

Poverty & the Agricultural Household in Timor-Leste



Some Patterns & Puzzles

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Overview

1. Poverty in Timor-Leste
2. The Agricultural Economy
3. Food Consumption and Income

Background: Timor-Leste

- Strong economic growth due to expansion in the oil & gas industries.
- By most development measures, the people of Timor-Leste are among the poorest in Asia.
- A very new nation, emerging out of a long period of conflict, the early stages of development pose many challenges.

Poverty in Timor-Leste

Pervasive	Approx. half the population classified as poor
Multi-Dimensional	Deprivation in many aspects: health, education, nutrition, lack of economic opportunity, vulnerability to risks, etc
Diverse	Varies significantly across geographical, socioeconomic & demographic dimensions
Deep-Rooted	A long term phenomenon that requires the building of modern institutions, human capital & a vibrant economy from a very low base
Potentially Destabilising	High risk of social unrest in a post-conflict society with rapid population growth & limited economic opportunities

Poverty in Timor-Leste

- Consumption Poverty, TLSLS 2007:
 - 49% poor
- Multidimensional Poverty Index (MPI), DHS 2009:
 - 68% classify as poor
 - Another 18% are at risk of poverty

Multidimensional Poverty Index

Household Indicator	Points
At least one person has completed five years of schooling	3
All school-age children enrolled in school	3
No person is malnourished	3
No children have died	3
Has electricity	1
Has access to clean drinking water	1
Has access to adequate sanitation	1
Has a floor material superior to dirt floor	1
Does not use dirty cooking fuel (dung, firewood, charcoal)	1
Has two of these assets: <i>bicycle, motorcycle, radio, refrigerator, phone, television</i>	1
Poor: 12 points or less	At Risk: 14 points or less

Why Rural Poverty?

- More than 75% of the population are rural
- Agricultural development is important to inclusive growth in the short-to-medium term
- Economic activity in the agricultural sector has been stagnant (at best) over the past several years
- Need an understanding of the best strategies for agricultural development that are likely to yield best return in terms of poverty alleviation

Aims & Focus

- **Understanding** the nature of the agricultural economy at the household level
- **Exploring** links between agricultural productivity & the household's mix of agricultural activity & household welfare
- **Providing** input into strategies for improving inclusive growth via the agricultural sector

The Agricultural Household: Crops

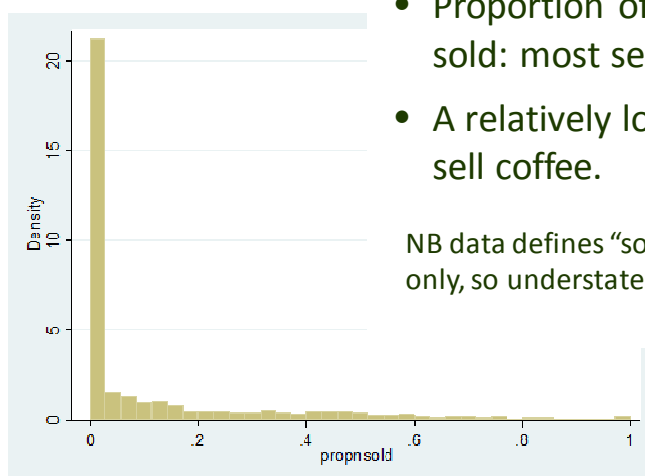
Crop	% of Crop-Growing Households who Grow this Crop	Median Kgs Harvested	% of Harvest that is Sold
Coffee (Cherries)	16 %	500	88 %
Coffee (Dry Beans)	14 %	250	84 %
Vegetables	33 %	150	56 %
Other Fruit	17 %	100	56 %
Kidney Beans	15 %	100	46 %
Mung Bean	7 %	100	36 %
Bananas	53 %	100	35 %
Soy Bean	9 %	60	23 %
Peanuts	21 %	100	21 %
Potato	4 %	100	13 %
Squash	59 %	72	13 %
Gogo Rice	12 %	300	11 %
Cassava	80 %	228	10 %
Sweet Potato	43 %	200	10 %
Taro (Talas/Kontas)	41 %	150	7 %
Coconut	24 %	100	7 %
Maize	96 %	300	6 %
Rice	17 %	750	5 %

What is Grown?

- Widespread production of maize & cassava
- A small % of households grow rice
- Most households grow a wide range of crops

Number of Crops Harvested by the Household	% of Households
0	17%
1-3	20%
4-6	34%
7-9	23%
10+	6%

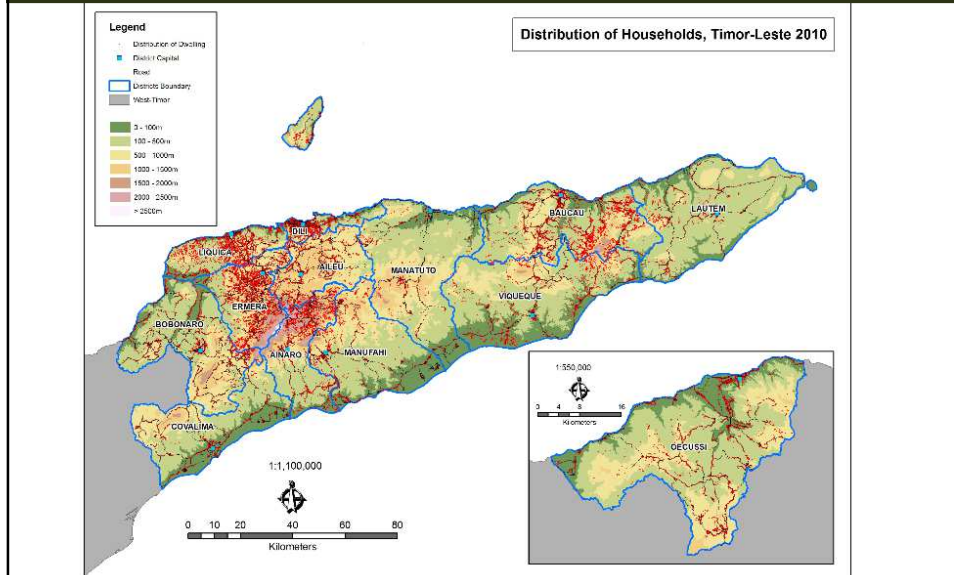
What is Sold?



- Proportion of food crops sold: most sell nothing!
- A relatively low % grow & sell coffee.

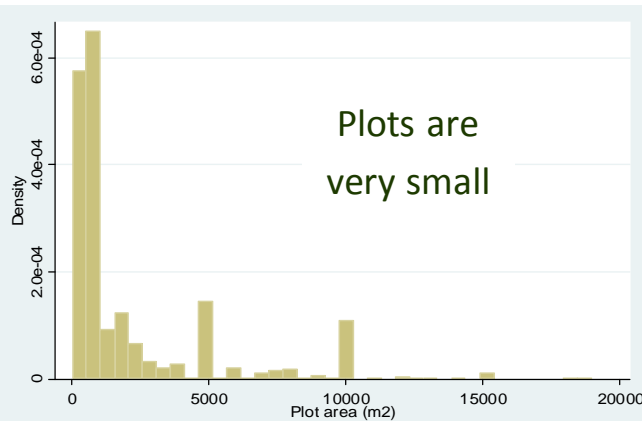
NB data defines "sold" as cash sales only, so understates level of trading

What is the Land Like?



What is the Land Like?

Land used for crops is mostly not steep sloped



Slope of the plot	% of plots
Flat	45%
Slight	37%
Moderate	14%
Steep	4%

Livestock?

- A modest number of livestock

Animal	% of Rural Households who Sold One or More of this Animal	Average Amount Earned from Sales
Buffalo	6 %	\$ 351
Cow	12 %	\$ 265
Horse	2 %	\$ 116
Pig	40 %	\$ 94
Goat	11 %	\$ 55
Chicken	42 %	\$ 17
Other	4 %	\$ 20

Other Observations

- Less than 4% of farming households use fertiliser, manure, herbicides, etc. Seeds are more widely used as inputs
- There is virtually no market for animal products except eggs. 5% of rural households sold eggs. 90% earned less than \$20pa
- Forestry: 10% of households earned income from forestry activities, mostly firewood. 95% earned less than \$200pa

Food Consumption

- Food is the most basic of human needs!
- What is the relationship between food produced & food consumed?
- How do differences in income affect food consumption?

Food Produced & Consumed: Do they Align?

Crop	Amount Produced	Amount Consumed	% Crop not Consumed	% Own Production or Gifts
	<i>Average kg per household per week</i>			
Banana	2.2	1.7	25 %	77 %
Cassava	5.0	2.5	50 %	85%
Coconut	0.9	0.5	47 %	83 %
Maize	8.2	4.6	43 %	85 %
Peanuts	0.4	0.2	56 %	68 %
Potato	0.1	0.1	0 %	16 %
Soybean	0.2	0.1	19 %	81 %
Squash	1.4	0.5	65 %	89 %
Sweet potato	2.0	0.8	59 %	83 %
Taro	2.0	0.7	66 %	91 %

Production & Consumption

	% with income from this source	Annual Income if income from this source		Mean income (all households)
		Median	Mean	
Market value of crops harvested but not sold	82.4 %	\$ 220	\$ 459	\$ 378
Livestock	66.0 %	\$ 105	\$ 182	\$ 120
Non-coffee crops sold	37.7 %	\$ 65	\$ 110	\$ 41
Employment	22.3 %	\$ 150	\$ 202	\$ 45
Food assistance	20.8 %	\$ 13	\$ 23	\$ 5
Coffee	16.2 %	\$ 160	\$ 260	\$ 42
Forestry	7.0 %	\$ 36	\$ 131	\$ 9
By-product	5.3 %	\$ 5	\$ 16	\$ 1
Enterprise	5.2 %	\$ 375	\$ 1,069	\$ 56
Fishing	3.0 %	\$ 290	\$ 669	\$ 20
Other assistance	1.9 %	\$ 450	\$ 1,107	\$ 21
Pensions (mainly overseas)	1.4 %	\$ 1,440	\$ 5,068	\$ 69
Cash assistance	0.3 %	\$ 700	\$ 2,646	\$ 9

Income & Food Consumption

- The Question:
 - Do those with higher income also consume more food?

- The Answer:
 - Some food consumption: yes; others: no
 - It depends on the source of the income

The Result: Source of Income Matters

An extra \$1 of Income from this Source:	Results in an Increase in Total Food Consumption of:	t-stat
Sales of Food Crops	\$ 0.99	10.66
Value of Crops Harvested but not Sold	\$ 0.06	5.39
Coffee Harvest	\$ 0.62	7.87
Labour Employment	\$ 0.17	23.84
Other Income (incl. transfers, pensions)	\$ 0.13	6.92
Livestock Income	\$ 0.45	10.30
Miscellaneous Agricultural Income	\$ 0.31	5.89
Profit from Enterprise Activity	-\$ 0.02	-6.07

Production & Consumption

- Is there an explanation for the big gap between production & consumption for most crops?
- Is it underused production?
- This finding is consistent with a lack of markets beyond local, informal exchange

The Result: Source of Income Matters

- Sale of food crops has the most direct impact!
- Coffee & enterprise or employment income are next best
- Many other income sources yield very little on food consumption
- Link from food production (the portion not sold) to food consumption is low

Why does Income Source Matter?

- In theory: money is fungible
- But:**
- Income from different sources received at different times
 - Imperfect capital markets
 - Incomplete pooling of resources at the household level
 - Cultural issues: celebrations, gifts & loans, etc.

The Result: Source of Income Matters

An extra \$1 of Income from this Source:	Results in Increased Consumption of:			
	Rice & Corn		Non-Cereal Food	
Sales of Food Crops	\$ 0.20	*	\$ 0.73	*
Value of Crops Harvested but not Sold	\$ 0.02	*	\$ 0.03	*
Coffee Harvest	\$ 0.02		\$ 0.54	*
Labour Employment	\$ 0.01	*	\$ 0.14	*
Other Income (incl. transfers, pensions)	-\$ 0.01		\$ 0.12	*
Livestock Income	\$ 0.06	*	\$ 0.37	*
Miscellaneous Agricultural Income	\$ 0.09	*	\$ 0.18	*
Profit from Enterprise Activity	\$ 0.00		-\$ 0.01	*

Income & Type of Food Consumed

- Rice & corn consumption are relatively insensitive to higher income from any source
- Non-cereal foods (includes fruit, vegetables, etc.) are much more responsive to income increases, especially from food crop sales & coffee income.

The Overall Story

- If the aim is to reduce poverty & improve food consumption & nutrition, increasing incomes is important
- BUT the source of income increase can matter:
 - Non-labour income do little for rural household food consumption
 - Sale of food crops yields direct benefits in food consumption
 - Coffee income yields very good returns for food consumption

The Overall Story (cont'd)

- As incomes rise, consumption of staple crops (rice and corn) does not increase much, but household consumption of other food increases
- i.e. Income is key to improving nutritional diversity.

Policy Implications?

- Priority of developing local food markets to substantially increase trade in food, facilitate specialisation, economies of scale, etc. But what are the obstacles to these markets emerging?
- Cash crop income (coffee) serves valuable role in supporting food consumption.
- Smaller benefits of transfers & of nonlabour employment in addressing food poverty