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Analysis of Income & Poverty Dynamics
in Rural Mozambique 2002-2005


Preliminary results based on
TIA 02 and TIA 05 panel

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Context: using the TIA database to better
understand rural income and poverty
dynamics

- Objective of TIA analyses to inform GOM, USAID and NGO partners on agricultural strategies and policies to accelerate poverty reduction:
- Panel data analysis on
 - Rural HH income trend & its determinants
 - Rural HH poverty dynamics
 - Relationship between rural income and agricultural technology

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Outline of presentation

- TIA Data
 - TIA02-TIA05 panel sample
 - Definition of rural HH income
- Changes in rural HH income
 - spatial and distributional patterns
 - Determinants of income changes
- Rural HH poverty dynamics 2002-05
 - spatial pattern
 - Characteristics of HHs which move from being poor (2002) to non-poor (2005), relative to HHs which remain in poverty
 - Characteristics of HHs which move from being non-poor (2002) to poor (2005), relative to HHs which remain non-poor

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TIA 02 and 05 panel

- TIA02
 - n=4908 rural households from 80 districts
- TIA05
 - n=6149 Rural households from 94 Districts
- TIA02-05 panel
 - n=4104 from the 80 TIA02 districts
 - 16% attrition rate (HHs which moved away or dissolved)
 - repeat & non-repeat HHs have similar HH characteristics
- Very similar objectives and questionnaire design
 - Both TIA 02 and TIA05 explicitly designed as rural income surveys
- Similar weather patterns in some provinces, different in others:
 - Niassa, Gaza had less rainfall in 1st quarter 2004/05

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Components of Rural HH Income

- Crop production
 - Sales of food crops; value of retained food
 - Field cash crops, sales of tree crops & horticulture
- Livestock
 - Sales of live animals, meat, and dairy products
- Wage labor
 - Skilled vs nonskilled, ag vs non-ag, etc
- Self-employment income
 - Resource extraction (fish, forestry, etc); other
- Remittance income

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Table 1. Mean/median Total Net Rural HH Income by Province – 2002 – 2005 (Mtn per AE)

Province	Mean			Median		
	Total Net Income/AE		% change in means	Total Net Income/AE		% change in medians
	2002	2005		2002	2005	
Nampula	2,939	3,164	7.7%	2,097	1,487	-29.1%
Zambezia	2,176	2,111	-3.0%	1,400	1,265	-9.7%
Manica	2,112	2,883	36.5%	1,332	1,470	10.3%
Sofala	1,856	3,363	81.2%	1,243	1,872	50.6%
National	2,818	3,335	18.3%	1,747	1,690	-3.3%

Source: TIA 2002, TIA 2005

AE=Adult equivalents; Mtn=Meticais novo

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Table 2: Median Net Income Change in Mtn/AE

2002 & 2005 quintiles of net HH Income/AE	Total Net Income/AE		
	2002	2005	% change in medians
1	482	350	-27.4%
2	1,055	902	-14.4%
3	1,745	1,684	-3.5%
4	2,791	3,091	10.7%
5	5,649	6,853	21.3%
Total	1,747	1,690	-3.3%

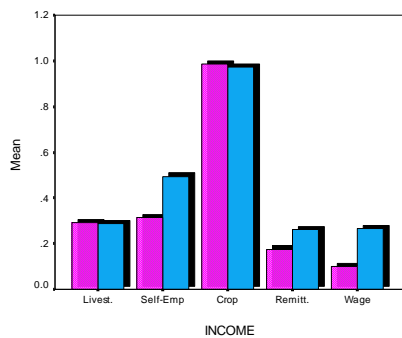
Source: TIA 2002, TIA 2005

AE=Adult equivalents; Mtn=Metical novo

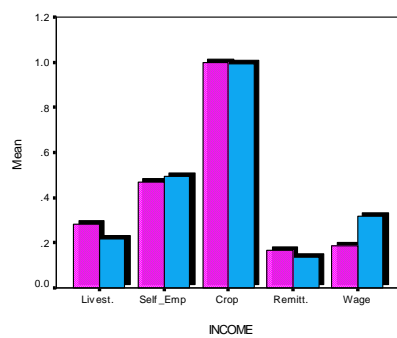
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Participation in Income Activities

Nampula



Zambezia

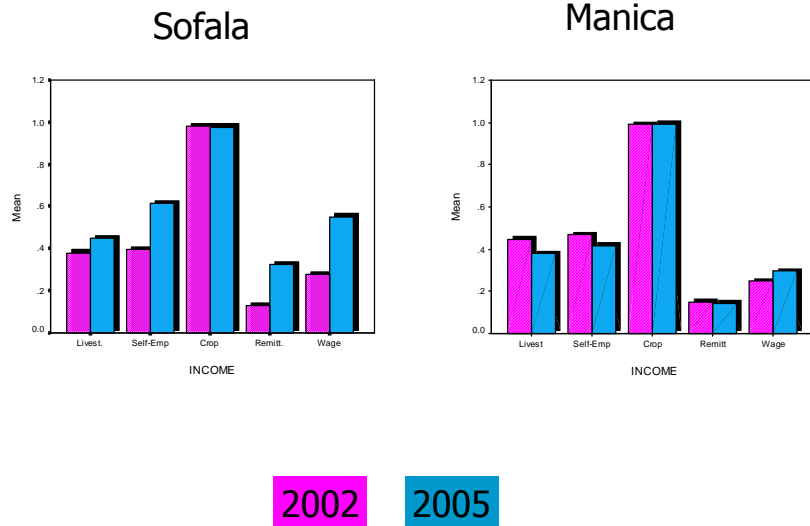


2002

2005

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Participation in Income Activities



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Determinants of Income Changes

- Methodology: Regression analysis using Change in Per AE Total Income from 2002 to 2005,
- Change in income (ΔY) =
Based on various factors: Location, demographics, assets, technology,

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Determinants of Income Changes

■ Location:

- Some Districts have significantly lower or higher income changes
 - Examples: Macoso District Manica higher than average; Gile District in Zambezia lower
 - Capturing infrastructure, some aspects of soils and climate

■ Headship:

- **Gender:**
 - Going from male head to female head: loss of 533 Mtn per AE
 - Female head in both periods: decline of 211 Mtn
- **Education of Head:**
 - Positive returns to education, at a decreasing rate

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Determinants of Income Changes

■ Technology/Crops

- Input use, animal traction: no significant effect
- Improved crop seed and row planting:
 - Use in 2005 is associated with increased income
 - Tobacco production: adopting tobacco or continuing to grow tobacco from 2002 to 2005 increased income, but so did disadopting (lesser extent)

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Determinants of Income Changes

■ Assets (2002 level)

- Chickens: having more than 30 is associated with positive change in income
- Land: having more land in 2002 ⇒ increased income; increasing land from 2002-2005 ⇒ increased income
- Livestock, trees, bikes, radios not significant

■ Sources of Income

- Non-Farm Sources
 - Gaining unskilled wage labor job: no significant improvement in income
 - Gaining skilled wage job: positive effect with gaining or keeping; negative effect with losing
 - Self-employment: larger positive change when activity is high-startup cost activity
- Participation in activities is dynamic, a lot of switching from 2002 to 2005

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Table 4: Change in Poverty Incidence

Province	% HH below IAF Food poverty line 2002	% HH below IAF Food Poverty Line 2005	% change
Nampula	66	71	8.0
Zambezia	69	69	-0.8
Manica	75	70	-6.7
Sofala	67	50	-25.5
National	70	67	4.4

Source: TIA 2002, TIA 2005

IAF=Inquérito dos Agregados Familiares 2002; hh=Households

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Table 5: Poverty dynamics 2002 to 2005

Province	Poverty Categories				Total
	Stayed poor	Escaped Poverty	Became Poor	Stayed non-poor	
Nampula	52	14	19.3	14.8	100
Zambezia	51.9	17.6	17	13.5	100
Manica	60	14.7	9.7	15.6	100
Sofala	38.8	28.4	11.2	21.6	100
National	52.2	17.8	14.7	15.3	100

Source: TIA 2002, TIA 2005

IAF=Inquérito dos Agregados Familiares 2002; hh=Households

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For HHs that were poor in 2002, what factors increased likelihood of becoming non –poor? Positive dynamic

- **Location:**
 - HHs in some districts are more likely to escape poverty than others
- **Asset levels (in 2002):**
 - 1-30 chickens
 - No. of goats/sheep
 - 1.75 to 5 ha of total area
- **Technology used:**
 - improved seeds (food crops)
 - animal traction
- **Livelihood strategies:**
 - HH undertakes self-employment activities
 - HH receives remittances

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For HHs that were non-poor in 2002, factors that increased likelihood of becoming poor: Negative Dynamic

- HH Demographics:
 - HH which becomes female headed
- Asset levels (in 2002):
 - HH head did not complete primary school
 - HH has no chickens
 - HH has less than 1.75 ha of total area
 - HH has no radio
- Technology used:
 - No access to extension
- Livelihood strategies:
 - Losing cash crops: tobacco, cotton
 - Losing self-employment activity
 - Losing skilled wage income

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Selected Take-away points

- Initial assets can make a difference: those with higher assets experience higher income change and can participate in higher income activities
- In a relatively poor rainfall year, HHs do shift to wage labor/ self-emp; but the poor into low income wage labor, low returns self-emp.
- Ag technology is associated with higher income changes: improved seed & row planting
- Female heads at a disadvantage
- Chickens associated with positive income changes

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UPCOMING ACTIVITY ON TECHNOLOGY IDENTIFICATION, MONITORING, AND ASSESSMENT (Amended SOW)

■ OBJECTIVES

- Improve selection of best bet technologies
- Harmonization of methodology for technology assessment and monitoring
- Strengthen linkages and communications between technology development activities of IIA, USAID funded PVO's and other partners

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Activities planned and timing

- Workshop on best bet technologies (Date?)
- Workshop to present and adopt methodology for monitoring and impact assessment (Date?)



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Obrigado

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