Data Appendix

The *Data Book* is intended to be a source of accurate information on child well-being in our community. We also want it to be useful to a wide variety of readers. Unfortunately, these two goals – accuracy and accessibility – often come into conflict. Statistics, poll results, and research findings are difficult to discuss accurately without dwelling on technicalities that some readers find cumbersome and unnecessary. For other readers, these details add value to the *Data Book*.

To address this issue, we have added this Data Appendix to the *2010 Data Book*. In the main chapters of the book, we have tried to improve clarity and readability by limiting details that will not be of interest to general readers. Readers curious about the nuts and bolts of the data (sources, methods, and limitations, for instance) can now find this information in the Appendix.

Brain Development

The Brain Development chapter is meant to be a concise introduction to early brain development from conception to age three. It is based on the most recent research and is thoroughly documented. The information on brain anatomy is almost universally accepted in the sciences. To avoid excessive clutter in the text, we chose not to include endnotes for every reference to this basic body of knowledge. Unless otherwise cited, such information comes from the first three sources in the reference list below.[1-3]

Demographics

The Demographics chapter uses 2008 American Community Survey (ACS) data from the U.S. Census Bureau. ACS data, unlike data from the decennial census, are based upon samples; it is likely that some sampling error is present. However, because the 2010 census is not yet available, the 2008 American Community Survey is the best source for recent population data.

ACS data provides information on Shelby County and Memphis. In the Demographics chapter, we wanted to highlight some of the differences between Memphis and the rest of the county. We obtained "suburban Shelby County" data by subtracting Memphis numbers from Shelby County numbers in the relevant ACS data tables.

2008 American Community Survey data is available at http://factfinder.census.gov/servlet/DTGeoSearchByListServlet?ds_name=ACS_2008_1YR_G00_&_lang=en&_ts=293964241564

Health

Tennessee Department of Health, Office of Policy, Planning, and Assessment, Division of Health Statistics provided The Urban Child Institute with Birth Certificate Data from 2000-2008, which was used to create many of the charts in the Health domain.

It should be noted that, particularly in Figure 1 and Figure 3, the data reported on Infant Deaths from

2000-2007 in Tennessee and Shelby County were collected from the Tennessee Department of Health, Vital Statistics (available at: http://health.state.tn.us/statistics/vital.htm.) The 2008 Infant Deaths and Infant Mortality Rates are preliminary numbers reported from 2008 Birth Certificate Data.

To obtain the most accurate numbers, linked Birth-Death records should be used. However, this data set is not yet available for 2008. The Urban Child Institute believes that this preliminary data captures nearly all of the infant deaths for 2008 and that the missing data will not significantly influence the raw number or the rate.

Figure 5 in the Health Chapter references the American Community Survey, which we used to calculate the female population between ages 10-19. See the Demographics section of the Appendix for a full description of the American Community Survey.

Breastfeeding

The chapter on Breastfeeding uses results from the 2009 Early Childhood Development Public Opinion Poll. See the Family and Home Environment section of the Appendix for more information about the poll.

Tennessee Department of Health, Office of Policy, Planning, and Assessment, Division of Health Statistics provided The Urban Child Institute with Birth Certificate Data from 2004-2008. This data set is available from the Tennessee Department of Health.

Education

The data on pre-kindergarten education and kindergarten readiness are drawn from reports provided by the Memphis City Schools' (MCS) Office of Evaluation. MCS assesses the impact of its Pre-K program with the Peabody Picture Vocabulary Test (PPVT-III).[6] The PPVT-III measures receptive (comprehended) vocabulary: the examiner says a word, and the child must choose the correct match from a group of pictures. The test is referenced (or "normed") to national standards; the average (50th percentile) score is 100.[7] MCS Pre-K students take the test at the beginning of their preschool year and again at the end of the year.

The Kindergarten Readiness Indicator (KRI) is an instrument created by MCS to measure school readiness in children in their first few days of kindergarten. The KRI consists of a language section and a math section. The numerical score is the number of questions answered correctly; scores range from 0-86 in language and 0-27 in math.[8]

Unlike the PPVT-III, the KRI is not calibrated to national standards. Instead, it is based upon the curriculum that incoming students will encounter in Memphis' kindergarten classrooms.[8] The KRI cannot tell us how Memphis children's readiness for school compares to that of children across the country, since children in other cities take different tests that are not comparable to the KRI. It can, however, be used to make comparisons among MCS students.

The reports used in the Education chapter are available at:

Sell M. Memphis City Schools pre-k program evaluation. Office of Evaluation. Available at: http://www.mcsk12.net/docs/Data/PreK/Pre-K%20Program%20Impact.pdf Accessed on May 26, 2010.

Banks, T. & Sell, M. The effects of pre-k experience on Kindergarten Readiness Indicator scores: 4 year trends. Memphis City Schools Office of Evaluation. Available at: http://www.mcsk12.net/docs/Data/PreK/Effects%20of%20Pre-K%20Experience%20on%20KRI%20Scores%20-%204%20Year%20Trends.pdf Accessed on May 26, 2010

Family and Home Environment

The Family and Home Environment chapter uses data from the Early Childhood Development Public Opinion Poll commissioned by the Urban Child Institute. The poll was conducted in August 2009 by Dr. Wayne Pitts of the Mid-South Survey Research Center (affiliated with the School of Urban Affairs and Public Policy at the University of Memphis).

600 respondents completed the survey. This sample was then weighted to more closely match the demographic makeup of Shelby County. For the Family and Home Environment chapter, we included only those respondents who reported having children (248 of the original 600 respondents). The confidence interval for the results of this subset is 97 percent.[4]

Polls should always be interpreted with caution. Even well designed polls can be affected by question wording, question order, and sampling problems.[5] Our 2009 poll produced an unexpected result: respondents repeatedly affirmed the importance of the brain development that occurs in a child's first three years. However, when asked in a later question to choose which age group is the best target for public investments in learning, most participants chose other ages.

This discrepancy does not necessarily cast doubt on the high level of public awareness suggested by the earlier questions. Introducing the cost factor brings in new considerations; it is not uncommon for poll responses to shift when this happens.[5] In the case of the 2009 poll, however, we should note the possibility that response bias may be an additional reason for the apparent inconsistency.

One form of response bias is the non-attitude. When a respondent does not have a strong opinion or belief about an issue, his or her answer to the question may be influenced by other factors, including the fact that the question was asked.[5] The consistent theme of the poll questions – brain development from conception to age three – may have been a cue that prompted some participants to profess more awareness of this issue than they otherwise would. The later question about public spending – about which everyone has an opinion – may have caused participants to retreat from their overstated position and give an answer more in line with their actual beliefs about education.

This is offered only as one possible interpretation of the poll results. We have no evidence that such bias was involved in the survey. On the contrary, there are several reasons to think that the 2009 poll was of especially high quality. For example, in evaluations submitted by interviewers, 99 percent of completed responses were considered either adequate or high-quality (rather than questionable), and 94 percent of respondents were considered cooperative (rather than indifferent or uncooperative).[4]

One final note about the charts in this chapter: The majority of the poll questions involve parents' reactions to statements about child development. For their answers, parents chose one of five categories: strongly agree, agree, somewhat agree, disagree, or strongly disagree. For most of the charts, we show only the percentage of "correct" answers. That is, if a statement is supported by research, the corresponding chart will show what percentage of parents answered with "strongly agree," "agree," or "somewhat agree." Similarly, if the statement is one that experts consider to be false, we show only how many parents disagreed or strongly disagreed. The percentages in these charts will not add up to 100, since they do not include all responses.

For more information about the 2009 Early Childhood Development Public Opinion Poll, contact The Urban Child Institute.

Community

The community section of the *Data Book* uses a variety of sources – not all of which – are publicly available. For more information on those data please contact The University of Memphis' Center for Community Building and Neighborhood Action.

A full data description of The Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data is available in the Appendix under Health.

Best Practices

The data on the effects of Early Head Start are the product of research conducted by the National Early Head Start Research and Evaluation Project of the U.S. Department of Health and Human Services (DHHS).[9] We found it advisable to use national data rather than test results collected by Porter-Leath. Like many Early Head Start programs, Porter-Leath assesses children's progress using a criterion-referenced test – a test which measures children's mastery of a predetermined set of skills. Criterion-referenced tests are useful for tracking an individual child's progress and identifying developmental delays, but are not well suited for measuring the effects of a program or comparing different programs.

The national DHHS study, by contrast, measures development with norm-referenced tests. Norm-referenced instruments use standards that are based upon the test performance of large and diverse samples.[7] This allows meaningful comparisons between individuals and groups. Additionally, national studies have more resources than local evaluation efforts. Thus, they are more likely to use large samples and to include control groups, leading to more reliable conclusions.[10]

Table 1 below includes the detailed results for the variables discussed in the Best Practices chapter. Cognitive skills were measured using the Mental Development Index (MDI) of the Bayley Scales of Infant Development. The Peabody Picture Vocabulary Test measured language comprehension. For both tests, researchers also examined the percentage of children scoring in the at-risk range (<85). The parenting scores were obtained with the Home Observation Measure of the Environment (HOME).

The effect sizes for Early Head Start participation range from .10 to .14. Generally, effect sizes below about .20 are considered small. But even small effects can be relevant – particularly in intervention studies. Effect sizes of .10 and even lower are often meaningful from a public health standpoint.[11,12] Furthermore, when researchers considered only those programs that had fully implemented the federally mandated standards, effect sizes were higher – up to .23 for parental reading (not shown). Because this was a smaller group, however, many outcomes did not reach statistical significance.[9] Accordingly, we chose to focus on the overall results.

Outcome Measure	EHS Participants	Control Group	Estimated Impact Per Participant (SE)	Effect Size
Bayley MDI Mean Score	91.4	89.9	1.6**(0.63)	.12
Percent of Children With At-Risk MDI Scores	27.3	32	-4.7*(2.43)	-.10
Average PPVT-III Score	83.3	81.1	2.1**(0.88)	.13
Percent of Children With At-Risk PPVT-III Scores	51.1	57.1	6.0**(2.88)	-.12
Percent of Parents Who Read to Their Child Every Day	56.8	52.0	4.9**(2.44)	.10
Percent of Parents Who Spanked Their Child in the Past Week	46.7	53.8	-7.1***(2.49)	-.14

*p < .10

**p < .05

***p < .01

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