Resilience in Ethiopia PRIME: RMS Phase I Deep Dive

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Acknowledgments

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Purpose

- Using the RMS data (collected Oct 2014-March 2015), examine which resilience capacities enabled households to recover from the 2014-15 drought in ways that can help inform future programming for the PRIME project.

- **Three Deep Dive Questions**:
    1. Which resilience capacities enabled HHs to recover from the drought?
    2. How did resilience capacities shape the coping strategies that HHs employed to manage the drought?
    3. Which resilience capacities were associated with less reliance on food aid? (reduce food aid reliance, enable positive coping, prevent negative coping)?

Take Homes: Programmatic areas of focus to increase households' resilience to future droughts

- Timely humanitarian assistance (food aid, food/cash–for-work, hazard insurance)

- Additionally, programming should also focus on:
  - Building social capital
  - Supporting informal safety nets and community groups (especially civic groups and natural resource management groups)
  - Maintaining and enhancing households' asset bases
  - Ensuring access to savings and credit
  - Increasing access to communal natural resources

Question 1: Which resilience capacities enabled households to recover from the drought?

Two Methods

- ***Growth Regressions:***
  - Household and community resilience capacities predicting the change in food security outcomes over time.
  - Models controlled for shock exposure, initial food security levels, and household characteristics.
  - Food security was captured by the *inverse* of the HFIAS.

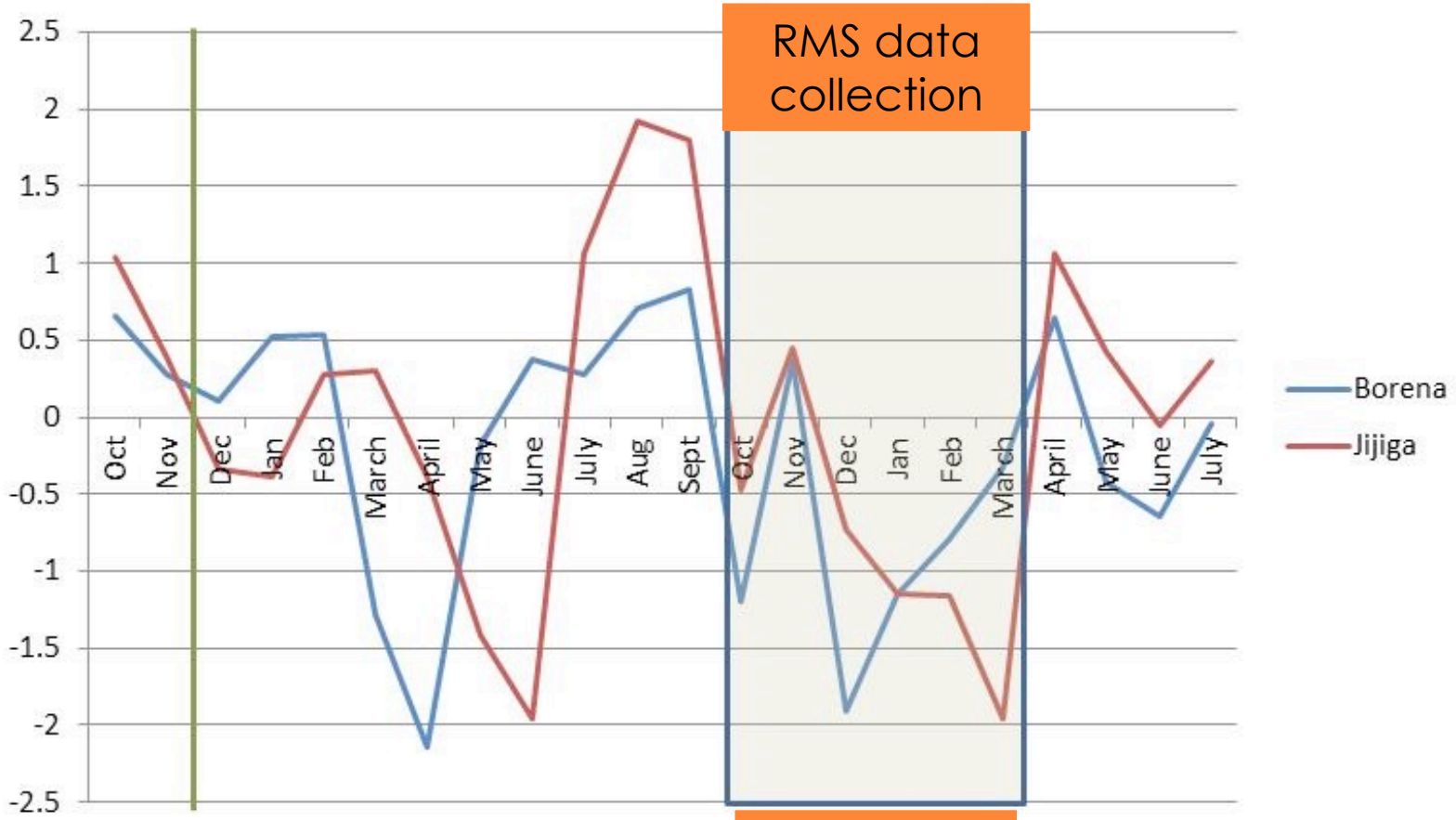
- ***Positive Deviant (PD) Analyses:***
  - Analyses of the groups of households that fared far better than average over the course of the drought waves.
  - Analyses included:
    - Descriptive analysis of differences between PDs and non-PDs
    - Regression analysis: which resilience capacities distinguish PDs from non-PDs?

Growth Regressions: Which Capacities Enabled Recovery?

- Household and community resilience capacities predicting the change in food security outcomes over time (22 resilience capacity indicators).
- The change in food security is the measure of recovery or *resilience*.
- None predicted changes in food security for the sample as a whole or for Jijiga HHs specifically (wave 1).
- Following results are for Borena only (N=212).

Growth Regressions: Which Capacities Enabled Recovery?

Rainfall deviation from norm in Borena and Jijiga, October 2013-July 201[1]



Source: African Flood and Drought Monitor, 2015.

Growth Regressions*

**Borena only*

Resilience Capacity Indicator	Wave 1 (Mar 14 – Oct 14)	Wave 2 (Oct 14 – Mar 15)
Bonding social capital	X	X
Access to informal safety nets	X	X
Asset Index	X	X
Human capital	X	
Access to markets	X	
Access to communal natural resources	X	X
Availability of hazard insurance		X
Bridging social capital		X
Access to financial resources		X
Access to formal safety nets		X

Effect over both drought waves:

- Bonding social capital
- Access to informal safety nets
- Asset ownership
- Access to communal natural resources

Growth Regressions*

**Borena only*

Resilience Capacity Indicator	Wave 1 (Mar 14 – Oct 14)	Wave 2 (Oct 14 – Mar 15)
Bonding social capital	X	X
Access to informal safety nets	X	X
Asset Index	X	X
Human capital	X	
Access to markets	X	
Access to communal natural resources	X	X
Availability of hazard insurance		X
Bridging social capital		X
Access to financial resources		X
Access to formal safety nets		X

Initial Protective Effect (Wave 1):

- Bonding social capital
- Access to informal safety nets
- Asset ownership
- Human capital
- Access to markets
- Access to communal natural resources

Growth Regressions*

**Borena only*

Resilience Capacity Indicator	Wave 1 (Mar 14 – Oct 14)	Wave 2 (Oct 14 – Mar 15)
Bonding social capital	X	X
Access to informal safety nets	X	X
Asset Index	X	X
Human capital	X	
Access to markets	X	
Access to communal natural resources	X	X
Availability of hazard insurance		X
Bridging social capital		X
Access to financial resources		X
Access to formal safety nets		X

Longer Term Protective Effect (Wave 2):

- Bonding social capital
- Access to informal safety nets
- Asset ownership
- Access to communal natural resources
- Availability of hazard insurance
- Bridging social capital
- Access to financial resources
- Access to formal safety nets

Positive Deviant Analysis: Which Capacities Enabled Recovery?

- Analyses of the group of households that fared better than average over the course of the drought waves.
  - **Wave 1**: 98 positive deviants (24% of panel sample)
    - HHs whose food security score increased by >= 3 points over the drought wave
  - **Wave 2 (Borena only, regular data set)**: 58 positive deviants (27% of panel sample)
    - HHs whose food security scores were reasonably stable: did not drop > 2 points over the 6 months, and any drop between consecutive rounds was no more than 5 points
  - **Wave 2 (Borena only, stacked data set)**: 213 positive deviant *observations* (21% of observations)
    - HH observations for which the food security score increased by >= 4 points between rounds

- **Analyses included:**
  - Descriptive analysis of differences in resilience capacities between PDs and non-PDs (adjusting for other characteristics)
  - Regression analysis examining which resilience capacities distinguish PDs from non-PDs

Positive Deviant Analysis—Drought Wave 1 Descriptive Analysis

Wave 1	
Availability of hazard insurance	↑
Bridging social capital	↑
Access to financial resources	↑
Presence of a civic group in village	↑
Asset ownership	
Access to informal safety nets	
Degree of social protection in communities	
Number of NRM groups in communities	

Statistically significant differences in *resilience capacities* between positive deviants and non-positive deviants:

- Hazard insurance
- Bridging social capital
- Financial resources
- Civic groups

No other differences between positive deviants and non-positive deviants.

Positive Deviant Analysis—Drought Wave 1
Regression Analysis: Predicting why HHs were PDs

Wave 1	PD	Non-PD
Availability of hazard insurance	↑	
Bridging social capital		
Access to financial resources	↑	
Presence of a civic group in village	↑	
Asset ownership	↑	
Access to informal safety nets	↑	
Degree of social protection in communities	↑	
Number of NRM groups in communities	↑	

Predictors of being a positive deviant :

- Hazard insurance
- Financial resources
- Civic groups
- Asset ownership
- Informal safety nets
- Social protection
- Natural resource management groups

Positive Deviant Analysis—Drought Wave 2 Descriptive Analysis

- No statistically significant differences between PDs and non-PDs in resilience capacities found for Wave 2.

- Note: These are resilience capacities measured at baseline. They were not measured over the course of the shock/RMS.

Positive Deviant Analysis—Drought Wave 2
Regression Analysis: Predicting why HHs were PDs

Wave 2		
	PD	Non-PD
Bonding social capital	↑	
Access to financial resources	↑	
Access to communal natural resources	↑	
Availability of formal safety nets	↑	

Predictors of being a positive deviant (Wave 2):

- Bonding social capital
- Financial resources
- Communal natural resources
- Formal safety nets.

Summary: Capacities Shown to Support Recovery Across Shock Waves and Methods of Analysis

- **Social capital**
  - Bonding social capital
  - Bridging social capital
- **Economic sources of resilience capacity**
  - Asset ownership
  - Access to financial resources (savings and credit)
- **Safety nets**
  - Informal safety nets
  - Formal safety nets (including hazard insurance)
- **Other**
  - Access to communal natural resources
  - Presence of a civic group

Question 2: How did resilience capacities at baseline shape the coping strategies that HHs employed to manage the drought?

Two Methods (Borena, Wave 2 only)

- ***Positive Deviant Analysis:***
  - Models examined whether PDs were more or less likely to use certain coping strategies, in comparison to non-PDs.
  - Analyses showing the percent of PD versus non-PD HHs using each coping strategy over the 6-month RMS period.

- ***OLS Regression Analysis:***
  - Analysis examining the association between resilience capacities and coping strategies.

Coping Strategies: Negative

- **Reduce food consumption**

- **Sell or consume productive assets**
  - Sell or slaughter livestock
  - Sell agricultural productive assets
  - Consume seed stock held for the next season

- **Other negative strategies**
  - Take children out of school/send to work
  - Borrow money from a money lender
  - Buy food on credit

Coping Strategies: Positive

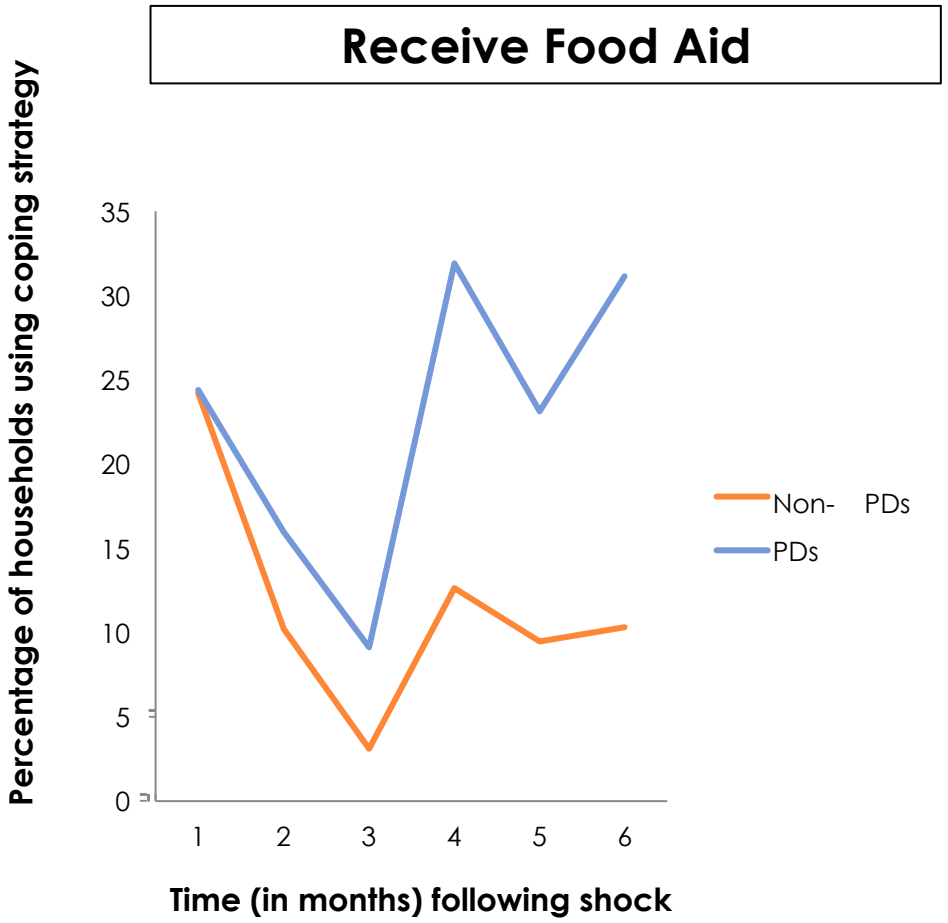
- **Self-reliant strategies**
  - Borrow money from friends or relatives
  - Draw down on savings
  - Receive money or food from family members
  - Take up new wage labor (positive ?)

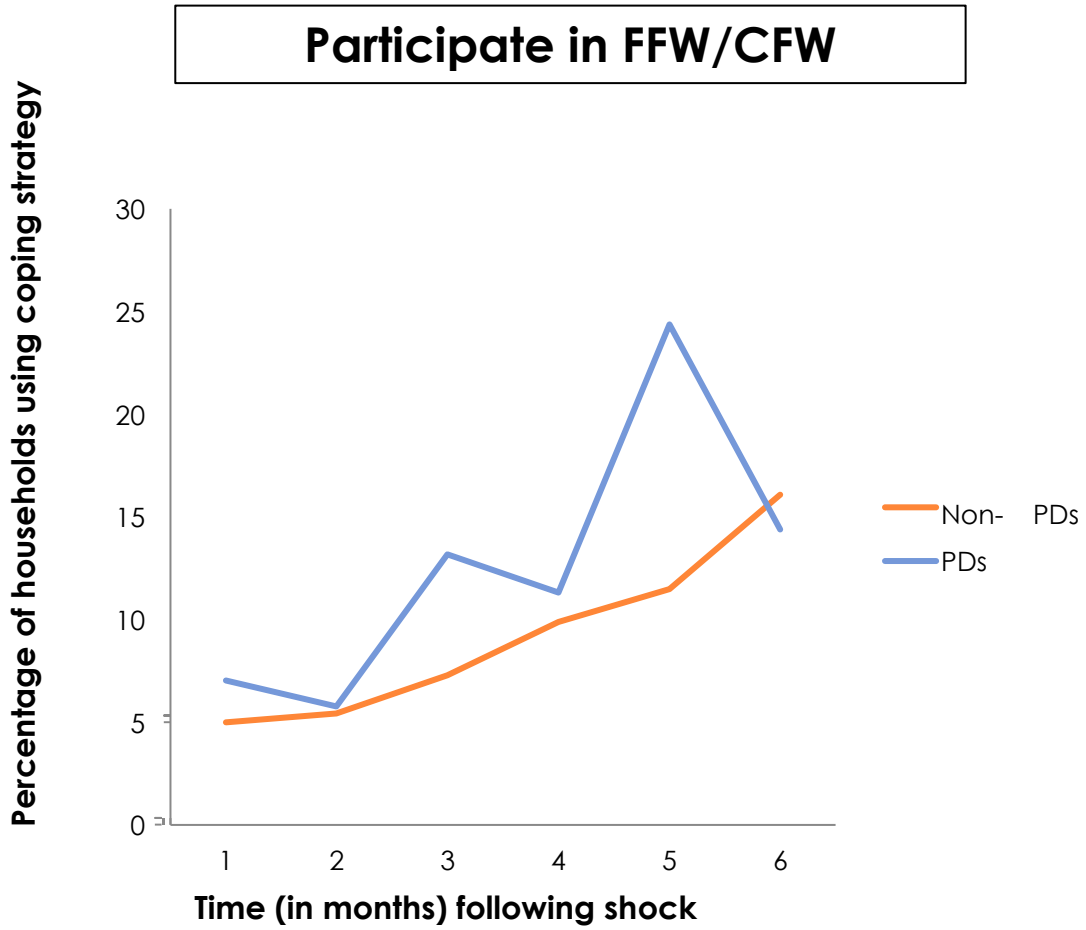
- **Strategies that rely on formal assistance**
  - Participate in food-for-work or cash-for-work
  - Receive food aid

Resilience Capacities and Coping Strategies: Positive Deviant Analyses

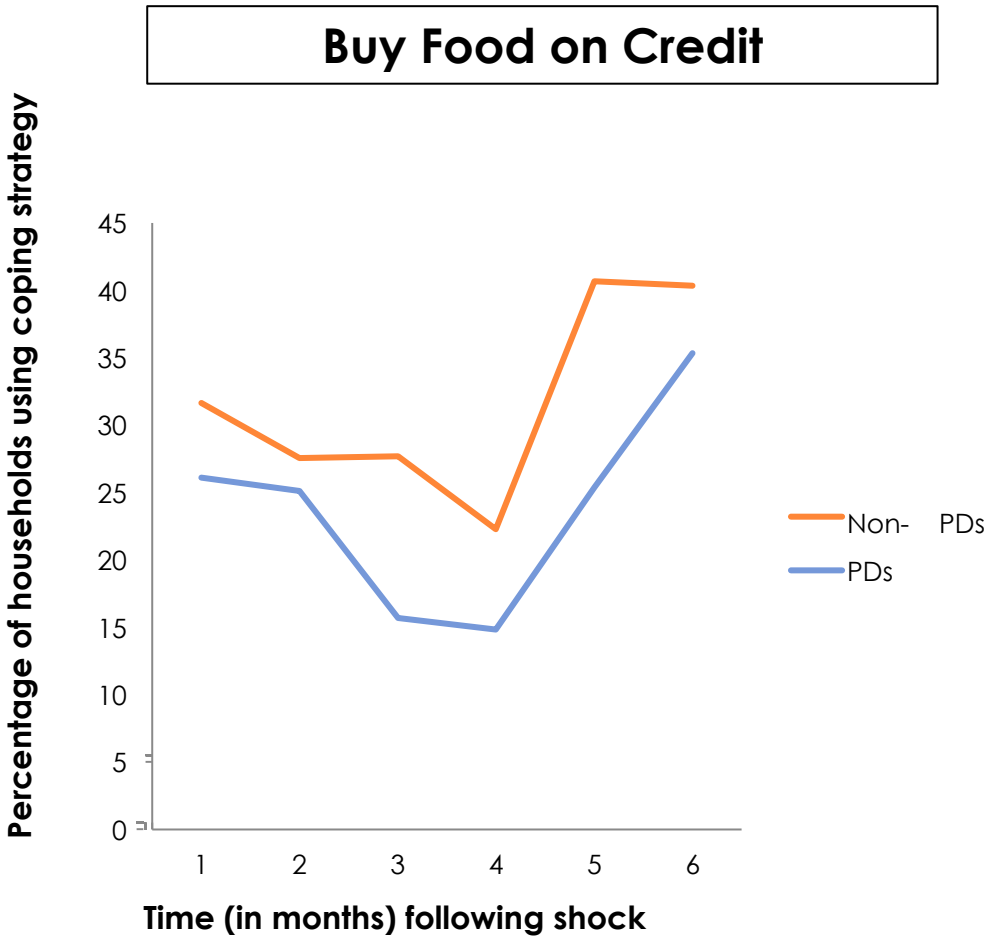
Wave 2		
	PD	Non-PD
Food aid	↑	
Food-for-work/cash-for-work	↑	
Take children out of school/send to work	↓	
Borrow from a money lender	↓	
Draw down on savings	-	

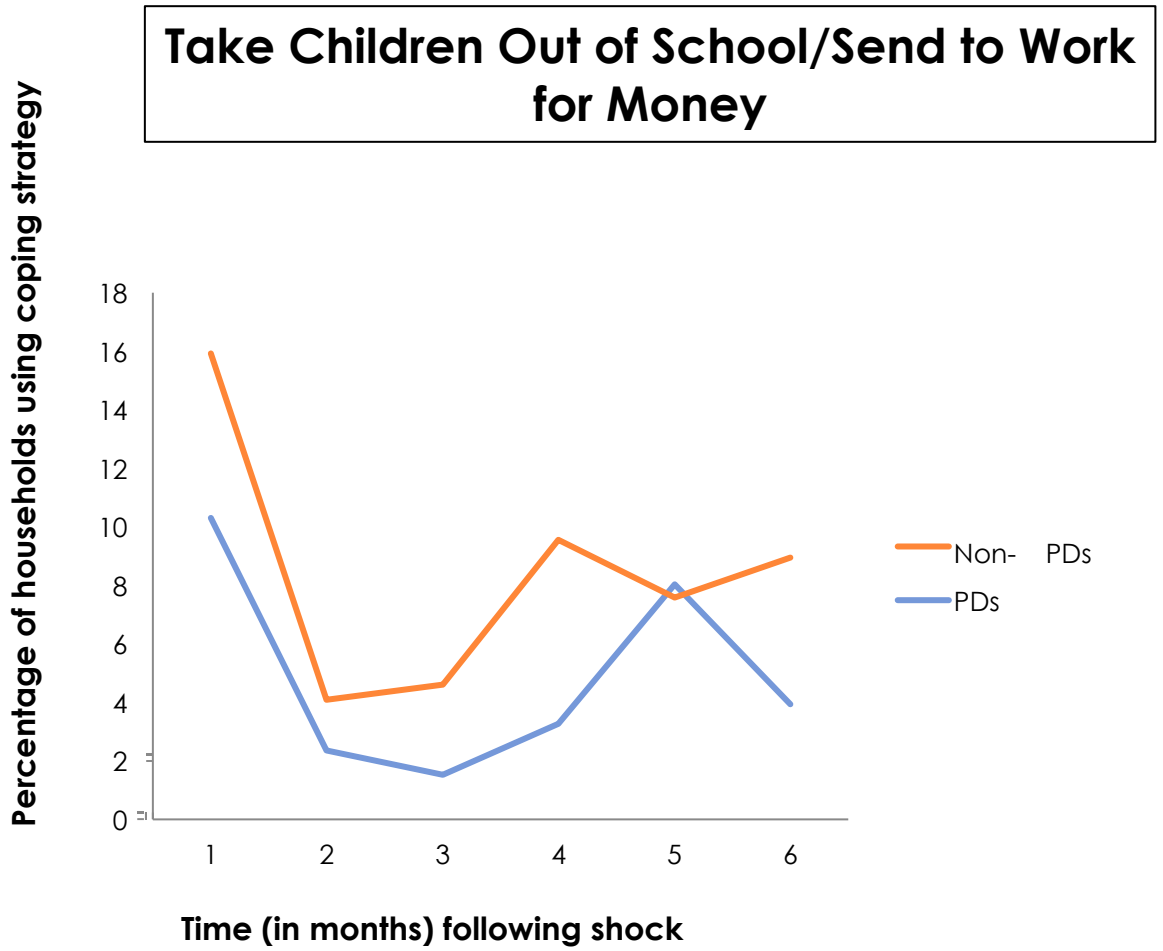
Changes in Coping Strategies Over Time: Positive deviants versus non-deviants



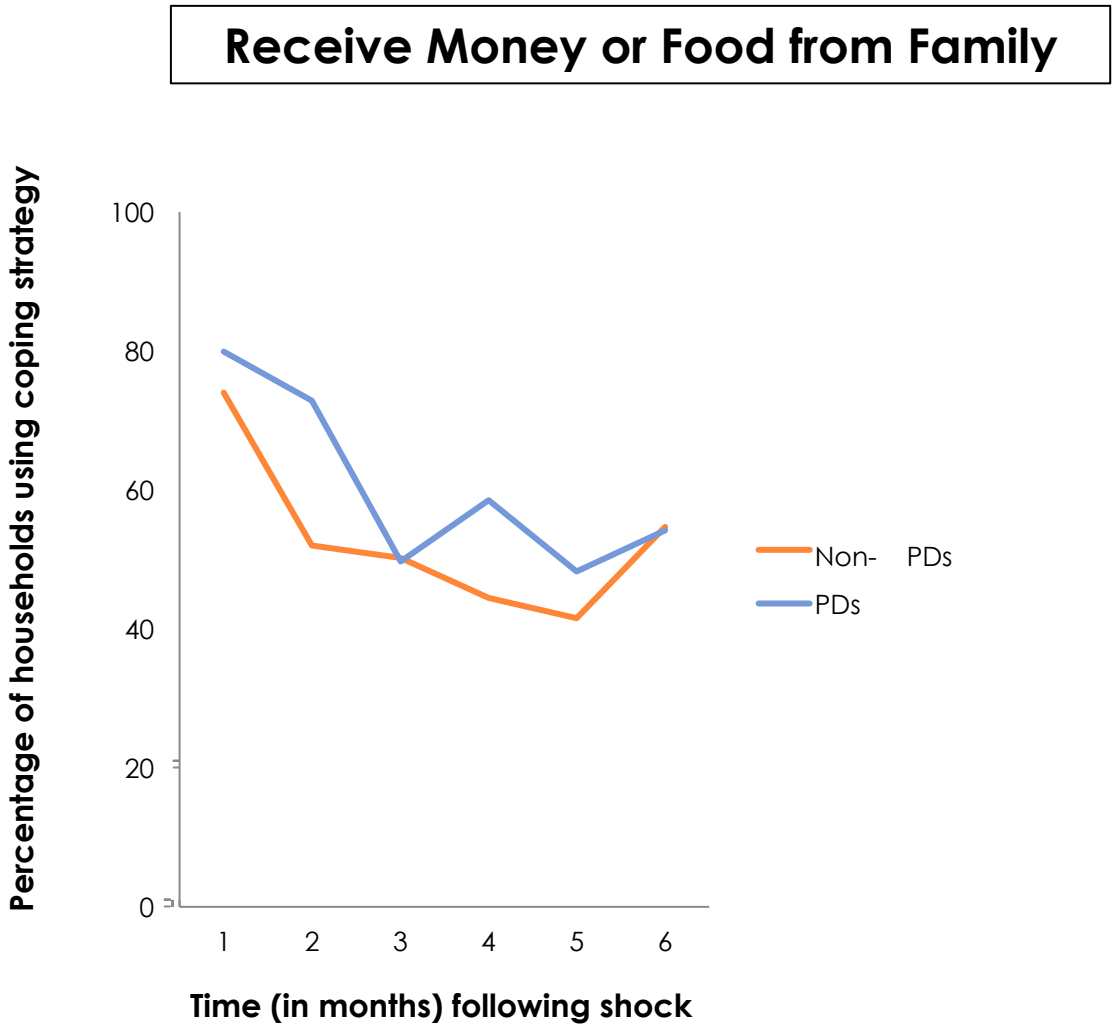


Changes in Coping Strategies Over Time: Positive deviants versus non-deviants





Changes in Coping Strategies Over Time: Positive deviants versus non-deviants



OLS Regression Analyses: High Level Take Homes

- DRR, asset ownership, access to infrastructure, human capital, access to communal natural resources, availability of formal safety nets, aspirations/confidence to adapt, access to markets, number of NRM groups, and social protection have the most associations with coping strategies

- DRR, access to communal natural resources, access to infrastructure, human capital, aspirations/confidence to adapt, and asset ownership have the strongest associations with various coping strategies

- Food aid, new wage labor, and selling/slaughtering livestock are the coping strategies best predicted by sources of resilience

How Did Resilience Capacities Shape Household's Coping Strategies?: Regression Analysis

- **Looked at the association between each resilience capacity and each coping strategy (13* 21=273 regressions!)**
- **Focus here on the 8 capacities with strongest evidence for assisting recovery:**
  - **Social capital**
    - Bonding social capital
    - Bridging social capital
  - **Economic sources of resilience capacity**
    - Asset ownership
    - Access to financial resources (savings and credit)
  - **Safety nets**
    - Informal safety nets
    - Formal safety nets (including hazard insurance)
  - **Other**
    - Access to communal natural resources
    - Presence of a civic group

Bonding Social Capital

- **Enabled**
  - Receive money or food from family members
  - Draw down on savings
  - Take children out of school/send to work
- **Prevented**
  - Receiving food aid

Bridging Social Capital

- **Enabled:** Receiving money or food from family members
- **Prevented:** Borrowing money from money lenders

Asset Ownership

- **Enabled**
  - Destocking of livestock
  - Drawing down on savings

- **Prevented**
  - Engaging in new wage labor
  - Purchasing food on credit
  - Reliance on formal sources of assistance (food aid and food/cash –for-work)

Access to Financial Resources

- This is the capacity for which we have the strongest evidence that it assisted households to recover

- **Prevented**
  - Reducing food consumption
  - Engaging in new wage labor

Formal Safety Nets

- **Enabled**
  - Reliance on food aid
  - (Destocking of livestock)

- **Prevented**
  - Reducing food consumption
  - Consuming seed stock
  - Engaging in new wage labor

Informal Safety Nets

- **Prevented**
  - Reducing food consumption
  - Consuming seed stock
  - Engaging in new wage labor

Access to Communal Natural Resources

- **Enabled**
  - Destocking of livestock
  - Borrowing money from friends or relatives
  - Receiving food or money from family

- **Prevented**
  - Engaging in new wage labor

Presence of a Civic Group

- No statistical association with any of the coping strategies

Resilience Capacities Associated with Less Reliance on Food Aid

- Bonding social capital
- Asset ownership

- Disaster preparedness and mitigation
- Access to markets
- Natural resource management groups
- Social protection in communities

Question 3: Which Capacities Were Associated with Less Reliance on Food Aid?

Which Capacities Were Associated with Less Reliance on Food Aid?

Criteria:

- Bolstered resilience to the drought
- Enabled positive coping strategies
- Prevented negative coping strategies
- Reduced reliance on food aid

Which Capacities Were Associated with Less Reliance on Food Aid?

- **Social capital**
  - Bonding social capital
  - Bridging social capital

- **Economic sources of resilience capacity**
  - Asset ownership
  - Access to financial resources (savings and credit)

- **Informal safety nets**
- **Communal natural resources** (and community NRM groups)
- **Civic groups**

Programmatic Implications

- Timely humanitarian assistance (food aid, food/cash–for-work, hazard insurance)

- Additionally, programming should also focus on:
  - Building social capital
  - Supporting informal safety nets and community groups (especially civic groups and natural resource management groups)
  - Maintaining and enhancing households' asset bases
  - Ensuring access to savings and credit
  - Increasing access to communal natural resources.

Limitations

- Limited sample size
- Borena-centric findings
- Capacities and economic well-being measured at baseline, not over the course of RMS.

Thank you!

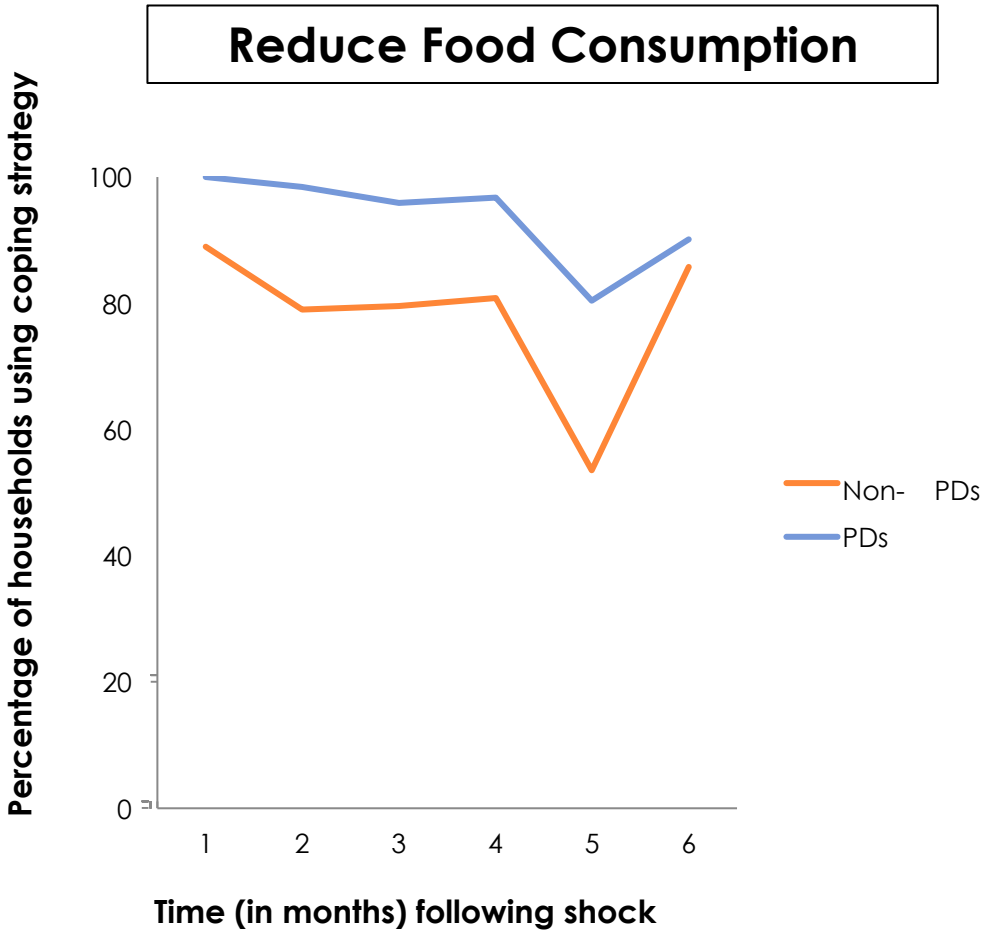
Annex: Supplementary Tables and Figures

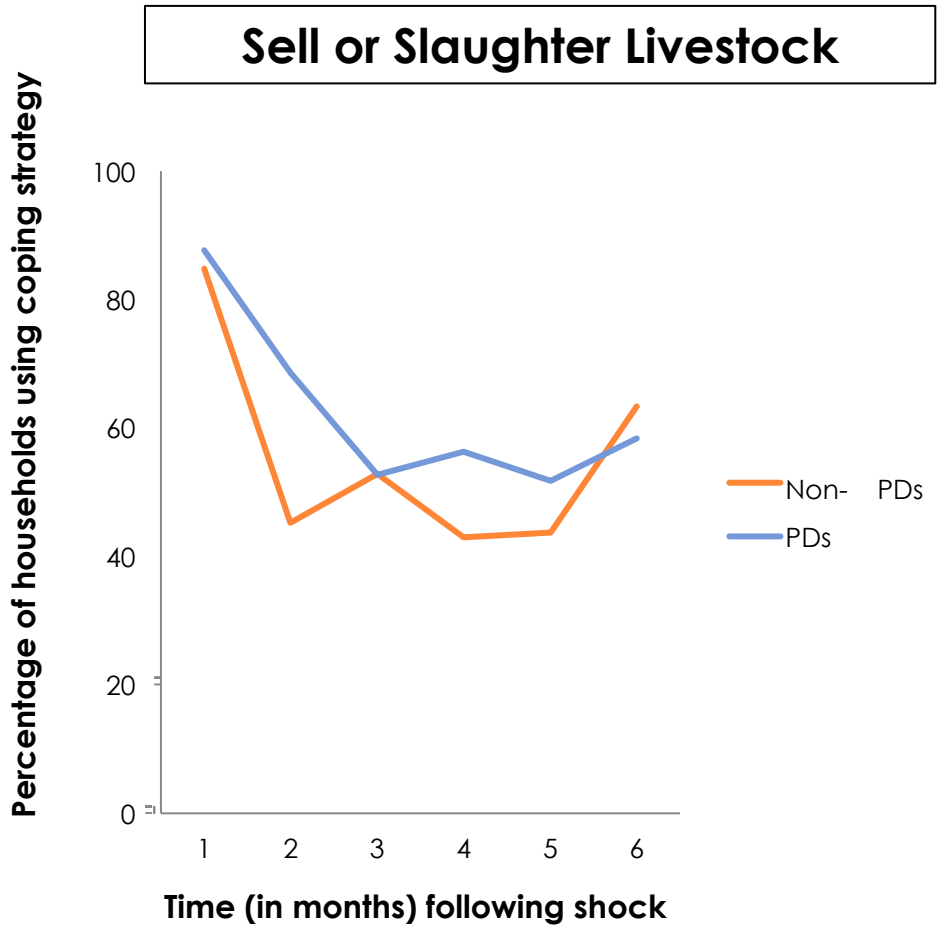
Table 2. Summary: Which resilience capacities are associated with the coping strategies households used in response to the drought?

Coping strategy / Resilience capacity	Reduce food consump-tion	Sell or consume productive assets		Change labor patterns			Financial strategies				Receive food or financial assistance	
		Sell/ slaughter livestock	Consume seed stock	New wage labor	Increase child labor	Food/cash for work	Borrow: friends/ relatives	Borrow: money lender	Buy food on credit	Draw down on savings	Food aid	Money/ food from family
Absorptive capacity												
Bonding social capital											*	
Holdings of savings										*		
Access to informal safety nets												
Availability of hazard insurance												
Disaster preparedness and mitigation											*	
Asset index		*		*		*					*	
Adaptive capacity												
Bridging social capital												
Linking social capital	*											
Aspirations/confidence to adapt		*				*					*	
Livelihood diversity				*								
Access to financial resources												
Human capital		*		*							*	
Exposure to information												
Asset index												
Transformative capacity												
Bridging social capital												
Linking social capital												
Access to markets						*					*	
Access to infrastructure				*	*	*						*
Access to services			*								*	
Access to communal natural resources	*	*		*			*					
Availability of formal safety nets				*								
Community resilience capacity												
Number natural resource managmt groups											*	
Disaster risk reduction index	*	*		*			*				*	*
Social protection index							*					
Presence of a civic group												
Access to communal natural resources												

Notes: Shaded boxes indicate that the resilience capacity has a statistically significant association with the coping strategy. Blue-highlighted boxes indicate a positive association; Orange-highlighted boxes indicate a negative association. Stared boxes indicate stronger evidence of an association, as explained in the text.

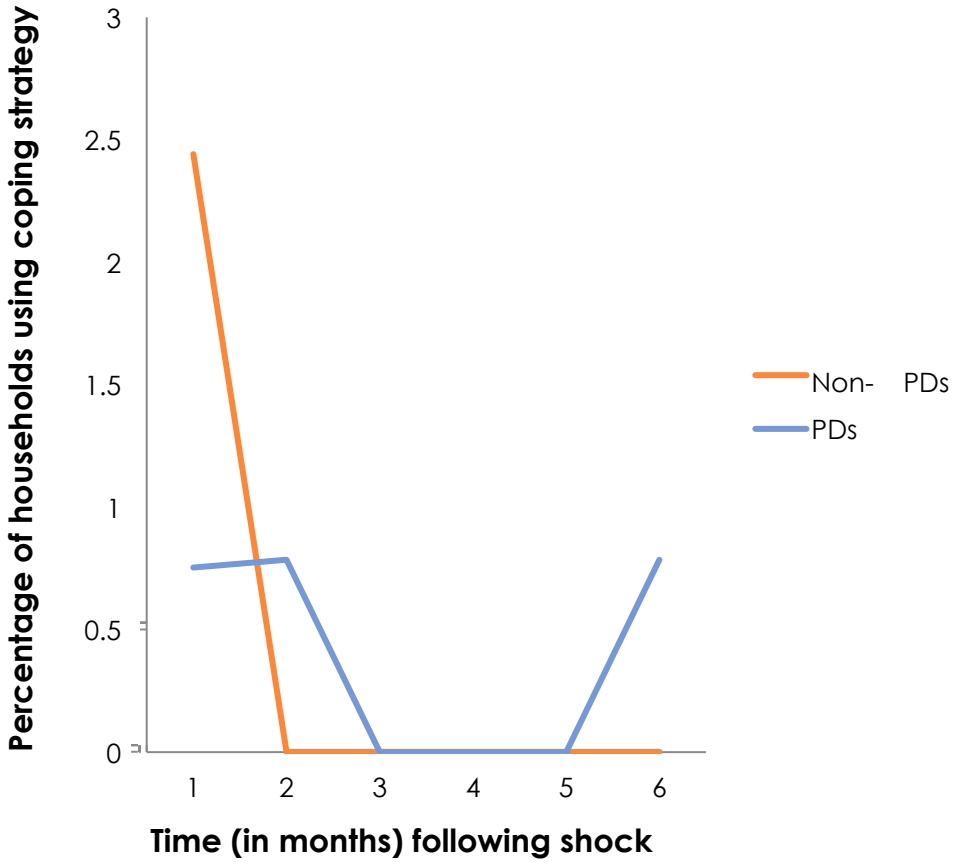
Changes in Coping Strategies Over Time: Positive deviants versus non-deviants



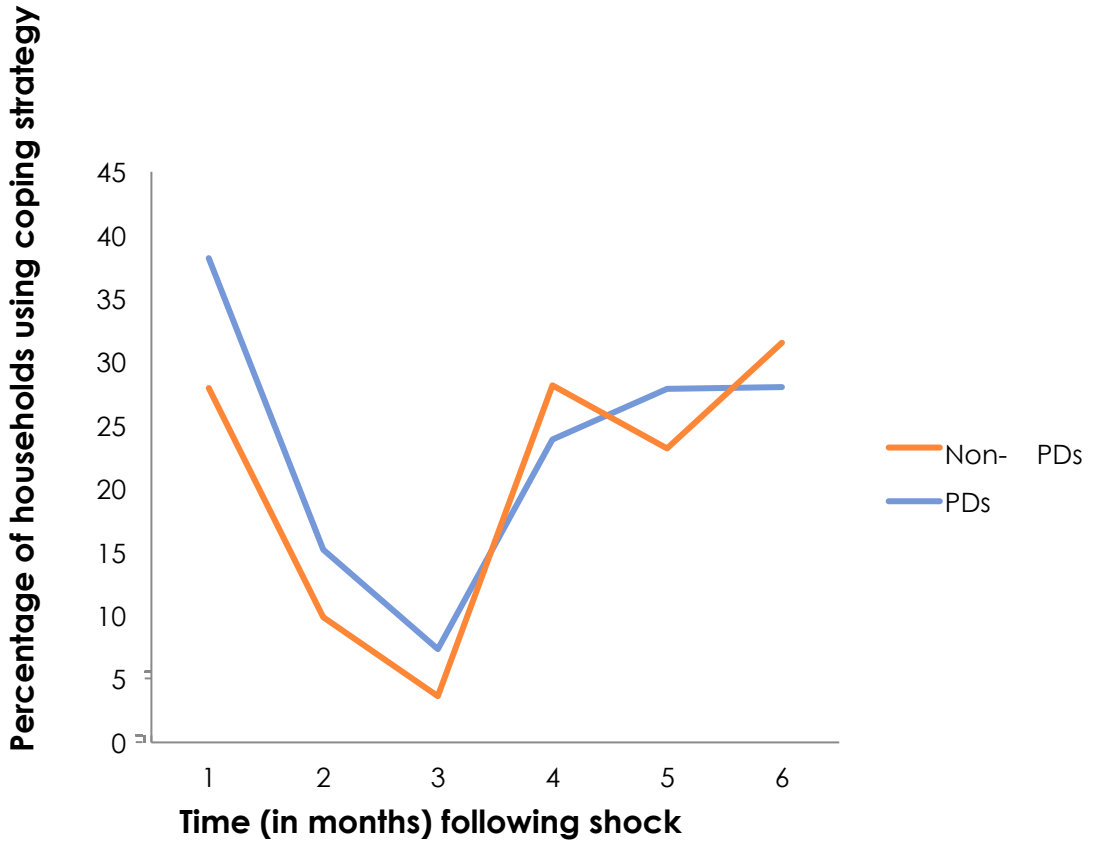


Descriptive Analyses of Coping Strategies Across Time

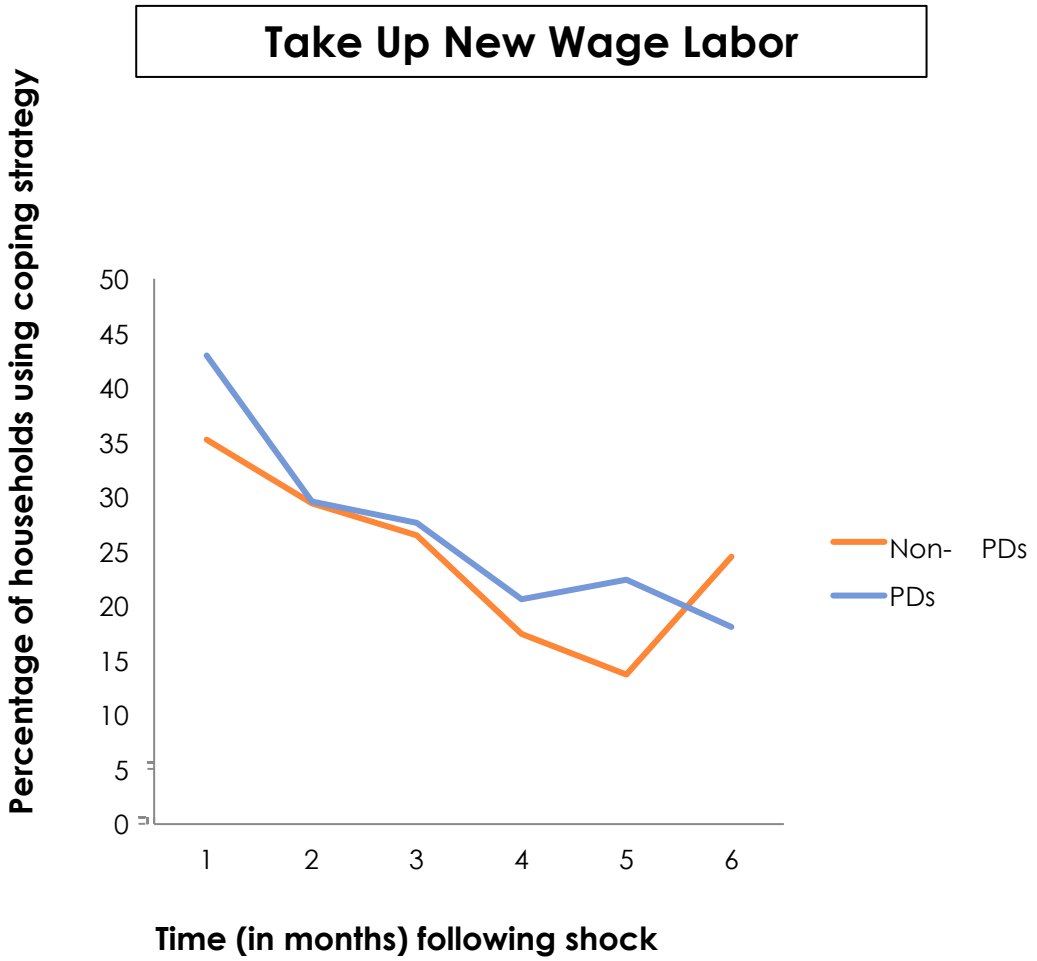
Sell Agricultural Assets

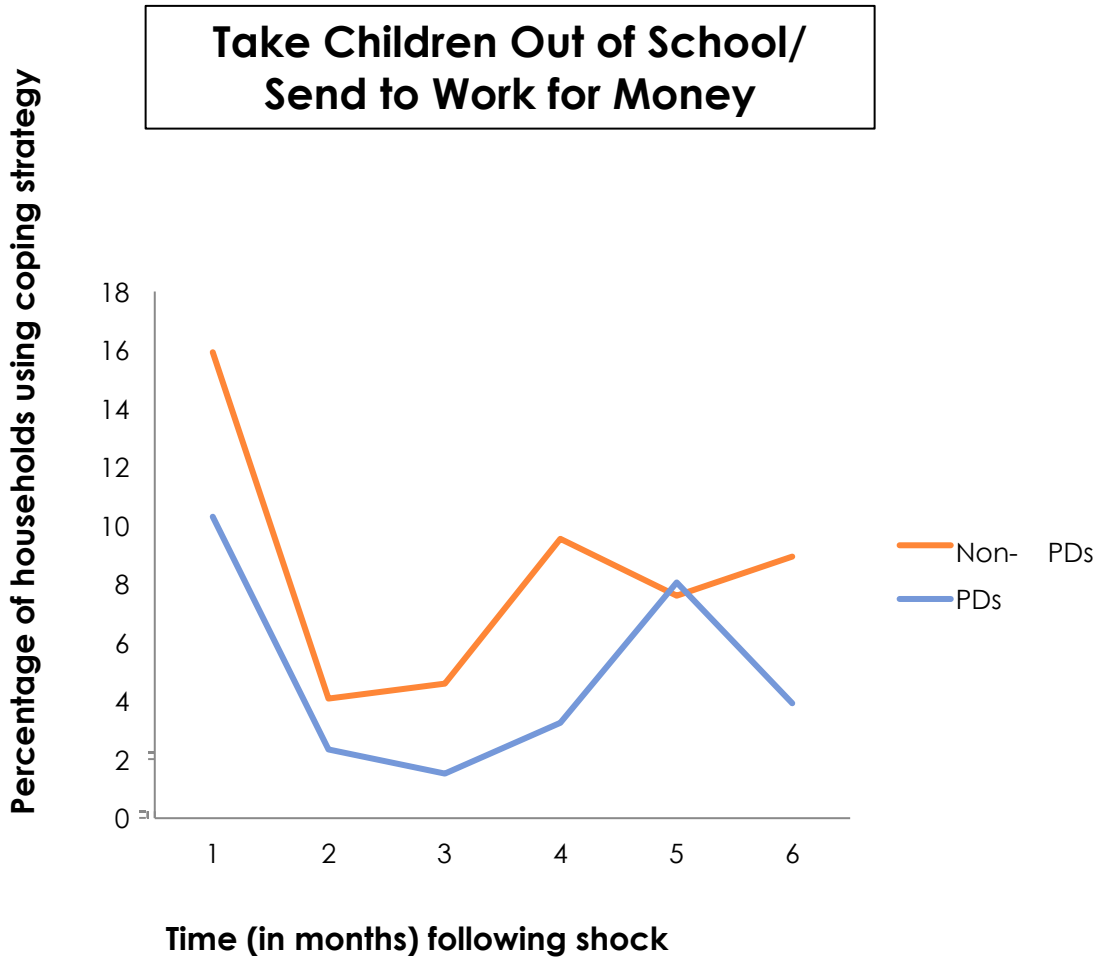


Consume Seed Stock Held for Next Season



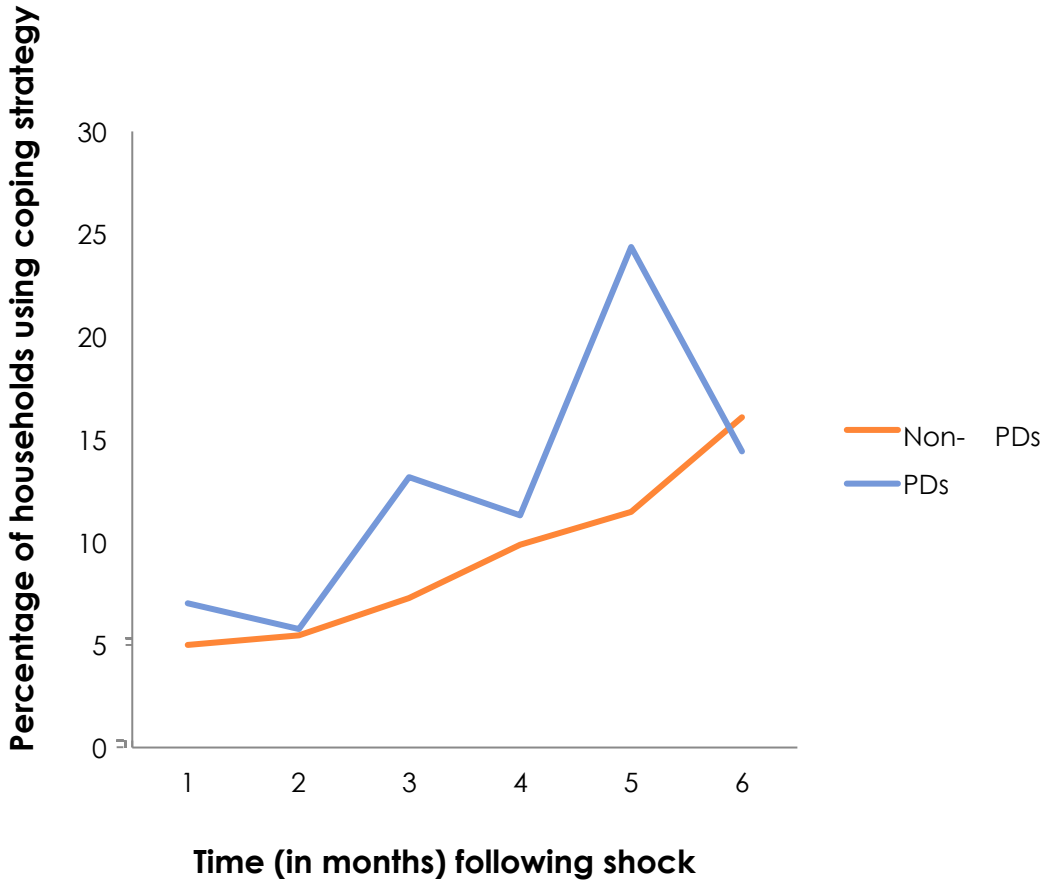
Descriptive Analyses of Coping Strategies Across Time



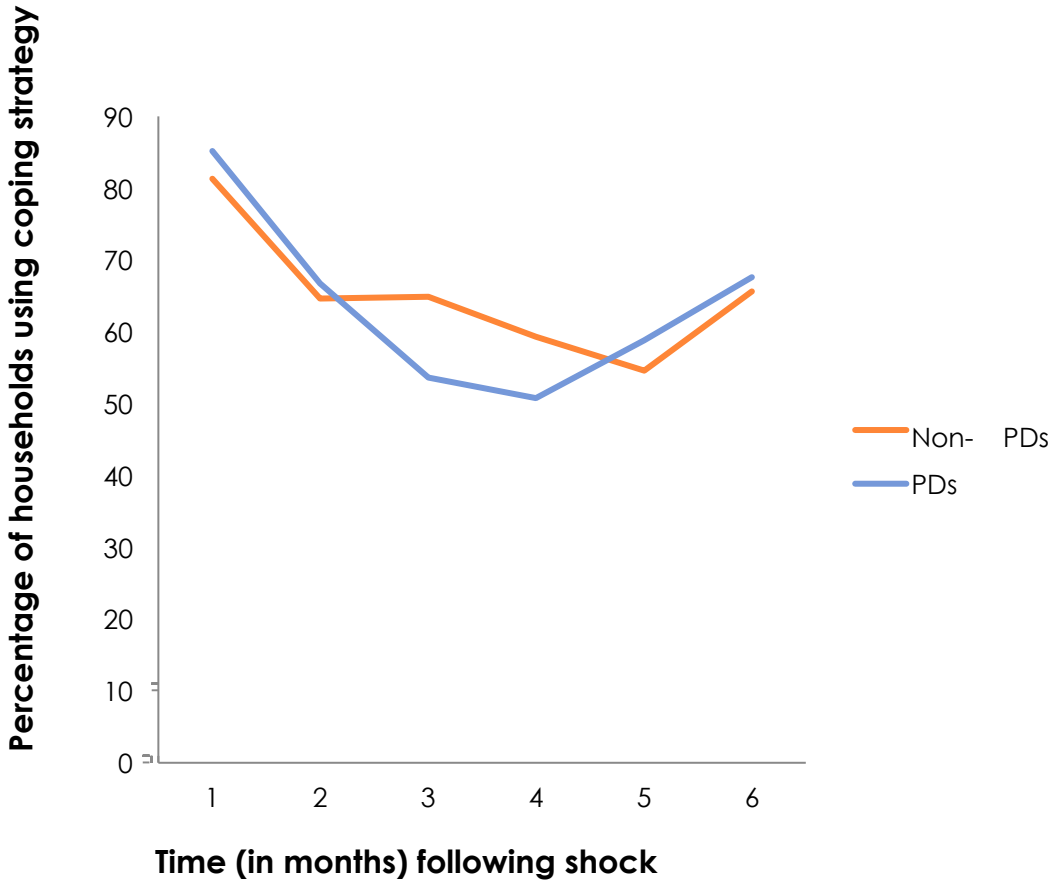


Descriptive Analyses of Coping Strategies Across Time

Participate in Food for Work/Cash for Work

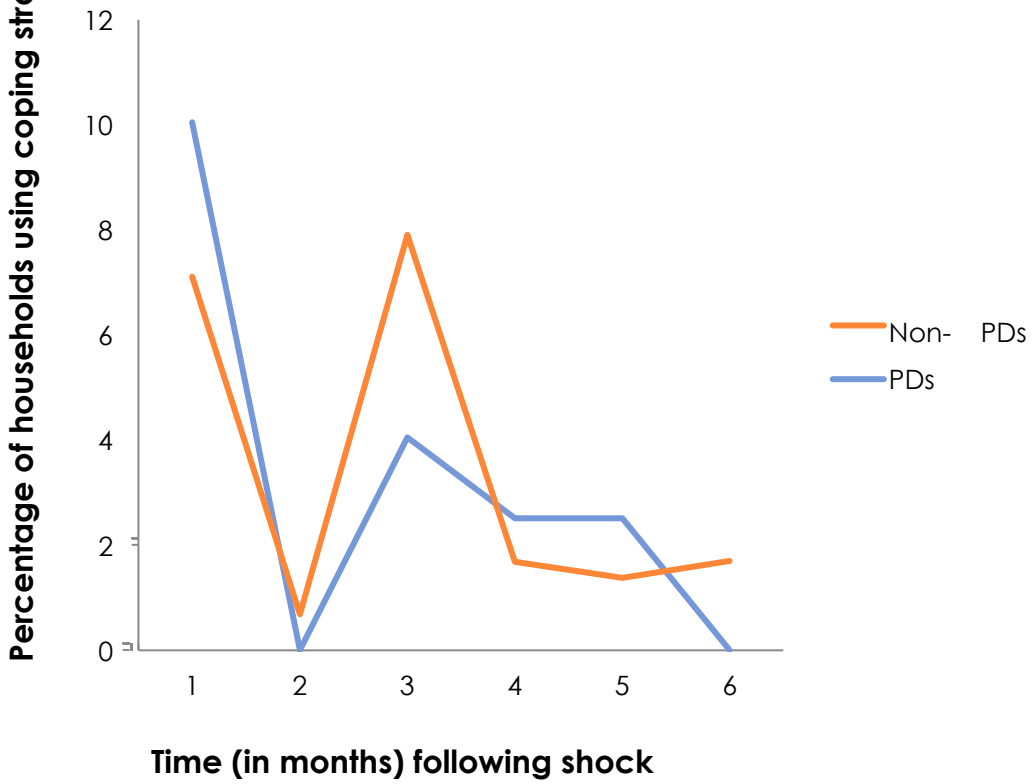


Borrow Money from Friends or Relatives

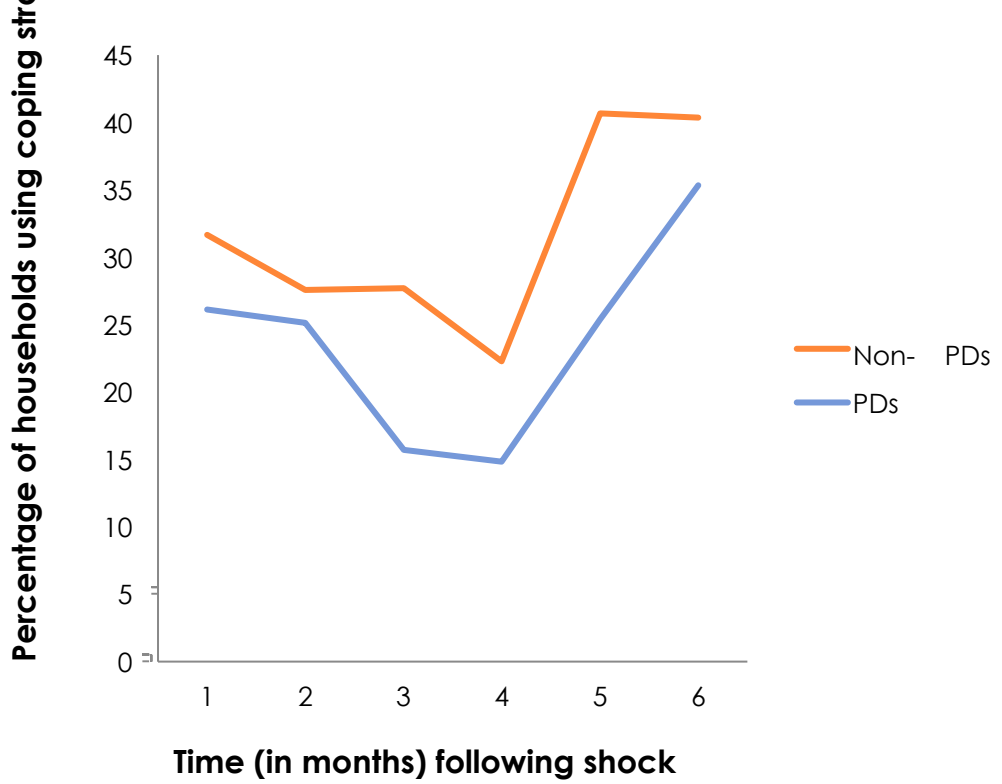


Descriptive Analyses of Coping Strategies Across Time

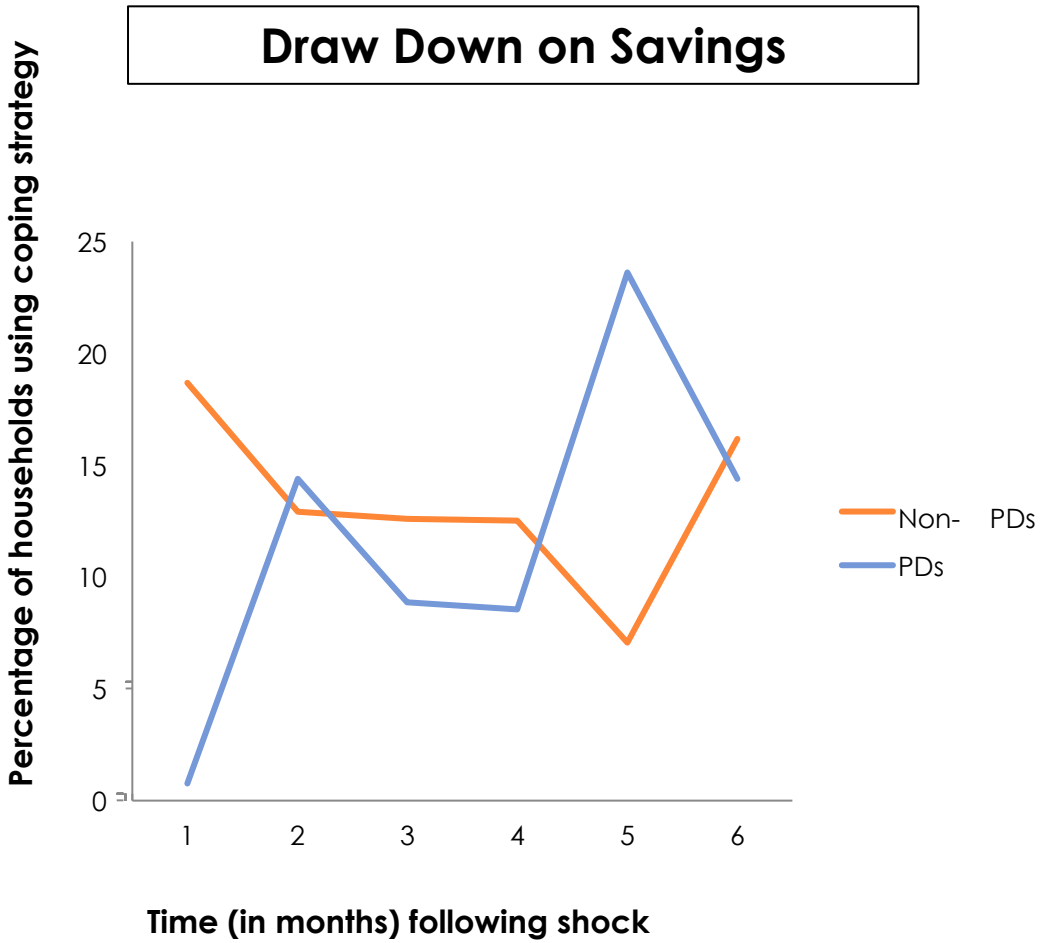
Borrow Money from a Money Lender

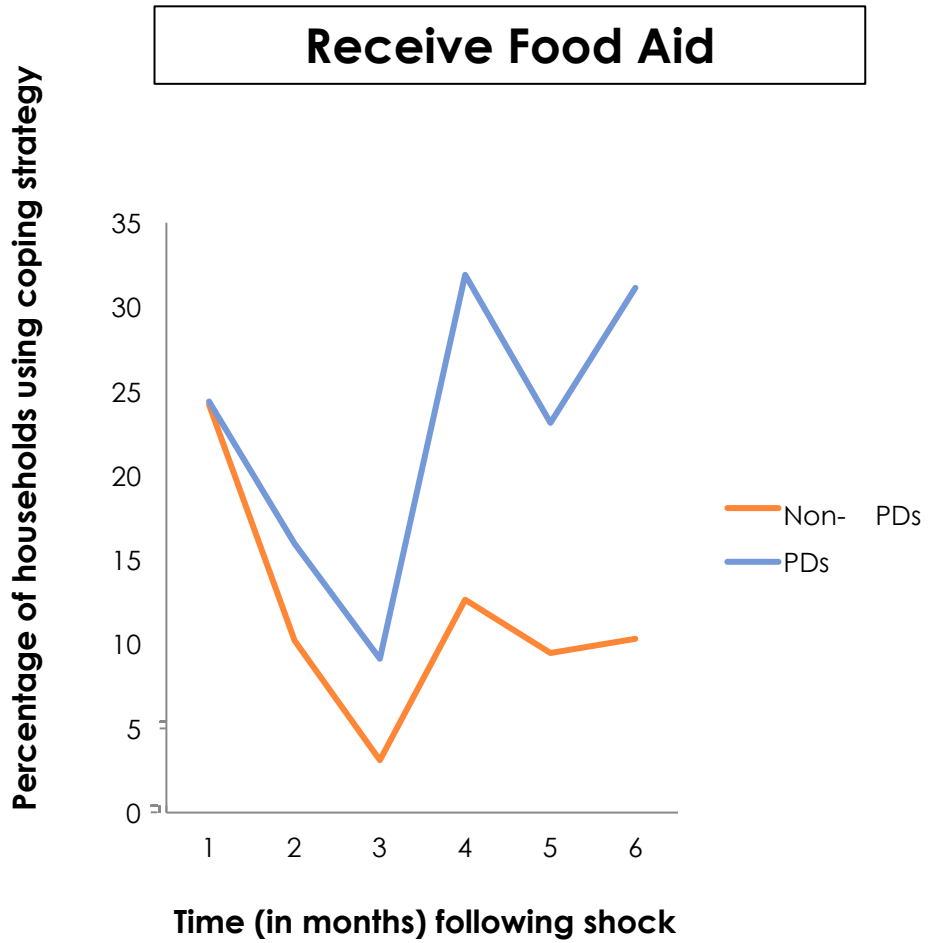


Buy Food on Credit



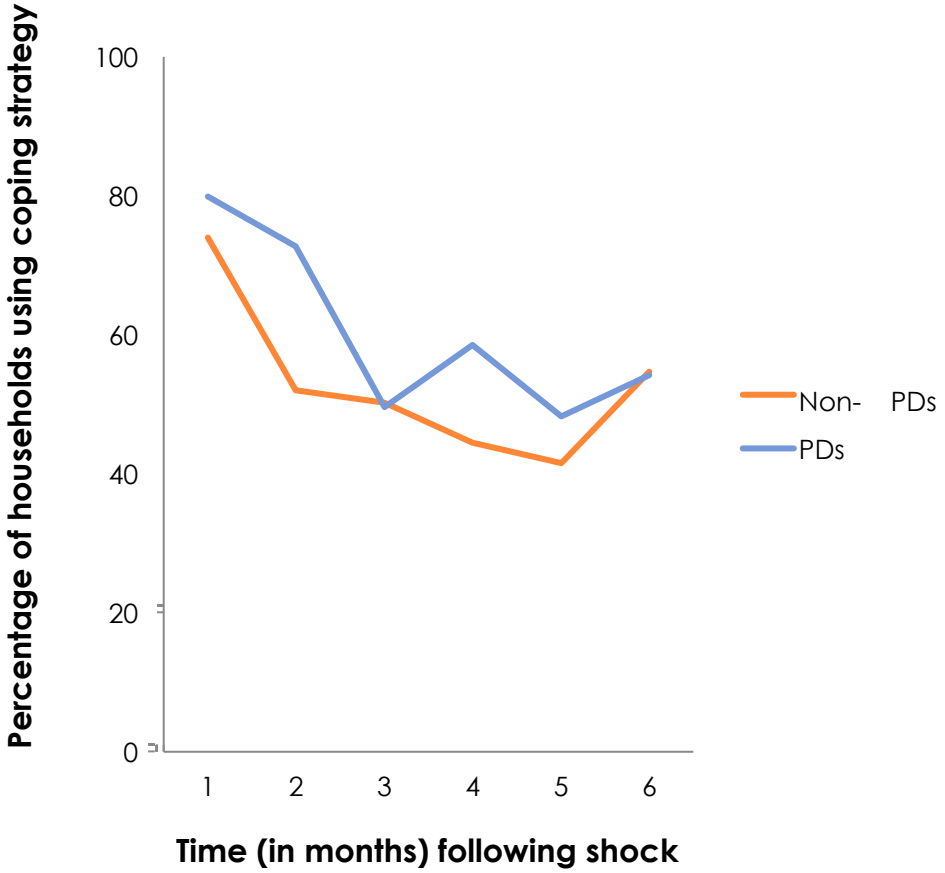
Descriptive Analyses of Coping Strategies Across Time





Descriptive Analyses of Coping Strategies Across Time

Receive Money or Food from Family



Some Take Homes from Examining Coping Strategies across Time:

- Reducing food consumption is widespread for all HHs
- PDs and NPDs have similar trends for the following coping strategies: reducing food consumption, selling/slaughtering livestock, consuming seed stock, borrowing money, buying food on credit, and receiving money/food from family
- By wave 6, NPDs take their children out of school at higher rates
- NPDs buy food on credit at higher rates
- PDs receive food aid at higher rates

OLS Regression Analyses: Reducing Food Consumption (*neg*)

Resilience Capacity Source	Relationship with Coping Strategy
Access to informal safety nets	
Linking social capital	
Access to Financial Resources	
Access to Communal Natural Resources	
Availability of Formal Safety Nets	
Disaster Risk Reduction Index	

- ***OLS Regression Analyses:***
  - Analyses examining the association between resilience capacities and coping strategies.
  - Wave 2 only; Borena only

OLS Regression Analyses: Sell/Slaughter Livestock (*depends*)

Resilience Capacity Source	Relationship with Coping Strategy
Disaster Preparedness and Mitigation	+
Asset Index	+
Aspirations/Confidence to Adapt	−
Human Capital	−
Access to Markets	−
Access to Infrastructure	−
Access to Services	+
Access to Communal Natural Resources	+
Availability of Formal Safety Nets	+
Disaster Risk Reduction Index	+
Social Protection Index	+

OLS Regression Analyses: Consume Seed Stock (*neg*)

Resilience Capacity Source	Relationship with Coping Strategy
Access to Informal Safety Nets	−
Availability of Hazard Insurance	−
Aspirations/Confidence to Adapt	−
Exposure to Information	−
Access to Markets	+
Access to Services	−
Number of NRM Groups	−

OLS Regression Analyses: New Wage Labor (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Access to Informal Safety Nets	−
Availability of Hazard Insurance	−
Asset Index	−
Livelihood Diversity	+
Access to Financial Resources	−
Human Capital	+
Access to Infrastructure	+
Access to Communal Natural Resources	−
Availability of Formal Safety Nets	−
Number of NRM Groups	−
Disaster Risk Reduction Index	−
Social Protection Index	−

OLS Regression Analyses: Increase Child Labor (*neg*)

Resilience Capacity Source	Relationship with Coping Strategy
Savings	
Access to Infrastructure	

OLS Regression Analyses: Food/Cash for Work (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Asset Index	−
Aspirations/Confidence to Adapt	+
Human Capital	+
Access to Markets	−
Access to Infrastructure	+
Access to Services	+

OLS Regression Analyses: Borrow—Friends/Relatives (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Livelihood Diversity	+
Human Capital	+
Access to Communal Natural Resources	+
Disaster Risk Reduction Index	+
Social Protection Index	+

OLS Regression Analyses: Borrow—Money Lender (*neg*)

Resilience Capacity Source	Relationship with Coping Strategy
Disaster Preparedness and Mitigation	+
Bridging Social Capital	−

OLS Regression Analyses: Buy Food on Credit (*neg*)

Resilience Capacity Source	Relationship with Coping Strategy
Asset Index	–
Disaster Risk Reduction Index	–

OLS Regression Analyses: Draw Down on Savings (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Bonding Social Capital	+
Savings	+
Asset Index	+
Livelihood Diversity	+

OLS Regression Analyses: Food Aid (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Bonding Social Capital	−
Availability of Hazard Insurance	+
Disaster Preparedness and Mitigation	−
Asset Index	−
Aspirations/Confidence to Adapt	+
Human Capital	+
Access to Markets	−
Access to Infrastructure	+
Access to Services	+
Availability of Formal Safety Nets	+
Number of NRM Groups	−
Disaster Risk Reduction Index	−
Social Protection Index	+

OLS Regression Analyses: Money/Food from Family (*pos*)

Resilience Capacity Source	Relationship with Coping Strategy
Bonding Social Capital	+
Bridging Social Capital	+
Linking Social Capital	+
Access to Infrastructure	−
Access to Communal Natural Resources	+
Number of NRM Groups	+
Disaster Risk Reduction Index	+