Standardization of Living Income benchmarking and knowledge gaps in farmer income assessment in cocoa farming. How to proceed?
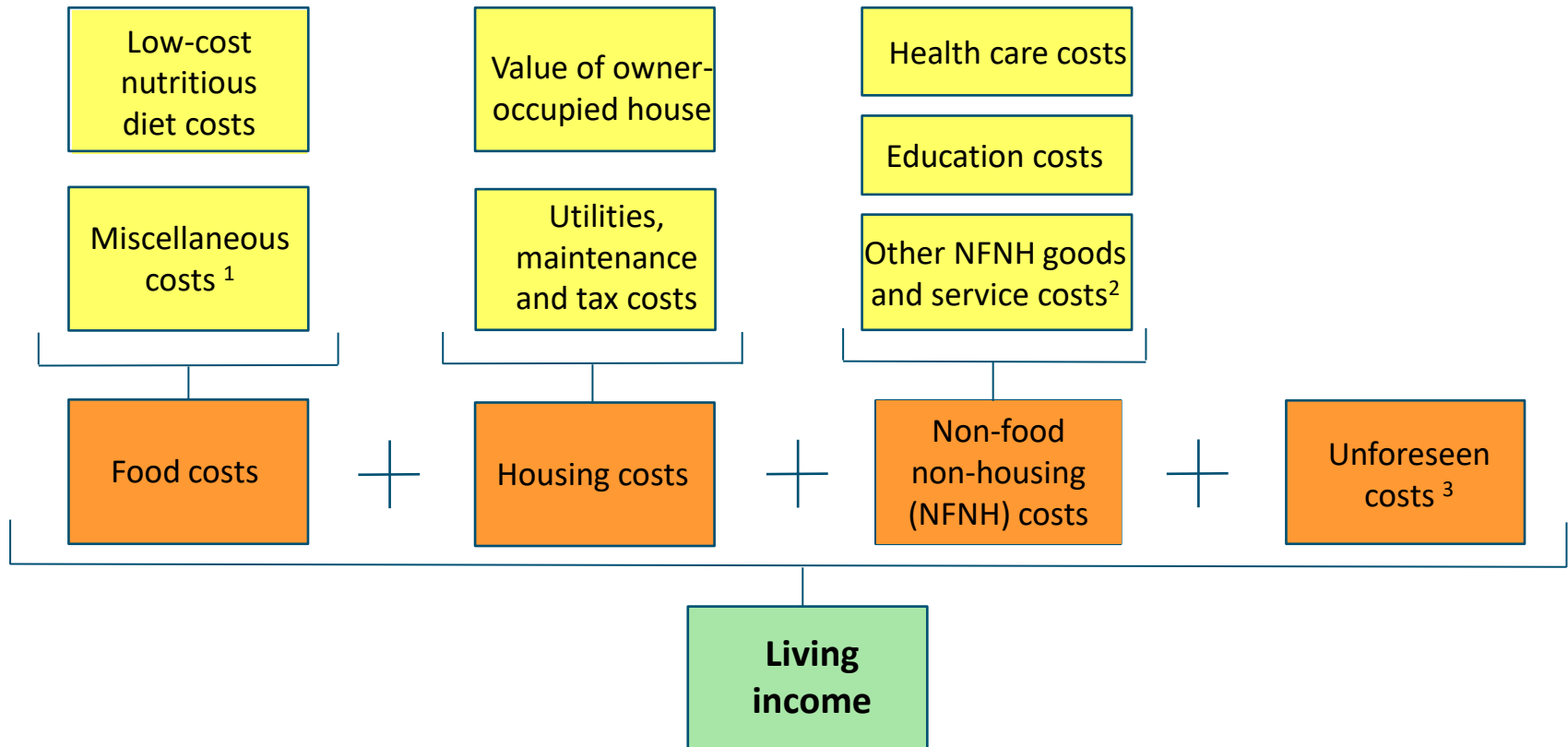
Maja Slingerland, Ken Giller, Gerrie van de Ven, Yuca Waarts
Wageningen University & Research

Research questions

- How to calculate Living Income?

- Do cocoa producers earn a living income?

- What variables underlie income differences?

- Which scenarios can we imagine to increase income?

- How could the methodology to calculate and investigate income & living income be improved?

WUR simplified living income approach

Low-cost nutritious diet costs	Value of owner-occupied house	Health care costs	
Miscellaneous costs [1]	Utilities, maintenance and tax costs	Education costs	
		Other NFNH goods and service costs [2]	
Food costs	**+** **Housing costs**	**+** **Non-food non-housing (NFNH) costs**	**+** **Unforeseen costs [3]**

Living income

[1] 16% of Low-cost nutritious diet costs (10% variation, 4% food waste, 2% salt etc).
[2] Other NFNH goods and services costs: 20% of total Food, Housing, and NFNH costs.
[3] Unforeseen costs: 10% of total Living income.

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WUR simplification of Anker & Anker

	A&A	WUR
Unit	Reference household (FTE)	Household = Nb of Adult Equivalent (AE)
Household	4-6 persons, 1-2 FTE	AE: 1st adult 1; 2nd adult 0.7; child 0.5
Sources for hh size assessment	Census data, national statistics, survey, % unemployment etc.	Survey data study region (eat from same pot)
Food requirements	Needs based on: sex, age, size, activity of each family member	2500 kcal/AME (plus nutrition rules); male 1 AME; female 0.82 AME; <18 0.75 AME
Data sources	Local food prices & **current** diet	Local FGD, key informants, market prices, food groups
Calculation procedure	Iterative adaptation of **current diet** to fit needs & reduce costs	**Living income diet tool**: optimization to lowest cost diet based on **food groups**
Education & housing	Secondary data, FGD, rapid local survey	FGD & key informants

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Data sets used for LI study for cocoa *

Data set	Country	Data year	Number of respondents
KIT	Ghana	2015/2016	1,384
	Côte d'Ivoire	2015/2016	992
WUR	Ghana	2010/2011	385
	Côte d'Ivoire	2011/2012	944
Cargill	Côte d'Ivoire	2017/2018	93,952
Ghent University	Ghana	2013/2014	731

*Different years, only two studies for both countries, different purposes of data collection
*Converted to $ PPP 2018

van Vliet, J.A., Slingerland, M.A., Waarts, Y.R., Giller, K.E., 2021. A Living Income for Cocoa Producers in Côte d'Ivoire and Ghana? Front. Sust. Food Syst. 5, https://doi.org/10.3389/fsufs.2021.732831

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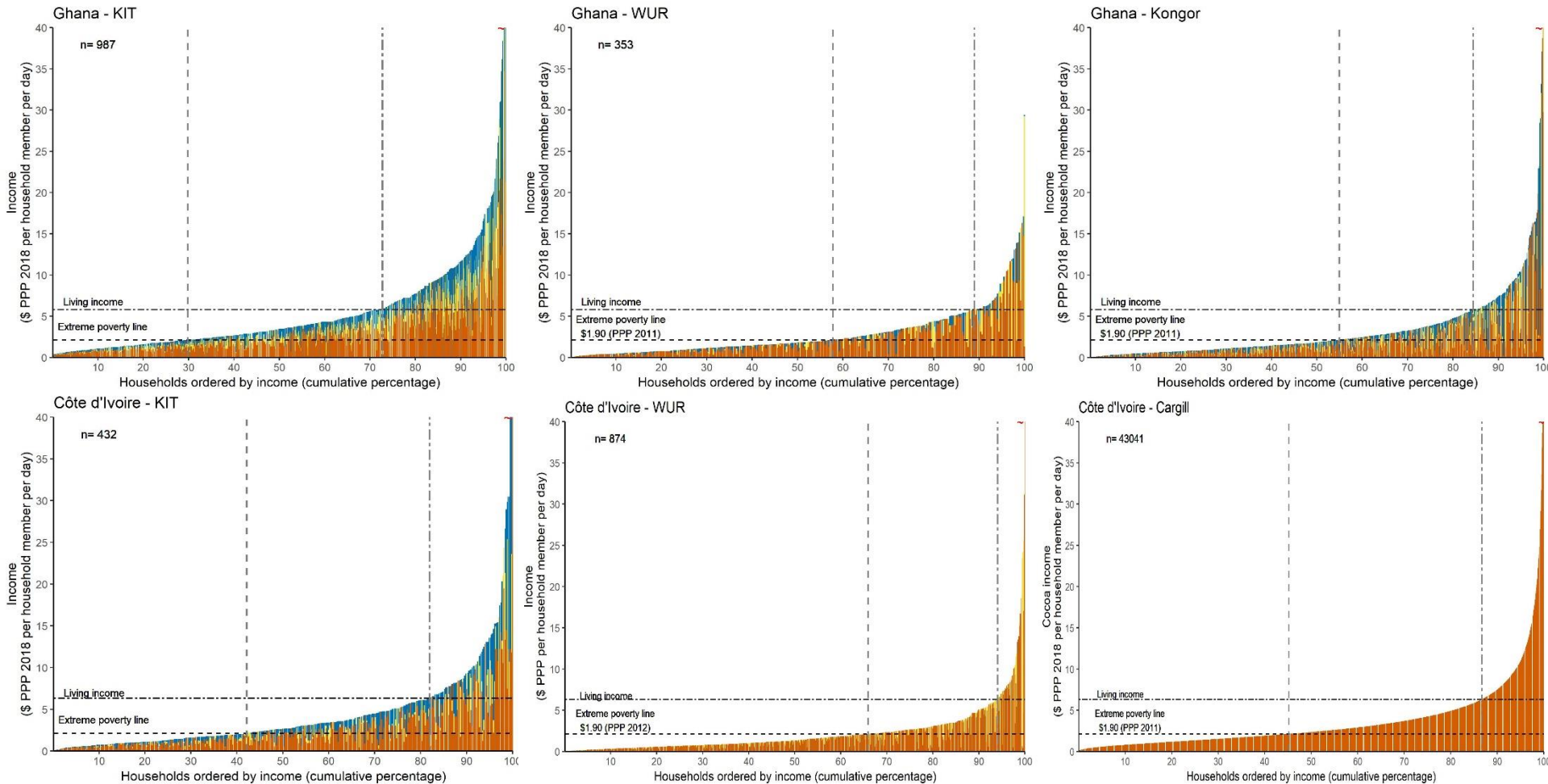
Income calculations cocoa farms

- **Gross cocoa income**
  - Household cocoa production * cocoa price

- **Other on-farm income**
  - Other crops, livestock

- **Other off-farm income**
  - small business, wage labour, remittances

- **Income is standardised to $ PPP*2018/AE/day**
  - Comparable across countries and between years
  - Compared to WB poverty line of $1.90 PPP 2011 which equals $2.12 PPP 2018 per person per day
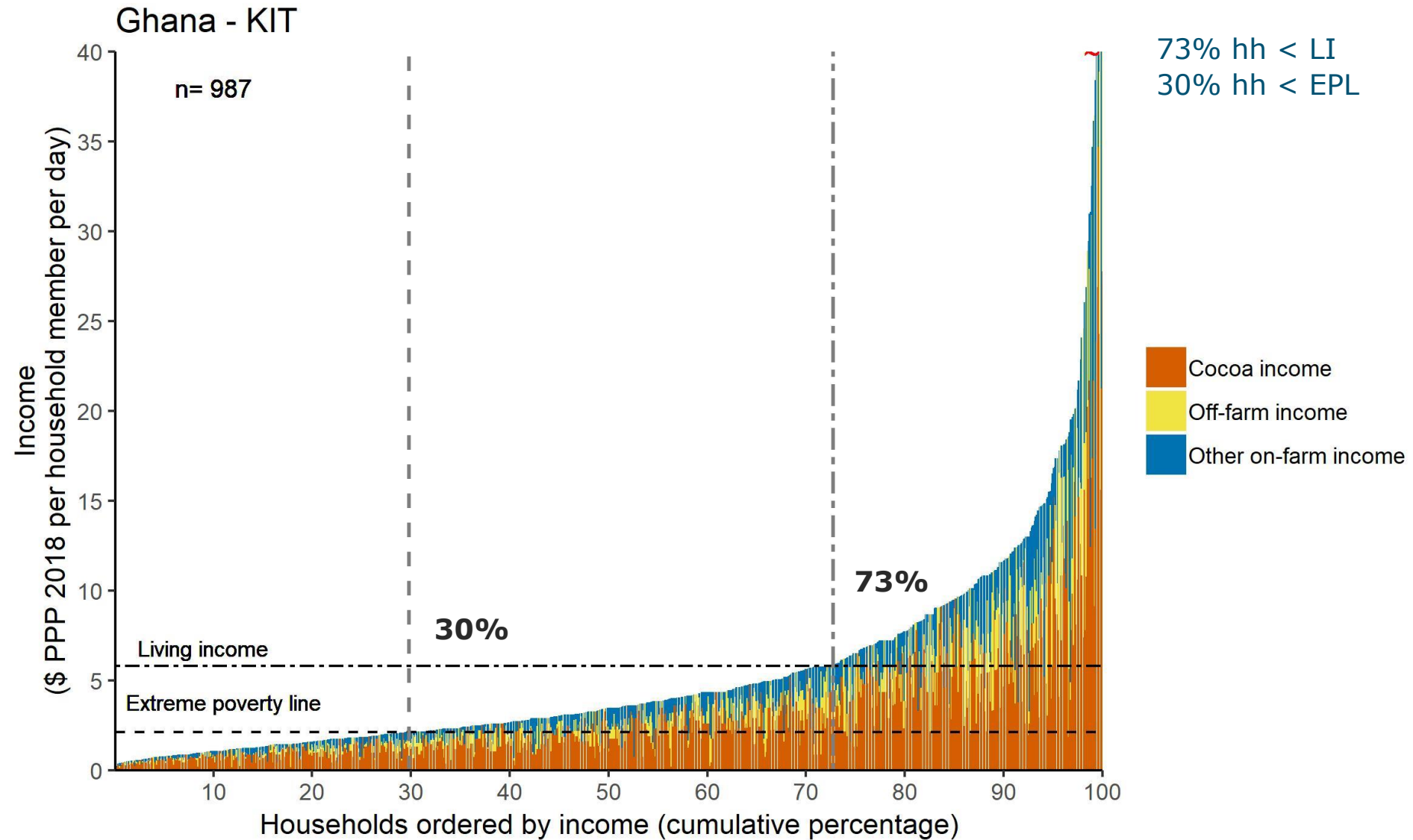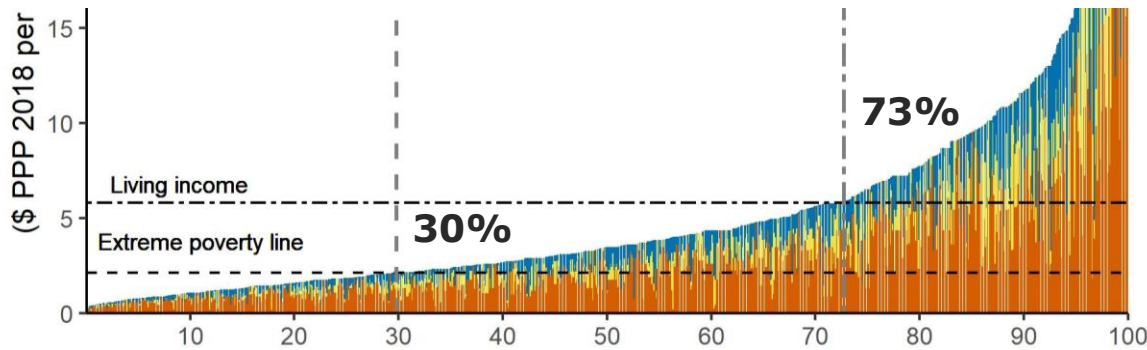 - Compared to LI $ PPP 2018/AE/day

* PPP (purchasing power parity): local currency required to buy the same amount of goods and services as $1 in the USA

All data give similar outcomes

Many producers below the EPL (30-66%)
Most producers below the LI benchmark (73-94%)

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Have a closer look

Ghana - KIT

n= 987

73% hh < LI
30% hh < EPL

Cocoa income
Off-farm income
Other on-farm income

Income
($ PPP 2018 per household member per day)

Living income

Extreme poverty line

30%

73%

Households ordered by income (cumulative percentage)

van Vliet, J.A., Slingerland, M.A., Waarts, Y.R., Giller, K.E., 2021. A Living Income for Cocoa Producers in Côte d'Ivoire and Ghana? Front. Sust. Food Syst. 5, https://doi.org/10.3389/fsufs.2021.732831

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Scenario: Cocoa price doubles

Less hh < LI (73-53%)
Less hh< EPL (30-15%)

Poor benefit the least (low yields)
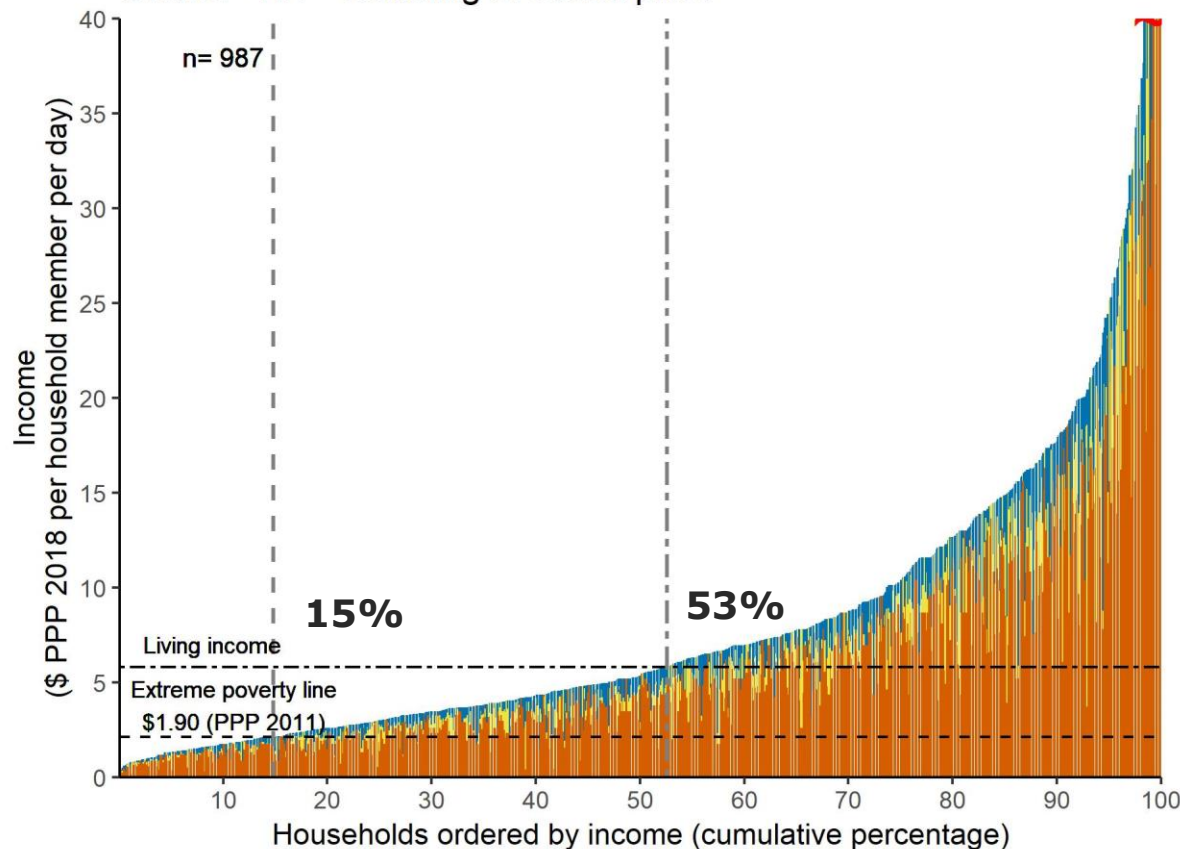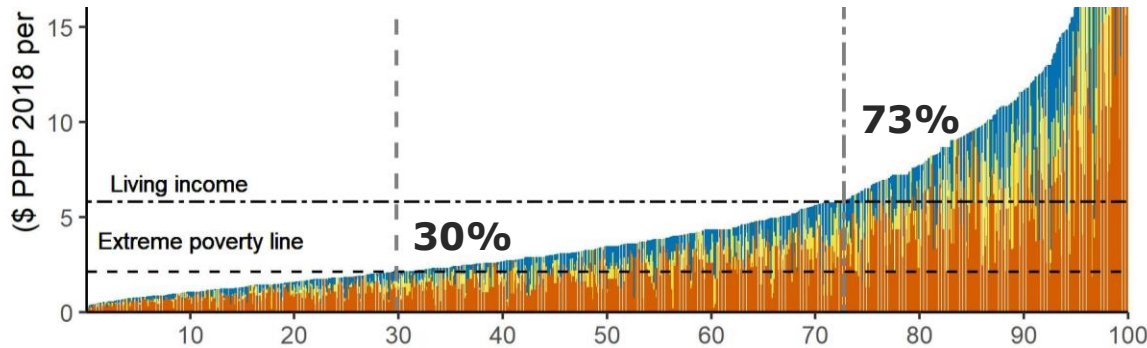
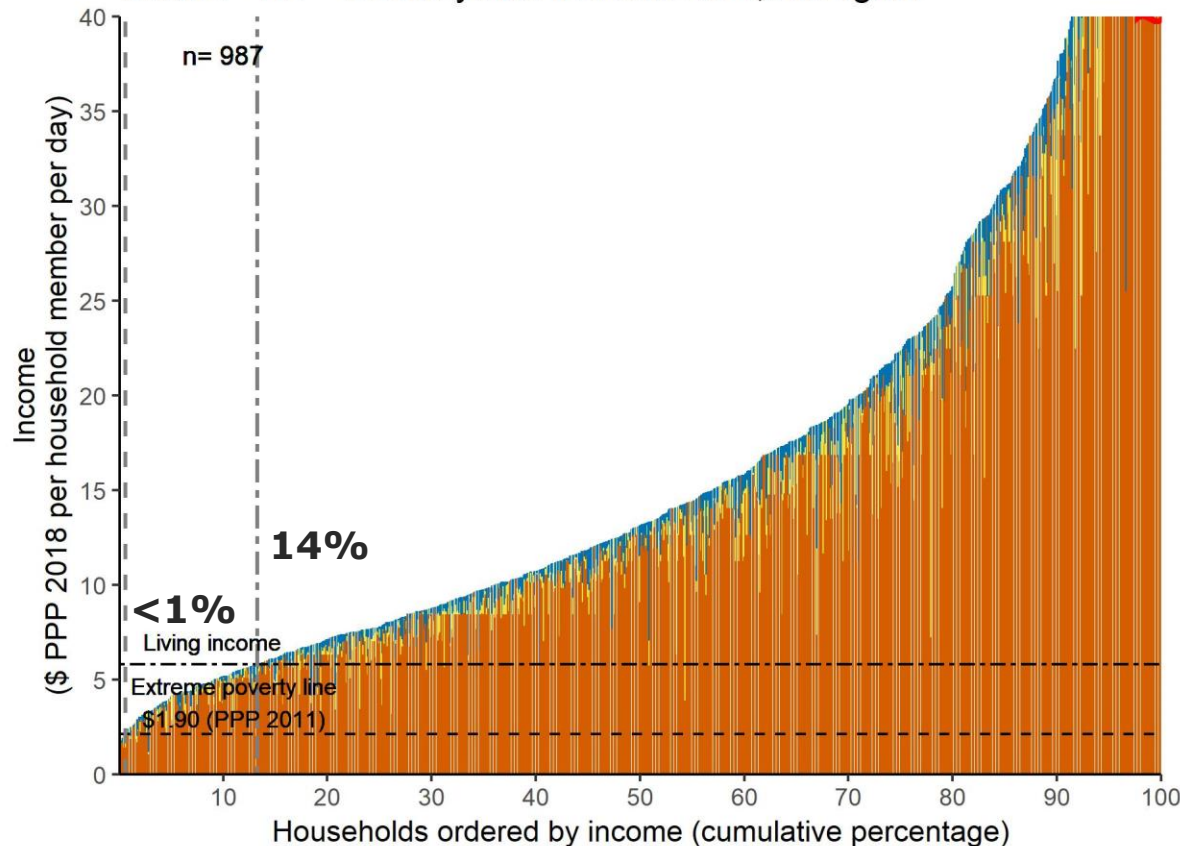Rebound effect: higher prices → more expansion & intensification → overproduction → lower prices & more deforestation?

- Cocoa income
- Off-farm income
- Other on-farm income
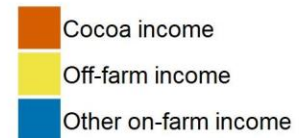
Scenario: Yields increase to 1,500 kg/ha

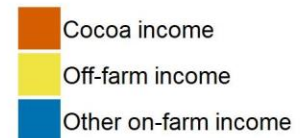Ghana - KIT - Cocoa yields increase to 1,500 kg/ha

Less hh < LI (73-14%)

Less hh < EPL (30-<1%)

Poorest benefit the most (have lowest yield)

High investments needed (inputs, credit, training) → most difficult for the poor

Cocoa income
Off-farm income
Other on-farm income

Rebound effect as result of over-production → lower prices

Factors related to income levels

Income ($ PPP 2018)	Ghana		Côte d'Ivoire	
	pppd	year	pppd	year
Number of household members (#)	-0.36	0.09	-0.22	0.23
Number of productive household members (#)		0.10		0.25
Dependency ratio (-)	-0.17	ns	-0.19	ns
Total available land (ha)	0.36	0.52	0.15	0.38
Cocoa land (ha)	0.36	0.56	0.36	0.55
Cultivated land (ha)	0.35	0.54	0.29	0.58
Fallow land (ha)	0.18	0.15	ns	ns
Yield (kg/ha)	0.37	0.45	0.40	0.50
Dependency on cocoa (proportion of total income)	-0.20	0.26	-0.19	0.29

More hh members:
Higher income/hh/year
Lower income/hh member/day

More total land, more cocoa land, more cultivated land, higher yield →
Higher income/hh/year and
Higher income/hh member/day

Higher income dependency on cocoa
→ Higher income /hh/year but
→ Lower income/hh member/year

- Segmentation of households based on different resource endowments such as total (or cocoa) farm size and labor to land ratio, may provide further insight in potential pathways towards achieving living income.

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Barriers and opportunities to reach LI

- Many cocoa farmers have to little area to reach a living income based on cocoa, even when prices increase

- For smaller farms yield increase may lead to LI but this needs large investment (difficult for the poorest?)

- Additional and alternative income sources (partly jobs outside agriculture) are therefore needed, but scarce

- Agroforestry may be an opportunity for higher income & climate change mitigation, but only with acceptable cocoa yields

- Large attention for LI with cocoa companies and with governments in cocoa producing countries

- Living Income Community of Practice aims to provide tools for data collection and calculations of living income

- IDH has benchmarking for living wage assessment & could also support benchmarking for living income

Conclusion & Way forward

- For better assessment of actual **income** of cocoa farmers, we need data on **other income sources** and on **relation between costs** (inputs & labour requirements) **and yield** (revenue) to calculate **net income**

- Agreeing on **data collection methodology**, **definitions,** and **pooling data for analysis** of actual **income** may increase comparability and save costs eg via http://CocoaSoils.org data infrastructure and partnership

- For **Living Income**, a **standardized method** increases transparency and comparability eg WUR-Living Income Calculation Tool at https://models.pps.wur.nl/models (including LI diet tool)

- (New) pathways to LI needed (**cocoa price or yield increases alone not enough & fear of rebound effect**): yields increase for the poor; jobs outside agriculture; agroforestry; cash transfers; alternative incomes

- Farmer **segmentation** may be useful to design interventions towards Living Income, that are **more specific/appropriate** for farmers with different resource endowments **and new policies are also needed**

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Thank you!

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Contact: Maja.Slingerland@wur.nl