Assessing the Role of Auto Consumption in Rural Households' Food Security in Developing Countries: Evidence from Mexico

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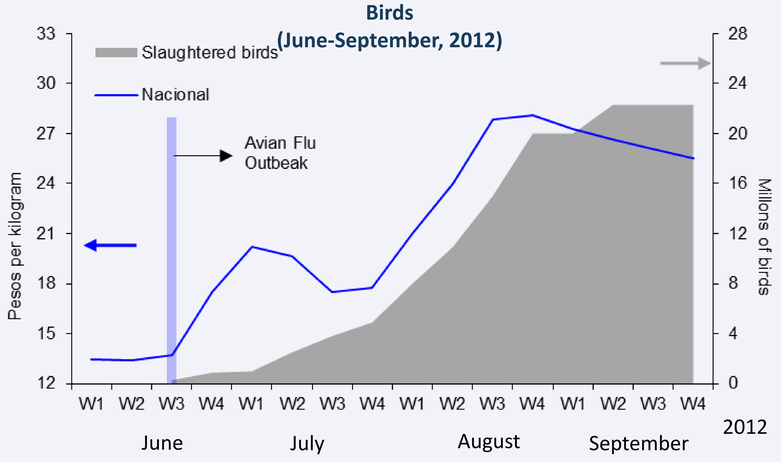
Introduction

- Auto-consumption is a frequent practice in developing countries. In 2013, about 20% of the rural Mexican households performed food auto-consumption derived from farming activities (mainly grains, eggs, milk, poultry and swine).
- For some categories of food, auto-consumption provides an important share of nutrients, specially for the poorest households. For this reason, rural households that perform auto-consumption show lower levels of nutrition deficits during price shocks.
- The objective of this paper is to assess the role of auto-consumption in households' food security

The Avian Flu Outbreak and the Auto-consumption

- We exploit the exogenous variation in nutrient consumption from the avian flu outbreak on late June, 2012 that affected egg production in five states in Central Mexico.
- This disease is characterized by a its rapid spread through major areas which generates important economic losses because its control requires slaughtering the birds. Thus, because of fear of contagion, households located in the affected areas would avoid auto-consumption to deal with the increments of egg prices.
- In particular, states in the southeast closed their frontiers to poultry and eggs.

Prices of White Egg vs Slaughtered Birds (June-September, 2012)



Source: Bank of Mexico, Quaterly Report, IV 2016.

The Model

- We estimate the reduced form effects of the avian flu outbreak on the nutrient intake given restrictions for rural households to perform egg auto-consumption in infected states.

$$Y_{it} = \alpha + t_t + \gamma D_s + \mu D_s A_{it} + X\beta + \varepsilon_{ist}$$

Where Y_{it} is the nutrient (either energy or protein) intake of i household in period t; t_t is a time dummy for the quarter of the observation; DA_{it} is the interaction of 2 dummies that identifies households in non-infected states that perform egg auto-consumption; $X\beta$ is a set of socioeconomic characteristics.

- As a control group, we use the households located in non-affected areas that effectively can perform egg auto-consumption as a strategy to deal with price increases at the local level.

Data and analytical issues

- We use data from the 2012 and 2013 National Surveys of Household Expenditure from the National Institute of Statistics and Geography (INEGI)
- We selected households from 2 states of the central Mexico and 2 from southeast region.
- We employed information at the household level for the consumption of 192 food and beverages items and we calculate their nutritional content for two periods: before the avian flu outbreak (2012) and after before (2013).

Changes in Quantities and Nutritional Intake due Avian Flu Outbreak

	Pre-Avian Flu Outbreak	Post-Avian Flu Outbreak
	January-June 2012	January-June 2013
	Quantity (kgs/week)	
Non-restricted States		
Auto-consumption	0.35	0.37
Non-autoconsumption	0.55	0.50
Restricted States		
Auto-consumption	0.54	0.50
Non-autoconsumption	0.91	0.73

Source: Own estimation based on ENGASTO 2013 and 2014.

Results

Table 1 shows that households that perform auto-consumption in non-infected states increase their energy and protein intake in comparison to households in infected areas that no can perform auto-consumption.

Reduced-Form Estimates of the effect the Avian Flu Outbreak on Nutrient Intake

	Energy	Proteins
Unrestricted States	0.362	0.478
XAuto-consumption	[0.212]	[0.218]
Observations	441	441
F-stat	3.39	2.67
p-value	0.09	0.0297

Source: own estimations using ENGASTO data.

Conclusions

- Auto-consumption if a important strategy for rural households to meet their dietary requirements in presence of price shocks.
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