Youth and Agricultural Transformation

David Tschirley

Presented a BIFAD Public Meeting on Building an Evidence Base on Rural Youth Employment and Livelihoods
May 8, 2018, Washington, D.C.
Outline

- Framing the topic:
  - Structural/rural/diet transformations
  - Technological change: speed, and new sources
- Why focus on youth now?
- Why focus on rural youth now?
- A typology of rural youth opportunity
Outline

- Framing the topic:
  - Structural/rural/diet transformations
  - Technological change: speed, and new sources
- Why focus on youth now?
- Why focus on rural youth now?
- A typology of rural youth opportunity
Outline

- Framing the topic:
  - Structural/rural/diet transformations
  - Technological change: speed, and new sources
- Why focus on youth now?
- Why focus on *rural* youth now?
- A typology of rural youth opportunity

Emerge out of the framing
Outline

- Framing the topic:
  - Structural/rural/diet transformations
  - Technological change: speed, and new sources
- Why focus on youth now?
- Why focus on rural youth now?
- A typology of rural youth opportunity
Framing the topic
Transformation in era of rapid technological change

KEY MESSAGES

- Economic transformation involves move of labor ... following consumer demand ... out of farming and into other sectors of the economy
  - ... a consequence and a (major) cause of productivity growth
- Growth and poverty reduction very slow without it
- The pace and type of technological change ...
  - Transformations will play out very differently for countries now at early stages (largely Africa), compared to earlier transformers ...
- Great uncertainty about how the transformations will happen
Transformation in era of rapid technological change

- Structural transformation
- Ag/rural transformation
- Diet transformation

1. People can only eat so much food
2. They may be hard-wired to crave energy dense foods (carbs, fats, sugars) and salt
3. Sophisticated capitalist economic systems take advantage of these characteristics
Transformation in era of rapid technological change

- Structural transformation
- Ag/rural transformation
- Diet transformation

A common biological basis drives robust and inter-related patterns of change

- (1) People can only eat so much food
- (2) They may be hard-wired to crave energy dense foods (carbs, fats, sugars) and salt
- (3) Sophisticated capitalist economic systems take advantage of these characteristics
Transformation in era of rapid technological change

- Structural transformation
- Ag/rural transformation
- Diet transformation

A common biological basis drives robust and inter-related patterns of change

- (1) People can only eat so much food
- (2) They may be hard-wired to crave energy dense foods (carbs, fats, sugars) and salt
- (3) Sophisticated capitalist economic systems take advantage of these characteristics
Transformation in era of rapid technological change (2)

Can only eat so much food ...

- So as productivity rises:
  - Food → more food → “better” food → very little add’l food
  - Economic activity follows consumer demand off the farm, and progressively out of the agrifood system
  - Engel’s Law and Bennett’s Law
    - With the latter turbo-charged by modern food companies
Transformation in era of rapid technological change (2)

Can only eat so much food …

- So as productivity rises:
  - Food ➔ more food ➔ “better” food ➔ very little add’l food
- Economic activity follows consumer demand off the farm, and progressively out of the agrifood system
- Engel’s Law and Bennett’s Law
  - With the latter turbo-charged by modern food companies

Most countries we focus on are well into transition to “better food” phase … huge opportunities & challenges
Transformation in era of rapid technological change (2)

Can only eat so much food …

- So as productivity rises:
  - Food $\rightarrow$ more food $\rightarrow$ “better” food $\rightarrow$ very little add’l food

- Economic activity follows consumer demand first off the farm, and progressively out of the agrifood system

- Engel’s Law and Bennett’s Law
  - With the latter turbo-charged by modern food companies

Most countries we focus on are well into transition to “better food” phase … huge opportunities & challenges
Transformation in era of rapid technological change (2)

Can only eat so much food ...

- So as productivity rises:
  - Food $\rightarrow$ more food $\rightarrow$ "better" food $\rightarrow$ very little add’l food

- Economic activity follows consumer demand first off the farm, and progressively out of the agrifood system

- Engel’s Law and Bennett’s Law
  - With the latter turbo-charged by modern food companies

Most countries we focus on are well into transition to “better food” phase
Transformation in era of rapid technological change (3)

- The challenges to SHFs and rural SMEs in the “better food” phase
  - Services and attributes embedded in food
  - Timeliness, reliability, “quality”, safety, desirability
  - Food science and branding to create new demand and drive loyalty
- These are already being felt, and in increasing pace, in Africa
- Well advanced nearly everywhere else
- **SHFs and SMEs have a very hard time competing**
New dynamics of change
#1. Intelligent automation & employment de-industrialization (1)

Factor of 1,000 every 15 years
#1. Intelligent automation & employment de-industrialization (1)

Factor of 1,000 every 15 years

Constantly improving precision
#1. Intelligent automation & employment de-industrialization (1)

Factor of 1,000 every 15 years

Constantly improving precision

Everything we do is now data
#1. Intelligent automation & employment de-industrialization (1)

Factor of 1,000 every 15 years

Constantly improving precision

Everything we do is now data
#1. Intelligent automation & employment de-industrialization (1)

And global trade spreads effects around the world

Factor of 1,000 every 15 years

Constantly improving precision

Everything we do is now data
Factor of 1,000 every 15 years

Constantly improving precision

#1. Intelligent automation & employment de-industrialization (1)

Everything we do is now data

Huge advances over the past two years
Why does this matter to LICs?

- Formal manufacturing employment no longer the conveyor belt it once was
  - African labor coming off farm now going largely into self-employed services
  - Even China’s mfg employment peaked well below those of OECD
  - Formal wage jobs In Vietnam only 24% of employment
- New skills needed in workers
  - And especially African educational systems unprepared
Figure 11.0: Educational Achievement and Economic growth (1965-2015)

Source: Altinok, Angrist, and Patrinos (2017)
Figure 11.0: Educational Achievement and Economic growth (1965-2015)

Source: Altinok, Angrist, and Patrinos (2017)
Figure 11.0: Educational Achievement and Economic growth (1965-2015)

Source: Altinok, Angrist, and Patrinos (2017)
Figure 11.0: Educational Achievement and Economic growth (1965-2015)

And the rural disadvantage is greatest in Africa

Mostly Africa

Source: Altinok, Angrist, and Patrinos (2017)
#2: Globalization of information, aspirations, and values

- Communications revolution + global trade
- Effects on
  - Diet transformation – happening much earlier
  - Rural youths’ work- and political aspirations
  - Views of gender roles ... and perhaps reaction against this
- Nearly free access to cutting edge technical information
  - For those with web access!
  - May facilitate entrepreneurial response
  - But extent to which rural youth will respond will vary across and within countries
#3: Blurring lines between rural and urban

- Rising rural population densities
- Rapidly growing secondary cities
- Improved physical & virtual infrastructure

- Changes spatial distribution / gradient of opportunity
- ... And thus the nature of mobility
  - Seasonal migration, commuting, virtual connection to urban ideas and markets
#4: Diet change and the nutrition transition

- Persistence (though declining) of undernutrition
- Rise of obesity & NCDs
- Simultaneous persistence of micro-nutrient deficiency
#4: Diet change and the nutrition transition

- Persistence (though declining) of undernutrition
- Rise of obesity & NCDs
- Simultaneous persistence of micronutrient deficiency

*Triple burden of malnutrition*
#4: Diet change and the nutrition transition (2)

- Nowhere on the radar in Asia and Africa 20 years ago
  - Now major health issue in LAC
  - Rapidly becoming so in some Asian countries
  - Definitely on the radar now in Africa
Falling stunting and wasting ...

**Figure II:** Stunting Trends in Tanzania, 1990 - 2015

Source: HLPE

**Figure IV:** Wasting Trends in Tanzania, 1990 - 2015

Source: HLPE
Rising obesity

Figure V: Trends in Adult Overweight and Obesity in Tanzania, 1990 - 2016

Source: HLPE
#5: Medical advances, improved health care, and extension of life

- Avg. life expectancy between 1980 and 2015
  - 48 → 60 years in SSA (minus RSA)
  - 54 → 68 years in South Asia

- Most immediate impact for rural youth
  - Access to land and thus opportunity for a farming future
  - Likely of greatest importance in Africa
    - Farming remains a major (though declining) source of livelihoods
    - Land markets not well developed
  - Parts of South Asia?
#6: Climate change & stress on natural resources

- Increasingly frequent and intense shocks
- Some directly affect farming through impacts on productive potential
- Some indirectly through their impacts on infrastructure
- Others affect livelihoods and food security through changes in prices of staples
#6: Climate change & stress on natural resources (2)

- Effects off the farm also, through infrastructure, prices, water scarcity
  - These effects less well understood and hardly modeled at all
- Impacts likely most significant in Africa and SEA
  - Especially for those in early stages of rural and diet transformations
  - ... and least capable of investments needed to avoid or mitigate
Why focus on rural youth now?
The youth bulge: unprecedented numbers in Africa
Though shares are declining even in SSA.
Though shares are declining even in SSA

Labor shortages may already be setting in in Asia and Central America, but a long way off in SSA.
The pace of change

- Digital technology can spread at a speed and with a scope that physical technology cannot
- And open global trade spreads the effects everywhere
- What are the rules of the game that will work over the next 20 years?
- And rural youth may be the least able to grasp opportunities
  - Educational quality
  - Access to the web
  - Ability to interpret the requirements in new markets
Typology of rural youth opportunity space
Typology

- Place youth and their families in rural opportunity space
  - What might they be doing currently?
- Place them in rural and ag transformation space
  - What are they actually doing?
- Characterize youth and their families within some combination of these spaces
  - Education, assets, specifics of economic engagement
- Draw generalized inferences regarding opportunities & challenges, and about programmatic approaches to helping youth grasp the opportunities
Rural opportunity space

Can make some reasonable predictions about likely activities ...

- Potentially productive ag (w/ external inputs), with good off-farm options
- Highest productivity ag with good off-farm options
- Few options on- or off-farm
- High but not fully realized ag potential, with limited off-farm options

Commercialization Potential

Agricultural Potential
More structurally transformed

Share of non-farm income in total income

Share of farm sales in total farm income

More transformed

More agriculturally transformed

Micro LSMS data; What are households (not yet youth) actually doing, at broad level?
Rural & ag transformation space

Share of non-farm income in total income

More structurally transformed

Share of farm sales in total farm income

More agriculturally transformed

Rural HHs transitioning out of farming

Subsistence farmers

Diversified commercial SHFs

Specialized commercial SHFs

Rural & ag transformation space
Implicit in the typology

Youth need generic economic development constraints addressed … they may ALSO need help in identifying and exploiting opportunities
Thank you!