WOMEN'S EMPOWERMENT AND NUTRITION: EVIDENCE FROM NIGER USING THE WEN GRID

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WOMEN'S EMPOWERMENT AND NUTRITION (WEN) BACKGROUND

WEN framework developed and validated in India by:

- Erin Lentz (UT Austin)
- Sudha Narayanan (IGIDR, New Delhi)

Funded by:

- IMMANA 2

My role:

- Application using existing data
- Planning further validation

TODAY

What is empowerment?

How do we measure it and where do we fall short?

Women's Empowerment in Nutrition (WEN) framework

Application of WEN framework to Niger DHS data

Next steps for WEN

WHAT IS EMPOWERMENT?

Status

Autonomy

Agency

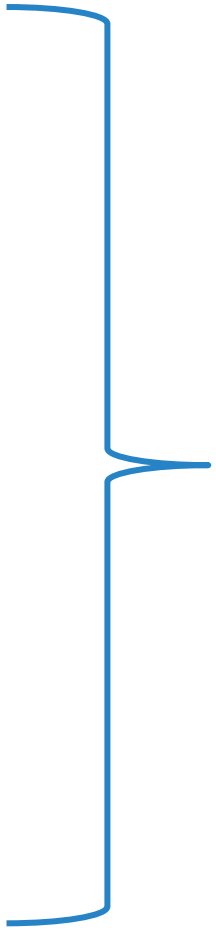
Self-efficacy

Social resources

Economic resources

Institutional resources (political, legal)

Physical wellbeing



Multidimensional

Distinct but interrelated concepts

WHAT IS EMPOWERMENT?

"The **process** by which those who have been denied the ability to make **strategic life choices** acquire such an ability" (Kabeer 1999)

KABEER'S THEORETICAL FOUNDATION OF EMPOWERMENT

Sen (1985)

Resources

- Material, human capital, institutional

Agency

- Decision-making, negotiation and bargaining
- (Freedom from) manipulation and deception
- Cognitive processes of reflection
- "power to" versus "power over"

Achievements

- Universally-valued outcomes
- Health, shelter, freedom

Capabilities
One's potential for achieving valued ways of "being and doing"

Functionings:
Ways of "being and doing" valued among a community

HOW DO WE, AS A COMMUNITY, MEASURE EMPOWERMENT?

We often measure it at the individual level

- Is it a purely individual process?
- Community level empowerment measures can explain child outcomes (Desai and Johnson 2005)

We often measure it with outcomes, hoping those outcomes are a summary of the process

- Domestic violence experience
- Freedom of movement

We hope that daily household elements tell us something about "strategic life choices"

HOW DO WE, AS A COMMUNITY, MEASURE EMPOWERMENT?

We measure it based on the data we have

- Not always multi-dimensional
- Often crossectional
- Difficult to capture the process

Pratley (2016) review: 121 different measures

- Decision-making
- Domestic violence attitudes
- Freedom of movement

Multi-dimensional, theoretically grounded, validated measures

- ✶Women's empowerment in agriculture index (WEAI)
- ✶Women's empowerment in livestock index (WELI)
- ✶Relative autonomy index (RAI)

NEW MEASUREMENT TOOL:

Women's Empowerment in Nutrition (WEN) framework

- Multidimensional
- Theoretically grounded
- Validated

WEN GRID VS. WEN INDEX (WENI)

Grid required to construct WEN Index (WENI)

Grid is a useful diagnostic tool

WENI is multidimensional empowerment measure

- Foster-Greer-Thorbecke class measure (e.g., multidimensional poverty measure)
- Decomposable by WEN Grid elements

Construction of WENI

- Multiple steps, none are technically difficult

WHAT PROBLEMS ARE WE TRYING TO SOLVE WITH WEN FRAMEWORK?

Empowerment objectives and nutrition objectives/interventions working at cross-purposes

Example: increase women's involvement in agriculture --> income! empowerment! But…

- …if her other duties don't decrease and energy expenditure is high, what are the implications for her nutrition or health status?
- …if it costs her agency in other areas, like health care access, what does that do to her nutrition or health status?

WHAT PROBLEMS ARE WE TRYING TO SOLVE WITH WEN FRAMEWORK?

Agriculture-nutrition pathway is complex. Nutrition-specific index to complement WEAI, WELI

Many women are not engaged in agriculture (landless, remittance-dependent)

How does women's empowerment matter for **women's** own wellbeing?

- Women's empowerment → Women's nutrition → Child nutrition

- Relatively limited work on empowerment and women's own nutrition

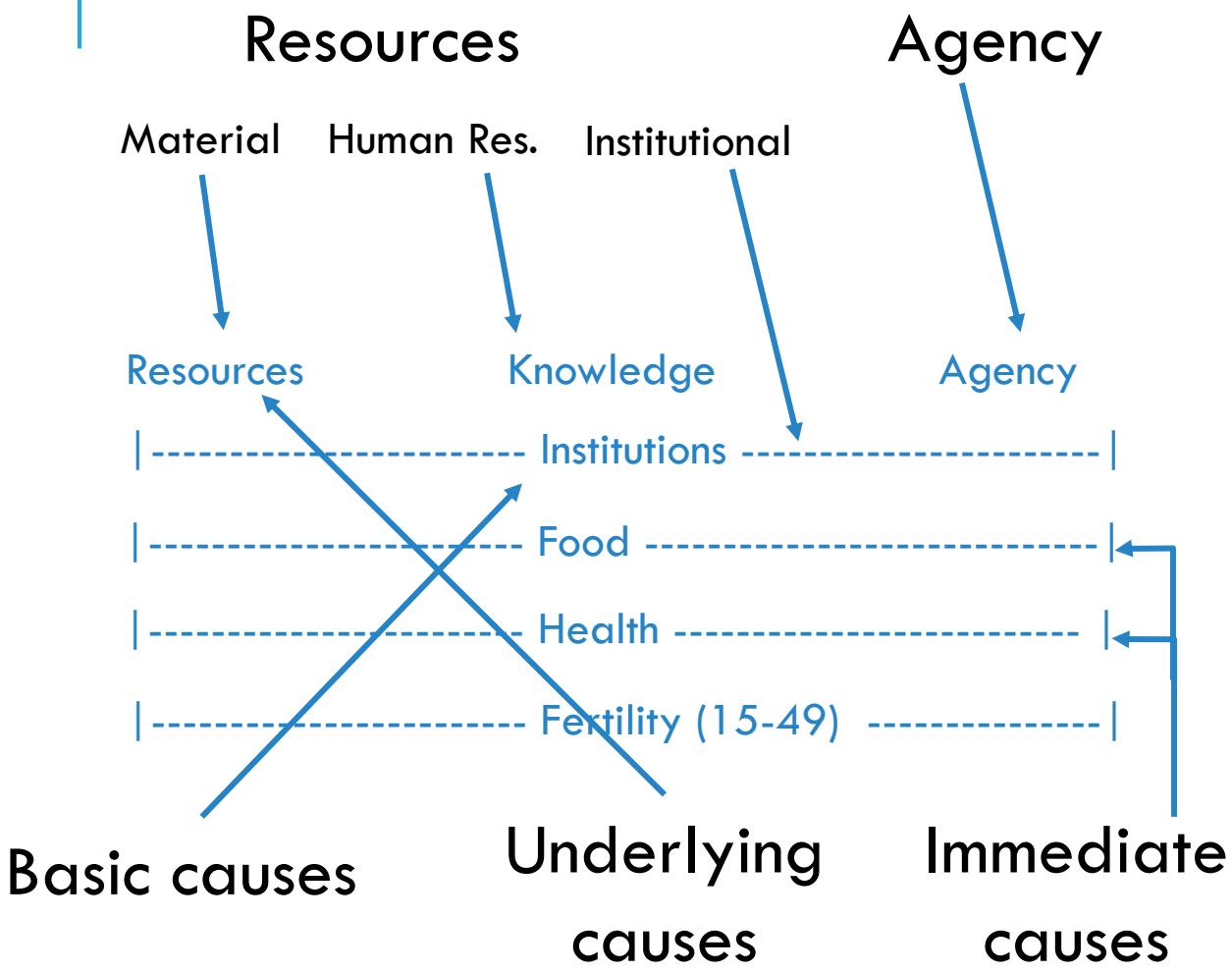
GOAL

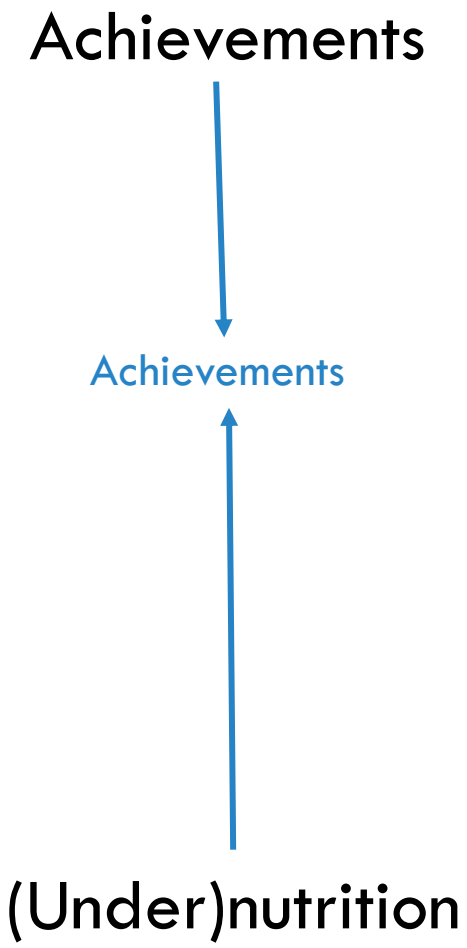
Theoretically grounded tool for understanding empowerment and nutritional outcomes by combining:

1. Kabeer empowerment framework

2. UNICEF conceptual framework for causes of malnutrition

WEN GRID MAPPING



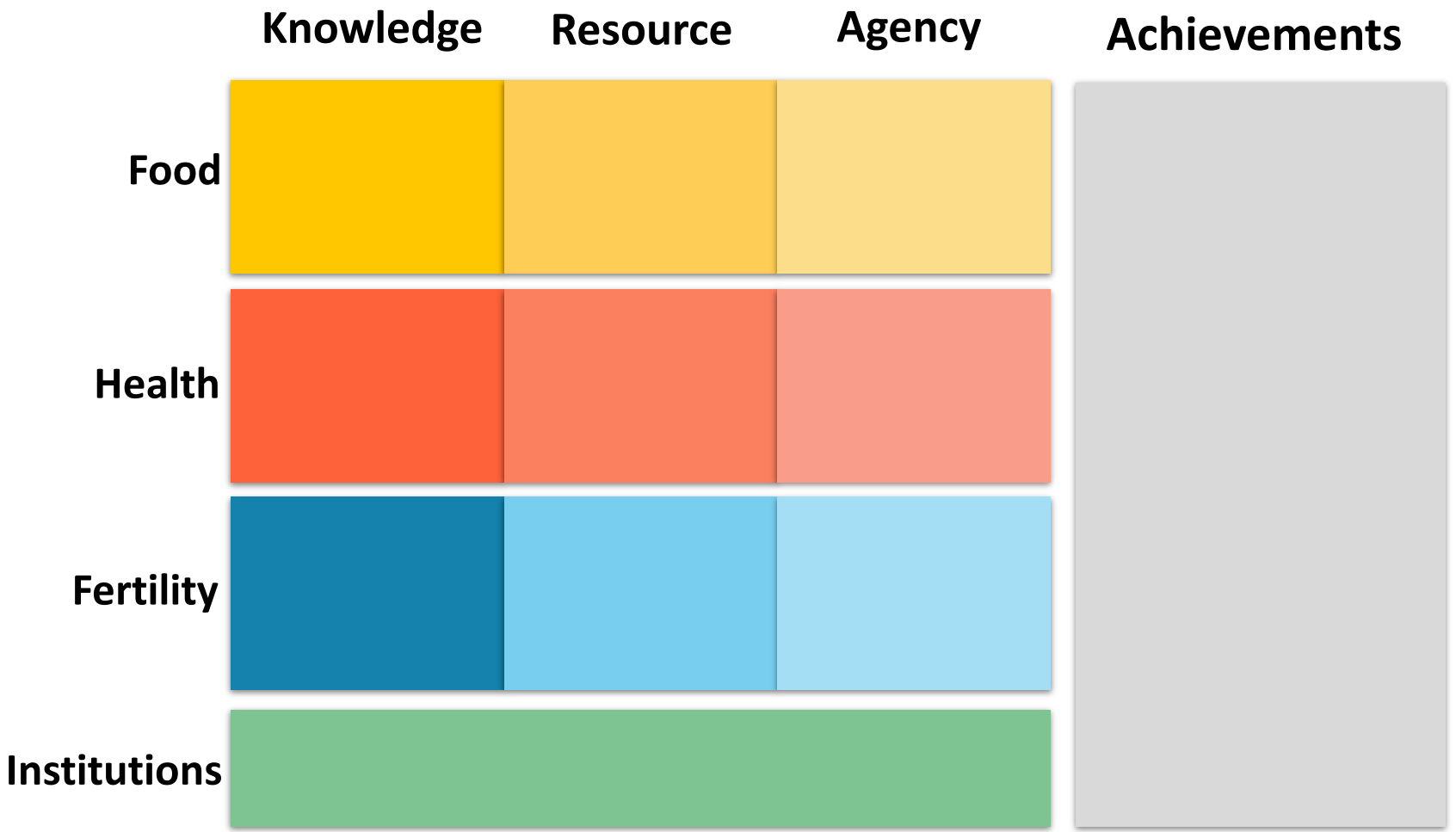


Kabeer's dimensions

WEN Grid

UNICEF Framework

WEN GRID


Knowledge
Resource
Agency
Achievements
Food
Health
Fertility
Institutions

WEN FRAMEWORK APPLICATION: TWO WAYS

Fit-for-purpose data

- Robust calculation of WENI
- Full and lean survey modules exist for India
- Causal analysis

Existing data:

- DHS data contains many elements that can be used to populate WEN grid
- Shapley-Owen decomposition technique
- Diagnostic tool as starting point for further research (cross country or within-country)
- We do this for Niger

NIGER

Nutrition and empowerment in Niger

- 14% of women are underweight (BMI < 18.5) (2012 DHS)
- 45% of women have mild, moderate or severe anemia (2012 DHS)
- 12% of women in union using modern contraception (2012 DHS)
- Highest fertility rate in the world (7.6) (UNDP 2019)
- Highest adolescent birth rate (207 per 1000) (UNDP 2019)
- 175th on Save the Children's Mother's Index (2015)

Niger is *extremely* resource-constrained (SUN 2018, Kovalenko and Szabo 2016)

RESEARCH QUESTIONS:

What are the largest contributing factors to women's undernutrition in Niger?

Where should we target investment?

Results preview:

Women are resource-constrained more than knowledge- or agency-constrained.

Food dimension is secondary to health and fertility

ANALYSIS STEPS

1. Populate the WEN Grid with DHS variables
2. Shapley-Owen decomposition analysis
3. Sensitivity checks

POPULATE THE WEN GRID

Sort 125+ DHS variables into WEN Grid cells

- *Food resources:* agricultural holdings; livestock ownership, etc.
- *Health knowledge:* understanding HIV transmission, heard of ORS, etc.
- *Health resource:* sanitary water source, sanitary toilet facility, etc.
- *Fertility agency:* can make choices about family planning, can refuse sex, etc.
- *Institutions:* has bank account, respondent decided alone who to marry, etc.
- No *food knowledge* questions.

Achievements:

- BMI above 18.5
- Free from anemia (mild, moderate or severe)

SHAPLEY OWEN DECOMPOSITION

Regression-based decomposition technique

R-squared: How much of the variation in X can explain the variation in Y (explanatory power)

S-O tells us the proportion of R-squared that comes from each element in the model.

- Data driven approach
- DHS is extremely rich!
- Inclusion/exclusion decisions are potentially biased and S-O allows us to include everything.

SHAPLEY OWEN DECOMPOSITION

Why not use regression analysis?

- Regression gives you the marginal contribution, conditional on all other variables—collinearity is a problem!
- S-O calculates total contribution of a given variable or group, allowing for collinearities
- Additively group variables to calculate contribution of groups of variables
- Groups = WEN grid cells
- Fully decomposable and aggregable

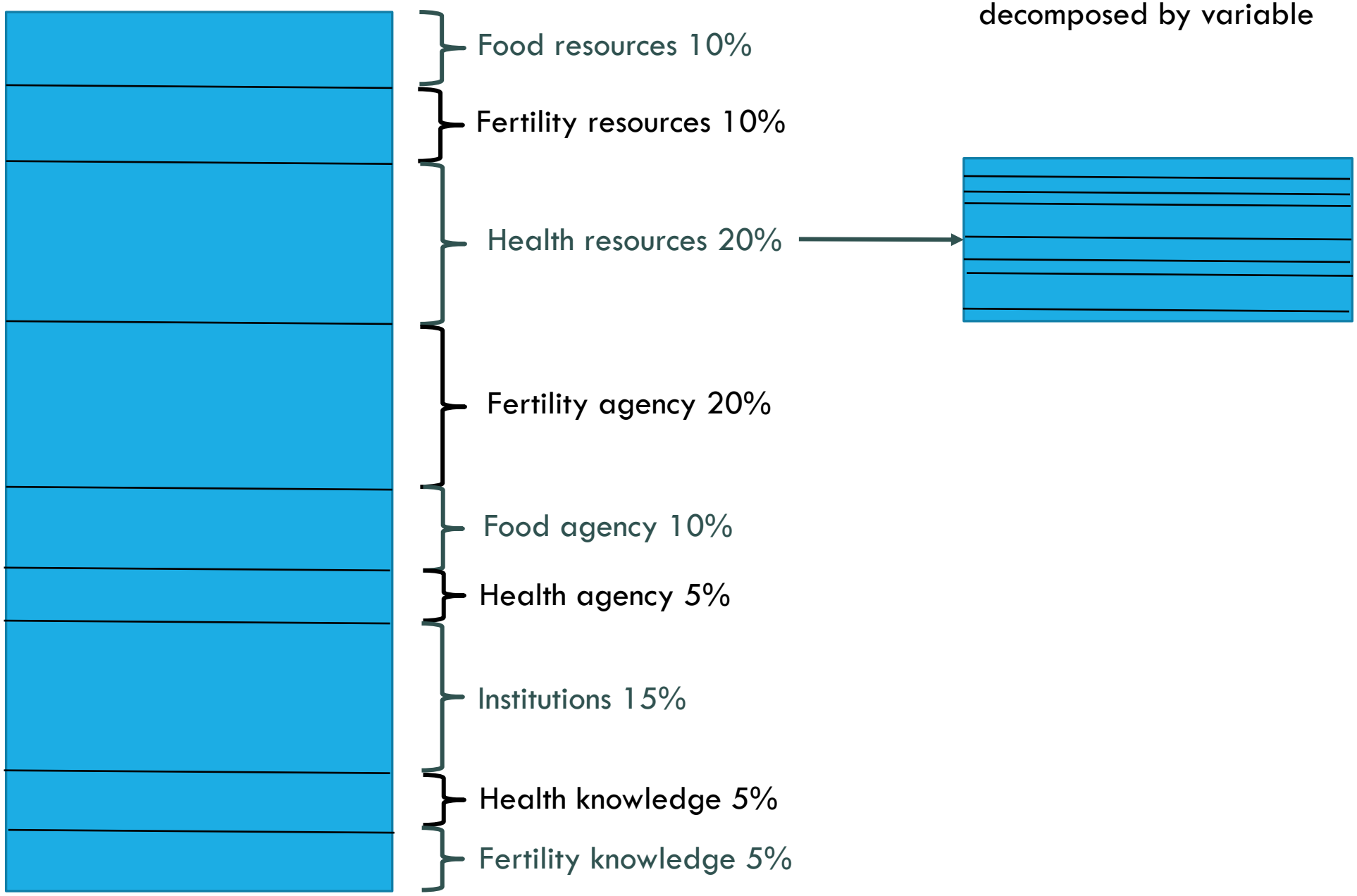
Why not use factor analysis?

- More transparent
- Less information loss
- Fully decomposable and aggregable (example)

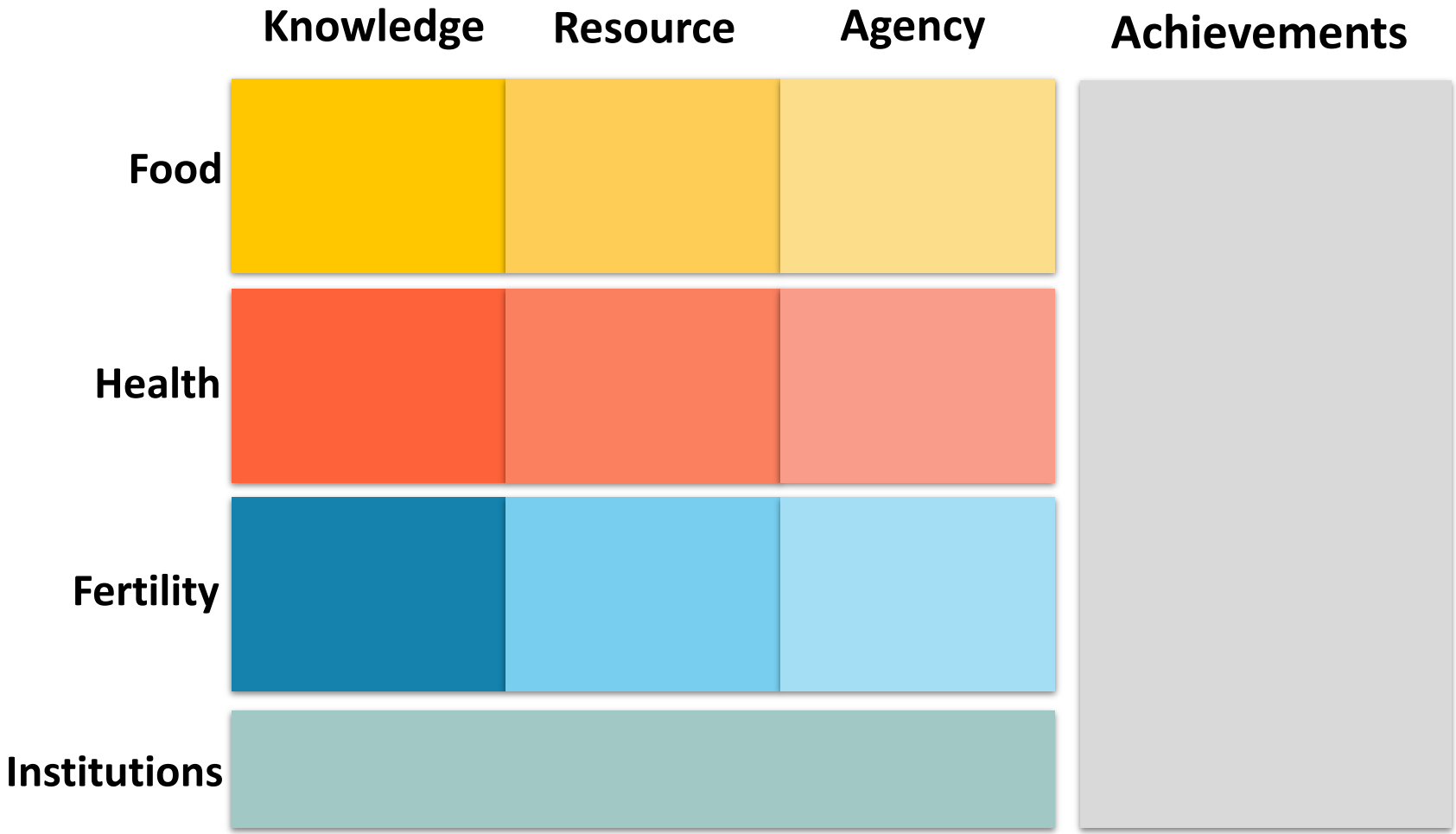
Total R-squared 100%

Decomposed by WEN cell

Each cell can be decomposed by variable



RESULTS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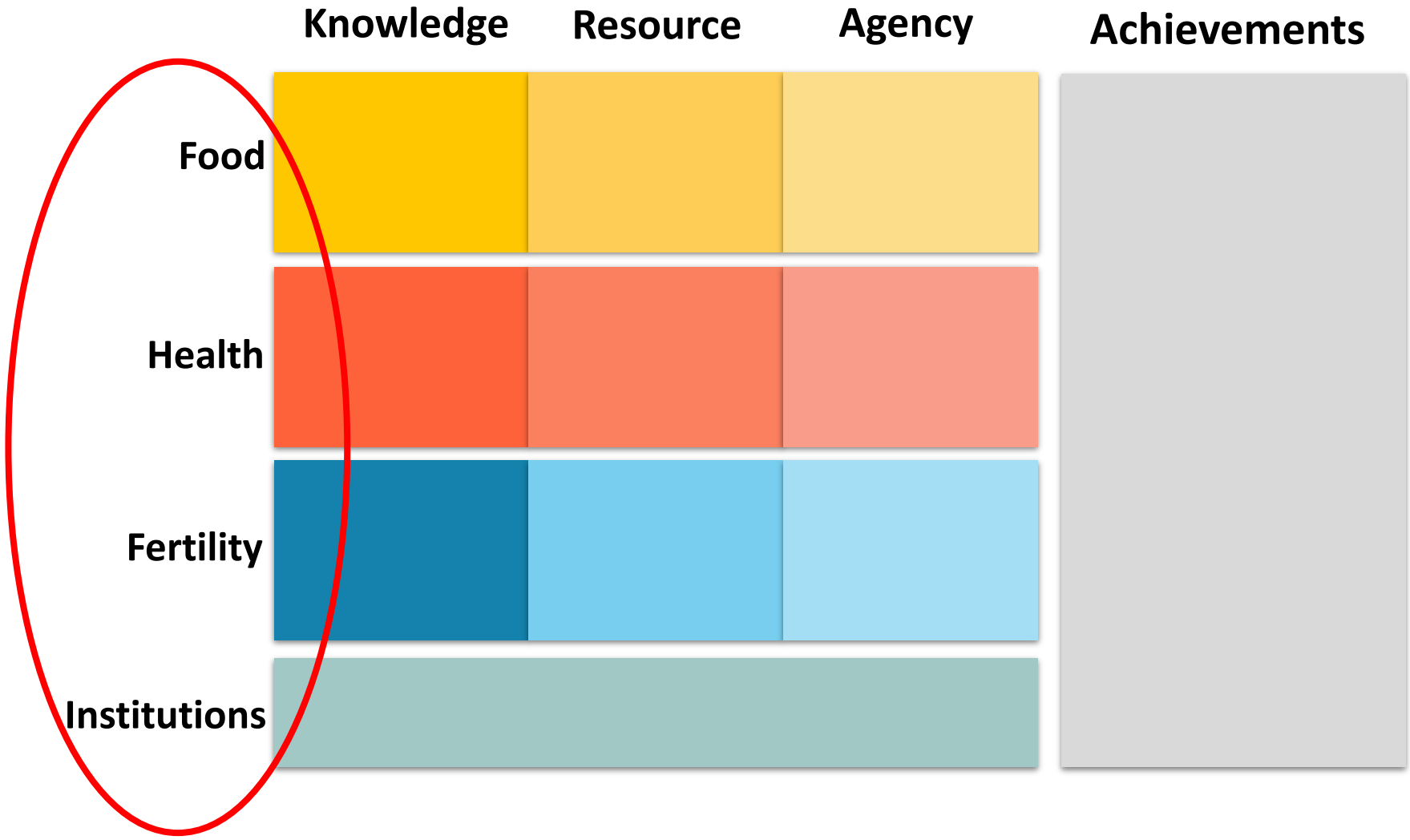
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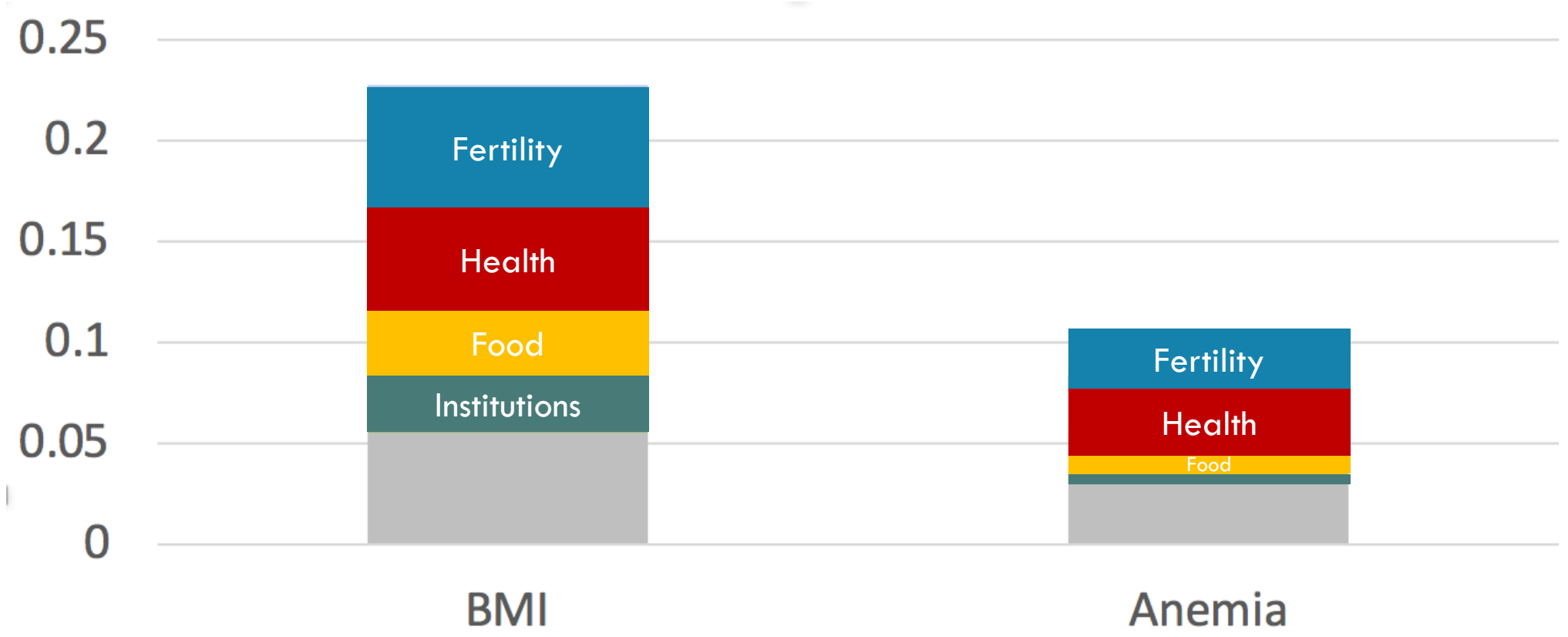
FOOD, HEALTH, FERTILITY



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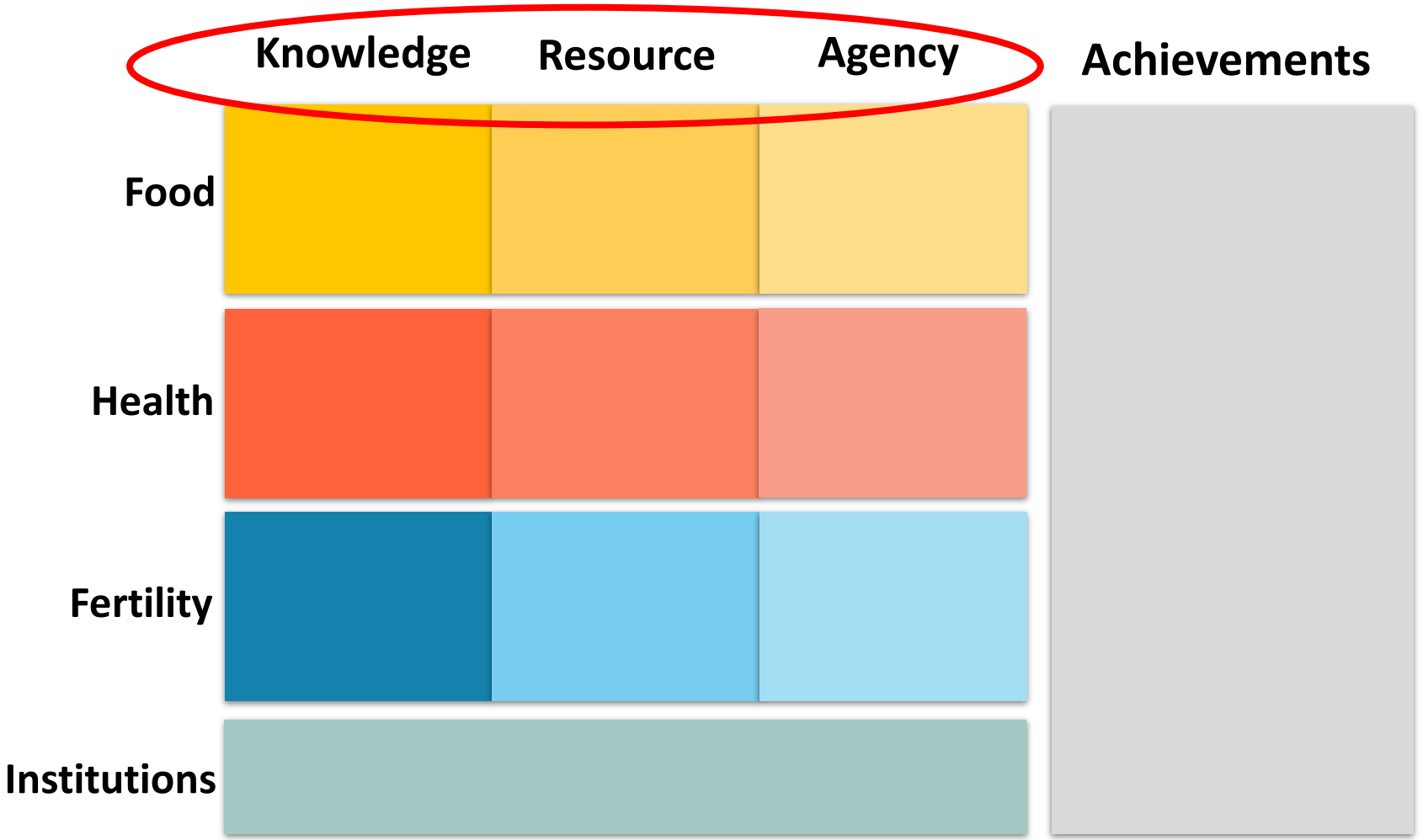
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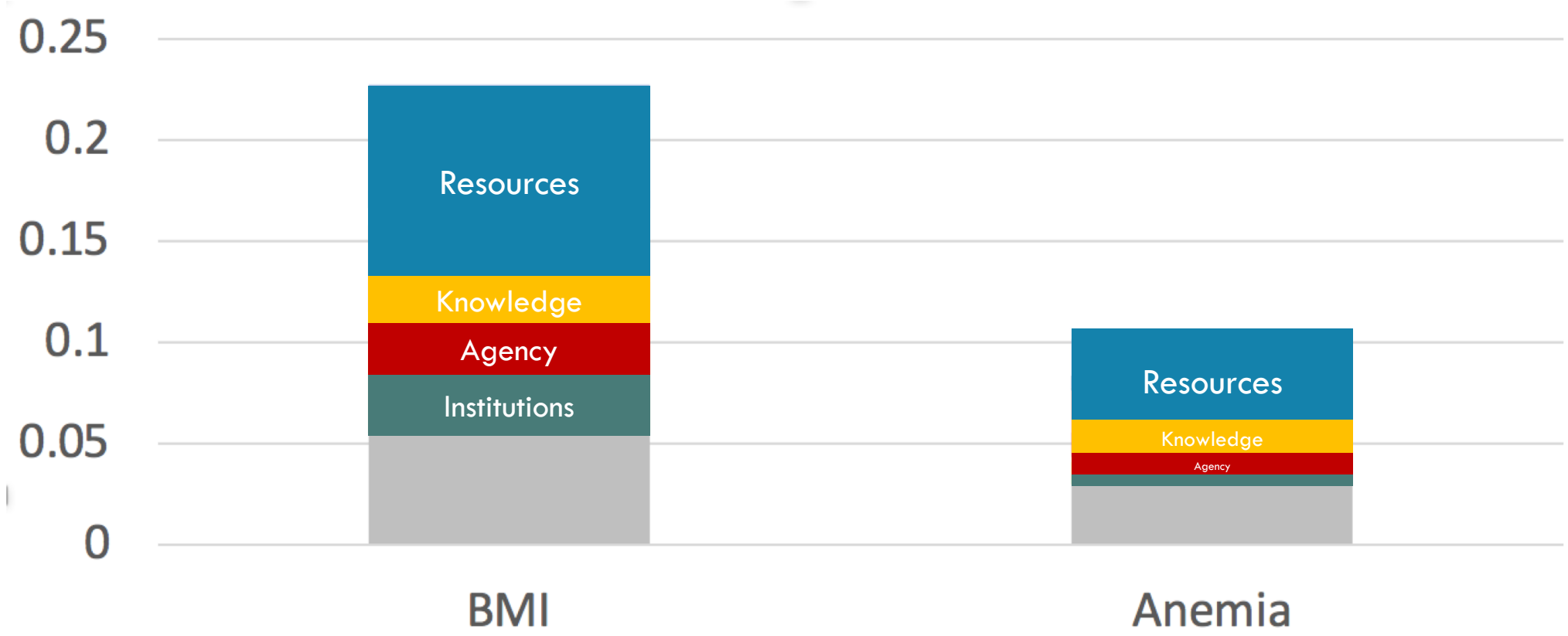
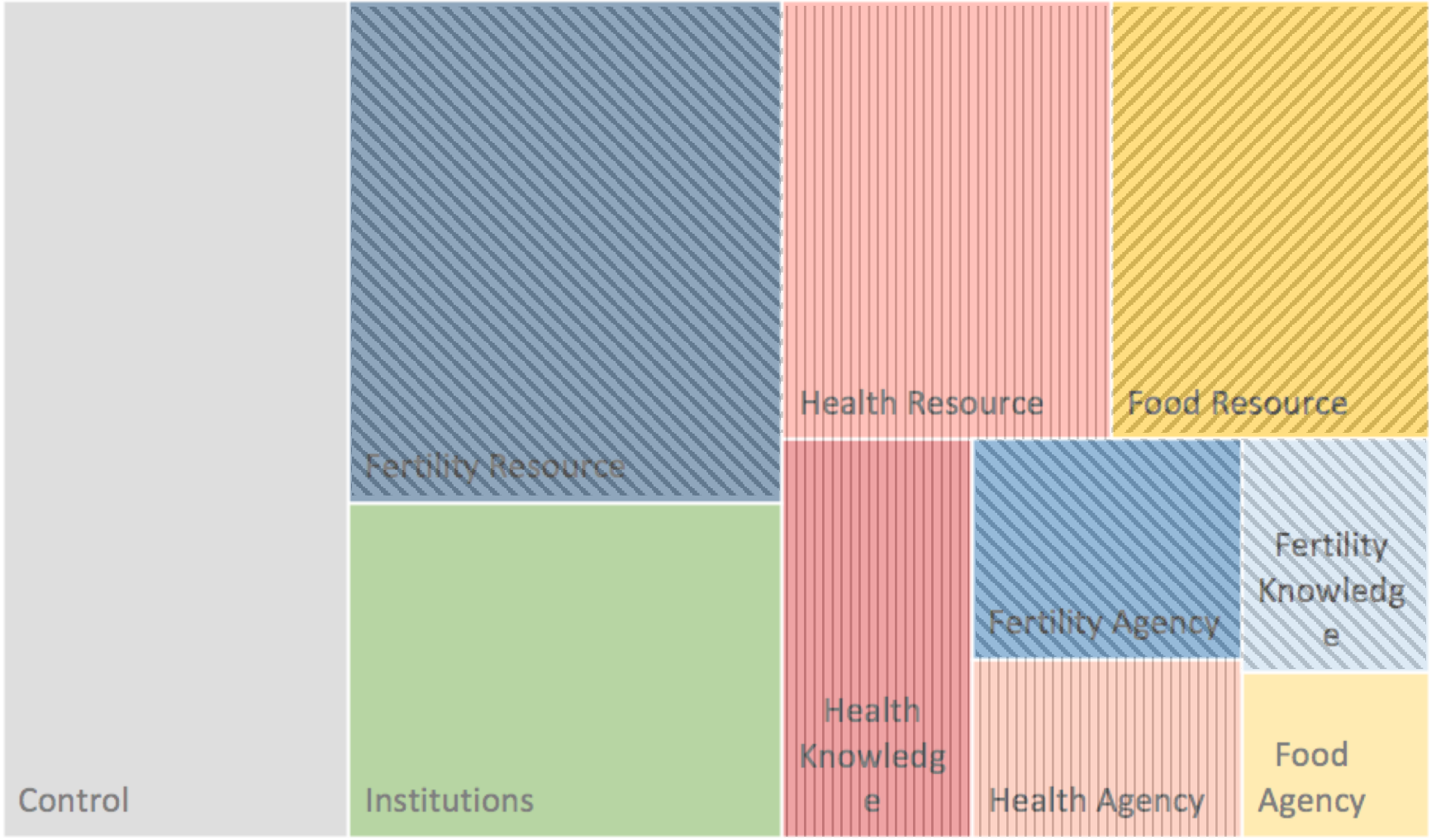
KNOWLEDGE, RESOURCES, AGENCY



COMBINED (BMI)



DISAGGREGATED RESULTS

Overall patterns hold when disaggregated by:

- Rural vs urban
- Age: Under 20 vs. over 20
- Geographic region

Rural vs. urban: Greater explanatory power for urban

Age: Health resources matter more for younger women than older

- Related to high teenage pregnancy rates?

SENSITIVITY CHECKS

Linear versus non-linear model

Continuous anemia outcome (hemoglobin level)

Inclusion/exclusion of ambiguous variables

Sensitivity to over/underpopulation of specific cells

- Normative selection (results shown)
- Random selection 10 indicators per cell
- Data driven selection of 10 indicators per cell

NEXT STEPS

Expand to other DHS countries?

- Disaggregated results should change where relative deprivation is more variable

Adapt and validate WEN outside of India

Explore predictive capacity of WENI

- How well does WENI score predict future outcomes of interest?

THANK YOU!

Questions? Feedback?

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(Happy Halloween!)