

**Accounting for Population Changes in Arkansas' Metropolitan Areas
Components of Population Change 2010-2016
What Do They Tell Us?**

Prepared by
Alison Wiley and Gregory L. Hamilton
Demographic Research at the Institute for Economic Advancement
College of Business
University of Arkansas at Little Rock
Publication 17-05

April 1, 2017

Accounting for Population Changes in Arkansas' Metropolitan Areas
Components of Population Change 2010-2016
What Do They Tell Us?

The U.S. Census recently released the April 1, 2010 to July 1, 2016 population estimates and estimates of the components of population change for Arkansas Metropolitan Statistical Areas (MSA) and Micropolitan Statistical Areas (Micro-SA).¹ The data release is available at the Institute for Economic Advancement's website.² This report reviews that data. The report focuses on gleaning relevant information from the components of population change about how the populations of Arkansas Cities have grown over this 6.25 year period.

Estimates of Arkansas MSA and Micro-SA Population Growth: April 1, 2010 to July 1, 2016

Table 1 summarizes the population estimates for Arkansas MSAs and Micro-SAs. The Table shows the Censuses 2010 population base estimate, the 2016 population estimate, the percentage change in the population between these two periods, the annual compounded population growth rate, and the respective ranks based on their population growth rates. The population growth estimate for the Fayetteville-Springdale-Rogers MSA outpaced all the other Arkansas MSA and Micro-SAs, followed by Jonesboro MSA, and then Little Rock-North Little Rock-Conway MSA. The Pine Bluff MSA is the only Arkansas MSA that lost population during this period. Overall, the total Arkansas MSA population increased by 3.66% and grew at an annual rate of 0.58% over this period. The combined Micro-SA declined at an annual rate of -.22% and by -1.34% overall during this period. The fastest growing Micro-SA was Paragould (5.95%), followed by Searcy (2.84%), and then Russellville (1.66%).

Components of Population Change³

The amounts of natural increase in a community's population and the net migration of people into and out of a community are the top-level components of population change. The natural increase component looks at the difference between the number of births and the number of deaths over a time period. Obviously, births depend on the age composition of the women in the population, their fertility rate, and many other factors that affect a community's gender and age distributions. A community's age distribution affects its mortality rates, as does the health status of its members, their access to healthcare, and other healthcare factors affecting health conditions and outcomes in a community.

¹ Metropolitan and micropolitan statistical areas are geographic entities defined by the U.S. Office of Management and Budget (OMB). A metropolitan statistical area (MSA) contains a core urban area of 50,000 or more population. A micropolitan statistical area (Micro-SA) contains an urban core of at least 10,000, but less than 50,000, population.

² <http://iea.ualr.edu/population-estimates-a-projections/856-msa-level-population-estimates-current-series.html>

³ Data Source: Data Estimates of the Components of Resident Population Change: April 1, 2010 to July 1, 2016, U.S. Census Bureau, Population Division, March 2017.

Table 1					
Arkansas Metropolitan and Micropolitan Areas: Population Change April 1, 2010 to July 1, 2016					
Metropolitan Statistical Areas					
MSA	April 1, 2010 Population Estimate Base	July 1, 2016 Population Estimate	%Change	Annual Compound Rate of Growth	Rank of Growth Rate
Fayetteville-Springdale-Rogers, AR-MO Metro Area	463,210	525,032	13.35%	2.02%	1
Fort Smith, AR-OK Metro Area	280,547	281,227	0.24%	0.04%	7
Hot Springs, AR Metro Area	95,995	97,477	1.54%	0.25%	4
Jonesboro, AR Metro Area	121,026	129,858	7.30%	1.13%	2
Little Rock-North Little Rock-Conway, AR Metro Area	699,819	734,622	4.97%	0.78%	3
Memphis, TN-MS-AR Metro Area	1,324,824	1,342,842	1.36%	0.22%	5
Pine Bluff, AR Metro Area	100,258	91,962	-8.27%	-1.37%	8
Texarkana, TX-AR Metro Area	149,195	150,098	0.61%	0.10%	6
Total MSA Population	3,234,874	3,353,118	3.66%	0.58%	
Micropolitan Statistical Areas					
Arkadelphia, AR Micro Area	22,993	22,657	-1.46%	-0.24%	8
Batesville, AR Micro Area	36,647	37,168	1.42%	0.23%	4
Blytheville, AR Micro Area	46,480	42,835	-7.84%	-1.30%	14
Camden, AR Micro Area	31,489	29,242	-7.14%	-1.18%	12
El Dorado, AR Micro Area	41,639	39,887	-4.21%	-0.69%	11
Forrest City, AR Micro Area	28,258	26,196	-7.30%	-1.20%	13
Harrison, AR Micro Area	45,233	45,240	0.02%	0.00%	6
Helena-West Helena, AR Micro Area	21,757	18,975	-12.79%	-2.17%	15
Hope, AR Micro Area	31,606	30,372	-3.90%	-0.64%	10
Magnolia, AR Micro Area	24,552	23,901	-2.65%	-0.43%	9
Malvern, AR Micro Area	33,010	33,374	1.10%	0.18%	5
Mountain Home, AR Micro Area	41,513	41,062	-1.09%	-0.17%	7
Paragould, AR Micro Area	42,090	44,598	5.96%	0.93%	1
Russellville, AR Micro Area	83,939	85,331	1.66%	0.26%	3
Searcy, AR Micro Area	77,076	79,263	2.84%	0.45%	2
Total Micro-SA	608,282	600,101	-1.34%	-0.22%	
Source: U.S. Census, https://www.census.gov/data/tables/2016/demo/pepest/total-metro-and-micro-statistical-areas.html					

The numbers of international migrants and domestic migrants determines the size of net migration component of population change. Net international migration is the difference between the numbers of immigrants and emigrants in a community. While net domestic migration is the difference between number of domestic migrants into a community and out migrants from the same community. The interplay between the components of population change determines how a community's population changes over time.

MSAs	Population Change	Natural Increase (NI)	Net Migration (NM)	Residual	% NI of Population Change	% NM of Population Change	% Residual of Change
Fayetteville-Springdale-Rogers, AR-MO Metro Area	61822	22715	38174	933	37%	62%	2%
Fort Smith, AR-OK Metro Area	680	3676	-2895	-101	541%	-426%	-15%
Hot Springs, AR Metro Area	1482	-1572	3298	-244	-106%	223%	-16%
Jonesboro, AR Metro Area	8832	3364	5348	120	38%	61%	1%
Little Rock-North Little Rock-Conway, AR Metro Area	34803	21219	13771	-187	61%	40%	-1%
Memphis, TN-MS-AR Metro Area	18018	46840	-28125	-697	260%	-156%	-4%
Pine Bluff, AR Metro Area	-8296	550	-8901	55	-7%	107%	-1%
Texarkana, TX-AR Metro Area	903	2346	-1285	-158	260%	-142%	-17%
Total	118244	99138	19385	-279	84%	16%	0%
Arkadelphia, AR Micro Area	-336	-65	-283	12	19%	84%	-4%
Batesville, AR Micro Area	521	289	309	-77	55%	59%	-15%
Blytheville, AR Micro Area	-3645	936	-4530	-51	-26%	124%	1%
Camden, AR Micro Area	-2247	-436	-1780	-31	19%	79%	1%
El Dorado, AR Micro Area	-1752	-3	-1757	8	0%	100%	0%
Forrest City, AR Micro Area	-2062	491	-2515	-38	-24%	122%	2%
Harrison, AR Micro Area	7	-55	96	-34	-786%	1371%	-486%
Helena-West Helena, AR Micro Area	-2782	207	-3019	30	-7%	109%	-1%
Hope, AR Micro Area	-1234	511	-1707	-38	-41%	138%	3%
Magnolia, AR Micro Area	-651	-86	-545	-20	13%	84%	3%
Malvern, AR Micro Area	364	-159	553	-30	-44%	152%	-8%
Mountain Home, AR Micro Area	-451	-1953	1495	7	433%	-331%	-2%
Paragould, AR Micro Area	2508	586	1961	-39	23%	78%	-2%
Russellville, AR Micro Area	1392	1525	-80	-53	110%	-6%	-4%
Searcy, AR Micro Area	2187	1166	931	90	53%	43%	4%
Total	-8181	2954	-10871	-264	-36.1%	132.9%	3.2%

Table 2 shows the recently released Census estimates of Arkansas' components of population change for the MSAs and Micro-SAs. An additional residual measure is included in this Table. This measure is an accounting for the number of people whose status the Census estimates were unable to identify and categorize. For several communities, the residuals were a large share of a community's population change as for example Harrison. The interplay between the natural increase and net migration factors has resulted in the ten communities losing population, and for eight of these communities this loss is due to a net out migration of people exceeding the natural increase component of population change. Pine Bluff's population decline is an example of this effect. Mountain Home shows an opposite effect where the decline in population is due to a large negative natural increase dominating a net in migration of people. For six communities the components of population change were positive and complemented each other resulting in population growth.

Natural Increase: Table 3 breaks the natural increase in population for these communities into their birth and death components. The birth and death rates per 1,000 are also reported for comparative purposes by adjusting for absolute differences in size. The natural increase is the difference between the number of births and death and is positive whenever the number of birth exceeds the number of deaths. For retirement communities like Hot Springs and Mountain Home with a large proportion of aged, their negative natural increases are due to the number of deaths exceeding the number of births during this 2010-2016 period. Conversely, a community with high rate of natural increase often has high

births rates that are due to a high proportion of women of child-bearing age like Fayetteville-Springdale-Rogers.

Net Migration: Table 4 breaks out the components of net migration for communities. Hope, Mountain Home, and El Dorado lost population due to net out international migration (emigration exceeding immigration). The remaining communities had positive population growth due to international migration. However, their domestic net migration estimates are mixed. Totals for both the domestic net migration and domestic migration rates are negative indicating that overall the MSAs and Micro-SAs lost population because of domestic net out migration of residents. Concerning the MSAs, this finding is chiefly due to Memphis’ domestic net out migration of residents and to a lesser extent Pine Bluff domestic net out migration too. When Memphis is excluded from this tally, the remaining Arkansas MSAs have a domestic net in migration of 30,220 residents over the six year period. Predominantly, this finding is a consequence of the large number of domestic net migration into the Fayetteville-Springdale-Rogers’ MSA. For the Micro-SAs, nine of the fifteen communities lost population due to the domestic net outmigration of residents. The majority of these communities are located below the Arkansas infamous diagonal that divides the state between the mountain and its flat land regions.

MSA	Estimate			Rates per 1000 (2010 Est Base)		
	NI	Births	Deaths	NI	Births	Deaths
Fayetteville-Springdale-Rogers, AR-MO Metro Area	22,715	44,433	21,718	49.04	95.92	46.89
Fort Smith, AR-OK Metro Area	3,676	22,052	18,376	13.10	78.60	65.50
Hot Springs, AR Metro Area	-1,572	6,886	8,458	-16.38	71.73	88.11
Jonesboro, AR Metro Area	3,364	10,979	7,615	27.80	90.72	62.92
Little Rock-North Little Rock-Conway, AR Metro Area	21,219	60,932	39,713	30.32	87.07	56.75
Memphis, TN-MS-AR Metro Area	46,840	117,652	70,812	35.36	88.81	53.45
Pine Bluff, AR Metro Area	550	7,175	6,625	5.49	71.57	66.08
Texarkana, TX-AR Metro Area	2,346	12,271	9,925	15.72	82.25	66.52
Total MSA	99,138	282,380	183,242	30.65	87.29	56.65
Micro-SA	Estimate			Rates per 1000 (2010 Est Base)		
	NI	Births	Deaths	NI	Births	Deaths
Arkadelphia, AR Micro Area	-65	1,521	1,586	-2.8	66.2	69.0
Batesville, AR Micro Area	289	2,889	2,600	7.9	78.8	70.9
Blytheville, AR Micro Area	936	4,049	3,113	20.1	87.1	67.0
Camden, AR Micro Area	-436	2,139	2,575	-13.8	67.9	81.8
El Dorado, AR Micro Area	-3	3,274	3,277	-0.1	78.6	78.7
Forrest City, AR Micro Area	491	2,194	1,703	17.4	77.6	60.3
Harrison, AR Micro Area	-55	3,226	3,281	-1.2	71.3	72.5
Helena-West Helena, AR Micro Area	207	1,891	1,684	9.5	86.9	77.4
Hope, AR Micro Area	511	2,702	2,191	16.2	85.5	69.3
Magnolia, AR Micro Area	-86	1,845	1,931	-3.5	75.1	78.6
Malvern, AR Micro Area	-159	2,191	2,350	-4.8	66.4	71.2
Mountain Home, AR Micro Area	-1,953	2,199	4,152	-47.0	53.0	100.0
Paragould, AR Micro Area	586	3,496	2,910	13.9	83.1	69.1
Russellville, AR Micro Area	1,525	6,673	5,148	18.2	79.5	61.3
Searcy, AR Micro Area	1,166	6,203	5,037	15.1	80.5	65.4
Total MSA	2,954	46,492	43,538	4.86	76.43	71.58

Table 4

Components of Net Migration of Population

MSA	Net Migration Components			Rates per 1000 (2010 Est Base)		
	Total	International	Domestic	Total	International	Domestic
Fayetteville-Springdale-Rogers, AR-MO Metro Area	38,174	7,597	30,577	82.41	16.40	66.01
Fort Smith, AR-OK Metro Area	-2,895	1,725	-4,620	-10.32	6.15	-16.47
Hot Springs, AR Metro Area	3,298	41	3,257	34.36	0.43	33.93
Jonesboro, AR Metro Area	5,348	913	4,435	44.19	7.54	36.65
Little Rock-North Little Rock-Conway, AR Metro Area	13,771	6,496	7,275	19.68	9.28	10.40
Memphis, TN-MS-AR Metro Area	-28,125	8,729	-36,854	-21.23	6.59	-27.82
Pine Bluff, AR Metro Area	-8,901	128	-9,029	-88.78	1.28	-90.06
Texarkana, TX-AR Metro Area	-1,285	390	-1,675	-8.61	2.61	-11.23
Total MSA	19,385	26,019	-6,634	5.99	8.04	-2.05
Micro-SA	Net Migration Components			Rates per 1000 (2010 Est Base)		
	Total	International	Domestic	Total	International	Domestic
Arkadelphia, AR Micro Area	-283	77	-360	-12.31	3.35	-15.66
Batesville, AR Micro Area	309	169	140	8.43	4.61	3.82
Blytheville, AR Micro Area	-4,530	90	-4,620	-97.46	1.94	-99.40
Camden, AR Micro Area	-1,780	70	-1,850	-56.53	2.22	-58.75
El Dorado, AR Micro Area	-1,757	-13	-1,744	-42.20	-0.31	-41.88
Forrest City, AR Micro Area	-2,515	169	-2,684	-89.00	5.98	-94.98
Harrison, AR Micro Area	96	14	82	2.12	0.31	1.81
Helena-West Helena, AR Micro Area	-3,019	24	-3,043	-138.76	1.10	-139.86
Hope, AR Micro Area	-1,707	-58	-1,649	-54.01	-1.84	-52.17
Magnolia, AR Micro Area	-545	255	-800	-22.20	10.39	-32.58
Malvern, AR Micro Area	553	38	515	16.75	1.15	15.60
Mountain Home, AR Micro Area	1,495	-12	1,507	36.01	-0.29	36.30
Paragould, AR Micro Area	1,961	106	1,855	46.59	2.52	44.07
Russellville, AR Micro Area	-80	447	-527	-0.95	5.33	-6.28
Searcy, AR Micro Area	931	389	542	12.08	5.05	7.03
Total Micro-SA	-10,871	1,765	-12,636	-17.87	2.90	-20.77

Summary of Findings

Table 5 categorizes the causes of the communities' population changes by looking at the direction of change in their components of population change. This qualitative analysis of the directions of change provides explanations of the underlying population trends accounting for changing community populations.

Table 5					
Qualitive Changes in Population Arkansas' MSAs and Micro-Sas and Their Componenet of Population Change 2010-2016					
Metropolitan Statistical Areas (MSA)	Population Growth	Natural Increase	Net Migration	International	Domestic
Fayetteville-Springdale-Rogers, AR-MO Metro Area	+	+	+	+	+
Fort Smith, AR-OK Metro Area	+	+	-	+	-
Hot Springs, AR Metro Area	+	-	+	+	+
Jonesboro, AR Metro Area	+	+	+	+	+
Little Rock-North Little Rock-Conway, AR Metro Area	+	+	+	+	+
Memphis, TN-MS-AR Metro Area	+	+	-	+	-
Pine Bluff, AR Metro Area	-	+	-	+	-
Texarkana, TX-AR Metro Area	+	+	-	+	-
Micropolitan Statistical Areas (Micro-SA)					
Arkadelphia, AR Micro Area	-	-	-	+	-
Batesville, AR Micro Area	+	+	+	+	+
Blytheville, AR Micro Area	-	+	-	+	-
Camden, AR Micro Area	-	-	-	+	-
El Dorado, AR Micro Area	-	-	-	-	-
Forrest City, AR Micro Area	-	+	-	+	-
Harrison, AR Micro Area	+	-	+	+	+
Helena-West Helena, AR Micro Area	-	+	-	+	-
Hope, AR Micro Area	-	+	-	-	-
Magnolia, AR Micro Area	-	-	-	+	-
Malvern, AR Micro Area	+	-	+	+	+
Mountain Home, AR Micro Area	-	-	+	-	+
Paragould, AR Micro Area	+	+	+	+	+
Russellville, AR Micro Area	+	+	-	+	-
Searcy, AR Micro Area	+	+	+	+	+
Source: Calculations by IEA.					

Explanations for population changes in Arkansas MSAs and Micro-SA: 2010-2016

MSAs with growing populations

- Fayetteville-Springdale-Rogers' population grew due to increases in all the components of population change.
- Jonesboro's population grew due to increase in all the components of population change.
- Little Rock-North Little Rock-Conway's population grew in spite of a net domestic out migration that was partially offset my net international in migration.

- Hot Springs' population growth is a consequence of a net migration rate offsetting the negative rate of natural increase.
- Memphis' population growth is attributed to natural increases offsetting the negative net migration resulting from net domestic out migration.
- Texarkana's population grew in spite of a net domestic out migration that net international migration partially offset.
- Fort Smith's population grew in spite of net domestic out migration that was partially offset by net international in migration.

MSA with a declining population

- Pine Bluff's population decline is a consequence of net domestic out migration and a relatively lower rate of natural increase in the population.

Micro-SAs with growing populations

- Paragould's population grew due to increase in all the components of population change.
- Searcy's population grew due to increase in all the components of population change.
- Russellville gained population due to a natural increase dominating net domestic out migration.
- Batesville's population growth is due to growth in all components of population change.
- Malvern's population grew in spite of its negative rate of natural increase because it proved to be an attractive place for migrants.

Micro-SAs with declining populations

- Mountain Home's population declined due to a negative rate of natural increase even though it was an attractive place for net domestic in migrants.
- Arkadelphia's population declined due to negative growth in both the rate of natural increase and net domestic out migration.
- Magnolia's population declined in spite of its attraction for international immigrants.
- Hope's population declined due to net out migration in spite of a positive rate of natural increase.
- El Dorado is the only community that had all the components of population change negative.
- Camden's loss of population is due to both negative rates of natural increase and net domestic out migration.
- Harrison's population growth was the lowest of these areas due to relatively low rates of net in migration and a negative natural increase.
- Blytheville's population declined because of a net domestic out migration dominating the other components of population change.
- Forest City's population declined because of a net domestic out migration dominating the other components of population change.
- Helena's population declined because of a net domestic out migration dominating the other components of population change.