Drivers of Diet Complexity in Nepal

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MOTIVATION

- Looking across Nepal, there is a positive association between dietary diversity and linear growth.

- Multiple studies confirm the relationship elsewhere and suggest it may be causal, and independent of income and wealth (e.g. Arimond and Ruel 2004).

- Research question:

  What factors help to explain patterns of household diet complexity?

Source: 2016 DHS and 2015-16 AHS; population weighted
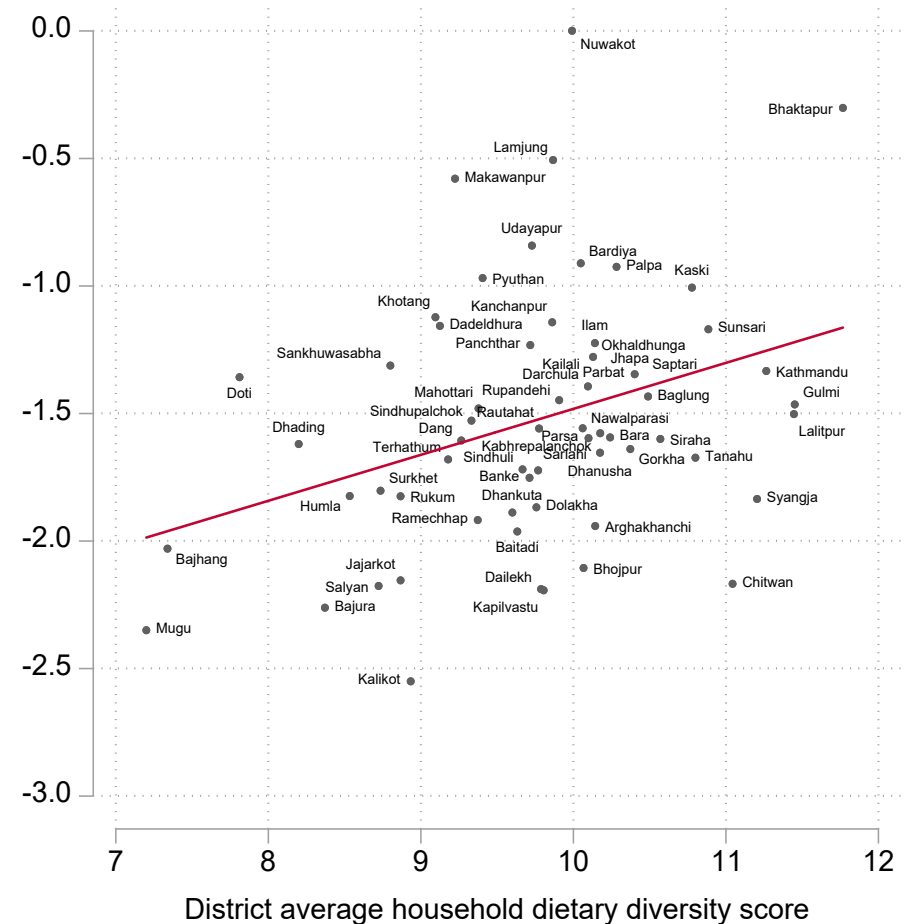
DATA

- Three rounds of the Nepal Annual Household Survey (AHS)
    - 2013, 2014, 2015
    - 11,771 households
    - 50/50 rural/urban split

- Food consumption
    - 7-day recall
    - 14 food groups
    - excludes food away from home

- Additional district-level data
    - 2010 census data
    - 2011 road data

|	Income ($/capita)	Food share	Diversity score
Terai	955	0.60	10.25
Hills	1183	0.57	10.36
Mountains	909	0.64	9.25
Urban	1268	0.55	10.77
Rural	851	0.63	9.75
Ag HH	938	0.61	10.00
Non-Ag	1305	0.55	10.78
2013	1179	0.56	10.64
2014	1038	0.60	10.14
2015	997	0.60	10.11

EMPIRICAL APPROACH: THREE STEPS

1. Create 14 binary indicators corresponding to 14 food groups. For each household, the indicator=1 if any member of the household reported consumption from the group during the recall period.

2. Use Latent Class Analysis (LCA) to map these 14 consumption indicators into distinct dietary patterns (i.e. "diets") that range from simple to complex.

3. Use Ordered Probit regressions to identify features of households and districts that explain diet complexity.

LCA DIET MAPPINGS
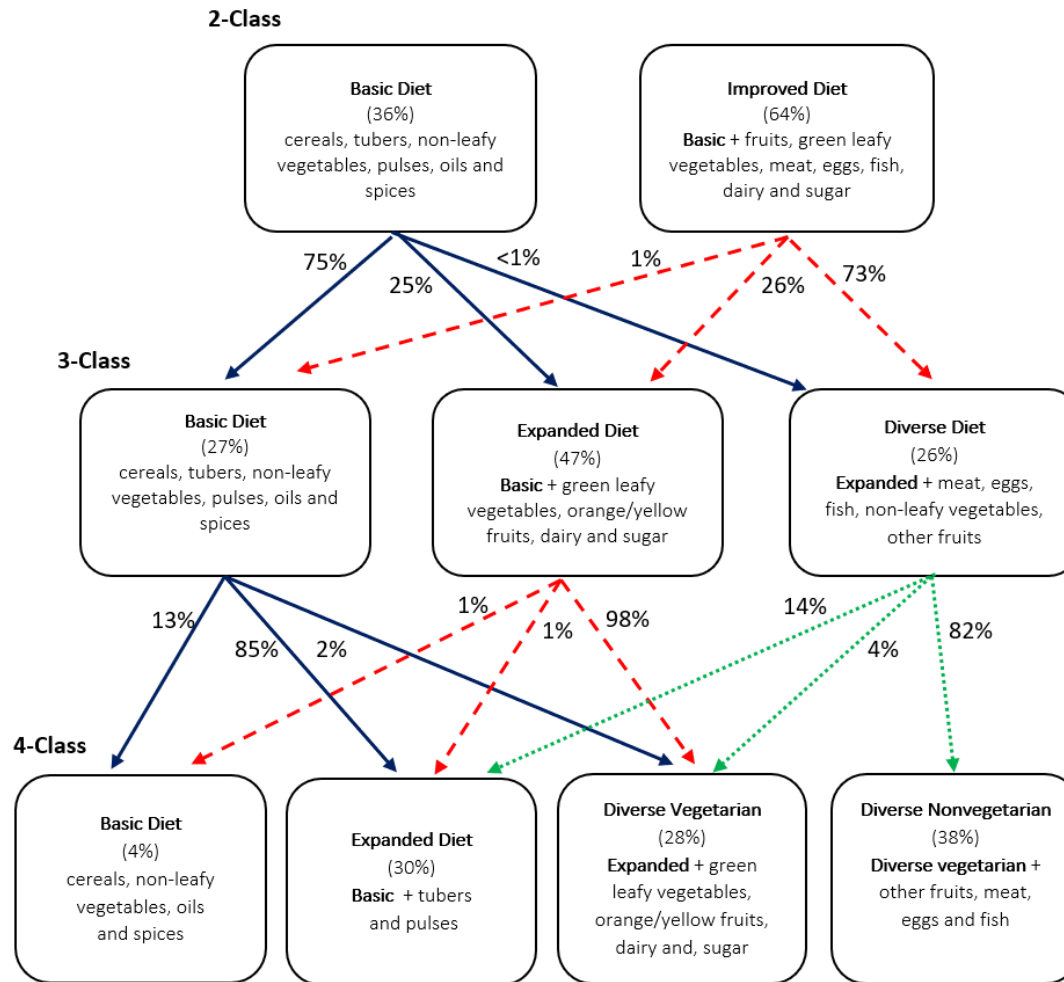
LCA RESULTS

- We tested diet mappings consisting of 2 to 10 classes. Statistical support for up to 9 distinct diets, but no meaningful separation of diets beyond the following 4-classes of diets:

  - Basic (4% of households)
    (cereals, non-leafy vegetables, oils & spices)

  - Expanded (30%)
    (Basic + tubers & pulses)

  - Diverse Vegetarian (28%)
    (Expanded + green leafy vegetables, orang/yellow fruits, dairy & sugar)

  - Diverse Non-vegetarian (38%)
    (Diverse vegetarian + other fruits, meat, eggs & fish)

REGRESSION RESULTS

Three models compared

    1: Household features only
    2: Model 1 + time and location controls
    3: Model 2 + district-level controls

Interpretation of coefficients

    sign indicates whether the
    factor is associated with
    greater dietary complexity

Note: All standard errors clustered at the district level. 2013 is base year; variables included in regressions but not reported in the table are age of head (+), education (+), household size (+), food away (+), wealth (+), income (+), and nutrition interventions (ns). N=11,771; R^2 = 0.14, 0.15, 0.16.

	Model 1	Model 2	Model 3
Remittances	+	+	+
Female head	+	+	+
Farm HH	-	-	ns
2014		-	-
2015		-	-
Terai		-	-
Mountains		-	-
Urban		+	+
Road density			+
Farm size			+
Poverty rate			-

DISCUSSION

- Encouragingly, only 4% of the sample falls into the most basic diet category. Not unexpectedly, these households tend to be the poorest, the most isolated, the least well educated, and in the poorest districts.

- Agricultural households and households in districts with below average farm sizes tend to have less complex diets, especially compared with urban households.

- Remittance income is positively associated with diet complexity, consistent with evidence from the NLSS (Khushbu & Kondratjeva 2019) suggesting food consumption is positively correlated with remittance income, and more strongly correlated with food consumption than with other expenditures.

- Road density is positively correlated with diet complexity, suggesting that market access likely plays an important role as a driver of diet diversity.

ADDITIONAL TOPICS

Several issues that may matter, but we cannot analyze:

- Ethnicity likely drives some of the observed patterns, but is not recorded in the AHS.

- Relative prices are likely important drivers of food choices and diet complexity. Current data limitations preclude an assessment of the role of prices. We need prices disaggregated by commodity and location to learn more.

- The AHS records household consumption only, but we know household consumption is likely not an accurate indicator of consumption by individuals in the household, especially children.