

Welcome to the second edition of CRP Data Bytes! Periodically, Community Research Partners takes a snapshot of a topic of importance to our region and state today. Data Byte topics cover a wide range of social, economic, and community issues.

### Summary

This Data Byte compares estimates of the size of the Franklin County Somali population derived from three sets of data:

- **American Community Survey (ACS)** estimates from the U.S. Census Bureau, based on survey data.
- A **CRP birth-data method** that applies multipliers to the number of Somali births to estimate the total county Somali population.
- A **CRP student-data method** that applies multipliers to the number of Somali students in Columbus City Schools to estimate the total county Somali population.

These methods produced a range of 2007 population estimates:

- American Community Survey: **8,097 (±1,943)**
- CRP birth-data method: **13,311–41,338**
- CRP student-data method: **15,473**

While the birth-data method yields a wide range of population estimates, other information about the local Somali population suggests that the actual figure is closer to the lower end. The student-data method is consistent with this assessment. Therefore, the CRP analysis produces a 2007 estimate of the Franklin County Somali population of about **15,000**.

### Introduction

According to the federal Office of Refugee Resettlement, Columbus is host to the second-largest Somali community in the U.S., behind Minneapolis-St. Paul. CRP is often asked how many Somalis make Franklin County their home. Available estimates vary:

- Fewer than 10,000, according to the U.S. Census.
- 45,000, as reported in the book *The Somali Diaspora*.
- As high as 80,000, as reported by a Somali community organization.

### **Perspectives from the Somali Community**

*The conflict in Somalia has forced millions to flee to other countries. Twenty-four countries host Somali refugees. In the devastation of over two decades of struggle, hundreds of thousands more have died due to famine and disease.*

*Somali war refugees began arriving in the U.S. in 1991. Soon after, Franklin County became a popular refugee destination, and today Ohio has the second-largest Somali community in the U.S.*

*Representatives from local Somali organizations shared the following perspectives on central Ohio's Somali community:*

- *The birth rate among Somali refugees in the U.S. is the same as that in Somalia. Somali women give birth as long as they are able. Some Somali women, usually seeking education, get married later in life.*
- *Somali children who live in refugee camps for many years do not receive adequate education. When they arrive in the U.S., they are placed in a grade based on their age, not their ability.*
- *Somali people come to Columbus because of the community services, the low cost of living, and the large Somali community. Many Somali decide to go to college, and some start their own businesses.*
- *Somalis hold jobs in warehousing and industrial settings, health care, nonprofits, food services, financial services, and education. Some are self-employed. The annual gross income range for the majority of the local Somali population is between \$16,000 and \$40,000. There are some Somali immigrants who earn more than \$60,000.*
- *A parallel economy has arisen among Columbus Somalis that enables them to do everything "the Somali way."*

With such divergent estimates, CRP examined the latest Census data and tested two estimation methods to shed light on the size of this important community group.

In addition, CRP contacted local Somali organizations to learn about their perspectives on the size and growth patterns of the central Ohio Somali population to provide a context for our calculations.

## The Method Not Used: Estimates Using the Standard Components of Population Change

The best way to know how many people reside in an area is to count them directly. The U.S. Census Bureau is required by the Constitution to conduct a complete count of the nation’s people every ten years (the *decennial census*). Such a large undertaking requires years of planning, preparation and analysis at great expense. Even a count on a much smaller scale—at the county or city level, for example—requires lots of time and resources.

During the *intercensal period* (the time between censuses), the Census Bureau relies on a *components of population change* method to derive national and state-level estimates of the U.S. population. With this method, the decennial count serves as a base year count, which is adjusted in subsequent years based on the two components of population change: 1) natural increase (births minus deaths) and 2) migration (in-migration minus out-migration).

CRP initially tried to use this method to estimate the local Somali population. However, we were able to locate reasonably complete and accurate data on the Franklin County Somali population for only one of the components: births. Partial data for Somali in-migration is available, primarily from the Office of Refugee Resettlement; however, there are no readily available data on *secondary migration* of Somali immigrants and refugees—that is, Somalis who initially arrived elsewhere in the U.S. and

subsequently moved to Franklin County. Data on Somali out-migration from Franklin County were mostly anecdotal, reported by members of the Somali community. There are also no readily available data on Somali deaths in Franklin County.

Lacking adequate data for the components of change estimation method, CRP turned to two alternative methods that use data from local administrative records. The population estimates derived from these alternative methods were compared to the Census method for estimating small populations for the American Community Survey.

## Survey-Based Estimates: The American Community Survey

In addition to the full count of the U.S. population every ten years, the Census Bureau collects data from a sample of about three million U.S. households every year through its American Community Survey program (ACS). The ACS collects a variety of information, including age, race, income, home value, and veteran status. The ACS questionnaire also includes a question about ancestry, reported by country of origin (including Somalia).

The bureau then analyzes this sample data to derive estimates for states, counties, and medium-sized to large cities. Table 1 shows ACS 2001–07 estimates for the Somali population in Ohio, Franklin County, and Columbus. Also shown is the Census 2000 count and a new, three-year estimate (2005–07) that the Census

**Table 1: Census Count (2000) and Estimates (2001–2007) of the Somali Population**

Year	Ohio		Franklin County		Columbus	
2000	3,109		3,074		2,839	
ACS	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
2001	NA*	NA*	3,818	±1,831	NA*	NA*
2002	3,854	±2,125	3,854	±2,125	3,657	±2,053
2003	3,410	±1,914	3,410	±1,914	2,923	±1,785
2004	5,617	±3,051	5,617	±3,051	5,617	±3,051
2005	12,932	±5,627	12,217	±5,500	10,163	±4,613
2006	8,415	±3,308	8,415	±3,308	7,857	±3,255
2007	5,257	±2,439	5,216	±2,437	5,216	±2,437
2005-07**	8,331	±1,995	8,097	±1,943	7,585	±1,922

Source: U.S. Census, 2000; American Community Survey, 2001–2007

\* Franklin County was a demonstration county for the development of the ACS in 2001. State and city data were not collected that year.

\*\* ACS computes three-year estimates using pooled data for all three years. They are not an average of the three single-year estimates.

Bureau recently released for greater reliability.

ACS estimates are reported with a *margin of error*, a statistical measure of the accuracy of the estimate. The margin of error for ACS data signifies that there is a 90% chance that the actual population value falls within the range shown. For example, there is 90% certainty that the 2005-07 Franklin County Somali population was between 6,145 (8,097 minus 1,943) and 10,040 (8,097 plus 1,943).

The ACS estimates in Table 1 are substantially lower than those cited by Franklin County Somali organizations. One possible reason is that Somali households may be missed by the Census Bureau’s data collection efforts, particularly since Somali families comprise a relatively small group compared to the county overall. It is also possible that Somali participation in the Census surveys is low due to fear of government data gathering.

### CRP Estimates Using Local Administrative Records

CRP used local administrative records from the Ohio Department of Health (ODH) and the Columbus City Schools (CCS) to calculate alternative estimates. CRP chose these two data sets on the basis of three assumptions:

- Each of these data sets provides a complete count of a subset of the Somali population – birth mothers, in the case of the ODH data, and students for the CCS data. A complete count is not subject to the sample variability seen with the ACS data.
- Somali families may be more likely to provide data for birth certificates and school records than for the Census.
- The two data sets are independent of one another, so agreement between the estimates produced by them would be strong evidence that the two accurately represent the Somali population in Columbus and Franklin County.

#### Method #1: Ohio Department of Health Data - Birth Certificates

This estimation method uses the number of births to Somali mothers in Franklin County to estimate the county’s total Somali population. ODH birth certificates include a field to record the mother’s country of birth. CRP used these data to identify births to Somali mothers in birth certificates data

from 2003–2007 on the basis of two assumptions:

- Somali births are consistently recorded in Ohio birth certificates.
- Somali mothers consistently report Somalia as their country of birth.

In any population, the number of babies born represents a portion of the total population. The proportion of births to total population is called the *crude birth rate*, usually reported as births per one thousand people. Given the number of births and a population’s crude birth rate, the size of the population can be calculated. In the case of the local Somali community:

$$\text{Somali Population in Franklin County} = \frac{\text{Number of Somali Births in Franklin County}}{\text{Franklin County Somali Crude Birth Rate}}$$

We know how many births there were to Somali mothers over the last several years (Table 2). However, we do not know what the crude birth rate is among local Somalis, since we do not know the size of the local population (that is, in fact, the number we are trying to estimate). To calculate a population estimate, we first need to choose a crude birth rate appropriate for the local Somali community.<sup>1</sup>

One choice would be to use the crude birth rate for the country of Somalia, which according to the CIA World Factbook (2008) is 44.1 births/1,000 people, or 0.0441. For the 2007 ODH Somali birth count of 587, this yields an estimated Franklin County Somali population of 13,311 (Table 2).

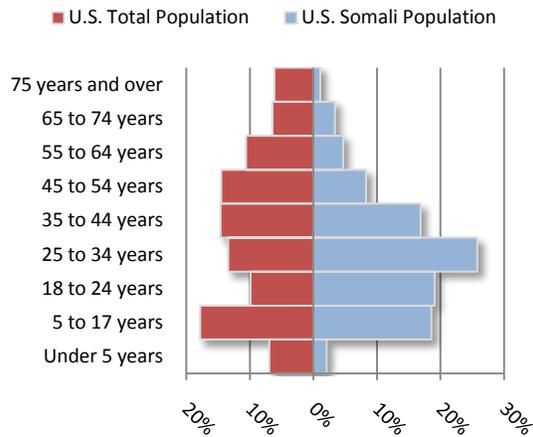
$$\text{2007 Somali Population in Franklin County} = \frac{587 \text{ (Somali Births in 2007)}}{0.0441 \text{ (CBR for Somalia)}}$$

There are a number of factors that support the use of the Somalia crude birth rate:

- According to interviewees in the Somali community, Somali families in Franklin County have an average of four children, similar to families remaining in Somalia.

<sup>1</sup> Although it may seem counterintuitive, the higher the birth rate used, the lower the population estimate. This is because the number of births is a fixed number; so it takes a smaller population to produce that number of births if the rate is higher, and vice versa.

**Figure 1: Age Profiles for U.S. Somali and Total Populations, 2005–2007**



Source: American Community Survey

- Census data suggest that the U.S. Somali population is skewed toward persons of reproductive age, which would produce a high birth rate, similar to that of the population of Somalia (Figure 1).
- The Somali people are relatively recent arrivals to the U.S., with strong cultural identity. Their behaviors, including reproductive practices, would likely be similar to those at home.

On the other hand, there are factors that could produce a crude birth rate among Somali in the U.S. that is lower than in Somalia:

- Spousal separation, particularly to find work opportunities.
- Adoption of Western customs and work practices.
- Economic pressures favoring smaller families.

Using the lower U.S. birth rate of 14.2 births per 1,000 (0.0142) would yield a substantially higher population estimate, 41,338 in 2007 (Table 2):

<b>2007 Somali Population in Franklin County</b>	=	$\frac{587 \text{ (Somali Births in 2007)}}{0.0142 \text{ (CBR for the U.S.)}}$
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**Table 2: Estimates Based on Franklin County Births to Somali Mothers, 2003–2007**

Year	Franklin County Somali Births	Franklin County Somali Population Estimates Using Crude Birth Rates for:	
		Somalia (44.1/1,000)	U.S. (14.2/1,000)
2003	405	9,184	28,521
2004	471	10,680	33,169
2005	417	9,456	29,366
2006	566	12,834	39,859
2007	587	13,311	41,338

Sources: Crude birth rates, CIA World Factbook, 2008; births, Ohio Department of Health.

Information provided by local Somali organizations points to high birth rates and large households for local Somalis, more like those in Somalia than in the U.S.

**As a result, CRP believes that the Somali 2007 population in Franklin County is probably much closer to 13,311 (based on the Somalia crude birth rate) than to 41,338 (based on the U.S. crude birth rate).**

**Where the Franklin County Somali population lives: location of Somali birth mothers**

The ODH birth certificate records include address information that can be mapped. CRP geocoded these addresses for 1999–2005 to produce a population density map of Somali birth mothers (Figure 2). On the map, darker colors represent areas of higher population density.

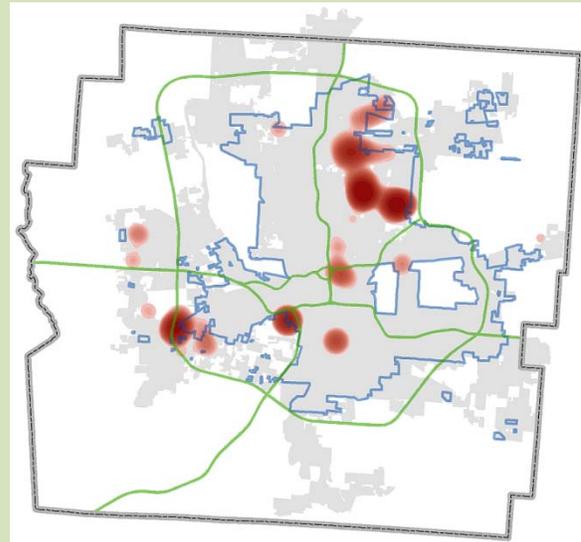
The births map shows the Somali community to be concentrated in northeast Columbus, with a secondary concentration on the west side. Smaller concentrations are seen on the near south side and east of downtown. Mapping the addresses also allowed us to count how many Somali birth mother residences fell within the Columbus corporation limit, summarized in Table 3.

**Table 3: Somali Births in Franklin County and Columbus**

Year	Somali Births*		% FC Somali Births in Columbus
	Franklin County	Columbus	
1999	88	86	98%
2000	151	139	92%
2001	290	262	90%
2002	393	348	89%
2003	405	365	90%
2004	471	416	88%
2005	417	374	90%
2003-05 avg.	431	385	89%

\*Franklin County birth certificates identified in ODH records by mother’s county of residence. Birth counts for Columbus derived from geocoded countywide birth certificate data.  
Source.: Ohio Department of Health

**Figure 2: Distribution of Somali Birth Mothers across Franklin County, 1999–2005**



City of Columbus shown in gray. CCS district outlined in blue. Green lines represent interstates. To protect confidentiality, only densities greater than 20 individuals per square mile are shown.

Source: Ohio Department of Health, 1999–2005. Map by CRP.

Assuming that birth mothers are evenly distributed among the Somali population, **the births map and data are consistent with the ACS data (Table 1) in showing that most Somalis in Franklin County live in Columbus (94% for the 2005–2007 ACS estimate, and 89% for the ODH 2003–2005 birth data).** By comparison, only 65% of the total Franklin County population resides in Columbus.

**Method # 2: Columbus City Schools Data - Students’ Native Language**

CRP modeled the schools data estimation method on one used by the Minnesota State Demographic Center to estimate that state’s Somali population.<sup>2</sup> The Minnesota demographers counted Somali-speaking students enrolled in Minnesota schools. They assumed that since Somali are fairly recent arrivals to the U.S., most Somali children speak Somali at home. Therefore, most would be counted in the schools’ native language data. They used the student count to estimate the total Somali population.

CRP’s method, based on Columbus City Schools enrollment data for Somali students, rests on the following set of assumptions about the similarity of the Somali population to the general population in Columbus, including:

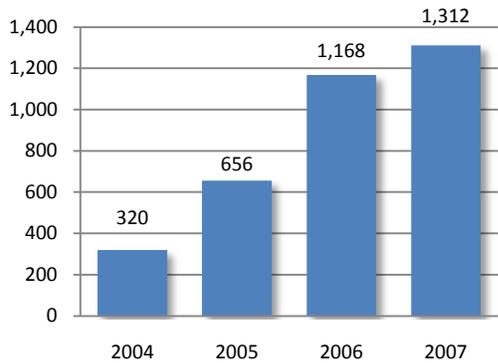
- Similar school attendance rates.
- Similar rates of movement into and out of the CCS district.<sup>3</sup>
- Similar proportion of school-age children in both populations. (This assumption is supported by the data in Figure 1, which show similar percentages of children aged 5–17 in the U.S. total and Somali populations.)

CCS collects data on students’ native language as part of its English as a Second Language program. District staff believes that families report this information reliably. CRP counted Somali CCS student records for fiscal years 2004–2007. Counts by year show a steady increase in Somali students during that time (Figure 3; Table 4).

<sup>3</sup> The CCS June counts are cumulative totals, meaning that they record all students who pass through the district in a given year. Higher rates of families moving into and out of the district for a given population could result in a larger cumulative count for that population.

<sup>2</sup> Ronningen, 2004.

**Figure 3: CCS Students Whose Native Language Is Somali, FY2004–2007\***



\*School fiscal years (FY) are defined by the year in which a school year ends. For example, FY07 data are from school year 2006–07.

Source: Columbus City Schools

CRP then used these counts, along with the total CCS student count and the district total population,<sup>4</sup> in a simple ratio calculation to estimate the district’s Somali population (Table 4, Estimate 1):

All CCS Students	=	Number of Somali CCS Students
All Persons Residing in CCS District		<b>Somali Population Residing in CCS District</b>

Using these Somali CCS district population estimates along with ACS population data for Columbus, CRP employed the same ratio method to derive Somali population estimates for Columbus (Table 4, Estimate 2):

All Persons Residing in the CCS District	=	Somali Population in CCS District (Estimate 1)
All Persons Residing in Columbus		<b>Somali Population in Columbus (Estimate 2)</b>

The resulting 2007 Somali population estimate for Columbus is 13,926, similar to the estimate derived from the ODH births data.

The same ratio method, however, would not produce an accurate estimate when applied to Franklin County, because both the ACS and the ODH birth data show that Franklin County Somalis are far more concentrated within Columbus than the overall county population (see explanation on the previous page). If a 90% figure for Somalis living in Columbus is assumed, then CRP’s estimate for the 2007 Somali population in Franklin County, based on CCS student data, is **15,473** (Table 4, Estimate 3).

**Table 4: CCS District, Columbus, and Franklin County Estimates of the Somali Population Based on CCS Enrollment Data**

	Year			
	2004	2005	2006	2007
All CCS Students	73,869	78,408	79,582	69,052
CCS District Population	492,379	491,744	494,588	505,484
Somali CCS Students	320	656	1,168	1,312
<b>Estimate 1: CCS Somali Population</b>	<b>2,133</b>	<b>4,114</b>	<b>7,259</b>	<b>9,604</b>
Columbus City Pop.	700,874	693,983	718,477	732,974
<b>Estimate 2: Columbus Somali Population</b>	<b>3,036</b>	<b>5,806</b>	<b>10,545</b>	<b>13,926</b>
Franklin County Pop.	1,066,113	1,068,080	1,095,662	1,118,107
<b>Estimate 3: Franklin County Somali Population (Estimate 2 ÷ 90%)</b>	<b>3,373</b>	<b>6,451</b>	<b>11,717</b>	<b>15,473</b>

Sources: Columbus City Schools, Small Area Income and Poverty Estimate (SAIPE), American Community Survey (ACS).

<sup>4</sup> District population data were obtained from the Census Bureau’s Small Area Income and Poverty Estimates program (SAIPE).

**Table 5: Summary of 2007 Franklin County Somali Population Estimates and Methods**

Population Estimate Range and Method	Source of Variability in the Estimates	Methodology Advantages and Disadvantages
<p><b>8,097 (± 1,943)</b> American Community Survey 2005–07 three-year estimate with 90% margin of error</p>	<p><b>Sample variability</b></p> <ul style="list-style-type: none"> <li>ACS collects data from a nationwide sample of three million U.S. households annually.</li> <li>Samples in different years take different “cuts” of the total population.</li> </ul>	<p><b>Advantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>Well-researched, validated methodology.</li> <li>ACS survey data are collected every year.</li> <li>New, three-year estimates smooth out sample variations from year to year, resulting in lower margins of error.</li> </ul> <p><b>Disadvantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>ACS sampling may miss parts of small sub-populations like the Franklin County Somali community.</li> <li>Somalis may be reluctant to provide information on a government census form.</li> </ul>
<p><b>13,311–41,338</b> CRP ODH birth data method</p> <p><i>Based on local information that the birth rate for Somalis in Franklin County is high, CRP estimates a population closer to the low end of the range.</i></p>	<p><b>Assumptions used in estimate calculations</b></p> <ul style="list-style-type: none"> <li>Low estimates assume that the crude birth rate in Franklin County Somali population mirrors that in Somalia.</li> <li>High estimates assume that the crude birth rate in Franklin County Somali population mirrors that of the U.S. population.</li> </ul>	<p><b>Advantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>Uses as base data a full count of a subset of the Franklin County Somali population (Somali birth mothers).</li> <li>Somali families may be more willing to provide information for a birth certificate, so data set more likely to be complete and accurate than Census data.</li> </ul> <p><b>Disadvantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>Base data (ODH birth certificate records) only include Somali women giving birth in Franklin County. Other Franklin County Somali families and individuals are not included in the base count.</li> <li>Relies upon assumptions about the local Somali crude birth rate and local Somali family structure, which may or may not be correct.</li> </ul>
<p><b>15,473</b> CRP CCS student data method</p>	<p><b>Assumptions used in estimate calculations</b></p> <ul style="list-style-type: none"> <li>ACS shows that most Franklin County Somalis reside in Columbus (94%). ODH data shows that most Franklin County Somali mothers giving birth are in Columbus (89%). We therefore assumed that 90% of Franklin County’s Somalis live in Columbus, rather than the 65% rate for the overall population.</li> </ul>	<p><b>Advantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>Uses as base data a full count of a subset of the Franklin County Somali population (Somali CCS students).</li> <li>Somali families may be more willing to provide information to the school district, so data set more likely to be complete and accurate than Census data.</li> </ul> <p><b>Disadvantages of the estimation method:</b></p> <ul style="list-style-type: none"> <li>Base data (CCS student records) only include Somali children enrolled in CCS schools. Other Franklin County Somali families and individuals, including Somali students enrolled in other districts, are not included in the base count.</li> <li>Relies upon assumptions about enrollment of Somali students in public schools, the proportion of Somali students to the total Somali population, and the proportion of Somalis living in Columbus compared to the whole county, which may or may not be correct.</li> </ul>

## Improving Estimates of the Somali Population

Table 5 (previous page) summarizes the estimates presented in this Data Byte and the advantages and disadvantages of the methods used to calculate them. Both of CRP's estimation methods provide larger estimates of the Somali population than the Census Bureau's ACS estimates. However, all three estimates are lower than those cited by community organizations.

As this Data Byte demonstrates, population estimates are derived by applying a set of assumptions to a base of available data. Population estimates can be strengthened by improving the accuracy of their base data or by improving the assumptions used in their calculation through greater insight into the population's characteristics. In practical terms, that means working with government agencies and the Somali community to improve the collection and sharing of data and information.

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### Special thanks to the Somali community!

Representatives of the following organizations shared their perspectives with CRP:

- African Refugee Education and Cultural Services
- Community Immigrant and Refugee Services
- Horn of Africa Community Center
- Somali American Chamber of Commerce
- Somali Community Access Network
- Somali Community Association of Ohio
- Somali Nurses Association of North America
- Somali Senior and Family Services
- Somali Youth and Community Development

## About CRP

Community Research Partners is a unique nonprofit research center that provides leaders with data to improve communities and lives in Ohio. CRP works in a wide range of fields, including human services, education, health, housing, employment, safety, poverty, community development, and race and diversity. CRP is a partner in the Urban Institute's National Neighborhood Indicators Partnership and is the Ohio partner organization for the national Working Poor Families Project.

This Data Byte was supported with resources from the City of Columbus, United Way of Central Ohio, and the Franklin County Commissioners. For more information regarding this document or other CRP projects and services, check out our websites:

<http://www.communityresearchpartners.org>

<http://www.datasourcecolumbus.org>

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