

USING BIRTH DATA TO ESTIMATE NEED FOR EARLY CHILDHOOD PROGRAMS (Draft 2/10/16)

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One of the challenges facing early childhood programs is estimating how many children may use their program in the coming years. In terms of geographical data children appear at birth and then reappear in first grade (in terms of data they first re-appear when they enter Kindergarten but there are still some children who do not attend kindergarten and thus first grade counts tend to be more complete.) Many families move between the time their first child is born and s/he enters first grade.

Birth data is about the best data available to determine probable location of young children. The first chart in this paper organizes the last several years of births in columns by year and creates estimates of how many infant toddlers (i.e. children under 2) and preschool children age 2 to 4 may exist in the zip code. The second chart compares the estimates based on birth data to enrollment for children in regulated early childhood education/child care programs or school sponsored preschool programs into categories under age 2 (<2) and age 2 to 4 as reported in the March 2015 4-C child care survey. State policies suppress data for zips with less than 20 births or categories with less than 5 so there is a data loss of about 2% in the birth data which is based on the address where the mother lived when she gave birth.

The comparison sometimes results in more children in programs than there were born in the zip code! There are several reasons for this:

First: Regulated child care/early childhood education programs, unlike public schools, are not geographically defined. Parents choose where they want to have their children attend. Studies show that about 50% of the time it is close to their work and 50% close to home, though that can vary based on the availability and quality of care.

Second: Some areas (shaded grey on the charts) are on the border or even straddle the border between Dane and another county. These programs and especially school district 4k programs which cross the borders are especially likely to serve children who were not born in Dane County and live outside of it.

Third: There may be some duplicate counts where a child is in more than one program. This will especially happen in the few areas where 4K is only offered as a half day program in the public schools. Most districts though offer 4K either partially or fully in partnership with regulated child care centers reducing duplication, as parents, who need more hours than provided by 4K, can get them at the same center as the 4K program. 4-C data eliminates duplication of data for children in publicly funded 4K at regulated child care programs.

In considering the number of children not in programs, it needs to be remembered that there are families which do not use child care either due to parent staying home or some other care arrangement. The employment data suggests about 29% of the mothers with children under 18 are not in the labor force. Using cost of living scales and comparing them to Wisconsin Shares Eligibility and co-pay scales suggest that about 15% of families with children cannot afford to pay out of pocket for full time regulated child care or preschool programs because their income is too high to qualify for Wisconsin Shares but too low to pay for programs without assistance.

These factors need to be taken into account when using the following charts for projecting potential markets for early childhood education.

Births in Dane County 2011-2015 by Zip Code

Births	Age>	4	3	2	1	<1	Estimated Number	
Community	zipcode	2011	2012	2013	2014	2015	<2	Preschool
Belleville	53508	31	26	34	26	36	62	91
Black Earth	53515	23	22	25	25	35	60	70
Brooklyn	53521	24	24	20	26		26	68
Cambridge	53523		31	24	20	24	44	55
Cottage Grove	53527	125	115	109	123	115	238	349
Cross Plains	53528	48	60	49	56	56	112	157
Dane	53529	34	28	27	31	28	59	89
Deerfield	53531	47	62	43	48	51	99	152
Deforest	53532	155	168	189	156	197	353	512
Edgerton	53534		28	22	27		27	50
Lodi								
McFarland	53558	130	108	122	119	127	246	360
Marshall	53559	58	63	68	68	68	136	189
Mazomanie	53560	38	52	36	48	27	75	126
Middleton	53562	253	260	269	254	263	517	782
Mt. Horeb	53572	124	110	106	99	116	215	340
Oregon	53575	146	143	153	155	142	297	442
Sauk city	53583						0	0
Stoughton	53589	195	194	190	205	192	397	579
Sun Prairie	53590	553	515	546	567	545	1112	1614
Verona	53593	216	244	265	285	272	557	725
Waunakee	53597	150	171	146	161	144	305	467
Windsor	53598	31	31	30	37	58	95	92
Madison-Ishtmus	53703	125	108	109	112	136	248	342
Madison-East	53704	659	660	598	653	627	1280	1917
Madison-West	53705	340	304	319	340	347	687	963
Madison-University	53706							
Madison-Fitchburg	53711	610	649	673	715	630	1345	1932
Madison-Fitchburg	53713	462	449	425	482	404	886	1336
Madison-East	53714	236	277	225	249	221	470	738
Madison-Central	53715	55	53	49	64	54	118	157
Madison-Monona	53716	210	217	211	237	233	470	638
Madison-Far West	53717	129	138	152	142	154	296	419
Madison-Far East	53718	196	201	206	195	195	390	603
Madison-Southwest	53719	492	532	499	510	531	1041	1523
Madison-central	53726	30	21	20	24	24	48	71
Total with exclusions		5925	6064	5959	6259	6052	12311	17948
Total without exclus		6041	6162	6060	6358			

Comparison of Enrollment in Regulated programs and Public Private School Preschools

With Birth Data as of 2015

	Zip	In Regulated care		Public/Private	Total Age	Total	% of Children		Children estimated to	
		Infant	Preschool	Preschool	2 to 4 in	Served	Born in a program		be not in a program	
Community		Toddler	Preschool	Enrollment	Programs	< age 5	<2	Age 2-4	<2	Age 2-4
Belleville	53508	25	83	73	156	181	40%	171%	37	-65
Black Earth	53515	1	6	59	65	66	2%	93%	59	5
Brooklyn	53521	15	57	3	60	75	58%	88%	11	8
Cambridge	53523	10	32	50	82	92	23%	149%	34	-27
Cottage Grove	53527	89	228	73	301	390	37%	86%	149	48
Cross Plains	53528	34	80	11	91	125	30%	58%	78	66
Dane	53529	6	15	0	15	21	10%	17%	53	74
Deerfield	53531	24	90	61	151	175	24%	99%	75	1
Deforest	53532	53	372	275	647	700	15%	126%	300	-135
Edgerton	53534	5	12	0	12	17	19%	24%	22	38
Lodi	53555	2	5	0	5	7	NA	NA	-2	-5
McFarland	53558	76	291	146	437	513	31%	121%	170	-77
Marshall	53559	20	52	78	130	150	15%	69%	116	59
Mazomanie	53560	6	20	0	20	26	8%	16%	69	106
Middleton	53562	116	435	94	529	645	22%	68%	401	253
Morrisonville	53571						NA	NA	0	0
Mt. Horeb	53572	75	310	8	318	393	35%	94%	140	22
Oregon	53575	44	370	15	385	429	15%	87%	253	57
Sauk city	53583	2	3	0	3	5	NA	NA	-2	-3
Stoughton	53589	114	360	234	594	708	29%	103%	283	-15
Sun Prairie	53590	159	773	28	801	960	14%	50%	953	813
Verona	53593	162	614	67	681	843	29%	94%	395	44
Waunakee	53597	154	468	138	606	760	50%	130%	151	-139
Windsor	53598	19	47	0	47	66	20%	51%	76	45
Madison-Ishtmus	53703	42	261	69	330	372	17%	96%	206	12
Madison-East	53704	221	685	234	919	1140	17%	48%	1059	998
Madison-West	53705	136	484	159	643	779	20%	67%	551	320
Madison-University	53706	14	62	0	62	76	NA	NA	-14	-62
Madison-Fitchburg	53711	185	870	364	1234	1419	14%	64%	1160	698
Madison-Fitchburg	53713	139	353	33	386	525	16%	29%	747	950
Madison-East	53714	85	264	56	320	405	18%	43%	385	418
Madison-Central	53715	62	236	76	312	374	53%	199%	56	-155
Madison-Monona	53716	101	364	328	692	793	21%	108%	369	-54
Madison-Far West	53717	77	301	40	341	418	26%	81%	219	78
Madison-Far East	53718	127	307	0	307	434	33%	51%	263	296
Madison-S-West	53719	412	1375	81	1456	1868	40%	96%	629	67
Madison-central	53726	0	48	22	70	70	0%	99%	48	1
Far NE Dane	53925	1	2	0	2	3	NA	NA		
2015 total		2813	10335	2875	13210	16023	23%	74%	9498	4738

Births by Ethnicity for Children Under the Age of 5 in Dane County

The charts reflect cumulative births from 2011 to 2015. The data is slightly different from other charts because of a different pattern of data suppression under the state policies. The other category includes, in addition to children classified as other, Biracial, Hmong, Missing Data, and Native American.

	zipcode	White	Black	Hispanic	Other	Total
Belleville	53508	130		17		153
Black Earth	53515	126	0			130
Blue Mounds	53517	72				78
Brooklyn	53521	100				108
Cambridge	53523	111				118
Cottage Grove	53527	531	12	19	25	587
Cross Plains	53528	260	0		5	269
Dane	53529	133	0	10	5	148
Deerfield	53531	238	5	7		251
Deforest	53532	774	22	32	37	865
Edgerton	53534	111	0			114
Lodi	53555					
McFarland	53558	555	13	13	25	606
Marshall	53559	264	9	41	11	325
Mazomanie	53560	189			6	201
Middleton	53562	996	70	107	126	1299
Morrisonville	53571	23	0		0	24
Mt. Horeb	53572	534		8	9	555
Oregon	53575	683	10	34	12	739
Sauk city	53583	43		0		46
Stoughton	53589	889	36	21	30	976
Sun Prairie	53590	2099	237	129	261	2726
Verona	53593	1131	16	33	102	1282
Waunakee	53597	694	12	33	33	772
Windsor	53598	158	8	8	13	187
Madison-Ishtmus	53703	451	57	28	54	590
Madison-East	53704	1974	555	345	323	3197
Madison-West	53705	969	52	96	533	1650
Madison-University	53706					
Madison-Fitchburg	53711	2167	387	487	236	3277
Madison-Fitchburg	53713	746	559	658	259	2222
Madison-East	53714	758	203	170	77	1208
Madison-Central	53715	209	20	12	34	275
Madison-Monona	53716	920	68	75	45	1108
Madison-Far West	53717	372	85	36	222	715
Madison-Far East	53718	744	69	59	121	993
Madison-Southwest	53719	1812	220	212	320	2564
Madison-central	53726	104			10	119
Total		22070	2725	2690	2934	30477

Income Restrictions on the Child Care Market in Dane County

Another major influence on the child care market is whether families can afford to pay for care or preschool. One of the major problems with the Wisconsin Shares system is that the eligibility scales do not take into account the cost of living which varies greatly within the state. The Wisconsin Women's Network studies in 2004 and 2006 indicated looked at what the basic cost of living was in each county. They defined cost of living was defined as the level where families could pay for basic costs for living out themselves and thus be self-sufficient without governmental help.

That study showed wide ranges in cost of living within the state with low income families in some rural low cost counties having the ability to transition to self-sufficiency within the current formulas. Most low income families however do not live in lower cost counties and in higher cost mainly urban areas under the current formulas, families on Shares cannot afford copays nor to transition off and pay for care out of their own income. Dane County is around **45% over** the median cost of living for the state. When Dane families earn too much to be on Wisconsin Shares – their last copays covered only 31% of the cost of preschool care and 25% of infant care. Cost of living data is readily available for urban areas because many of the websites are funded for relocation services and thus resources are there to compute cost of living for Madison. Cost of Living explains why in some areas of the state people on the Wisconsin Shares subsidy were able to pay co-pays and other parts of the state they had great difficulty because the cost of housing etc. used up most of their income.

On the internet there are a number of cost of living sites – the one I like is <http://livingwage.mit.edu/states/55/locations> because it actually provides charts detailing expense estimates. Their charts also can be copied into an excel spreadsheet and then modified. The charts also figure different amounts for different size families. Here are some 2015 samples from the website. The living wage is defined as the point where the person or family can cover all of the costs from their salary.

Hourly Wages	1 Adult	1 Adult 1 Child	2 Adults (One Working) 1 Child	2 Adults	2 Adults 1 Child
Dane County Living Wage	\$10.98	\$23.34	\$20.86	\$8.78	\$12.77

Typical Expenses

These figures show the individual expenses that went into the living wage estimate.

Annual Expenses	1 Adult	1 Adult 1 Child	2 Adults (One Working) 1 Child	2 Adults	2 Adults 1 Child
Food	\$3,087	\$4,553	\$7,047	\$5,659	\$7,047
Child Care	\$0	\$8,284	\$0	\$0	\$8,284
Medical	\$2,231	\$5,727	\$5,516	\$4,542	\$5,516
Housing	\$7,440	\$10,776	\$10,776	\$8,904	\$10,776
Transportation	\$4,569	\$8,320	\$9,589	\$8,320	\$9,589
Other	\$2,127	\$3,699	\$4,046	\$3,699	\$4,046
Required annual income after taxes	\$19,454	\$41,359	\$36,974	\$31,124	\$45,258
Annual taxes	\$3,377	\$7,180	\$6,419	\$5,403	\$7,857
Required annual income before taxes	\$22,832	\$48,538	\$43,393	\$36,527	\$53,115

Since these figures are averages or developed from some other algorithms, they in some cases underestimate costs. An obvious one is few programs in Dane County charge \$8284 (\$159 a week) for full time child care. Accredited care is also far more expensive. Having children in higher quality accredited care increases the yearly cost of living by \$3-4000. Another area of weakness is the housing costs which vary a lot based on location in Dane County. The following website covers current costs for rental apartments within 10 miles of Madison <https://www.rentjungle.com/average-rent-in-madison-rent-trends/>. The rental data there is roughly \$2000 a year higher than the above chart. Their on line charts also show a rather rapid increase in rental prices over the past year.

The living wage approach to looking at child care formulas policies and needs also is helpful in developing strategies related to hiring in sectors like child care where wages are depressed due to the inability to generate sufficient income from parent fees.

In an excel spreadsheet the figures can be modified based on locale (i.e. rent/housing costs) and the families' work related benefits (since 2 of the major cost centers are medical (health care) and child care). Other areas impacted by state formulas are subsidized housing and food stamps. These can be reduced by state subsidies if the family has a low enough income and those savings reduce the amount of wages needed for a person to be self-sufficient. The living wage is just the annual income divided by 2080. The annual income is just a sum of the "food" through "other" lines.. The tax rate is essentially figured at 17.4%. So by modifying the excel spreadsheet with more accurate cost data or family subsidy/benefits data the living wage strategy can be used to compare child care wages and benefits or eligibility scales against the estimated cost of living in the community.

When looking at wages there are two market forces. The first is the wages offered by other businesses in the community. The second is how well wages meet or exceed the cost needed to live in the community. These often have two different results. There are lots of examples of how the second approach is ignored. The Wisconsin Shares subsidy system does not use local cost of living data for determining eligibility or co-pays and often ignores child care cost when determining rates.

Looking at cost of living (as well as geographic variations in cost) is one additional tool that can be used in analyzing wages and developing strategies for recruiting and maintaining good staff. Cost of living data also can be used to estimate what portion of the population cannot afford to use regulated care (or uses part time care in a mix with other care to cover full time employment). Using county wide income scales the Dane County child care market looks like this:

Children under age 6

10,649	Eligible for shares (about 1600 actually use it with an additional number in public school programs)
1003	Above shares eligibility levels- if they can access shares due to an income decline they can continue to use it
4353	Cannot access Shares and cannot probably pay for full time regulated care
19,446	Children in families who probably can afford to pay for full time regulated care

The above are rough estimates but identify that there is a significant number of children who are not technically classified as poor under the current formulas but whose families cannot afford to use regulated care.

The following chart compares the number of children under age 5 on Medicaid in January 2016 with Wisconsin Shares children the same age enrolled in April 2015. It provides a rough estimate of gaps in care may be. One key variable is that Medicaid has a far higher eligibility standard for children under age 1 .At birth a child is covered up to 301% of the federal poverty line – this is about at where the living wage data shows self- sufficiency begins. At age 1 eligibility drops to 185% the same level as Wisconsin Shares. Currently we do not know how many of the Medicaid children are under age 1. That data has been requested from the state. The difference in eligibility levels between the two programs may skew the numbers of low income children not in programs higher than they should be. The chart adds to Wisconsin Shares' numbers, the low income children on Head Start, public school 4K , public school Pre-k, the University of Wisconsin Child Care Tuition Assistance Program, and The City of Madison's tuition Assistance Program. There may be some duplication since children might be on more than one program. The chart does not encompass all of the possible public and especially private assistance programs so it is most likely an undercount of the number of low income children being served especially if the public school reduced lunch program numbers are low due to most children in 4K not having a major meal at school. 871 of children under "other subsidies" below are in city accredited programs .

**A Comparison between January 2016 Medicaid Enrollment for Children Under 5
with the number of Children on Subsidized Early Childhood programs April 2015.**

Note chart does not include home visitation programs or similar programs that operate on an individualized service delivery model. Also not included are Play and Learn programs or children on private scholarships.

	zip	Wisconsin Shares			Other subsidies			Total	Medicaid	% in
		Age < 2	Age 2 to 4	Total	Age < 2	Age 2 to 4	Total	Low Income Under age 5	under age 5 1/19/2016	Program
Belleville	53508	3	5	8	0	19	19	27	44	61%
Black Earth	53515	0	0	0	0	23	23	23	27	85%
Brooklyn	53521	2	1	3	0	3	3	6	14	43%
Cambridge	53523	0	0	0	0	18	18	18	29	62%
Cottage Grove	53527	6	21	27	0	18	18	45	115	39%
Cross Plains	53528	1	3	4	0	0	0	4	50	8%
Dane	53529	0	1	1	0	0	0	1	31	3%
Deerfield	53531	1	5	6	0	19	19	25	54	46%
Deforest	53532	3	20	23	0	48	48	71	156	46%
Edgerton	53534	0	0	0	0	0	0	0	32	0%
Lodi in Dane	53555	0	0	0	0	0	0	0	2	0%
McFarland	53558	3	11	14	0	15	15	29	96	30%
Marshall	53559	7	16	23	0	116	116	139	118	118%
Mazomanie	53560	1	6	7	0	0	0	7	49	14%
Middleton	53562	6	17	23	3	7	10	33	260	13%
Mt. Horeb	53572	0	2	2	0	44	44	46	108	43%
Oregon	53575	1	12	13	1	41	42	55	131	42%
Sauk City- Dane	53583	0	0	0	0	0	0	0	15	0%
Stoughton	53589	6	36	42	0	68	68	110	314	35%
Sun Prairie	53590	25	81	106	0	252	252	358	724	49%
Verona	53593	5	21	26	1	65	66	92	131	70%
Waunakee	53597	9	26	35	0	45	45	80	132	61%
Windsor	53598	3	6	9	0	0	0	9	56	16%
Madison-Ishtmus	53703	2	19	21	5	57	62	83	101	82%
Madison-East	53704	97	200	297	22	281	303	600	1,605	37%
Madison-West	53705	12	25	37	18	137	155	192	220	87%
Madison-UW	53706	0	0	0	3	3	6	6	0.00	100%
Madison-Fitchburg	53711	75	175	250	7	312	319	569	1,085	52%
Madison S.-Fitchburg	53713	77	149	226	9	198	207	433	1,325	33%
Madison-East	53714	28	73	101	6	129	135	236	463	51%
Madison-Central	53715	1	5	6	4	32	36	42	45	93%
Madison-East	53716	28	57	85	4	200	204	289	294	98%
Madison-Far West	53717	24	39	63	6	44	50	113	178	63%
Madison-Far East	53718	10	26	36	5	11	16	52	173	30%
Madison-Southwest	53719	49	102	151	9	71	80	231	510	45%
	53725	0	0	0	0	0	0	0	12	0%
Madisoncentral	53726	0	2	2	0	3	3	5	13	38%
Outside Dane		4	15	19	1	1	2	21		
Total in 2015		489	1177	1666	104	2280	2384	4050	8,712	46%
		12%	29%	41%	3%	56%	59%	100%		