Population Change in Rural Eastern Ethiopia Between 2007 to 2019: Findings from an Open Dynamic Cohort Demographic Surveillance

Nega Assefa1, Gezahgn Mengesha1, Merga Dheresa1 and Argeseanu Solveig2

1 College of Health and Medical Sciences, Haramaya University, Ethiopia
2 Emory Global Health Institute, Emory University, USA

Background

• There remain distinct differences in population growth and composition in rural areas compared to urban areas.
• In Eastern Ethiopia there is high fertility, children and youth make up a high proportion of the rural population.
• Women in this region enter marriage early and thus have a long period of childbearing.
• We present data from a long-standing demographic surveillance system operating in the rural district of Kersa, to characterize how population patterns are developing in this region over the course of a decade.
• Kersa HDSS began demographic and health surveillance from 12 Kebeles in Eastern Ethiopia in September of 2007.

Methods

Study setting

Kersa HDSS was established with the aim of providing community-based health information to health planners and policy makers and to inform evidence-based decision-making in this resource-limited setting.

The HDSS consists of a representative selection of Kabeles (the smallest administrative unit in Ethiopia) with average population size of 5000 each.

In 2015, in the same district, 12 additional Kabeles were added to increase the diversity of the HDSS, that doubled the size of the population under surveillance.

Study Population

All permanent residents of the HDSS are captured in the cohort. Between 2007 and the end of 2019, 32,819 births and 7,980 deaths were registered.

Data Management

Data for this analysis were extracted from the Structure Query Language (SQL) database in which HDSS data are maintained.

Population size and age and sex composition were calculated using a person-time calculation for each year.

Population change 2008 to 2019

The population of Kersa HDSS grew by about 1,552 people yearly through 2019; the population had 50,692 person-years in 2008 and increased to 136,373 in 2019. The population had double in 2015/16 (Table 2). The crude population increase (CPI) was 2.4% annually (95% CI: 0.55%, 4.47%), with lowest points in 2011 and 2019 and highest in 2013. The net population increase was lowest in 2011 (-0.6) and highest in 2013 (+1.98) (Figure 2) (Table 2). At the average rate of population growth, the population of Kersa HDSS will double by 2043, with a 25-years lap, and triple by 2060, (Figure 2).

Table 2: Population characteristic of Kersa HDSS over 2008 to 2019

<table>
<thead>
<tr>
<th>Period</th>
<th>Population</th>
<th>Age groups</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>50,830</td>
<td>0-9</td>
<td>8,521</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-19</td>
<td>13,515</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
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<td>20-29</td>
<td>13,179</td>
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<tr>
<td></td>
<td></td>
<td>30-39</td>
<td>7,078</td>
<td>14.0</td>
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<tr>
<td></td>
<td></td>
<td>40-49</td>
<td>5,093</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50-59</td>
<td>2,920</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60+</td>
<td>2,897</td>
<td>5.7</td>
</tr>
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</table>

Conclusions

• At the baseline population of Kersa HDSS (2007) had a population size of 50,630 and average household size of 5.2.
• Between 2007 and 2019 the population grew by an average of 2.4%.
• The sex composition did not vary substantially during this time period, but the age composition of the population did.
• The proportion of youths in the population decreased by 6% by the end of 2019 from the baseline in 2007, while the productive and old population grew by 7% and 1% by the end of 2019 from the baseline in 2007, respectively. These numbers indicate that the Kersa population is at the early stage of demographic transition and has a young and rapidly growing population.
• The life expectancy at the end of the 2019 gained additional 11.7 years as compared to 2008. However, the population is potentially slowly ageing.

References