The predictions of Models 1 to 3 are shown in Figures 3, 4 and 5 respectively, with further details in the Annex Tables A6, A7 and A8 respectively.

Key predictor variables for all three models involved human populations, either the human footprint layer (Models 1 and 2) or the GRUMP human population density surface (Model 3). The 'spaghetti-like' appearance of Model 3 (Figure 5) could be explained by the second selected variable (distance to roads), which the other models do not have. In all cases, the WI increases with increasing values of the human population variables. Because the same variable was chosen first by the first two models, the subsequent variables are quite similar. The choice of GRUMP as the first variable in Model 3 is likely to have affected the choice of all subsequent variables in Model 3 that appear to be quite different from the variables chosen in the first two models. This is most likely due to the correlation structure of the data: it is possible that the sets of variables chosen by Models 1 and 2 are relatively closely correlated with the variables chosen by Model 3.

The general consensus on these three Models is that Model 2 is the 'best' in capturing what we know about the distribution of poverty across the region, and the following discussion concentrates on this Model (Table A7), but similar trends are shown in the other Models (Table A6 and Table A8).

Measures of green-ness (specifically the EVI mean for Model 2) and precipitation (igpp51a0) peak at intermediate values of WI, whilst maximum actual evapotranspiration (iget41mx) and the annual amplitude of this variable (iget41a1) both progressively decrease with increases in WI (Table A7). These collectively suggested that the lowest levels of WI are associated with dry areas, intermediate WI levels are associated with moister, greener areas whilst the highest WI levels suggest impacts of human population pressure on the landscape with lower EVI and rainfall values, but with no associated increase in actual evapotranspiration or its variation throughout the year. EVI and rainfall are very strongly correlated (r^2 = 0.91 across the 10 WI categories), and it is important to try to understand in which direction this correlation works; does rainfall determine EVI, or EVI determine rainfall? In habitats unaffected by humans, the former must apply, but it is possible that in human-dominated landscapes the latter applies.

Whilst overall model accuracy as determined by the kappa values is relatively low (kappa was 0.344, 0.207 and 0.348 for the three models respectively), the kappa statistic is a very severe judge; classification other than in the correct category is severely penalised regardless of whether or not the miss-classification represented a near-miss or a far-miss. The fourth and fifth columns of the model accuracy figures (lowermost tables) in Tables A6, A7 and A8 show the accuracy figures obtained by allowing errors of plus or minus one or two categories respectively. That is to say, an observation in Category 5 is considered correctly predicted if it is assigned by the model to any category in the range of Categories 4 to 6 (+/- 1 category) or 3 to 7 (+/- 2 categories). There is a considerable increase in model accuracy allowing errors of only +/- 1 category, suggesting that the model fit for all three models is much better than the kappa statistic indicates.

Figure 3. Modelled Wealth Index by household clusters.

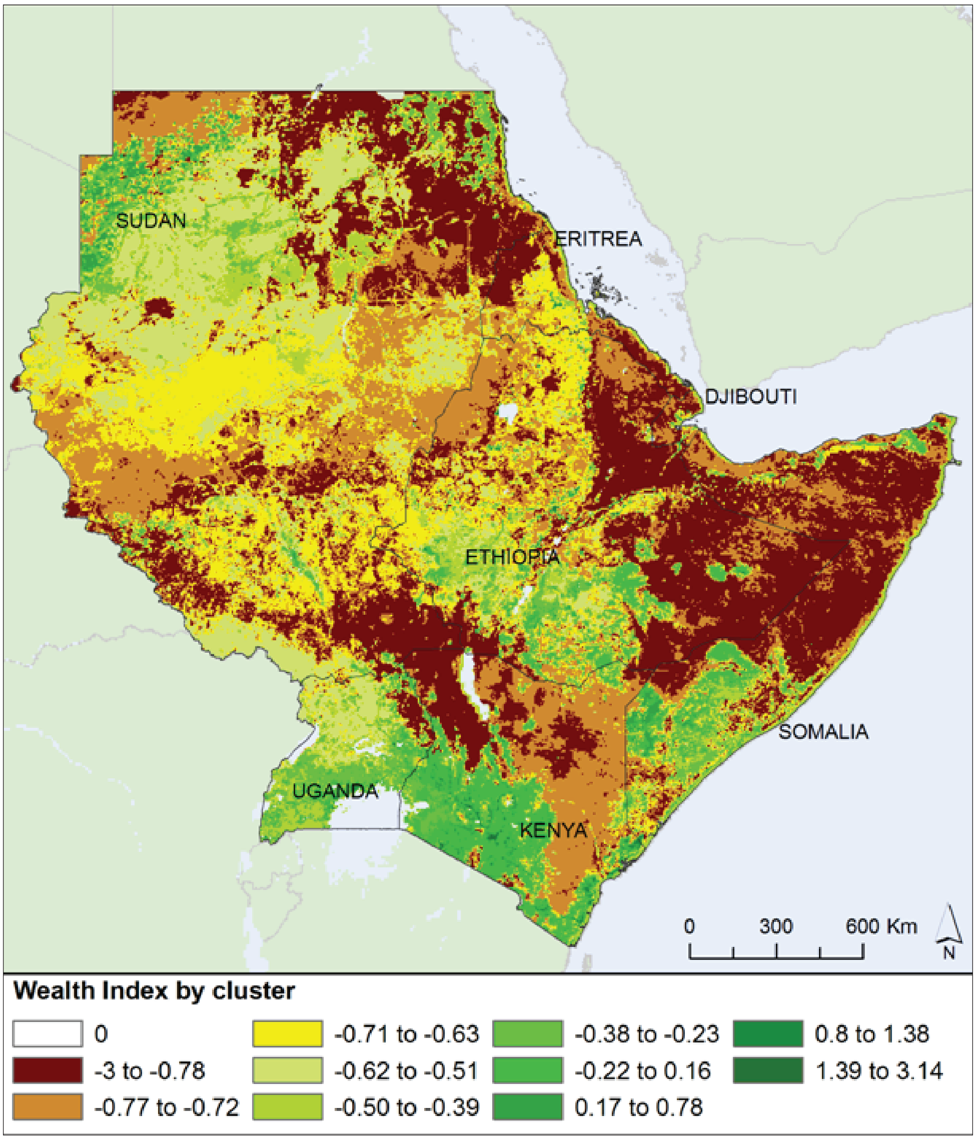

Figure 4. Modelled Wealth Index by individual households.

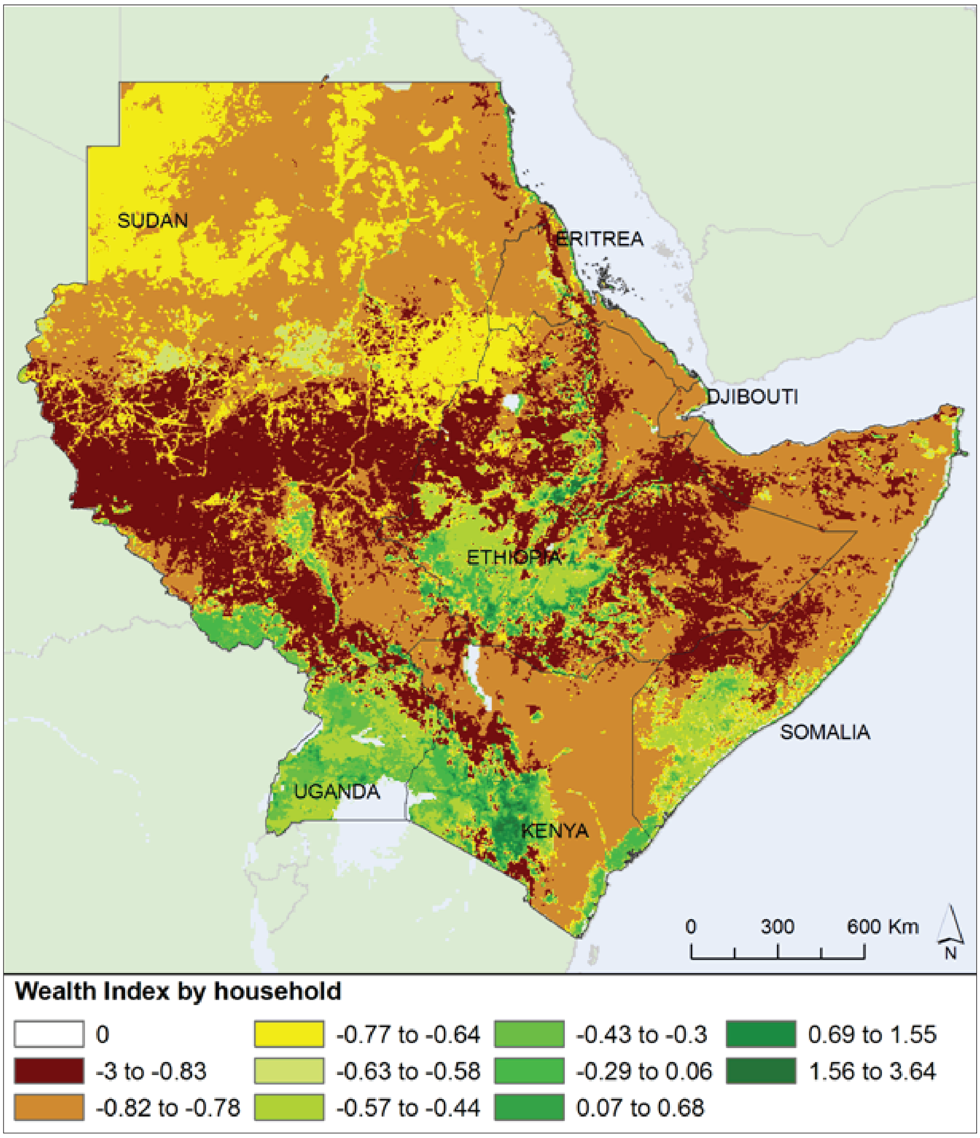

Figure 5. Modelled Wealth Index by household clusters, using the same category boundaries as in Figure 4.