

Changes in population during mass ITN campaigns

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Background

1. Under/over estimation of population is the primary factor for incorrect quantification at the macro (planning) stage
2. Population estimates are (by nature) always out of date and incomplete.
 1. New babies being born
 2. People dying
 3. Population movements (permanent and temporary)
 4. Subdivisions creating new administrative areas
 5. Missed households during census or previous household registration activities
 1. On purpose (political etc)
 2. Insufficient resources
 3. Division of labor problems (leaving out villages/hamlets)
 4. Data aggregation errors

Background

1. Populations for mass campaigns have additional influences:
 1. Inflation of household members with the aim of receiving more nets
 2. Subdivision of households – especially where caps are used – to get enough nets or more nets

Mass ITN campaigns make up to 5 different estimates of population at different phases

Phase	Data source	Calculation	Level	Purpose
Macroquantification	last census	inflated for population growth	National	Procurement of all campaign nets
Microplanning	District population records		District, aggregated to national	Transport plans and D.P. plans, adjustments to macroplan
Household registration	Household census		Household, aggregated to national	Final net needs and adjustments to microplans
Distribution	Nets distributed		D.P., aggregated to national	Compare net need from HHR vs nets picked up

The Holy Grail

Annual, reliable, low-cost, objective population estimates that allow for correct procurement quantification, accurate village-level transport planning, allowing for 100% of households to get all the nets they need, with no repositioning.



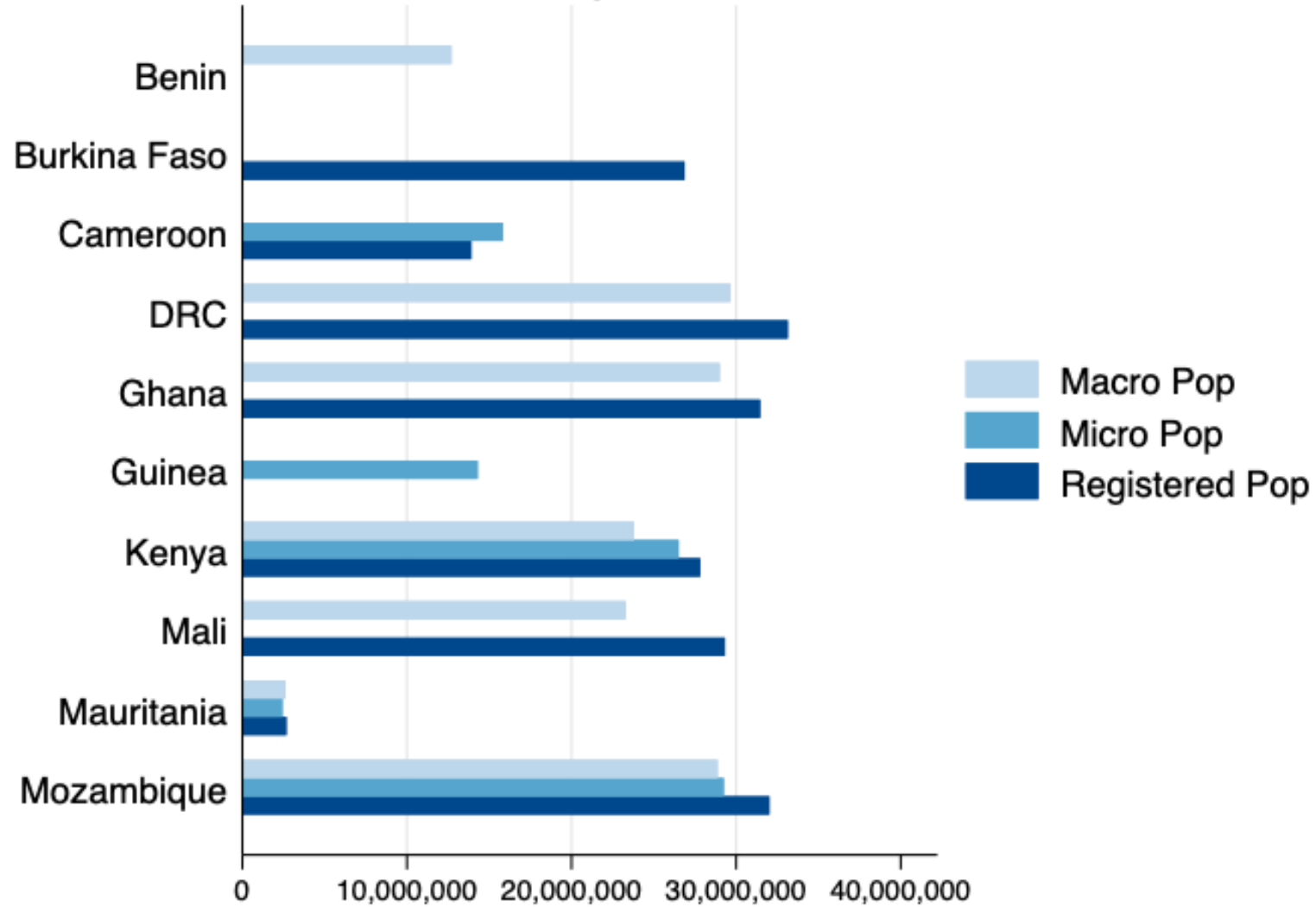
Methodology

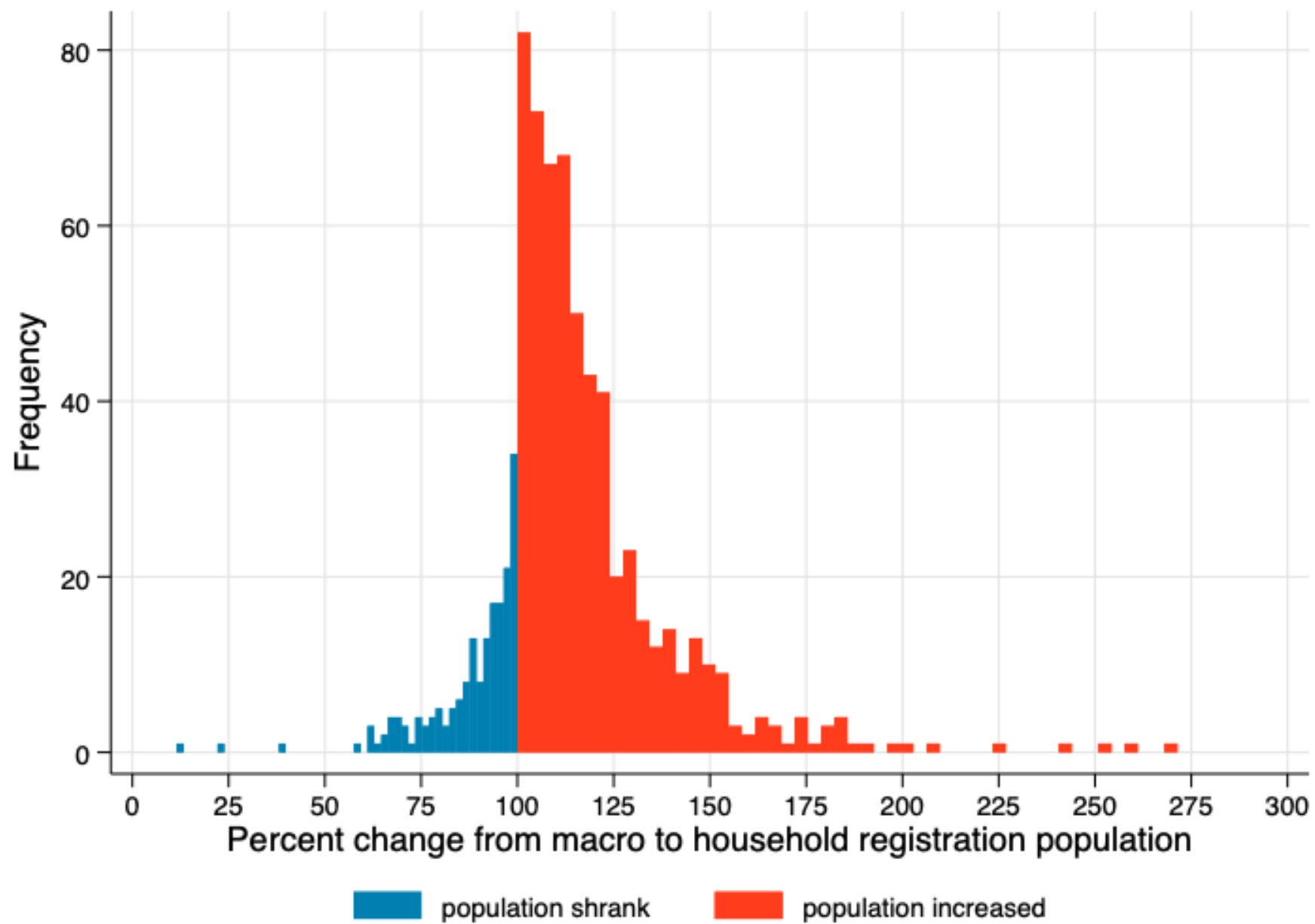
1. Compare population estimates from different campaign phases across multiple countries and characterize extent of differences
2. Data from 10 countries – 7 francophone, 2 anglophone, 1 lusophone
3. Not all campaigns completed, and not all countries recorded all phases (e.g. microplanning population sometimes missing).
4. Types of data submitted:
 1. Population estimates (macro/micro/household registration)
 2. Household estimates (macro/micro/household registration)
 3. Net estimates (macro need, micro need, HHR need, prepositioned, distributed)

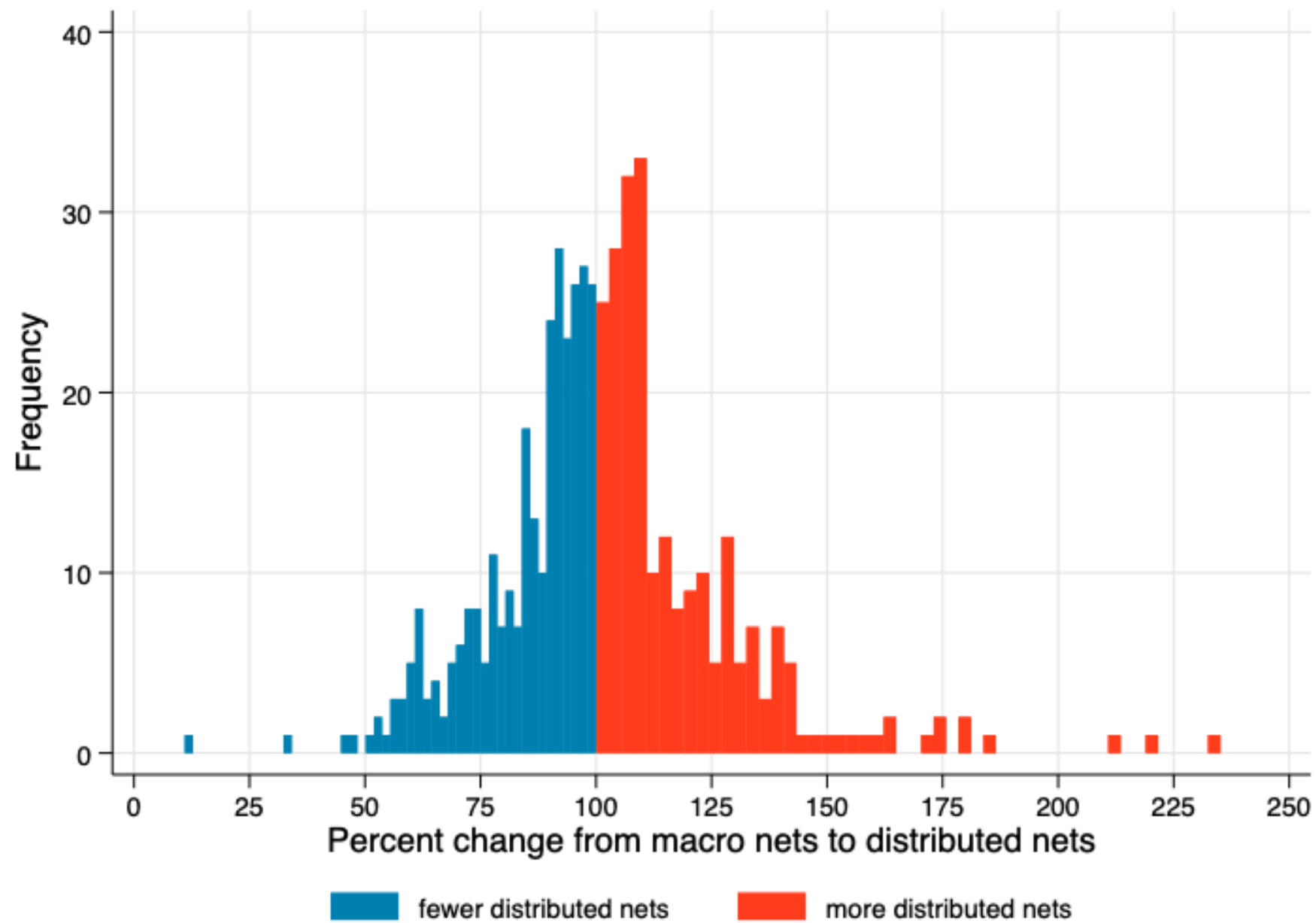
Initial questions

1. How much does population change between stages?
2. Does mean household size change between stages?
3. How do population assumptions/parameters affect the final quantification factor used for procurement?
4. What checks could be run to verify 'reasonableness' of estimates?

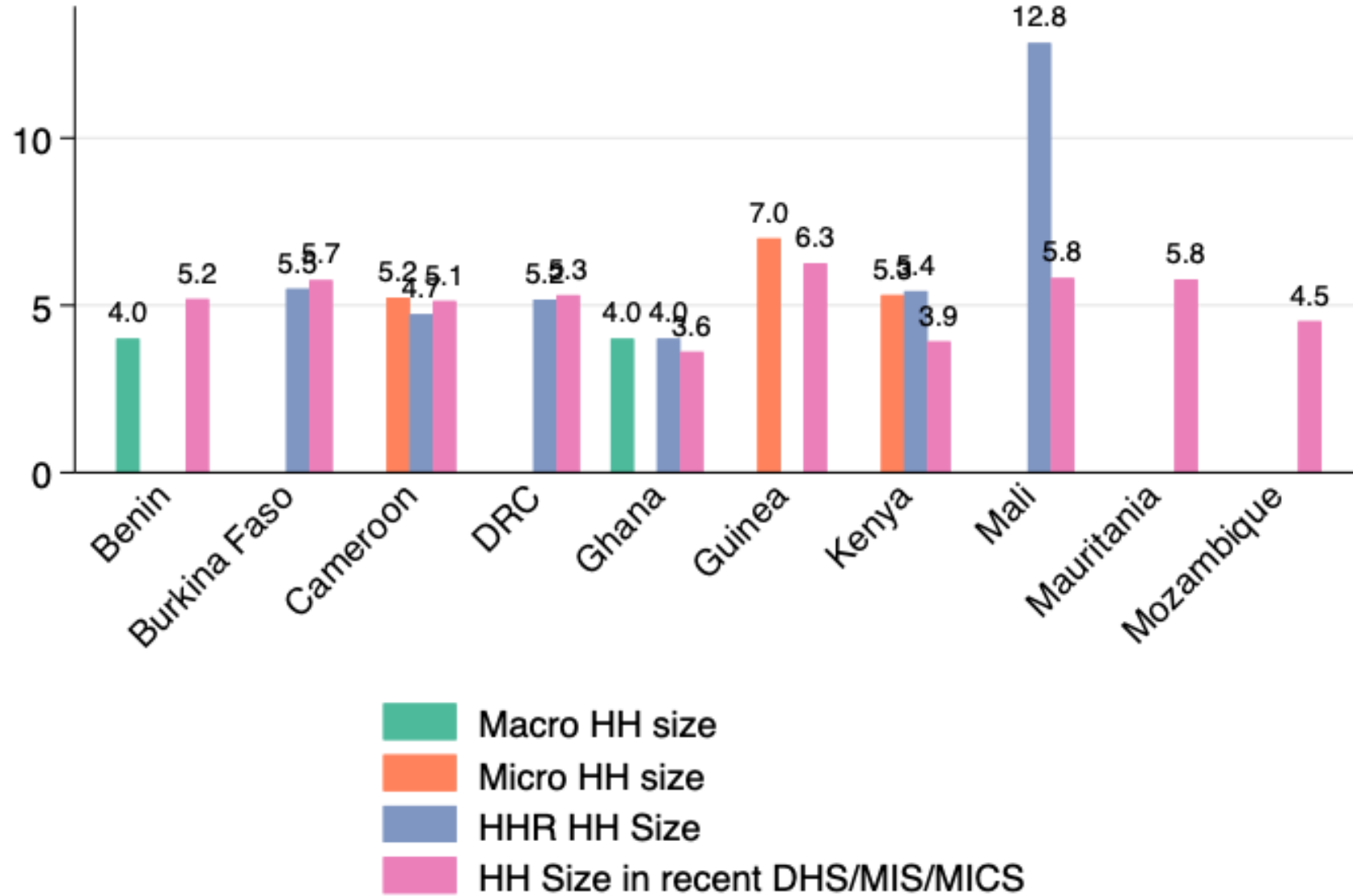
Total Population



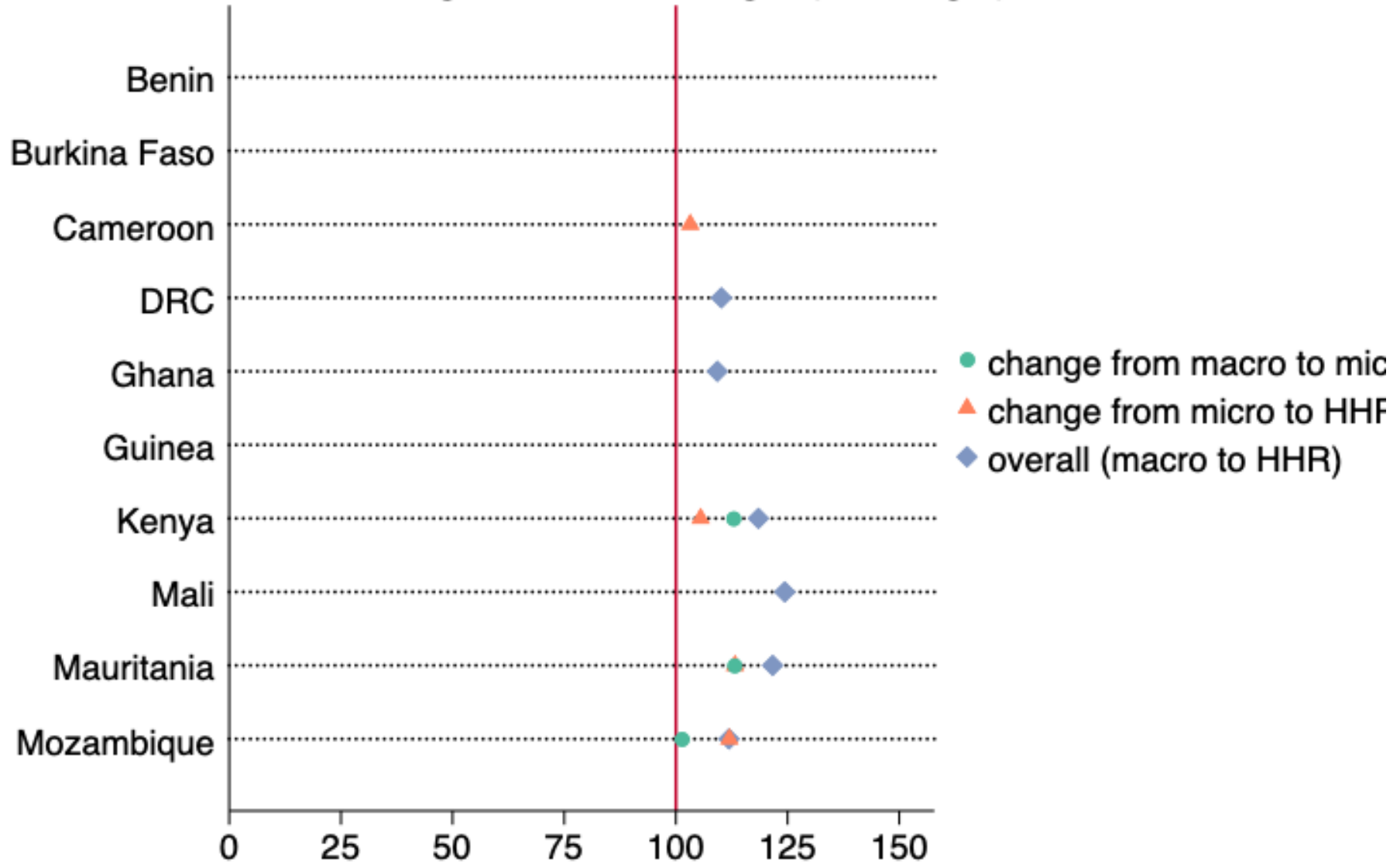




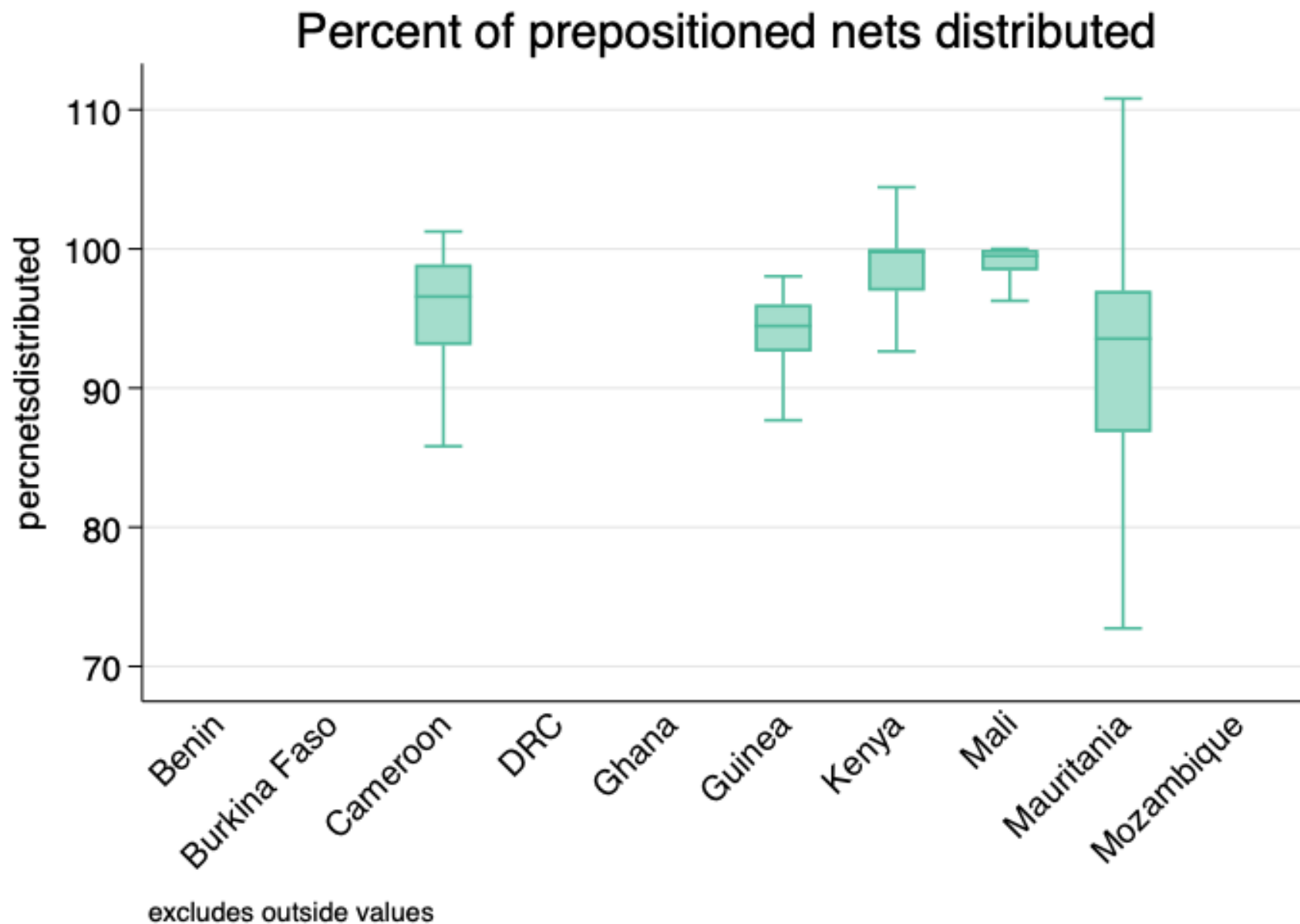
Mean household size



Percent change at each stage (average)



Generally 95% of pre-positioned nets were ultimately distributed



Which quantification factors are ultimately used?

Ghana, Cameroon, Guinea, Mauritania, Mozambique – 1.8 (+/- based on available pre-positioned nets)

Mali – above 2 (household allocation is 1 for 2, rounding down)

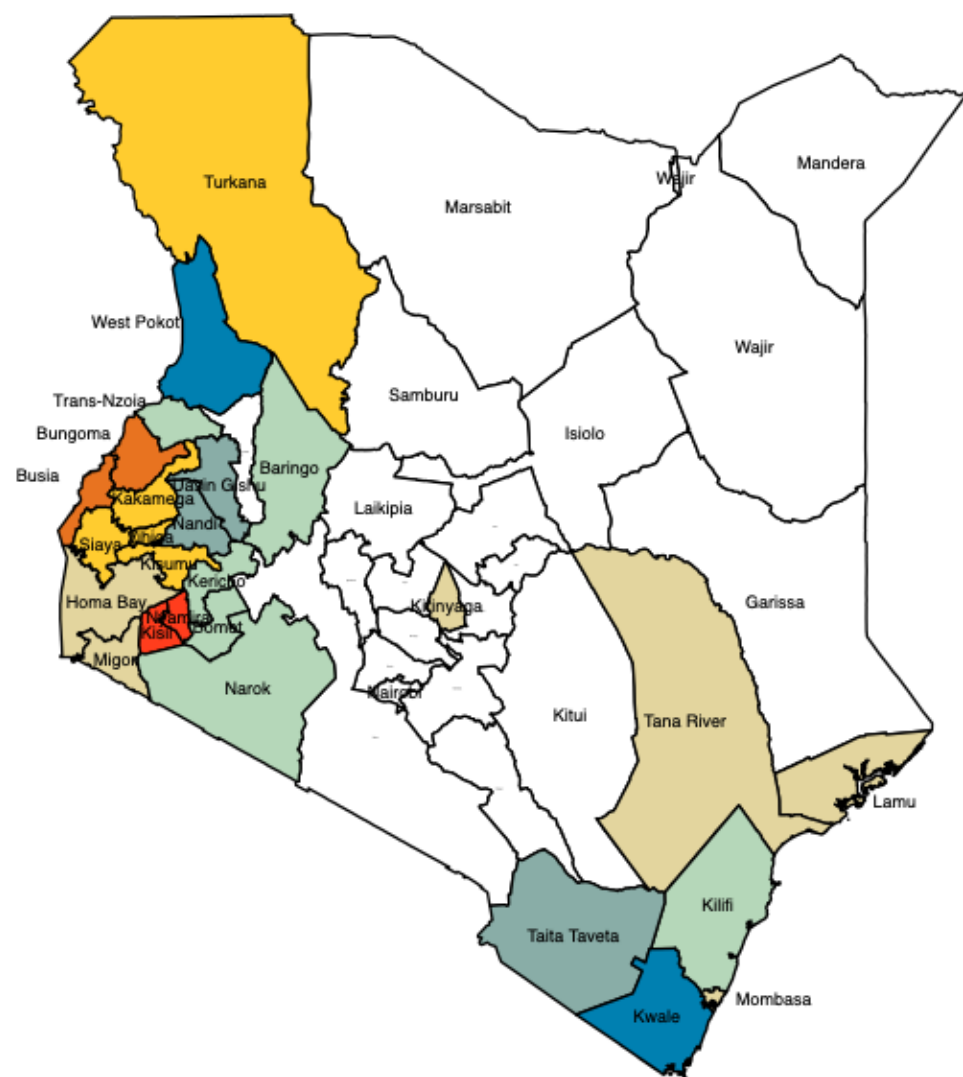
Benin – 1.475 (population inflation of 15% during macroquantification, then applying 1.8)

What do these ratios mean?

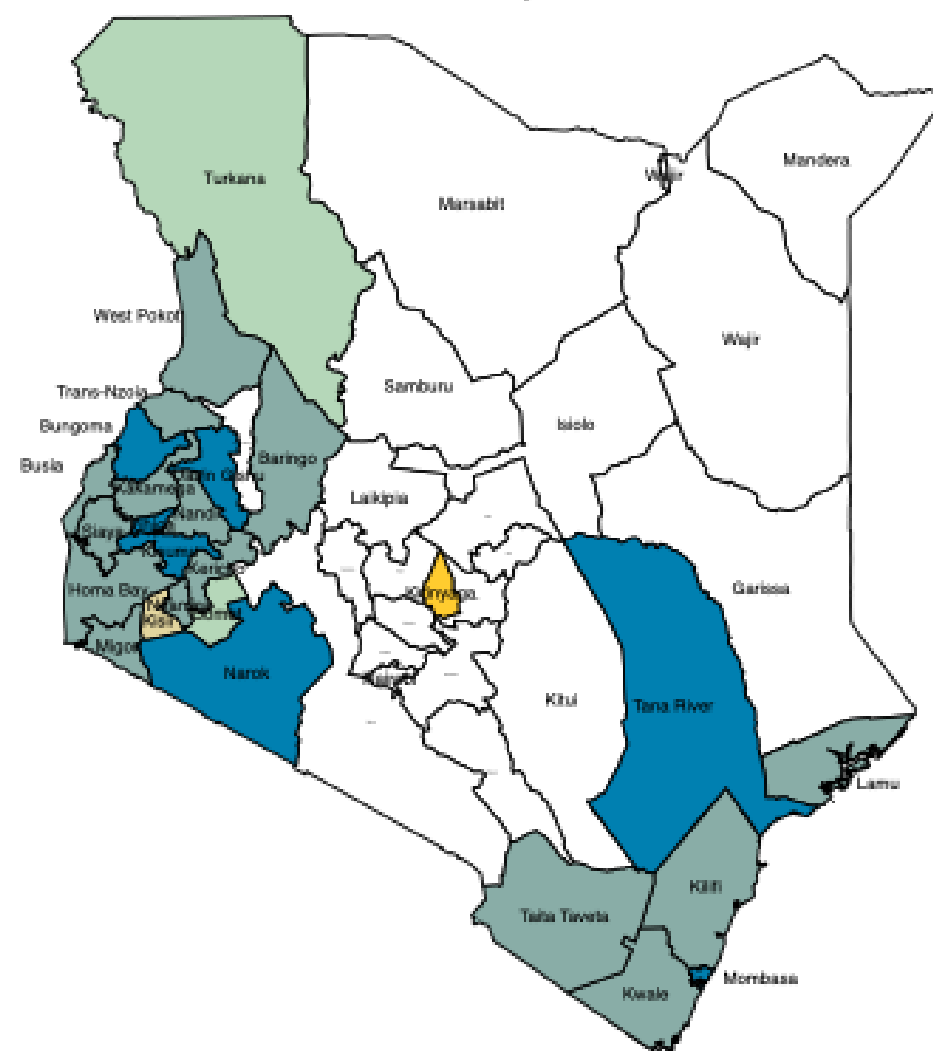
Let's look at each country separately. Keep in mind:

1. A ratio less than 1.8 could mean
 1. a) a correct population received **more** nets than they 'should have' or
 2. b) the macropopulation was an underestimate, and more nets were ultimately distributed in order to satisfy the registered population.
2. Likewise, a ratio above 1.8 could mean
 1. a) a correct population received **fewer** nets than they should have, or
 2. b) the macropopulation was an overestimate, and fewer nets were ultimately distributed because the 'real' population was lower.

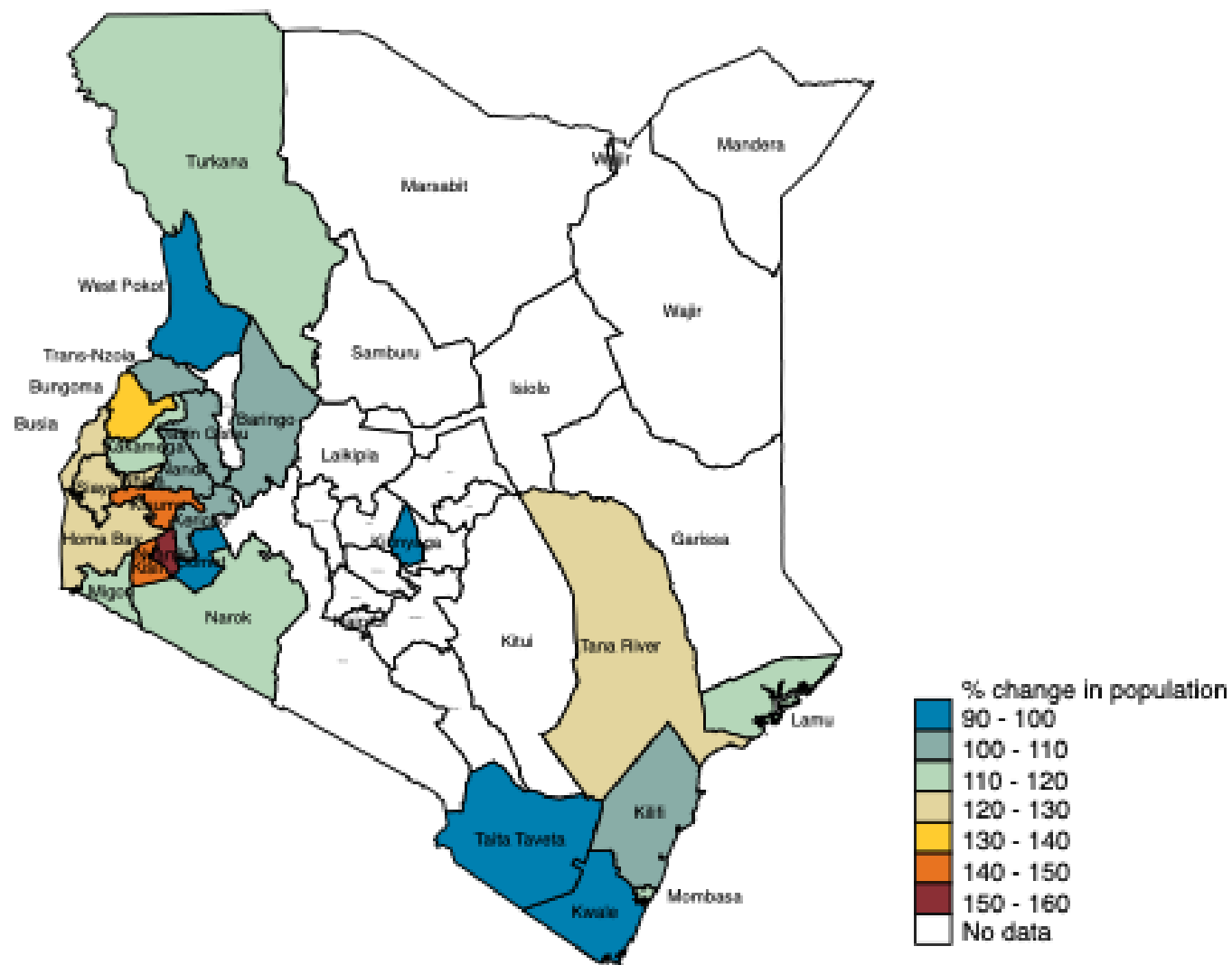
Macropopulation:ITNs distributed Ratio Kenya



HHR population:ITNs distributed Ratio Kenya



Percent change in population from macroplan to household registration Kenya



We are not alone

NTD programs do annual censuses to establish the denominator for their programs. One project did an annual census of over 360,000 people in sites in three countries.

Country	Year 1	Year 2	Year 3
India	1339	500	1067
Malawi	575	232	1936
Benin	1089	47	1005

Triangulation of population

1. Sounds easy but probably isn't!
2. Sources
 1. Mass campaign pop estimates (like we have)
 2. NTD programs census data – admin areas may not match up
 3. Vaccination programs pop estimates
 4. HMIS catchment area estimates
 5. Etc
 6. Gridded population (based on national census mostly, for SSA)



RESEARCH ARTICLE

Are census data accurate for estimating coverage of a lymphatic filariasis MDA campaign? Results of a survey in Sierra Leone

Wogba Kamara¹, Kathryn L. Zoerhoff^{2*}, Emily H. Toubali³, Mary H. Hodges⁴, Donal Bisanzio², Dhuly Chowdhury⁵, Mustapha Sonnie⁴, Edward Magbity⁶, Mohamed Samai⁷, Abdulai Conteh⁸, Florence Macarthy⁸, Margaret Baker², Joseph B. Koroma⁹

Next steps

1. Activate the networks – collaborate with those with access to similar types of population estimates
2. Expand country data sources
3. Identify funding
4. Triangulate!

THANK
YOU



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