10$.

Finally, patterns of participation in public early care and education programs documented in this study are not unique. Because our data focus on children in kindergarten, we also examined whether narrowing gaps in access to public preschool hold for kindergarten, as well. Kindergarten is the first year of near-universally available (though generally not mandatory) public education, and we would expect widely accessible, affordable early learning opportunities to appeal to immigrant and US-born families alike. Results confirm our expectations: children of immigrants and children of US-born parents show nearly identical enrollment patterns in half- and full-day public kindergarten (figure 3). (Additionally, we find small gaps in private kindergarten participation.) Public investment has made kindergarten, like state prekindergarten and Head Start, accessible to families of all backgrounds.

FIGURE 3

Public and Private Kindergarten Participation, by Half- and Full-Day Schedule



Source: Authors' estimates using the Early Childhood Longitudinal Study, Kindergarten Class of 2010–11.
Note: Estimates are weighted by the appropriate sample weights.

What Are the Implications of These Findings for the Long-Term Economic Growth and Well-Being of the US, and for Federal, State, and Local Policies Related to Program Access and Quality?

Future American economic growth depends on immigrants and their children (National Academics of Sciences, Engineering, and Medicine 2017). Programs and policies that prepare children of immigrants to succeed in school and lay the groundwork for their future contributions to national prosperity are critical for federal, state, and many local governments. High-quality early care and education is among the most efficient and effective levers for accomplishing these goals (Bartik et al. 2016; Garcia et al. 2016). We find that public investments in state prekindergarten and Head Start are addressing long-standing disparities in access to early care and education.[11] We also find that children of immigrants

benefit from these and other center-based ECE programs and that these benefits are important because children of immigrants have greater need and less access to other public supports than do children of US-born parents, on average. Together, the results of our analyses suggest that expansion of public investments in ECE is warranted.

State prekindergarten and Head Start are well suited to begin children of immigrants on the path to success in 2050. These programs focus on school readiness and have histories of adaptation to the needs of local families and communities (Lascarides and Hinitz 2000; Rose 2012). They concentrate resources in teaching staff, staff supports, and learning materials and operate during half- or school-day schedules. They are also likely to have resources to facilitate enrollment and continued participation (e.g., funds to conduct outreach in multiple languages, offer translation and interpretation services, and hire and develop a culturally and linguistically diverse workforce). Though these programs may not provide adequate child care coverage for full-time working families, 45 percent of all children of immigrants live in households with one nonworking parent, and 23 percent have other adult relatives in the home (table 1). For families who need or would prefer child care as a work support, additional federal and state resources from the Child Care and Development Fund, Out of School Time Programs, and other programs may supplement these investments and provide wraparound care, though subsidy use among immigrant families is generally low, and cost can remain a barrier (Johnson, Han, Ruhm, and Waldfogel 2014).[12]

Our findings shed some light on the specific appeal of center-based programs, especially state prekindergarten and Head Start. We find that parental employment, education, and income are all associated with greater participation in center-based care, and children of Hispanic ethnicity and limited English proficiency are more likely to enroll in state prekindergarten and Head Start, in particular (table 3). In addition, children of immigrants are more likely than children of US-born parents to have teachers whose primary language is one other than English: more than 20 percent of low-income children of immigrants in state prekindergarten and Head Start have access to such teachers, who can support students and families in their home languages. Thus, programs that are appealing to working families, reduce barriers to enrollment by providing interpretation and translation supports, are culturally and linguistically accessible, and are located in immigrant communities are most likely to see continued growth—pending funding for additional enrollment (Adams and McDaniel 2012; Gelatt, Adams, and Huerta 2014; Greenberg, Adams, and Michie 2016; Hanson, Adams, and Koball 2016; Park and McHugh 2014).

It is difficult to estimate the return on investment of expanding high-quality early care and education for children of immigrants. The Washington State Institute for Public Policy synthesizes existing research on the effects of state and local preschool programs on *all* children, computing a net present value of these programs, their benefit-to-cost ratio, and the likelihood that benefits will outweigh costs using Monte Carlo simulation.[13] They estimate the benefit-to-cost ratio of state and local preschool at $5.74, with net benefits accruing 23 years after initial investment because of improved rates of employment, earnings, and health, and reductions in crime, total costs of K–12 special education, and K–12 grade repetition.[14]

Children of immigrants and children of US-born parents differ along dimensions of need, rates of referral for special services, and associated costs. For example, the ECLS-K:2011 shows 8 percent of children of immigrants in special education in the fall of kindergarten versus 10 percent of children of US-born parents; conversely, 41 percent of low-income children of immigrants participate in English language programs in kindergarten versus 1 percent of children of US-born parents. Our findings on reduced in-grade retention for children of immigrants who participate in center-based care suggest substantial cost savings (Xia and Kirby 2009), raising the cost-benefit ratio for public investments in state prekindergarten, Head Start, and child care subsidies (table 4). In addition, immigrant parents differ from US-born parents in their levels of formal education, labor force participation patterns, and family structure. These initial differences may lead to variation in the effects of preschool growth on parents' economic contributions (Fitzpatrick 2010; Malik 2018).

Recent developments in early care and education policy are promising. State prekindergarten programs have grown rapidly in recent years, serving more than 1.5 million children with $7.6 billion in the 2016–17 school year (Friedman-Krauss et al. 2018). Of the 20 states with higher-than-average prekindergarten enrollment, 7 are traditional or new destinations for immigrants—important investments considering that immigrant children often live in low-spending states (Isaacs and Edelstein 2017).[15] Head Start has grown more slowly, but Head Start spending totaled $6.5 billion and enrolled more than 670,000 children in the same year (Friedman-Krauss et al. 2018). The Child Care and Development Block Grant Act of 2014, which reauthorized the federal child care subsidy program, and historic doubling of funds in 2018 further expanded public resources for ECE. These gains occurred after the collection of the ECLS-K:2011 and likely benefited children of immigrants. Yet, in 2009-10, we still found 45 percent of low-income children of immigrants enrolled in center-based preschool (figure 2).

Recent developments in American immigration policy and enforcement may counter gains in access afforded by expanding early care and education. One qualitative study conducted in six states suggests that immigrant families with young children are living in increasing fear and isolation and that early care and education programs are observing declines in enrollment among these families (Cervantes, Ullrich, and Matthews 2018). Efforts to attach immigration consequences to the use of select public benefits may cause "chilling effects" in the use of all social programs, including public preschool, and among documented immigrants and US citizen children (Batalova, Fix, and Greenberg 2018). Any policies that dampen the use of early care and education among immigrant families will forgo the benefits to participating children and to the long-term economic growth and well-being of the US documented by this study and others (Magnuson, Lahaie, and Waldfogel 2006; Votruba-Drzal et al. 2015).

Conclusion

This study offers a portrait of children of immigrants who entered kindergarten in fall 2010, prepare to enter high school at the time of this paper's publication, and will be of prime working age at midcentury. These children are critical for America's economic future and our national prosperity. Public policies and

programs that support their growth and development, including high-quality early care and education, are wise public investments.

As these children mature, additional policies and programs can help prepare them for success in school and beyond. For example, bilingual education programs improve academic performance, especially when home and school languages match (Steele et al. 2017). Full access to core academic content is critical for children's future educational and labor market outcomes (Umansky 2016). Investments in training and professional development for teachers can improve their effectiveness with English language learners and other children of immigrants (Faltis and Valdés 2016; Master et al. 2016). And supports for first generation and nontraditional college students, including outreach to families, scholarships, help with application and enrollment processes, and sustained mentoring, are likely to benefit these children (Hoxby and Turner 2013).

In 2050, more than one in five American workers will have grown up in an immigrant family. These individuals will live in all regions of the country; in cities, suburbs, and rural areas; with diverse educational, social, and employment trajectories. Federal, state, and local investments across the life course can help prepare our future workforce. Federal, state, and local immigration policies can encourage take up of those investments and condition the climate surrounding immigrant families. Our economic and fiscal future depends on the children of immigrants.

Notes

1 Jeffrey S. Passel and D'Vera Cohn, "Immigration Projected to Drive Growth in US Working-Age Population through at Least 2035," *Fact Tank* (blog), Pew Research Center, March 8, 2017, http://www.pewresearch.org/fact-tank/2017/03/08/immigration-projected-to-drive-growth-in-u-s-working-age-population-through-at-least-2035/.

2 Jeffrey S. Passel and D'Vera Cohn, "US Unauthorized Immigrant Total Dips to Lowest Level in a Decade," Pew Research Center, November 27, 2018, http://www.pewhispanic.org/2018/11/27/u-s-unauthorized-immigrant-total-dips-to-lowest-level-in-a-decade/.

3 The working-age population in 2050 will also include first-generation immigrants who arrived after age 5, or the start of kindergarten. Accordingly, our sample of children of immigrants and children of US-born parents captures most, but not all, of America's future workforce.

4 Importantly, a household's food security status may not have direct implications for a child's food security status, as parents and other adults are more likely to forgo meals, but may influence children's growth and development through other channels like parenting stress. See "Food Security in the US: Key Statistics and Graphics," US Department of Agriculture, Economic Research Service, last updated September 5, 2018, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx.

5 Jie Zong and Jeanne Batalova, "The Limited English Proficient Population in the United States," Migration Policy Institute, July 8, 2015, https://www.migrationpolicy.org/article/limited-english-proficient-population-united-states.

6 Of the 15,780 children who have preLAS scores in this survey, 15,290 children took their math assessment in English, 310 took their math assessment in Spanish, and the remaining 190 children did not take a math assessment (these numbers have been rounded to the nearest 10 in accordance with National Center for Education Statistics requirements). Among children who did not take the math assessment, 120 had English as

their home language, none had Spanish as their home language, and 70 had a home language other than English or Spanish. The numbers for the reading assessment follow a similar trend except that only 110 children did not take the assessment. Of these, 100 had English as their home language and 10 children had a home language other than English and Spanish.

[7] For more information on "hard to count" populations and where they live, the Census 2020 Hard to Count map application is available at "Mapping Hard to Count (HTC) Communities for a Fair and Accurate 2020 Census," HTC 2020, accessed February 9, 2019, https://www.censushardtocountmaps2020.us/.

[8] "Supplemental Nutrition Assistance Program (SNAP): SNAP Policy on Noncitizen Eligibility," US Department of Agriculture, Food and Nutrition Service, last updated March 24, 2017, https://www.fns.usda.gov/snap/snap-policy-non-citizen-eligibility; "Fact Sheet: Immigrants and Public Benefits," National Immigration Forum, August 21, 2018, https://immigrationforum.org/article/fact-sheet-immigrants-and-public-benefits/.

[9] Federal guidance released in October 2018 may influence take-up but not eligibility for these benefits. "Inadmissability on Public Charge Grounds" (Department of Homeland Security 8 CFR Parts 103, 212, 213, 214, 245 and 248) attaches immigration status consequences for use of public benefits, including TANF and SNAP. These consequences are likely to induce "chilling effects" in the use of benefits among qualified immigrants and their families despite their continued eligibility (Batalova, Fix, and Greenberg 2018).

[10] Julia Gelatt, Hamutal Bernstein, and Heather Koball, "State Immigration Policy Resource," Urban Institute, May 4, 2017, https://www.urban.org/features/state-immigration-policy-resource.

[11] Data limitations make it difficult to document how enrollment patterns have changed. Specifically, a lack of reliable data on state prekindergarten participation during program expansion in the 1990s and 2000s challenge our ability to understand whether and how these programs attracted immigrant families to early care and education who would have otherwise used home-based or parental care. For example, Magnuson, Lahaie, and Waldfogel (2006) examine preschool participation among children of immigrants in the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 and find higher rates of enrollment than we do using the ECLS-K:2011. While our studies have definitional differences, they also have contextual ones. For example, the ECLS-K:2011 was conducted in the wake of the Great Recession, while the ECLS-K:1999 was conducted during a period of economic prosperity; these circumstances affect public budgets for early learning programs, families' eligibility to attend programs that are means tested, and families' child care needs, given differential rates of unemployment. The country also saw greater unauthorized immigration and immigration enforcement in 2010–11 than 1998–99 (Pew Research Center 2015). Analyses of state and local data may shed additional light on how disparities in access to early care and education have changed and what role public investments have played.

[12] The ECLS-K:2011 does not include information on subsidy receipt in the year before kindergarten entry, an important limitation of this dataset.

[13] "State and District Early Childhood Education Programs: Pre-K to 12 Education," Washington State Institute for Public Policy, accessed February 7, 2019, http://www.wsipp.wa.gov/BenefitCost/Program/270.

[14] "State and District Early Childhood Education Programs," Washington State Institute for Public Policy.

[15] Aaron Terrazas, "Immigrants in New-Destination States," Migration Policy Institute, February 8, 2011, https://www.migrationpolicy.org/article/immigrants-new-destination-states.

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