Estimating Afghan Refugee Demographics in Iran
Modelling

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Aim and Project Phases

Aim: Demographic information for Afghan Refugees in Iran for the period 2000-2020 to be estimated.

Phase 1: Data Audit
- Assess available data sources
- Identify all exits and entries to the target population

Phase 2: Modelling
Method: Stochastic cohort component projections
- Estimated starting population and age structure (2006)
- Assumptions and data inform priors on components of demographic change
- UNHCR reported totals act for 2015 and 2020 act as constraints
- Output: plausible path for demographic change between 2006 and 2021
Data and Assumptions
Starting Point:
Reported Refugee Totals and Census Data

Demographics of the Afghan and Iran Population

Reported Afghan Refugees in Iran

Source: IPUMS

Source: UNHCR
Returnees

• Very high level of returnees post 2001 invasion
• Levels practically zero after 2006
• Questions over data:
  – The population registered end-2003 was 834,699
  – During 2004-6, the number of returnees was 987,842
  – The end-2006 population was 914,260
• Explanations:
  – Circular migration; under-registration in 2003?

Source: UNHCR
Onward Resettlements

- Eurostat Data provides counts of asylum applications for Afghan nationals by age group, sex and year.
- Many of these arrivals could have departed from Iran.
- Provides age and time structure to inform assumptions about onward migration to Europe
- Assumptions:
  - Exits from the population follow piecewise constant function
  - Low during 2007-2014 and 2017-2020

Refugee Applications in Europe by Afghan nationals by Year
Fertility and Mortality

• Estimated from IPUMS census microdata for 2006

Fertility

• Following Abbasi-Shavazi (2015), census data indicates declining but above replacement fertility for 2006
• Implies a growing population absent negative net migration

Mortality

• Indirectly estimated relational model life tables are used to estimate mortality for Afghans from 2006 census
• Differential from WHO Iranian lifetables assumed constant over time
Probabilistic Modelling Results
Constrained Projections

• Total Population in the 2015 and 2020 treated as Poisson distributed observations from projected total
• Mortality and Fertility constant in mean
• Documented returnees treated as known
• Estimation conducted using Stan HMC sampling
• Targets in 2015 and 2020 are approximately met by median projection

NB: Uncertainty Conditional on Assumptions
Pyramid Comparison

- Age structure changing over time
- Declines in numbers young adults
- Corresponding decline in children
- Migration accounts for the majority of the population change in this case
- Considerable out-migration amongst cohorts aged 20-30 in 2020

Estimated plausible age-sex population structure of Afghan refugee population in Iran by year

NB: Uncertainty Conditional on Assumptions
Summary

• Census data indicates wider Afghan population is growing while the official refugee population declines

• Probabilistic projection results indicate plausible age structure of the population in 2020

• Strong priors and assumptions are needed to identify model parameters
  – Known starting population (including age structure)
  – Constant (but random) levels of fertility
  – Constant mortality
  – Piecewise constant migratory exits

• Estimates of uncertainty conditional on these model assumptions (considerable understatement of overall uncertainty)

• Different assumptions would be defensible and may lead to different outcomes