Who's in Head Start? Estimating Head Start Enrollment with the ACS, CPS, and SIPP

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ABSTRACT

Head Start is one of the largest federally funded early education programs. Today, Head Start serves more than 900,000 children and has been shown to provide positive outcomes for children. The Survey of Income and Program Participation (SIPP) directly asks parents if their children are enrolled in a Head Start program, but the SIPP consistently undercounts the number of children in Head Start when compared to administrative records. This study builds off of previous work that attempts to model the number of children enrolled in Head Start using the American Community Survey (ACS) and the Current Population Survey (CPS). In producing estimated Head Start enrollment we address and resolve a number of technical and methodical issues: 1) determining Head Start enrollment using proxy measures for eligibility, 2) comparing estimates and determining which survey best estimates Head Start enrollment using proxy measures, 3) determining if there are geographic variations between estimated Head Start enrollment and administrative data, and 4) making recommendations about which survey source comes closest to administrative data counts and providing suggestions about the collection of Head Start and general child care data.

INTRODUCTION

Research has shown that children who attend high-quality early learning childcare programs are better prepared for school. Effective preschool programs can help children foster their physical, emotional, social, and cognitive development (Shonkoff and Phillips 2000). However, children in low-income families have less access to early childhood education programs due to costs and availability.

To address the unequal access to early childhood education programs, the federal government established Head Start in 1965 to serve preschool children from low-income families. At its start, the program served 561,000 children at the cost of $96 million. As of 2007, the Head Start program disbursed $6.9 billion in funds to roughly 1,600 private and public nonprofit organizations who served 908,412 low-income children (USDHHS, Administration for Children and Families 2007).

In addition to preparing children for school, Head Start programs also help mothers balance child care needs and employment. The influx of women into the labor market has increased the need for child care. Today, the majority of parents with children under 5 have come to depend on substitute care givers (Smith 2002). Additionally, welfare legislation promotes employment as a way to decrease dependency on welfare. Head Start can help reduce the cost of child care, which has been viewed as an important component in achieving employment, particularly since low-income families spend a greater proportion of their monthly income on child care (U.S. Census 2006).

Given the considerable federal investment in Head Start and the importance of child care for child development and maternal employment, high quality data on Head Start enrollment is vital. The Head Start Bureau maintains administrative program data

on enrollment along with information on the child's age and race/ethnicity. A number of national surveys also collect information on child care, but most yield different estimates on the number of children in Head Start. For instance, in 2005 the Survey of Income and Program Participation (SIPP) recorded 204,000 children under the age of 5 in Head Start, compared to 907,000 (Head Start administrative data). The undercount of Head Start enrollment by surveys like SIPP is due to a number of factors. Parents may not know that they are using a child care program that is funded with Head Start money and the child care program may not be called Head Start. Also, a number of surveys do not list Head Start as a separate child care arrangement, instead it is grouped with other organized care options such as nursery school and preschool.

In short, there are substantial differences in the number of children enrolled in Head Start programs when one compares child care and school enrollment data from surveys, with administrative records or other sources of Head Start information. In this paper we examine the quality of the Head Start data in Census surveys such as the Survey of Income and Program Participation (SIPP). We will also consider if it is possible to indirectly model the number of children who are eligible for Head Start using other Census survey sources such as the Current Population Survey (CPS) and the American Community Survey (ACS) and if those estimates mirror official Head Start data. Understanding the quality of data on Head Start will help researchers and policy makers better understand the child care options for low-income families.

DATA

For the current study, we examine three Census surveys: the Survey of Income and Program Participation (SIPP), American Community Survey (ACS), and the Current Population Survey (CPS). We selected these datasets because they are widely used for child care and school enrollment data and contain demographic and economic data needed to make indirect Head Start estimates.

SIPP is a longitudinal survey with detailed social and economic data on households. The SIPP consists of core data on incomes sources, educational activities, health insurance, and other government program participation. Child care information can be found in the child care topical module. The universe of respondents in the SIPP child care module consists of adults who are the parents of children under 15 years old. The SIPP collects child care arrangement information on a variety of arrangements, including Head Start.

While the SIPP directly asks about Head Start participation, the two other Census Bureau surveys that we will investigate, the ACS and the CPS, do not specifically ask about Head Start participation. These surveys obtain school enrollment data for children three and older and contain social and economic information that may indirectly allow us to estimate the number of children who may qualify for Head Start.

The ACS looks at a wide range of social, economic, and housing characteristics for the population by a multitude of demographic variables. The ACS is used to provide annual data on more than 7,000 areas, including all congressional districts as well as counties, cities, metro areas, and American Indian and Alaska Native areas with a population of 65,000 or more. The ACS surveys information from about 3 million

addresses, or 2.5 percent of the nation's population each year. The ACS is administered to the entire domestic population, including those living in institutions and other group quarters. The ACS asks respondents throughout the entire calendar year whether they were enrolled in regular school at any time in the three months before the interview. The survey also asks whether each person attended public school or private school, and in what grade or level the person was enrolled.

The CPS surveys approximately 72,000 housing units each month. The survey is used primarily to produce the official monthly estimates of employment and unemployment for the nation and the states. Unlike the ACS, the sample is designed to represent the civilian non-institutionalized population, so that people living in institutions are not included. While the sample size is not sufficient to describe small geographic areas, the CPS is designed to meet reliability requirements for the 50 states and the District of Columbia.

Using these three data sources we hope to evaluate the usefulness of the existing Census Bureau surveys to either directly or indirectly estimate the Head Start population and to reconcile any differences with administrative records. A final note, the most recent child care available from SIPP was collected in 2005. Thus, for consistency, we use the 2005 CPS and ACS as well as administrative data from the same year. As additional data is available for the 2008 SIPP panel, we will update our analysis.

PLAN OF ANALYSIS

Building off of previous work, we refine our methods to estimate the Head Start enrollment using the ACS and CPS. We then examine the quality of Head Start data in

the SIPP and apply similar techniques we used to estimate Head Start enrollment for ACS and CPS to the SIPP. In the following section we describe the main criteria that we will use to estimate Head Start enrollment.

Basic Estimates of Head Start Enrollment

Our most basic estimation of Head Start enrollment is based on the characteristics of Head Start children and eligibility guidelines used by Head Start. In the fall of 2006, the majority of children served by Head Start were either 3 or 4 years old, 31 percent and 63 percent respectively. Given that over the majority of children served by Head Start fall between the ages of 3 and 4, we decided to limit our sample to this age group for all three surveys. Additionally, both CPS and ACS only collect school enrollment data for children 3 and older.

According to Head Start the primary criteria for program eligibility are 1) having a family income below the Federal Poverty Line and 2) the receipt of some form of public assistance (Head Start Bureau, 1999),. In the past, public assistance typically meant the receipt of Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI), but more recently this has referred to monies provided to families under the Temporary Assistance for Needy Families (TANF) program. Previous work suggests that poverty status is the strongest indicator in determining Head Start eligibility (Davis and Laughlin 2010). Below, we briefly explain how poverty is measured for ACS and CPS. Since SIPP is the only survey of the three used in this study that directly collects Head Start data, we use a slightly different process to estimate Head Start enrollment and will discuss that process last.

For the ACS, we used the household poverty variable as a proxy for a child in poverty. A household is considered in poverty if the sum of money income received in the previous calendar year by all household members 15 years old and over is less than the federal defined poverty thresholds.

Estimating poverty from the CPS was a many-part process because the October CPS supplement does not contain direct measures of poverty. The CPS reports poverty status only in the March ASEC supplement and that monthly supplement does not contain detailed enrollment data. We chose to use the October supplement since it provides the only source of information on enrollment, and to estimate poverty by combining the number of persons in household and family income for households. Most children enrolled in nursery school and Head Start were three or four years old so we limited our universe to this age group.

To create the poverty measure we added up the number of people in each household with a relationship to the head of the household. Once we counted the number of persons in a household, we restricted households to those with the presence of a child aged three or four. Next we assigned a poverty status to each household based on the number of persons in the household and the poverty thresholds published by HHS. In every month the CPS has a single question that asks for an estimate of family income. The next step was to assign a midpoint value to each of the 16 family income value ranges. Once a midpoint was assigned for each category of income, poverty was determined if the midpoint value of income was less than the poverty threshold variable.

While neither the ACS or the CPS asks parents directly if their child is enrolled in Head Start, both surveys collect information on school enrollment, including enrollment

in preschool or nursery school. Our assumption is that parents who are in poverty and indicate their child is enrolled in preschool or nursery school have a high probability of being Head Start families. Families are often unaware that the subsidized program they are using is a Head Start program.

We apply a similar set of criteria to SIPP data to produce an estimate of Head Start enrollment among 3 and 4 year olds. Unlike ACS and CPS, the SIPP directly asks the designated parent if the child is enrolled in Head Start. SIPP also provides information about child care subsidy usage (a federal subsidy that helps families pay for child care) as well information about poverty status, welfare usage, and enrollment in center based programs. Therefore, in addition to the children who are already coded as enrolled in Head Start, we also include children who are in poverty, receive welfare, receive a child care subsidy, and are enrolled in a center based program. Future research will also consider how to use the wealth of social and economic data available in the SIPP to indirectly estimate Head Start enrollment as well as to determine if the Head Start population from SIPP is similar to the Head Start population in administrative data as well as other national child care and education surveys.

PRELIMINARY FINDINGS

By limiting the population of children to 3 and 4 year-olds, Head Start Administrative data indicated that in 2005, **780,014** children were enrolled in Head Start programs. This is the value that we will compare our Head Start estimates to in order to access the quality of our three data sources. Preliminary estimates using CPS, ACS, and SIPP are presented below.

CPS Estimates

Table 1 presents estimated Head Start enrollment using CPS data and the criteria outlined above. Controlling for poverty and age, we found that there were just over 1 million three and four year olds in our proxy measure for Head Start. This number is higher than the Head Start official count by 259, 504. As a result, there were 157,000 more three year olds and 102, 106 more four year olds enrolled than in the official Head Start counts. While there is an overcount, it is likely that many of the children enrolled in nursery school would likely be in a Head Start program based on their poverty status.

Achieving a reliable income variable from the CPS in a month outside of the March to April ASEC supplement is difficult. Where the ASEC asks a number of different questions to adequately capture income and its various nuances, supplements outside the reach of ASEC use only one question to capture income and in general it is not a reliable measurement of income. Due to the unreliability of the income variable for the October CPS supplement and our reliance on income to measure poverty, we have decided to halt our use of the CPS to estimate enrollment in Head Start.

ACS Estimates

Table 2 presents findings after applying our basic criteria to the ACS data. Controlling for poverty and age, we estimated 580,489 children ages 3 to 4 were enrolled in our proxy measure for Head Start. This count is lower than the official Head Start enrollment for the same age group by 199,525 children.

Table 3 presents the estimated number of children ages 3 and 4 enrolled in Head Start as well as the percent of children enrolled in Head Start. The Head Start administrative enrollment numbers and percent of children enrolled by state are also presented. At the state level, our estimates of Head Start enrollment using the basic criteria yields mixed counts for every state when compared to state administrative data.

When we compared the percent of children enrolled by state, few states were statistically not different from the Head Start estimates. Instead, our estimated values and percents tended to undercount the number of children 3 and 4 enrolled in Head Start. The percent difference ranged from a low of .2 percent for Florida to a high of 13 percent for North Dakota. Thus, we able to achieve a close approximation of Head Start enrollment in some states, although there does not appear to be a discernable pattern of why we are able to produce a better estimate for some states over other states. This is an issue that we will further explore as we continue work on this study. Future work will also apply our model estimate to other ACS data years to determine if we get similar results or if our model was just unique to the 2005 data year.

SIPP Estimates

Table 4 presents the estimated Head Start enrollment using SIPP. Of the three surveys in this study, only SIPP directly collects information regarding enrollment in Head Start. Thus, the estimated enrollment number includes children that reported Head Start usage. In addition to including children enrolled in Head Start, we also controlled for poverty, child subsidy receipt, and welfare usage for an estimated 542,000 children ages 3 to 4 enrolled in Head Start. Similar to ACS, our estimated SIPP undercounts the

number of children in Head Start by 238,014 children ages 3 to 4. Table 4 also reports on various social and economic characteristics of the children that we estimate are enrolled in Head Start using SIPP data. Future work will compare these characteristics with administrative data as well as other federal surveys to determine the quality of the SIPP data.

SUMMARY

This study illustrates that there are several methodological and conceptual challenges in measuring child care and Head Start enrollment. Child care meets a number of needs for families as they balance work demands and the task of educating their children. However, correctly identifying the factors that shape the child care decisions of families is difficult because families choices are often constrained in terms of cost, location, and the types of care that is reasonable and available.

Identifying Head Start families proves to be even more difficult because it is a select child care program only offered to a select group of families. Research indicates that a substantial share of eligible families are unaware of, or misunderstand, the rules of Head Start programs, and therefore do not enroll their children. Given the complexities in arranging child care and confusion about the types of federally subsidized child care programs, it is not entirely surprising that surveys such as SIPP undercount the number of children in Head Start.

This study revels that there are many methods that one could employ to estimate the number of Head Start children and none seem to get a number that perfectly matches the official count. We applied a set of criteria using the CPS, ACS and SIPP to estimate the number of children in Head Start. We found that by controlling for poverty and the age of the child produced substantially larger number of children enrolled for CPS and smaller numbers for ACS and SIPP in our proxy measure for Head Start. Suggesting that limiting our sample to children and families who are eligible for Head Start by income alone does not mirror the official count of Head Start children.

Future research will compare our three survey sources in detail and discuss the benefits and disadvantages of using estimated Head Start enrollment information. Suggestions for survey design and policy implications will also be further researched as we make plans to redesign the child care questions for SIPP.

Table 1. Estimated Head Start Enrollment, 2005 CPS

	Eligible for Head Start	*Estimated Head Start Enrollment*		
Characteristic	Total 3 & 4 year olds	Below poverty	Below Poverty and enrolled in nursery/preschool	SE	Difference Head Start (N=780, 014)
All	8,179,149	2,435,687	**1,039,518**	53,321	+259,504
3	4,150,880	1,337,825	465,866	35,655	+157,000
4	4,028,269	1,097,862	573,652	40,055	+102,016

Source: US Census Bureau, Current Population Survey 2005.

Table 2. Estimated Head Start Enrollment, 2005 ACS

		Eligible for Head Start	*Estimated Head Start enrollment*		
Characteristic	Total 3 & 4 year olds	Below poverty	Below Poverty & enrolled in nursery/preschool	SE	Difference Head Start (N=780, 014)
All	8,286,267	1,712,692	**580,489**	22,681	-199,525
3	4,072,091	844,384	186,212	13,252	-122,166
4	4,214,176	868,308	394,277	21,094	-77,359

Source: US Census Bureau, American Community Survey 2005.

Table 3 Comparison of ACS Estimates and Head Start: 2005

	Estimated Head Start Enrollment	ACS Percent Estimate	Head Start Enrollment	Head Start Percent	Percent Difference	Margin of Error[1]	
United States	**580,489**	6.8	**780,014**	9.3	-2.5		
Alabama	11,257	9.2	16,375	13.4	-4.2	1.6	*
Alaska	692	3.5	1,725	8.7	-5.2	1.1	*
Arizona	10,649	5.7	13,215	7.1	-1.4	1.2	*
Arkansas	8,051	10.6	10,942	14.4	-3.8	1.9	*
California	70,341	6.4	98,432	8.9	-2.5	0.5	*
Colorado	6,871	4.9	9,820	7.0	-2.1	1.1	*
Connecticut	5,782	6.5	7,126	8.0	-1.5	1.7	*
Delaware	888	3.8	2,197	9.5	-5.7	2.4	*
District of Columbia	1,893	12.6	3,403	22.6	-10.0	6.1	*
Florida	34,803	7.6	35,530	7.8	-0.2	0.8	
Georgia	22,298	8.1	23,508	8.5	-0.4	1.1	
Hawaii	1,169	3.1	3,049	8.1	-5.0	1.4	
Idaho	2,018	4.6	2,640	6.0	-1.4	1.6	
Illinois	25,565	7.1	39,640	11.0	-3.9	0.8	*
Indiana	8,826	5.0	14,231	8.0	-3.0	1.0	*
Iowa	4,876	6.6	7,735	10.5	-3.9	1.5	*
Kansas	6,936	9.2	7,931	10.5	-1.3	1.9	
Kentucky	10,074	9.2	16,071	14.7	-5.5	1.4	*
Louisiana	18,227	13.9	21,982	16.7	-2.9	2.4	*
Maine	1,966	7.4	3,955	15.0	-7.5	2.7	*
Maryland	7,930	5.2	10,347	6.7	-1.6	1.1	*
Massachusetts	8,082	5.0	12,846	8.0	-3.0	1.1	*
Michigan	19,495	7.2	35,069	12.9	-5.8	1.0	*
Minnesota	6,306	4.6	10,332	7.5	-2.9	1.0	*
Mississippi	15,275	16.5	26,657	28.8	-12.3	2.3	*
Missouri	11,032	7.1	17,541	11.3	-4.2	1.2	*
Montana	1,205	5.9	2,939	14.3	-8.5	2.5	*
Nebraska	2,224	4.5	5,080	10.3	-5.8	1.1	*

	Estimated Head Start Enrollment	ACS Percent Estimate	Head Start Enrollment	Head Start Percent	Percent Difference	Margin of Error[1]	
Nevada	908	1.3	2,754	4.0	-2.7	0.6	*
New Hampshire	1,385	4.6	1,632	5.4	-0.8	2.5	
New Jersey	19,580	8.2	14,717	6.2	2.0	1.2	
New Mexico	5,609	10.6	7,451	14.1	-3.5	2.5	*
New York	39,816	7.9	49,127	9.8	-1.9	0.8	*
North Carolina	14,780	5.8	1,900	0.7	5.1	0.9	*
North Dakota	527	3.9	2,353	17.3	-13.4	1.9	*
Ohio	22,703	7.5	38,021	12.6	-5.1	1.1	*
Oklahoma	9,293	9.1	13,915	13.6	-4.5	1.7	*
Oregon	4,971	5.5	8,792	9.7	-4.2	1.4	*
Pennsylvania	15,808	5.3	32,282	10.9	-5.6	0.8	*
Rhode Island	1,560	6.3	3,150	12.7	-6.4	2.8	*
South Carolina	9,259	8.2	12,248	10.9	-2.7	1.3	*
South Dakota	2,043	1.0	2,827	1.3	-0.4	3.1	
Tennessee	12,193	7.6	16,445	10.2	-2.6	1.4	*
Texas	63,621	8.4	67,327	8.9	-0.5	0.8	
Utah	4,048	4.4	5,518	5.9	-1.6	1.1	*
Vermont	425	3.0	1,569	11.3	-8.2	1.8	*
Virginia	9,551	4.6	13,696	6.6	-2.0	0.9	*
Washington	7,371	4.5	11,102	6.8	-2.3	1.0	*
West Virginia	2,919	7.2	7,610	18.9	-11.6	2.3	*
Wisconsin	6,741	4.8	13,538	9.7	-4.9	1.0	*
Wyoming	647	5.2	1,792	14.3	-9.1	3.2	*

[1] This number, when added to or subtracted from the estimate, represents the 90-percent confidence interval around the estimate.

Source: U.S. Census Bureau, American Community Survey, 2005. Head Start Administrative Data, 2005.

Table 4. Estimated Head Start Enrollment by Selected Characteristics, SIPP 2005
(in thousands)

	Total	Original SIPP Head Start	Estimated Head Start Enrollment
Total	8,237	201	542
Race and Hispanic Origin			
White alone	6,296	117	314
Non-Hispanic	4,876	72	218
Black only	1,348	76	177
Asian only	266	1	8
Hispanic	1,549	45	107
Marital Status			
Married	5,800	83	187
Widowed, divorced, separated	870	29	104
Never married	1,566	88	251
Poverty Status			
Below poverty level	1,552	80	280
At or above poverty level	6,431	119	251
Missing	254	2	10
Employment Status			
Not employed	3,618	89	186
Employed full-time	3,353	69	234
Employed part-time	1,266	43	122
Child Care Subsidy			
No	7,829	174	283
Yes	408	27	259
Welfare			
No	157	10	36
Yes	8,080	190	506

Source: 2004 SIPP (Wave 4)