

# Estimating the Impact of Economic Insecurity over Expectations in Chile and Mexico: a Multinomial Logit Approach.

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# Introduction

- The main objective of this paper is to estimate the effect of economic insecurity over expectations.
- We employ multinomial logit for two intermediately developed Latin American countries, Chile and Mexico.
- Results confirm the relevance of the variables associated to economic insecurity on the formation of expectations.

# Data sources and description

## Chile

- The Chilean data comes from the National Socio-Economic Characterization Survey panel (CASEN Panel), it covers 60% of the total households, roughly representative of the population.
- This study is primarily based on data from the 2006 survey.
  - 3,769 households, 14,558 individuals.
  - Expanded data: 2,377,678 households and 9,590,087 individuals.
  - Sample size: 1,759 observations, which expand to 1,025,812 households.
- The 2001 survey was utilized to obtain information on the past levels of variables.

# Data sources and description

## Mexico

- The Mexican data comes from the Family Life Survey (MXFLS).
- This study is primarily based on data from the 2002 survey. The MXFLS -2005 is hard to exploit as the expansion factors have not been released, and because some of the MXFLS - 2002 questions were not asked again in 2005, including the 2002 question on welfare.
  - Averaged 8,388 households and 36,628 individuals.
  - Expanded data 2002: 24,153,549 households and 101,344,436 individuals.
  - Sample size: 6,790 observations that represent 21,148,879 households.
  - Representative sample of Mexican households.

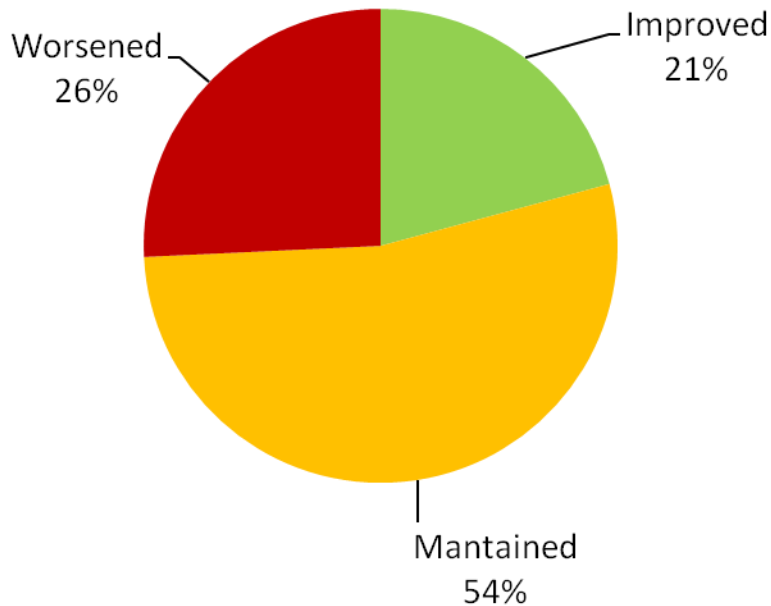
# Descriptive Statistics - Chilean data

## Monthly Income, Wealth and Assets by Category of Expectations

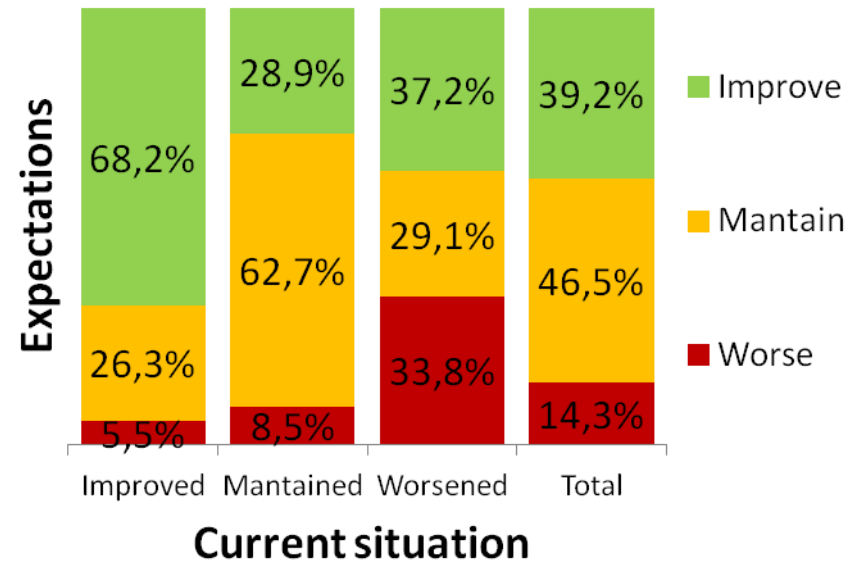
<b>Expectations</b>	<b>Income 2006</b>	<b>Income 2001</b>	<b>Wealth 2006</b>	<b>Wealth 2001</b>	<b>Financial Assets</b>	<b>Financial Debts</b>
Improve	638	428	25,400	24,200	615	990
Mantain	447	350	34,600	31,200	465	1,106
Worse	481	427	30,600	34,200	344	768
Total	527	392	30,400	28,800	506	1,012

# Descriptive Statistics - Chilean data

## Distribution of Households by Current Economic Situation

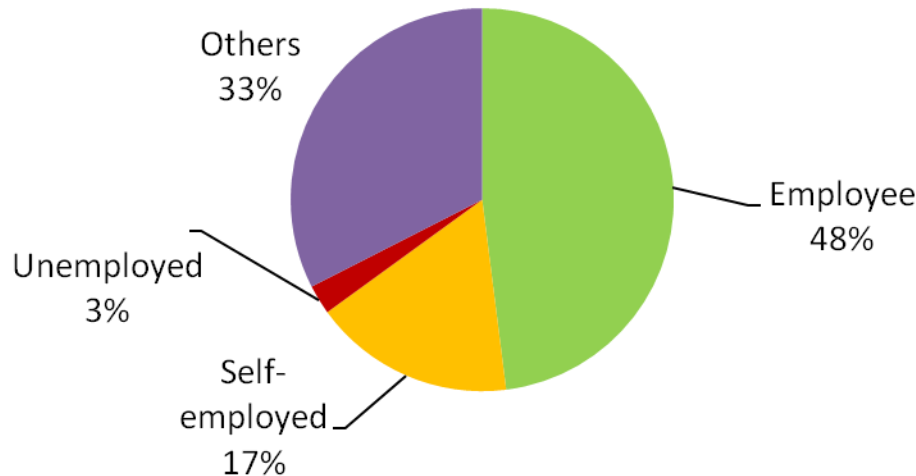


## Distribution of Households by Current Situation and Expectations



# Descriptive Statistics - Chilean data

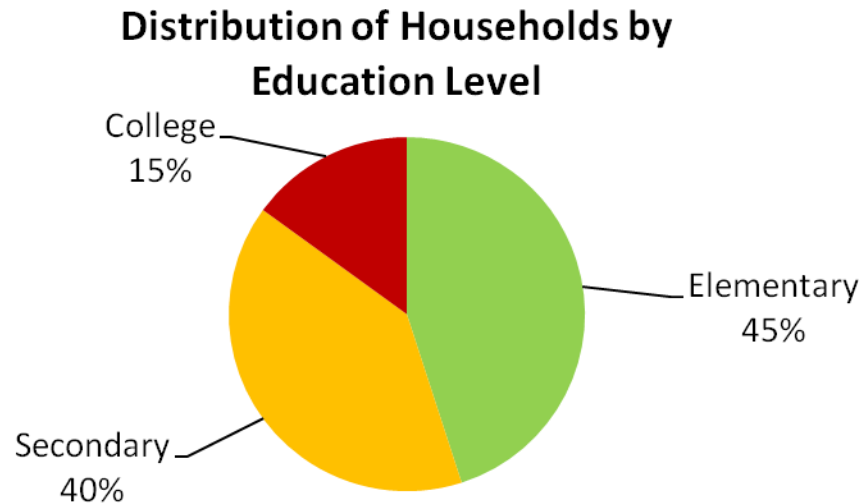
**Distribution of Households by Employment Status**



**Distribution of Households by Employment Status and Category of Expectation:**

Expectations	Employment Status				Total
	Employee	Self-Employed	Unemployed	Others	
Improve	44.0%	46.7%	33.5%	28.1%	39.2%
Mantain	46.3%	31.1%	53.1%	54.8%	46.5%
Worse	9.7%	22.2%	13.4%	17.1%	14.3%
Total	100%	100%	100%	100%	100%

# Descriptive Statistics - Chilean data



## **Distribution of Households by Education and Category of Expectations**

Expectations	Education Level			Total
	Elementary	Secondary	College	
Improve	34.9%	42.3%	43.9%	39.2%
Mantain	49.7%	43.4%	45.0%	46.5%
Worse	15.4%	14.3%	11.2%	14.3%
Total	100%	100%	100%	100%

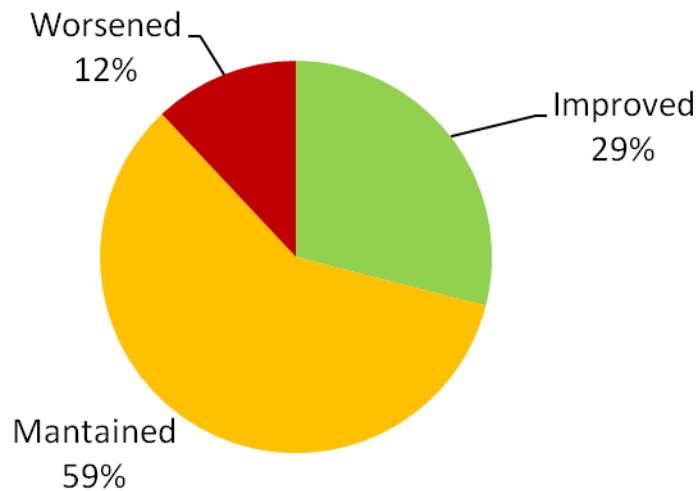


# Descriptive Statistics - Mexican data

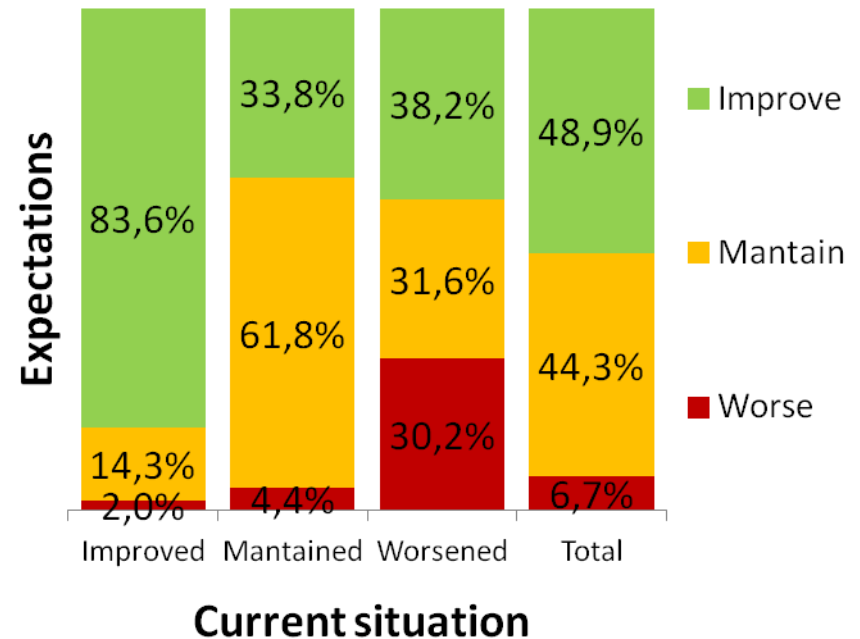
## Means by Category of Expectations

Expectations	Households (#)	Income 2002 (USD)
Improve	6,156,721	522
Maintain	4,175,962	396
Worse	614,439	348
Total	10,947,122	464

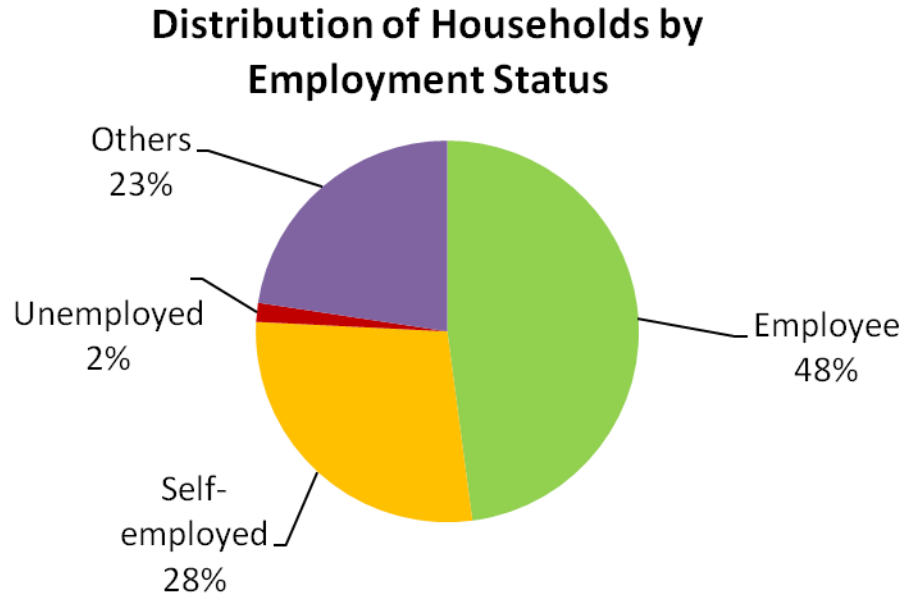
## Distribution of Households by Current Economic Situation



## Distribution of Households by Current Situation and Expectations



# Descriptive Statistics - Mexican data

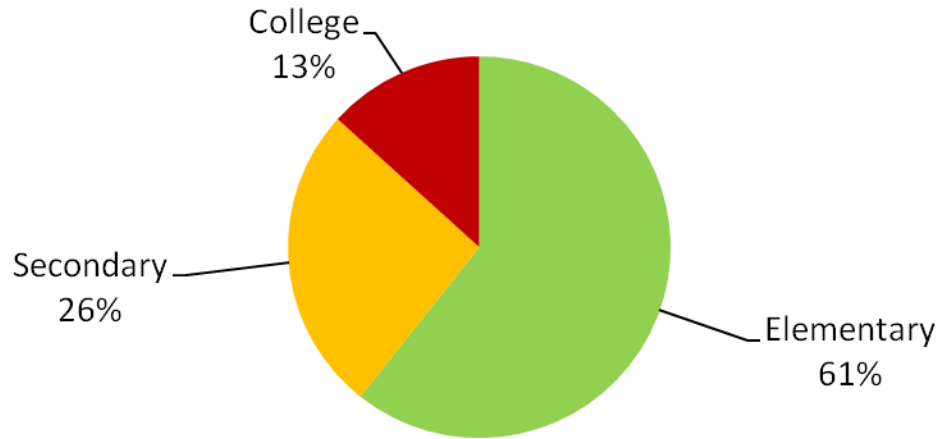


## Distribution of Households by Employment Status and Category of Expectations

Expectations	Employment Status				Total
	Employee	Self-employed	Unemployed	Others	
Improve	57.8%	46.4%	40.1%	34.1%	48.9%
Mantain	37.8%	46.1%	52.5%	55.3%	44.3%
Worse	4.4%	7.5%	7.3%	10.6%	6.7%
Total	100%	100%	100%	100%	100%

# Descriptive Statistics - Mexican data

**Distribution of Households by Education Level**



**Distribution of Households by Education and Category of Expectations**

Expectations	Education level			Total
	Elementary	Secondary	College	
Improve	38.0%	64.3%	69.1%	48.9%
Mantain	52.7%	33.0%	28.3%	44.3%
Worse	9.3%	2.8%	2.6%	6.7%
Total	100%	100%	100%	100%

# Econometric Results and Analysis

- Employing a conventional Multinomial Logit specification of the kind

$$P(Y_i = j) = \frac{e^{\beta_j' x_i}}{1 + \sum_{k=1}^3 e^{\beta_k' x_i}} \quad j = 1, 2, 3$$

- Dependent variable:
  - $Y_i=0$  if the  $i^{\text{th}}$  household head declares that his situation will improve
  - $Y_i=1$  if the household head declares his situation will stay the same
  - $Y_i=2$  if the household head declares that his situation will get worse
- Explanatory variables
  - For Chile and Mexico: Current Situation, Gender, Health, Age, Education, Employment Status.
  - For Chile: House Condition, Financial Assets, Wealth Change.

# Estimated Parameters

## Multinomial Logit Estimates for Determinants of Expectations

Chile			Mexico		
Dependent Variable: Expectations	Improve	Maintain	Improve	Maintain	
<b>Gender</b>					
Female	0.039 (0.000)	-0.226 (0.000)	0.035 (0.00)	0.046 (0.00)	
<b>Health</b>					
Regular	0.039 (0.000)	-0.226 (0.000)	-0.212 (0.00)	-0.231 (0.00)	
Bad	-0.749 (0.000)	-0.269 (0.000)	-0.821 (0.00)	-0.637 (0.00)	
<b>Age</b>					
Middle Age	-2.076 (0.000)	-1.572 (0.000)	-1.228 (0.00)	-0.773 (0.00)	
Elderly	-2.972 (0.000)	-1.670 (0.000)	-2.452 (0.00)	-1.138 (0.00)	
<b>Education</b>					
Secondary	0.010 (0.20)	-0.062 (0.000)	1.070 (0.00)	0.528 (0.00)	
College	0.250 (0.000)	-0.040 (0.000)	1.286 (0.00)	0.458 (0.00)	
<b>Employment Status</b>					
Self-employed	-0.609 (0.000)	-0.925 (0.000)	-0.122 (0.00)	0.003 (0.00)	
Unemployed	-0.147 (0.000)	0.129 (0.000)	0.320 (0.00)	0.612 (0.00)	
Other	-0.107 (0.000)	-0.154 (0.000)	-0.107 (0.00)	0.237 (0.00)	
<b>Current Economic Situation</b>					
Maintained	-1.169 (0.000)	0.346 (0.000)	-1.432 (0.00)	0.805 (0.00)	
Worsened	-2.080 (0.000)	-1.685 (0.000)	-2.949 (0.00)	-1.671 (0.00)	
<b>Net Financial Assets</b>	0.006 (0.000)	0.019 (0.000)			
<b>Current Econ. Sit*House</b>	-0.199 (0.000)	0.023 (0.000)			
<b>Wealth Change</b>	0.005 (0.000)	0.003 (0.000)			
<b>Cons</b>	5.096 (0.000)	3.552 (0.000)	4.638 (0.00)	2.635 (0.00)	
					<b>Cons</b>

Base Category: Worse

# Econometric Results and Analysis

## Current Situation and Expected Probabilities

Current Situation	Expectations in Chile			Expectations in México		
	Improve	Mantain	Worse	Improve	Mantain	Worse
Improved	66.0%	28.3%	5.7%	79.7%	17.3%	2.9%
Maintained	30.2%	61.1%	8.7%	35.3%	60.5%	4.1%
Worsened	37.6%	30.9%	31.5%	45.9%	30.1%	24.0%

# Econometric Results and Analysis

## Distribution of Households by Current Situation and Income Quintiles

Country	Current Situation	Quintiles						Total
		No income	I	II	III	IV	V	
Chile	Improved		12.8%	15.7%	17.8%	25.5%	33.1%	20.8%
	Maintained		54.5%	55.7%	56.5%	50.1%	51.2%	53.7%
	Worsened		32.7%	28.6%	25.8%	24.4%	15.8%	25.5%
	Total		100%	100%	100%	100%	100%	100%
Mexico	Improved	24.4%	23.0%	27.9%	34.2%	40.0%	45.4%	29.3%
	Maintained	62.1%	62.7%	61.7%	56.5%	51.8%	46.0%	58.9%
	Worsened	13.5%	14.3%	10.5%	9.4%	8.1%	8.6%	11.8%
	Total	100%	100%	100%	100%	100%	100%	100%

No income are HH that omit income question. They are 48% of HH not considered in Quintiles.

In Chile only 2.8% of HH omit income, and are included in the poorest quintile.

## Quintiles and Expectations Weighted Probabilities

Quintiles	Expectations in Chile			Expectations in Mexico		
	Improve	Maintain	Worse	Improve	Maintain	Worse
No Income				47.6%	45.9%	6.5%
I	37.2%	47.0%	15.8%	47.0%	46.3%	6.7%
II	38.0%	47.3%	14.8%	48.8%	45.3%	5.9%
III	38.5%	47.5%	14.1%	51.5%	42.9%	5.6%
IV	41.2%	45.3%	13.5%	54.0%	40.8%	5.3%
V	43.2%	45.4%	11.3%	56.4%	38.3%	5.3%

# Econometric Results and Analysis

## Age and Expected Probabilities

Age	Expectations in Chile			Expectations in Mexico		
	Improve	Mantain	Worse	Improve	Mantain	Worse
18-30	58.4%	38.9%	2.7%	60.1%	37.4%	2.6%
31-65	42.7%	44.1%	13.2%	49.7%	44.1%	6.2%
65 and +	26.6%	55.1%	18.3%	33.2%	56.1%	10.8%

## Health perception and Expected Probabilities

Health	Expectations in Chile			Expectations in Mexico		
	Improve	Mantain	Worse	Improve	Mantain	Worse
Good	38.6%	48.4%	13.0%	49.4%	45.0%	5.6%
Average	42.8%	42.7%	14.6%	49.2%	44.0%	6.7%
Bad	27.8%	52.7%	19.5%	44.4%	45.7%	9.9%



# Econometric Results and Analysis

## Education level and Expected Probabilities

Education	Expectations in Chile			Expectations in Mexico		
	Improve	Mantain	Worse	Improve	Mantain	Worse
Low	38,0%	47,5%	14,5%	43,9%	48,2%	7,9%
Medium	39,1%	46,4%	14,5%	55,6%	40,3%	4,2%
High	42,6%	44,2%	13,3%	61,0%	35,1%	3,9%

## Employment status and Expected Probabilities

Employment status	Expectations in Chile			Expectations in Mexico		
	Improve	Mantain	Worse	Improve	Mantain	Worse
Employed	39.0%	49.0%	11.9%	50.9%	42.2%	6.9%
Self-employed	41.0%	37.5%	21.5%	48.6%	44.3%	7.2%
Unemployed	32.8%	55.4%	11.8%	46.7%	48.7%	4.7%
Other	39.7%	46.7%	13.7%	45.0%	48.5%	6.4%

# Econometric Results and Analysis

## Net Financial Assets and Expected Probabilities in Chile

Net Financial Assets	Expectations		
	Improve	Maintain	Worse
-10	40.7%	43.6%	15.7%
-5	39.9%	45.2%	15.0%
0	39.0%	46.8%	14.2%
5	38.1%	48.4%	13.5%
10	37.3%	50.0%	12.8%
15	36.3%	51.5%	12.1%

## Assets and Expected Probabilities in Chile

Current Situation	Assets	Expectations		
		Improve	Maintain	Worse
Improved	Without House	71.3%	20.5%	8.2%
	Full Paid House	64.7%	30.3%	5.0%
	House with Mortgage	59.1%	37.2%	3.7%
Maintained	Without House	40.7%	52.5%	6.8%
	Full Paid House	24.8%	65.7%	9.5%
	House with Mortgage	26.8%	62.1%	11.1%
Worsened	Without House	46.1%	24.3%	29.6%
	Full Paid House	38.4%	33.2%	28.4%
	House with Mortgage	14.8%	36.1%	49.1%

# Econometric Results and Analysis

## Change in Wealth and Expected Probabilities in Chile

Change in Wealth	Expectations		
	Improve	Mantain	Worse
-50	36.8%	47.1%	16.1%
0	39.3%	46.7%	14.0%
50	41.8%	46.1%	12.1%

# Econometric Results and Analysis

## Type Household and Expectations: Chile

Type of Household					Expectations		
					Chile		
Current Situation	Age	Education	Employment Status	Health	Improve	Mantain	Worse
Improved	18-30	High	Employee	Good	83.0%	16.6%	0.5%
Worsened	31-65	Low	Employee	Good	41.6%	35.3%	23.1%
Worsened	66 and +	Low	Unemployed	Bad	11.4%	46.7%	41.9%

## Type Household and Expectations: Mexico

Type of Household					Expectations		
					Mexico		
Current Situation	Age	Education	Employment Status	Health	Improve	Mantain	Worse
Improved	18-30	High	Employee	Good	94.2%	5.6%	0.2%
Worsened	31-65	Low	Employee	Good	41.8%	32.0%	26.2%
Worsened	66 and +	Low	Unemployed	Bad	13.5%	39.2%	47.3%

# Conclusions

- Results confirm the relevance and significance of variables of Economic Insecurity in determining household welfare (wellbeing) expectations.
- For both countries the variable that affects expectation the most is the measure of how well households are currently doing compared to the recent past. Besides, this is very much determined by income levels.
- Next in importance comes the age of the head of household, then his health, followed by educational levels, employment status and at the end, wealth.

# Conclusions

- A household head will have a larger probability of feeling that in the future he will improve with respect to his current status:
  1. That he is currently doing well,
  2. That he is young,
  3. That he is healthy,
  4. That he is educated,
  5. That he is an employee,
  6. That he has increased his wealth.

# Conclusions

- Savings and assets are relevant in reducing the odds that households build negative expectations, rather than helping in constructing positive expectations. The pessimistic nature of those households who own their home, yet still owe their mortgages is especially noticeable when dealing with negative shocks.
- Those who are currently doing well have by far the highest expectations: If someone is doing well, he feels he can do even better.
- Current situation of households is very much determined by income levels, but the expected condition is not. Poorer households are substantially worst-off in how they classify their current situation vis-à-vis the richer ones, yet the expectations of both groups about how well or bad they will fare are similar.
- The similarities in the parameters estimated for Chile and Mexico was another encouraging finding.
- Research of the nature outlined in this paper helps us understand the costs and benefits households assign to changes in economic insecurity variables.