Does quality of jobs matter?
Prospects of decent rural employment for improving agricultural production efficiency

Habtamu Yesigat Ayenew[1], Elisenda Estruch[2], Johannes Sauer [3], Getachew Abate-Kassa[3],

Lena Schickramm[3], Peter Wobst[2]

[1]Precision Agriculture for Development, Addis Ababa, Ethiopia   [2] FAO, Rome, Italy, [3]Technical University Munich, Germany

Introduction

- Classical economic development theories argue towards "productive firms pay more"

- Nonetheless, working conditions and payoff might determine productivity

  - Complex relationship between employment, labour supply, factor markets and productivity

  - Empirical work, especially in agriculture and rural context is lacking

- Poverty is often related to a lack of productive employment in agriculture and poor performance of the rural non-farm economy

Anker et al, 2002; Ghai, 2002; Buchanan, 2006; Dorward, 2013; Burchell et al, 2014; Haggblade et al, 2010; FAO, 2012;

Context

- Decent Work: "a condition which promotes opportunities for work, freedom of choice, equal treatment, security of job, and dignity for both men and women"

Pillar of decent work and indicators		Measurement
Pillar1: Employment creation (Employment ratio)		Proportion of employed members to total workforce
Pillar 2: Social protection (government transfers)		Proportion of government transfer to the total income
Pillar 3: Standards and rights at work (Child labor ratio, Precarious employment ratio)		Proportion of child labor from the total labor
		Proportion of seasonal and casual labor from the total
Pillar 4: Governance and social dialogue		No Measurement used

ILO, 1999, P.3

Data and methods

- 2011 - Living Standards Measurement Study of the World Bank (LSMS-ISA)- Ethiopia and Tanzania

- Stochastic Distance Function (SDF)

  - Tries to find the radial expansion of the outputs while keeping the level of input use

  - Advantages: differentiate noise as compared to deterministic approaches and can deal with more than one output

- Output… crop harvest and livestock production aggregated with respective currencies of the two countries

- Input… land, labour and intermediate input

Data and methods

- For classification of the sample according to technologies, multivariate latent class model (LCM) is applied with stochastic estimation procedure

  - Livestock count (TLU)

  - Specialization index

  - Land size

- Cobb-Douglas specification was rejected and translog specification used

- The residuals of our estimation results are negatively skewed and likelihood ratio test rejects the null hypothesis of absence of inefficiency component

Production Efficiency

- Likelihood ratio test rejects the more restrictive Cobb-Douglas specification,

    - Translog estimation.

- 55% and 68% technical efficiency level in Ethiopia and Tanzania

    - Possibility for significant improvement for the given technology level in both countries

- Two distinict latent classes in both countries, but with little deviation in the production technology

Latent Classes

Variables	Tanzania		Ethiopia	
	Class 1	Class 2	Class 1	Class 2
TLU	.151 (.597)	2.672 (7.866)	4.594 (3.390)	6.489 (4.849)
Land	2.842 (3.590)	3.607 (5.811)	1.724 (1.724)	1.437 (1.683)
Labor	155 (141)	170 (163)	145.8 (158.4)	125.8 (156.9)
Concentration index	1.48 (.468)	.860 (.480)	1.360 (.550)	.975 (.550)

Tanzania

- Average of a sheep/goat) vs 2-3 Cattle

- Both classes have bigger land size

- Significant difference in specialization level

Ethiopia

- Both classes have bigger flock size

- No substantial difference in land size

- Less variation in specialization level

Decent Employment and Efficiency: Ethiopia

Variables	Full Model		Latent class 1	Latent class 2
	Max. LH	IV GMM	Max. LH	Max. LH
Emp. to workforce ratio	-.641***(.27)	-.302***(.007)	-.719**(.369)	-.294 (.190)
Share of gov. transfer	-3.534*(2.06)	-.221***(.05)	.247 (.887)	-1.181***(.26)
Precarious emp. ratio	1.87***(.49)	.744***(.188)	1.036**(.511)	1.499***(.297)
Age of the head	.001 (.005)	-.001 (.001)	-.005 (.006)	.003 (.003)
Sex of household head	-.306 (.273)	-.077 (.054)	-.209 (.312)	-.257 (.222)
Household head literacy	-.466***(.15)	-.183***(.037)	-.299*(.172)	-.332***(.117)
Age dependency ratio	-.047 (.085)	-.020 (.017)	-.111 (.097)	-.012 (.061)
Access to credit	-.301* (.161)	-.063 (.176)	-.634 (.195)	-.157 (.135)
Women labor ratio	.151 (.348)	.083 (.079)	.062 (.408)	.266 (.274)
Prec. of wettest quarter	-.001 (.001)	-.001 (.001)	.002*(.001)	.001 (.001)
Model summary	Cragg-Don. F=30.06, Anderson canon. LM=29.79,p-value= 0.00		Λ=2.876 (.414) σ= 1.029 (.122)	Λ=3.718 (.392) σ= .982 (.064)

- Except for the case of precarious employment ration, effects of decent employment indicators vary across latent classes

Decent Employment and Efficiency: Tanzania

Variables	Full Model		Latent Class 1	Latent Class 2
	Max. LH	IV GMM	Max. LH	Max. LH
Emp. to workforce ratio	-.051 (.518)	.054 (.080)	-6.301 (6.19)	.124 (.154)
Share of gov. transfer	-6.31**(2.81)	-3.49***(.755)	-1.943 (3.79)	-37.893 (21)
Precarious emp. ratio	1.92***(.682)	.429***(.086)	2.234* (1.48)	1.270***(.305)
Child labor ratio	2.82***(1.08)	.573***(.186)	2.752 (3.213)	.812**(.413)
Age of the head	-.005 (.009)	-.001 (.002)	-.243 (.200)	.003 (.003)
Sex of household head	-1.38**(.61)	-.182***(.043)	-7.666 (7.023)	-.228 (.153)
Household head literacy	-.102 (.087)	-.012**(.006)	-5.685 (5.348)	-.388***(.148)
Age dependency ratio	-.282* (.170)	-.044***(.015)	-4.215 (3.453)	-.0486 (.064)
Access to credit	.064 (.778)	-.364 (.551)	-1.216 (2.162)	-.175 (.378)
Women labor ratio	.501 (.733)	.040 (.065)	1.048 (6.587)	.162 (.239)
Prec. of wettest quarter	.002 (.002)	.002 (.003)	.007 (.007)	.0005 (.0003)
Model summary	Cragg-Don. F=14.31, Anderson canon. LM=81.73,p-value= 0.00		Λ=4.987 (3.442) σ= 3.293 (2.177)	Λ=163.131 (.232) σ= .816 (.043)

- Share of government transfer no more has an effect on efficiency when we split them based on technology.

Conclusions and Implications

- Low technical efficiency levels; room for improvement on technical efficiency

- On the use of inputs in the production process, one can see that

    - There is excess of labor that has little to improve production level

    - Need for productive employment

- In Tanzania and Ethiopia, we observe two different production systems.

    - Precarious employment is crucial in all latent classes,

    - Employment ratio and government transfers seem only to affect efficiency in only one of the latent classes in the two countries.

Conclusions and Implications

- Employment and precarious employment

  - Availability of employment essential but not sufficient

  - The notion of creation of jobs should be supplemented by productive and decent jobs.

- Two technology classes

  - One size fits all won't work, and specific recommendation to each context is essential