

Diet transformation and food environments: Introduction to panels and Q&A on improving nutrition through private sector engagement

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BIFAD public meeting in Des Moines, Iowa
16th October 2018



Diet transformation and food environments: Evidence needed to improve diet quality through private sector engagement

- **Diet quality**, beyond calories to lifelong health
- **Levers of change** to transform food systems
- **Progress to date** in global food environments



Measuring diet quality: What do we know about diets & health?

- **Food traditions have recently been influenced by scientific discovery**
 - limes prevent scurvy (J. Lind in Britain, 1747)
 - food contains energy (A. Lavoisier in France, 1770)
 - boiling & sealing preserves food (N. Appert in France, 1810)
 - energy can be protein, fats, carbs (J. Liebig in Germany, 1840)
 - germ theory & pasteurization of milk (L. Pasteur in France, 1864)
 - “vitamines” must exist, as rice husks prevent beriberi (1912)
 - vitamin C is first to be isolated, shown to prevent scurvy (1936)
- **New attributes & functions are still being discovered**
 - nutrient adequacy was focus of first dietary guidelines (1941)
 - epidemiological data demonstrates additional role of food groups (1990s)
 - fruits & vegetables first separated out in U.S. dietary guidelines (2000)
 - *trans* fats found harmful, mandatory disclosure (2006) then removal (2015)

[Mozaffarian, Rosenberg and Uauy 2018](#)

Improving diet quality: From daily energy to long-term health

- **Daily energy needs are fixed around metabolic set points**
 - intake & needs are poorly measured, except in laboratories
driven mainly by total body weight (me \approx 2260 kcal/day)
also adjust for physical activity (my runs \approx 10 kcal/min)
and adjust for metabolism & disease (age, height, gut health)
 - worst undernutrition is seen in infants under 2, has lifelong consequences
 - overconsumption accumulates in later life, also difficult to reverse
- **Higher quality diets improve body composition and health**
 - different energy sources (protein, fats, carbs) are metabolized differently
 - ‘essential’ nutrients (vitamins & minerals) are needed for specific functions
 - many other food attributes (fiber, omega-3 etc.) alter health and disease risk
 - some attributes have U-shaped benefits (sodium etc.)
 - harmful components may be new (e.g. *trans* fats) or ancient (molds)

[IOM 2006](#); [Tooze et al. 2007](#); [Shetty 2005](#); [MyPlate 2018](#)

Levers of change: How can diet quality be improved?

- **Income growth and safety nets**, in cash or in kind
- **Relative prices and convenience**, for healthier vs. less healthy items
- **Consumption norms and preferences**, among all options at home and away
- **Standards and regulation**, when consumers cannot see food content

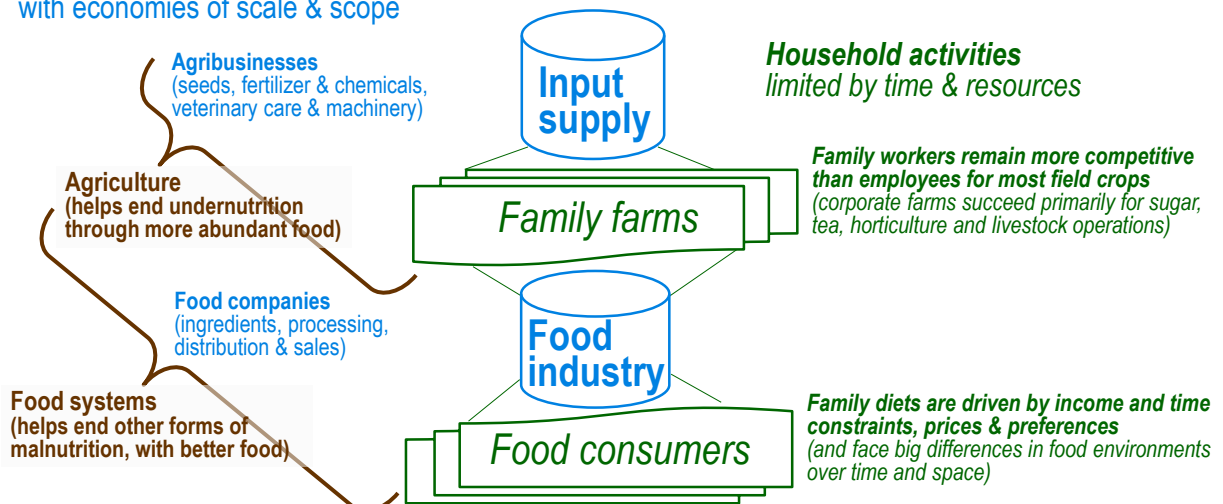
For example:

- Britain creates Assize of Bread and Ale for quality & weight (1266)
- U.S. creates the FDA & has USDA inspect meat (from 1906)
- Supreme Court rules against false advertising (vinegar, in 1924)
- FDA sets first packaged food standard (canned tomatoes, in 1939)
- FDA defines and regulates additives, creates GRAS list (in 1958)
- Organic standards introduced (in 1990)
- Nutrient fact panels introduced (in 1993 for packaged foods, 2018 for menus)
- Harmful nutrients disclosed then removed (e.g. *trans* fats, from 2006)

Ross 1956; FDA 2018

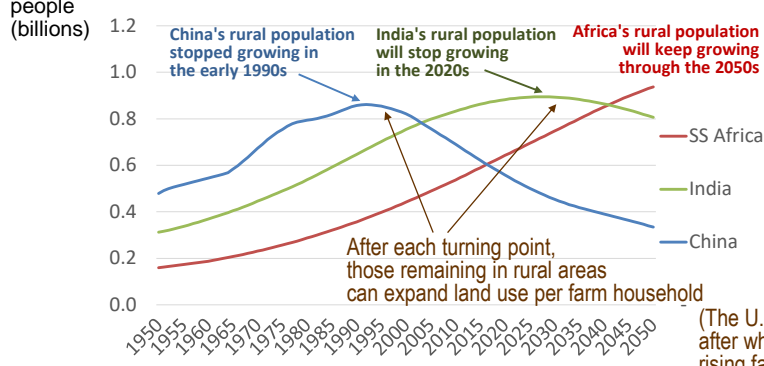
Food systems link farms to consumers through agribusiness and food companies

Manufacturing enterprises
with economies of scale & scope



For agriculture, the rise and then fall of rural population drives change in average farm size

UN estimates of total rural population, 1950-2050

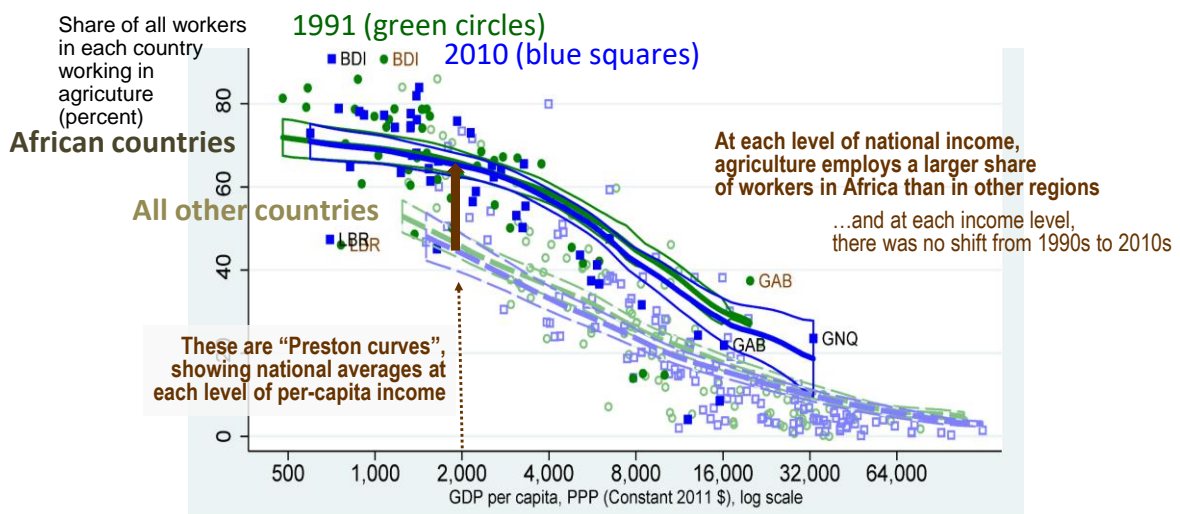


Africa's rising rural population keeps workers in agriculture, and keeps children in poverty, until farming conditions improve

(The U.S. peak was around 1914, after which falling rural populations and rising farm sizes continued until 1990s)

Data shown are author's calculations from UN World Urbanization Prospects, 2014 Revision, from <http://esa.un.org/unpd/wup>.

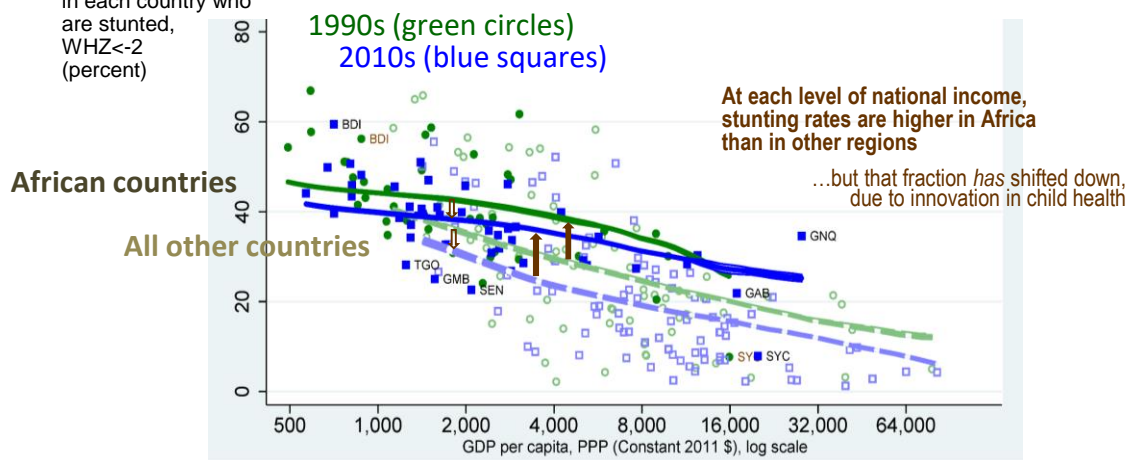
Africa's rising rural population keeps an unusually large fraction of African workers on farms



Source: Reprinted from W.A. Masters, N.Z. Rosenblum and R.G. Alemu, 2018. Agricultural transformation, nutrition transition and food policy in Africa. *Journal of Development Studies*, 54(5): 788-802. Employment data are ILO (2015), national income is from World Bank (2018).

At each income level, African children are more likely to be stunted, but big gains over time

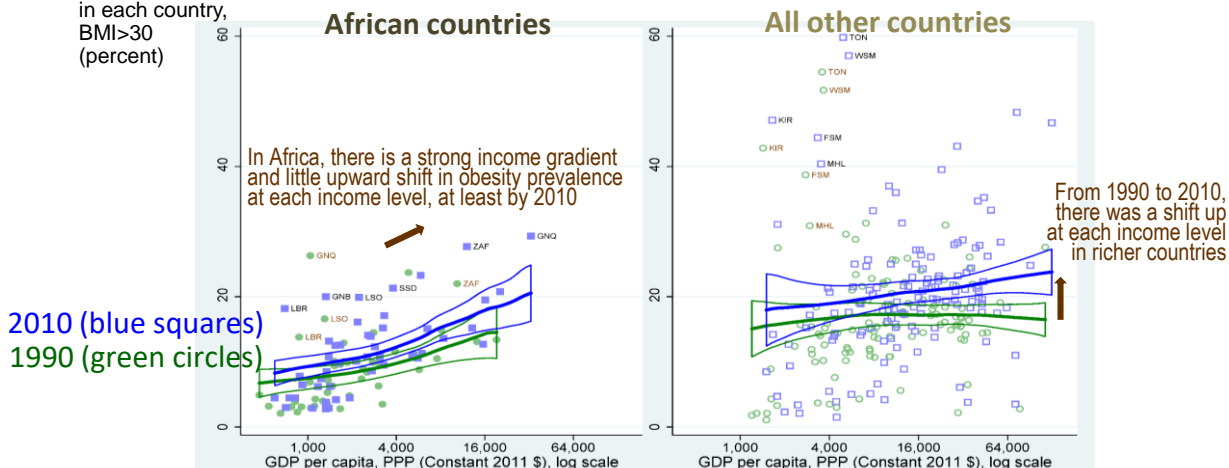
Share of all children in each country who are stunted, WHZ<-2 (percent)



Source: Reprinted from W.A. Masters, N.Z. Rosenblum and R.G. Alemu, 2018. Agricultural transformation, nutrition transition and food policy in Africa. *Journal of Development Studies*, 54(5): 788-802. Stunting are World Bank, WHO and UNICEF joint data, national income is from World Bank (2018).

African adults are less likely to be obese, but prevalence is worsening quickly

Share of all adults aged 20+ in each country, BMI>30 (percent)



Source: Reprinted from W.A. Masters, N.Z. Rosenblum and R.G. Alemu, 2018. Agricultural transformation, nutrition transition and food policy in Africa. *Journal of Development Studies*, 54(5): 788-802. Obesity is from Global Burden of Disease study, national income is from World Bank (2018).

Diet transformation and food environments:

Conclusions and introduction to the panels on improving diet quality through private sector engagement

- **Diet quality, beyond calories to lifelong health**
 - *Can we meet nutrient needs within energy balances, to end undernutrition without overshooting?*
- **Levers of change to transform food systems**
 - *Can we use all the tools at our disposal, including safety nets, relative prices, cultural norms & regulation?*
- **Progress to date in global food environments**
 - *Can we continue success with maternal & child nutrition, and extend gains to remaining population groups?*