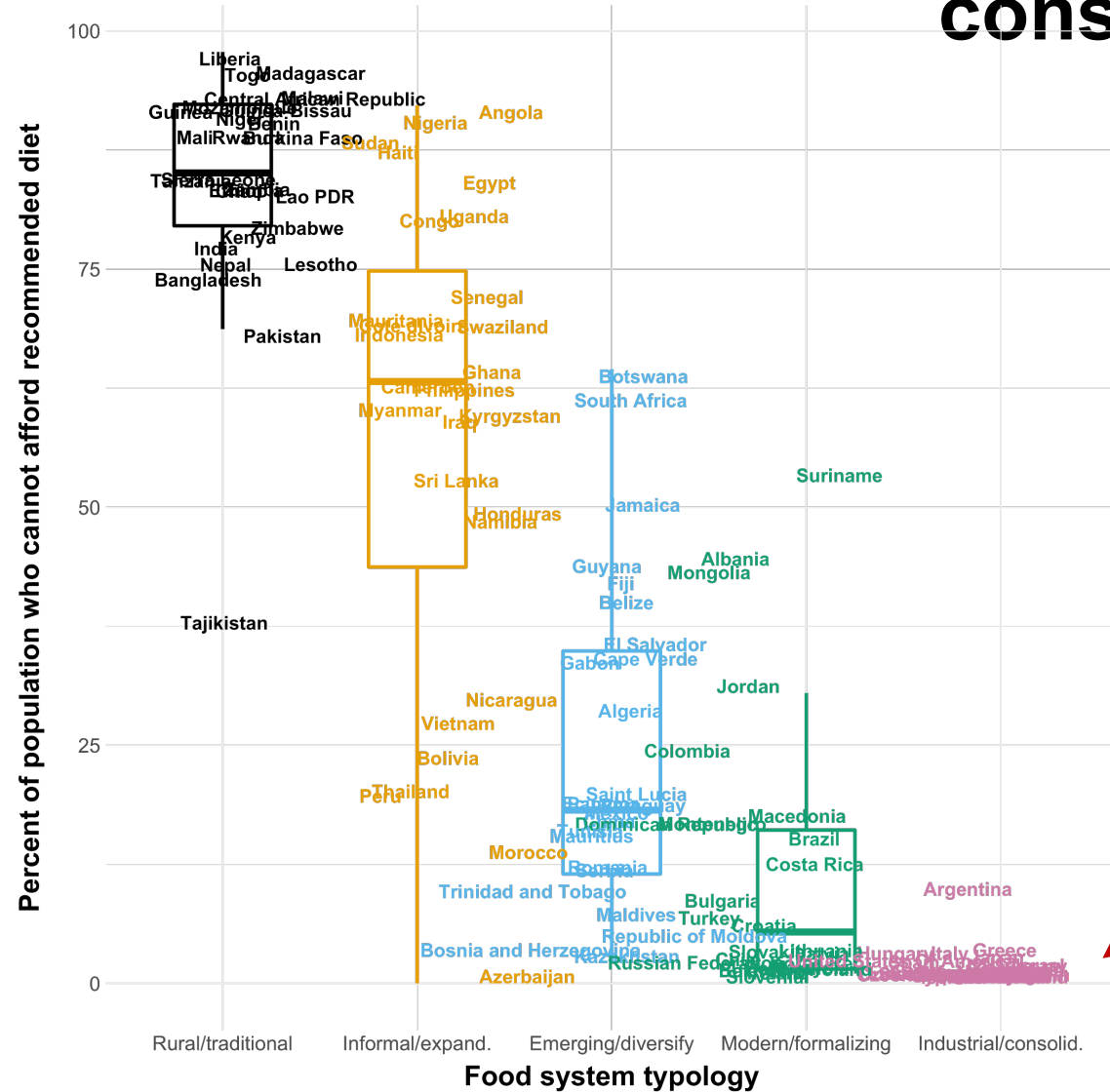


Social Behavioral Challenges to Sustainable Food Systems

National Academies Food and Nutrition Board
Workshop on Maximizing Agriculture to Enhance Nutrient
Composition to Better Fulfill Dietary Recommendations

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A global look at the cost of a healthy diet – does it translate to consumption?



Food-based dietary guidelines recommended diets have become more affordable as food systems have transitioned from rural to industrialized.

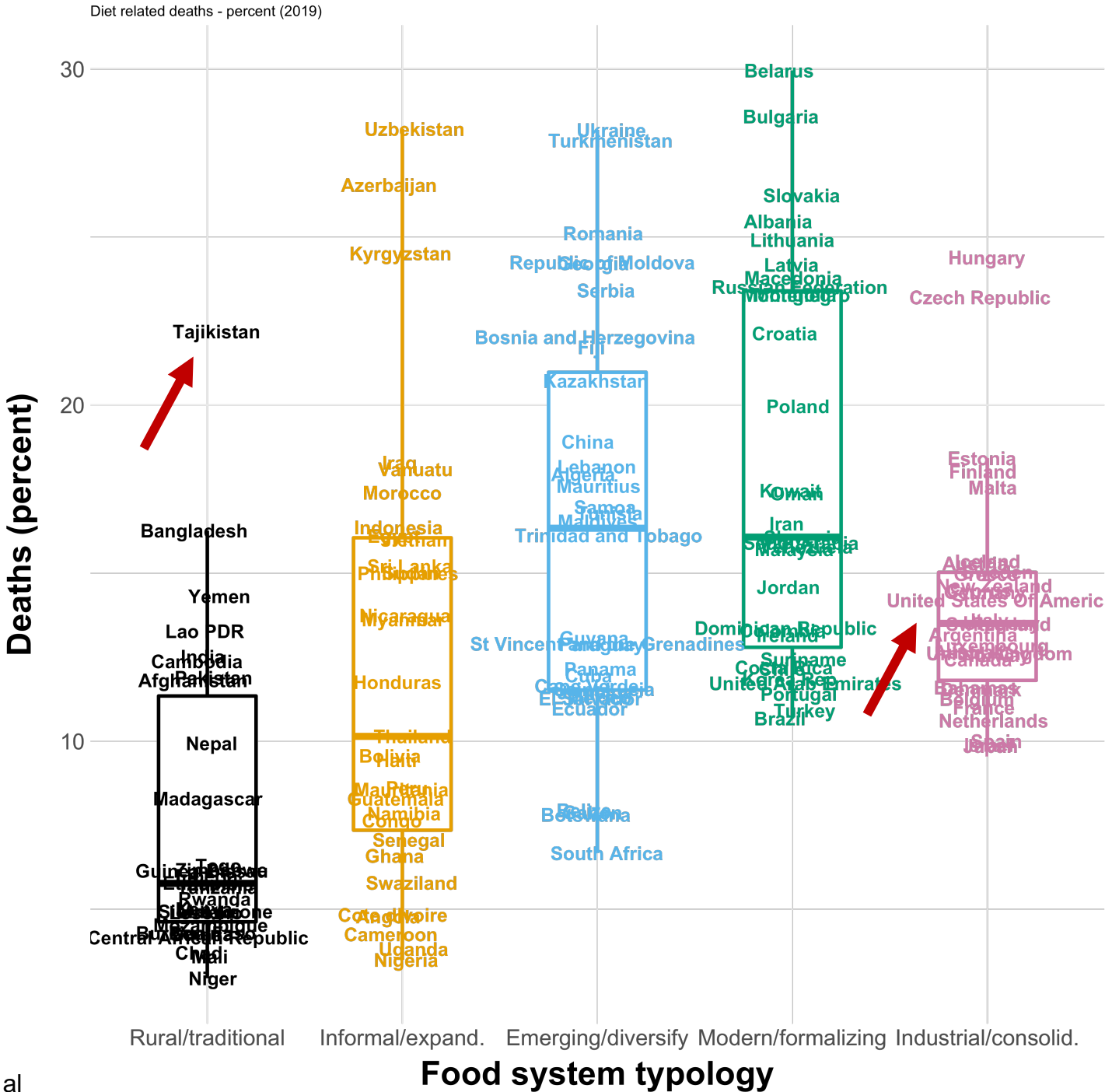
But do they translate to healthy recommended diets?

\$3.75 per person per day

Deaths attributed to poor diet

Structural transformation drivers have led to *nutrition transitions* as countries industrialize and urbanize

*diets high in sodium and red meat, coupled with diets low in fruits, vegetables, whole grains, and legumes



How do we consume healthy foods? Buying, planning, processing, cooking, and cleaning over a period of time!

Tanzania
(Photos by
Ramya
Ambikapathi)



Food environment



Household food purchase



Diets

**The True Cost
of our Food System
is Three Times Higher
than Expenditure
on Food**



The Rockefeller
Foundation. 2021

USA
(Photos from
Canva)



Who is doing all of that work???

	1965-1966		1975-1976		1985-1986		1992-1995		2003-2004		2007-2008		1965-2007
Gender	%	SE [†]	%	SE	%	SE	%	SE	%	SE	%	SE	%
Male	28.6	1.6	29.1	1.3	46.8 ^{ab}	1.6	38.3 ^a	0.9	37.9 ^a	0.5	41.7 ^{ab}	0.6	+13.7
Female	92.3	0.8	88.4 ^{ab}	0.8	84.7 ^{ab}	1.1	67.3 ^{ab}	0.8	69.0 ^a	0.4	67.7 ^a	0.6	-24.6

Mean time spent cooking, of those cooking (min/day)												
Gender	min/day	SE	min/day	SE	min/day	SE	min/day	SE	min/day	SE	min/day	SE
Male	36.7	2.1	37.8	1.8	36.1	1.6	39.8	1.2	43.0 ^{ab}	0.7	45.0 ^a	0.9
Female	112.8	2.2	100.6 ^{ab}	2.0	82.8 ^{ab}	2.1	64.7 ^{ab}	1.3	67.1 ^{ab}	0.6	65.6 ^{ab}	0.8

The essence of the nutrition transition occurred when women started working outside the home, and convenience/processed food was created to meet this demand.

Smith, L.P., Ng, S.W. & Popkin, B.M. (2013)

Mothers' perspective: 'Trying to make it all come together'

"Life is far too rushed! Especially if you're only getting home [from work] at, like anything after five is just a disaster. If you're not home before quarter to five it's like, you're not going to make it! 'Cause there's evening events that are going to start and it's like, oh man, now it's the rush and a panic."

Food choice (why and how we make food decisions) is driven by values and cultural norms:

1. Families should eat together
2. The good mother
3. Busy, family food choice, value negotiations

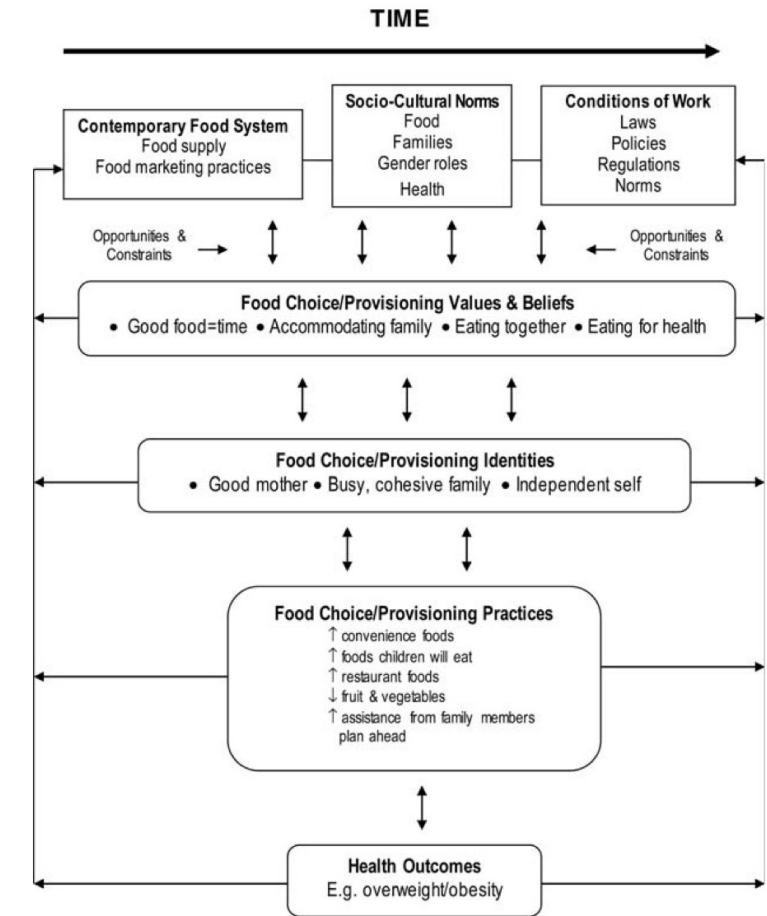
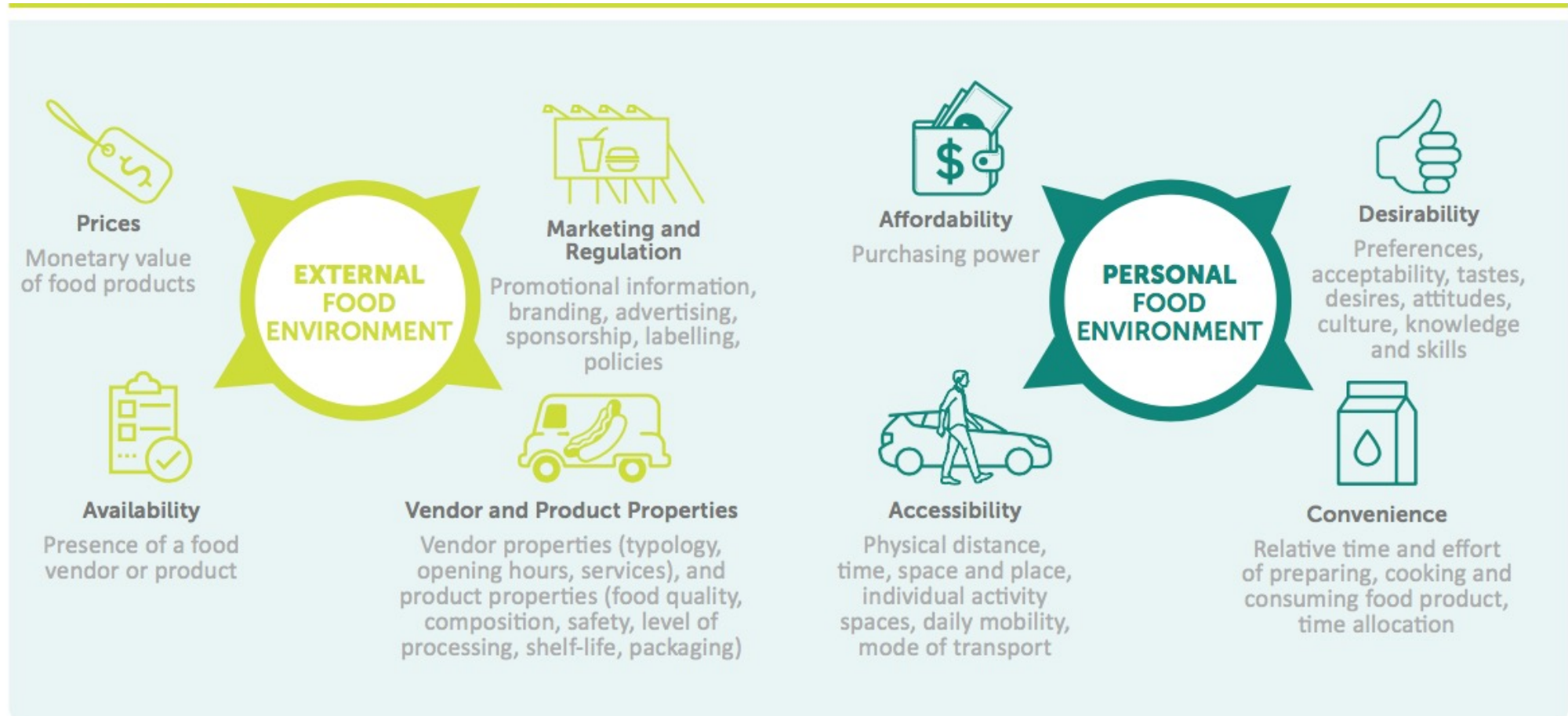


Fig. 1: Dynamic influences on food choice/provisioning of employed mothers.

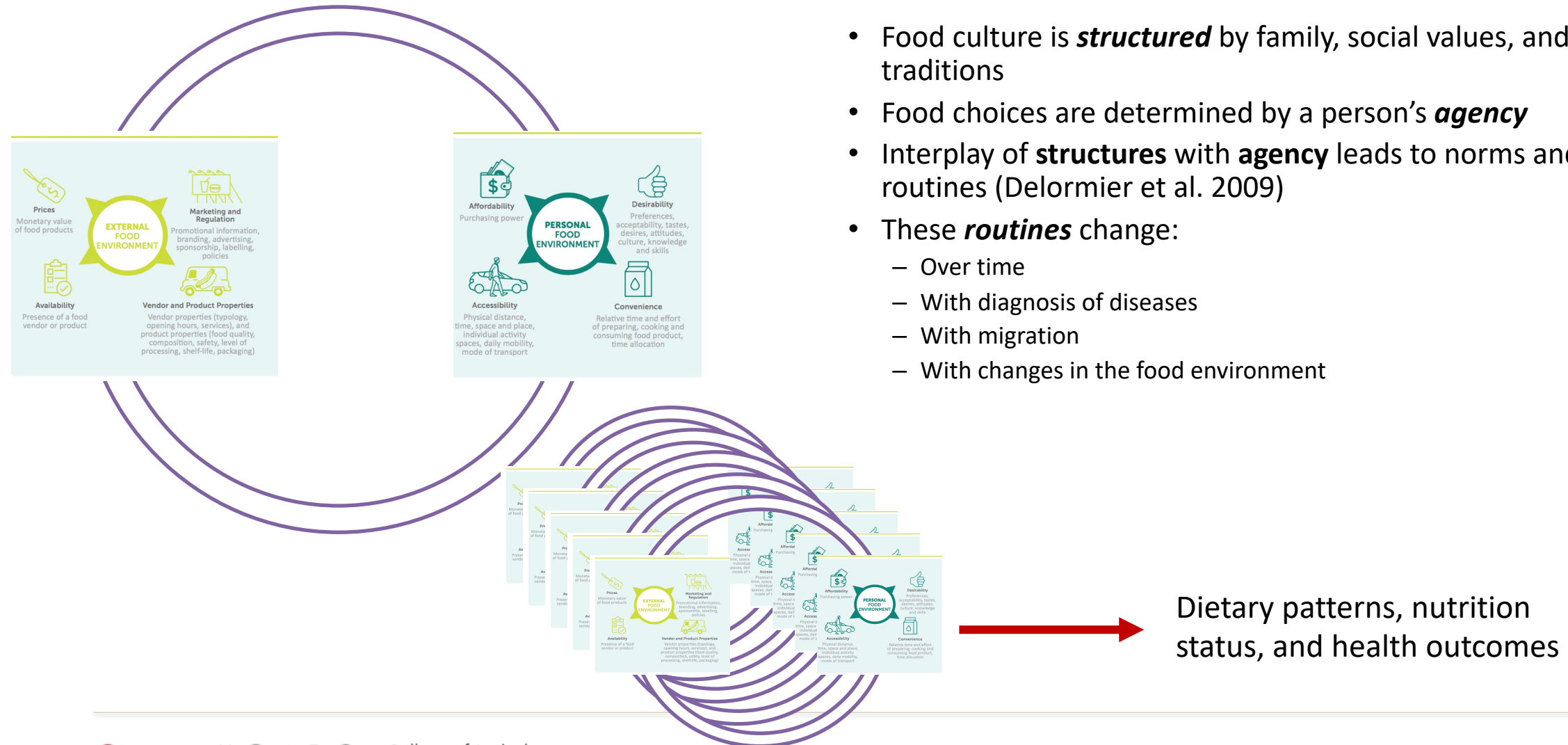
Food choice is driven by variety of factors



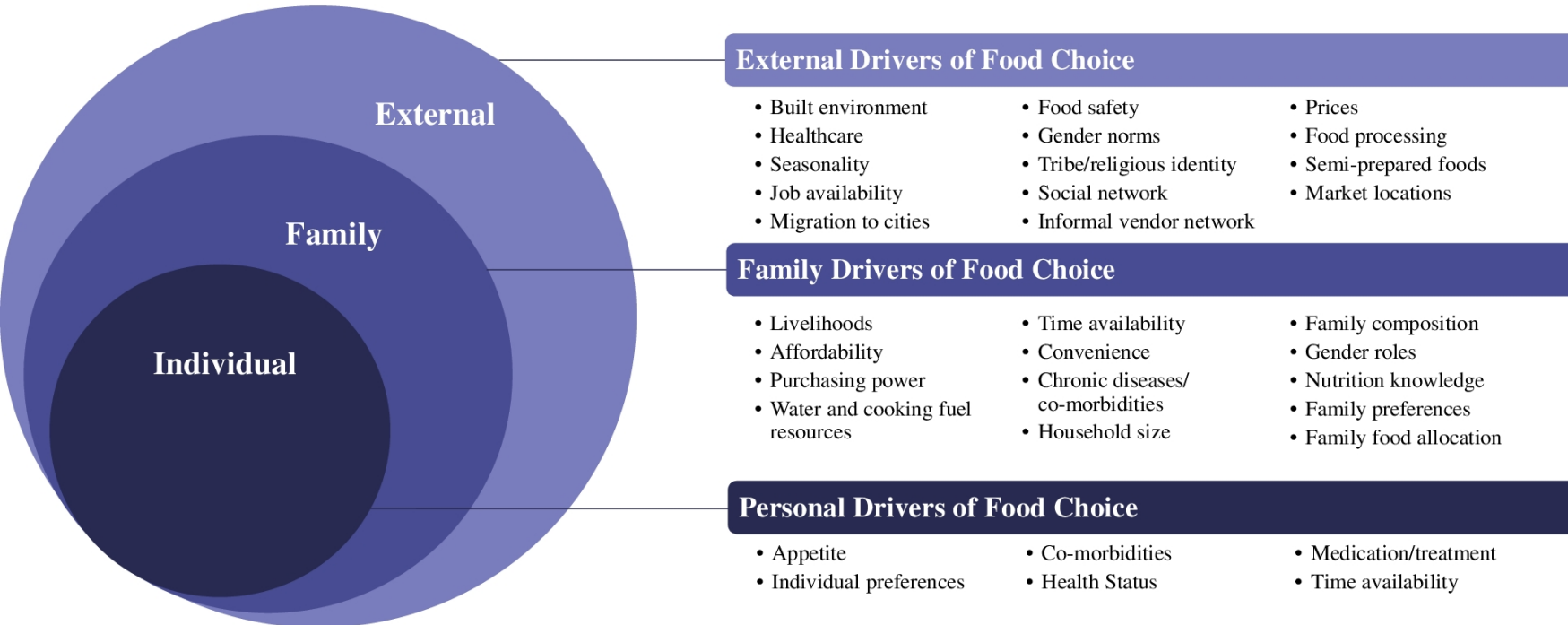
Dynamics of food choice and external factors over time form outcomes

Family, economic structuration (Gidden's Structuration Theory)

- Food culture is **structured** by family, social values, and traditions
- Food choices are determined by a person's **agency**
- Interplay of **structures** with **agency** leads to norms and routines (Delormier et al. 2009)
- These **routines** change:
 - Over time
 - With diagnosis of diseases
 - With migration
 - With changes in the food environment



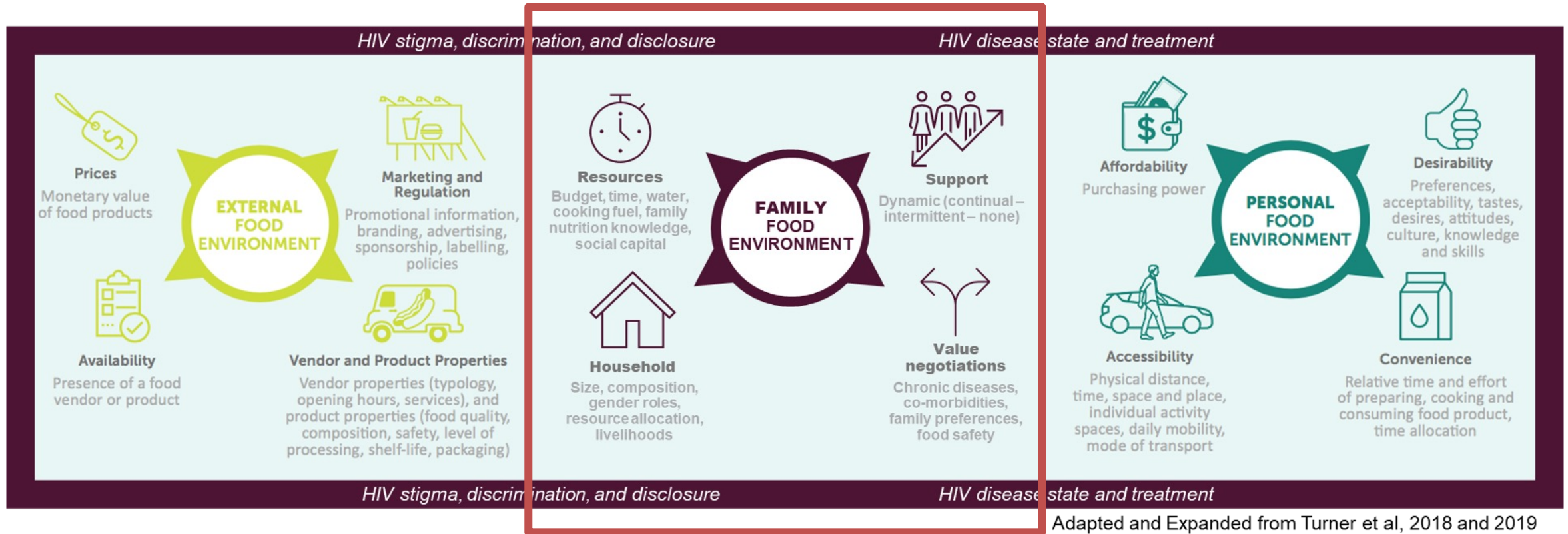
Food choice is driven by a variety of factors – some are universal, and some vary by context.



Women's clothing storefront
(Tanzania, photo by Ramya Ambikapathi)

Food choice among peri-urban families in Dar es Salaam,
Tanzania (Boncyk et al, 2022)

Food environment-food choice framing helps us understand demand for healthy and unhealthy foods

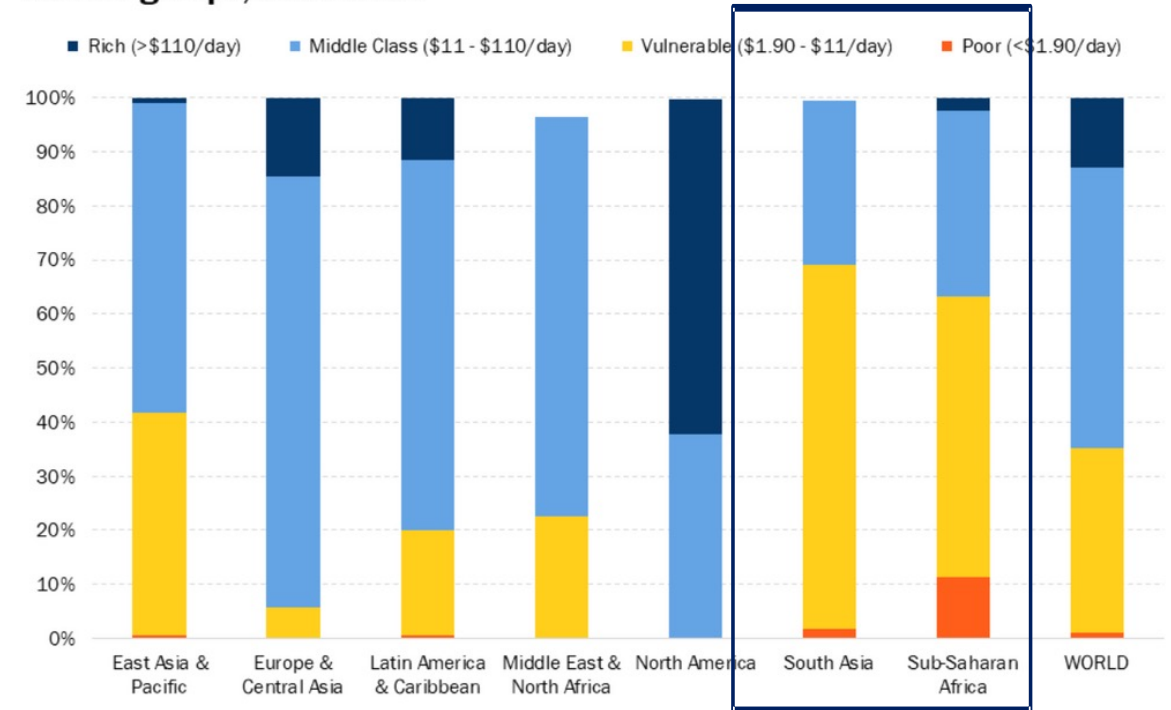


Income affects purchasing power of the overall food consumption

Here are some insights on the middle class and their purchasing power across Africa and Asia:

- Africa: Around 60% of the population is considered part of the "vulnerable middle," earning between USD 2-4 per day.
- Asia: The middle class is rapidly expanding, which has significant implications for purchasing power. **As incomes rise, there is generally a preference for fruits over vegetables and other diverse foods and for food safety.**

Figure 1: Share of total consumption growth accruing to various income groups, 2010-2020



Source: Author's calculations, based on distributional data from World Bank PovCal and household consumption expenditures from WDI

BROOKINGS

Main drivers of healthy food consumption (ex: vegetable) by income

Income class	External domain	Household/family domain	Personal domain
Vulnerable middle (\$2-4/day)	Informal/traditional wet market; food prices	Household size, physical access, gender	Income
Lower middle (\$4-10 a day)	Informal/traditional wet market; food prices	Food away from home, gender	Gender, food safety, fresh look, fruits>vegetable preferences
Upper middle (\$10-20 a day)	Supermarkets/ Traditional markets; prices not an issue	Food away from home, workplace, gender	Desirability, food away from home, food safety

Food safety is increasingly an emerging driver of food choice

What is food safety really about?

High-income country consumers buy organic food because of the perception of "clean," "safe," "trust," "quality," and other social values (Shafie and Renie, 2012)

Low-income settings – vendor trust and reputation, vendor appearance, packaged foods, not getting sick, perception of cleanliness (Isanovic et al. 2023)



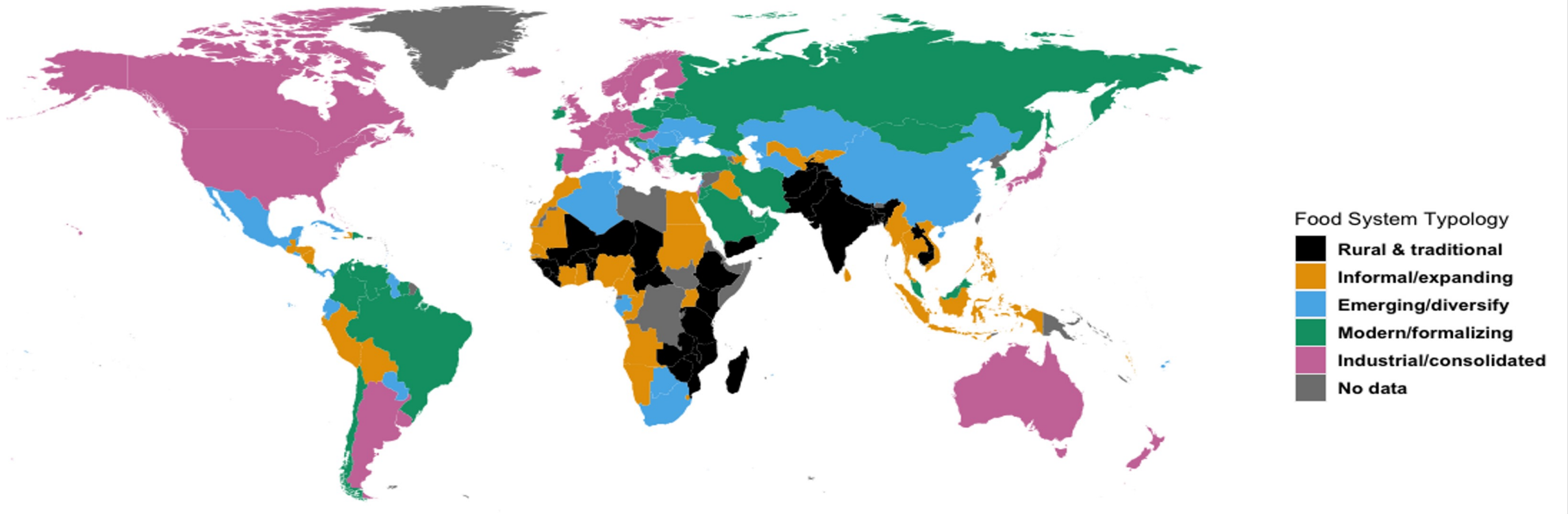
Professionally looking vendor, Tanzania



Vendor with icebox and uniform trained by ice cream company, Tanzania

Agriculture → Agribusiness → Agroindustry → Agri-corporations

Food safety and values will continue to affect our food choices as the food system transitions.



Marshall et al. (2021)

Rural &
Traditional

Informal /
Expanding

Emerging /
Diversifying

Modern /
Formalizing

Industrial /
Consolidated

Key messages

1. **Economic and social-behavioral factors that drive our food choices interact, and dynamic processes create habits, dietary patterns, and nutrition outcomes over time.**
2. **Food choice is driven by various social (especially gender) and cultural factors intersecting with daily life, like time use available with work and activities.**
3. **We need a range of interventions to increase healthy food intake that targets different income groups and social-cultural aspects that drive food choice behaviors.**
4. **Food safety emerging driver of food choice ~ trust and social connections.**
5. **The food system is a social system, and we need to consider social aspects of consumption to pivot towards a sustainable food system.**