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**Food price spikes and food security: an illustration from
Niger**

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The views expressed are those of the author and do not necessarily reflect
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- Since 2008, food prices have attracted much attention. High food prices are generally considered as a threat to food security.
- But high food prices is neither a necessary nor a sufficient condition for food insecurity.
- And prices do not necessarily reflect food availability
- Need for disaggregated approaches and strengthening market's institutions

The entitlement approach of hunger

- According to Sen's entitlement approach to hunger, famine can occur without any decline in food supply and food price increase.
- A sufficient condition for famine is a decline in *food entitlements* which itself results from a worsening in the *endowment set* and/or the *entitlement mapping* of a group of people
- The *entitlement set* of a person is the commodity bundles she can legally acquire from her initial *endowment* through trade, production and transfer i.e. her *entitlement mapping*.

The Endowment set ➔ ***Entitlement Mapping*** ➔ **The Entitlement Set:**

all resources legally owned by a person:

- physical assets: equipment, animals,
- Natural resources: land,
- human capital: labor force knowledge, skill,
- social network, ...

the conversion rates at which the resources of the endowment set can be converted into goods and services:

- input-output ratios in farm production
- relative price of:
 - Food and cash crops
 - Food and wage
 - Transfer

The set of all possible combinations of goods and services that a person can legally obtain by using the resources of his endowment set

High food prices are *not a sufficient* condition for food insecurity

- An increase in food price may benefit to poor groups
Badolo and Traore (2014) have shown that the 2008 rice price increase had positive impact on poverty and inequality in the rice producing areas of Burkina Faso.
- Food price increase may be compensated by an increase in the price of cash crops or in wage
Boom famines: in a booming region/country, income and the price of non tradable goods increase (dutch disease). The entitlement set of those working in the booming sector improves, but the entitlement set of rural workers deteriorates. The whole community may be better off.

High food prices are *not a necessary* condition for food insecurity

- A worsening of the Entitlement-mapping may occur without any increase in food price.

A slump famine originates from a contraction in the purchasing power of population. Prices are kept low leading to exports of food from the famine-affected region.

- Many other factors may contribute to a deterioration in the entitlement mapping: drop in the price of cash crops, wage, loss of employment, etc

Food prices may not reflect food scarcity

- Market failures may be at the origin of price spikes or may have an amplifying effect leading to “*Market famines*”. Most frequent market failures relate to:
- Non competitive trade/processing sector: excess margins and asymmetric price transmission to consumers
- High transaction costs leading to autarky/remoteness: barriers to trade (export ban, formal and informal taxes, exchange rate control...), information cost ...

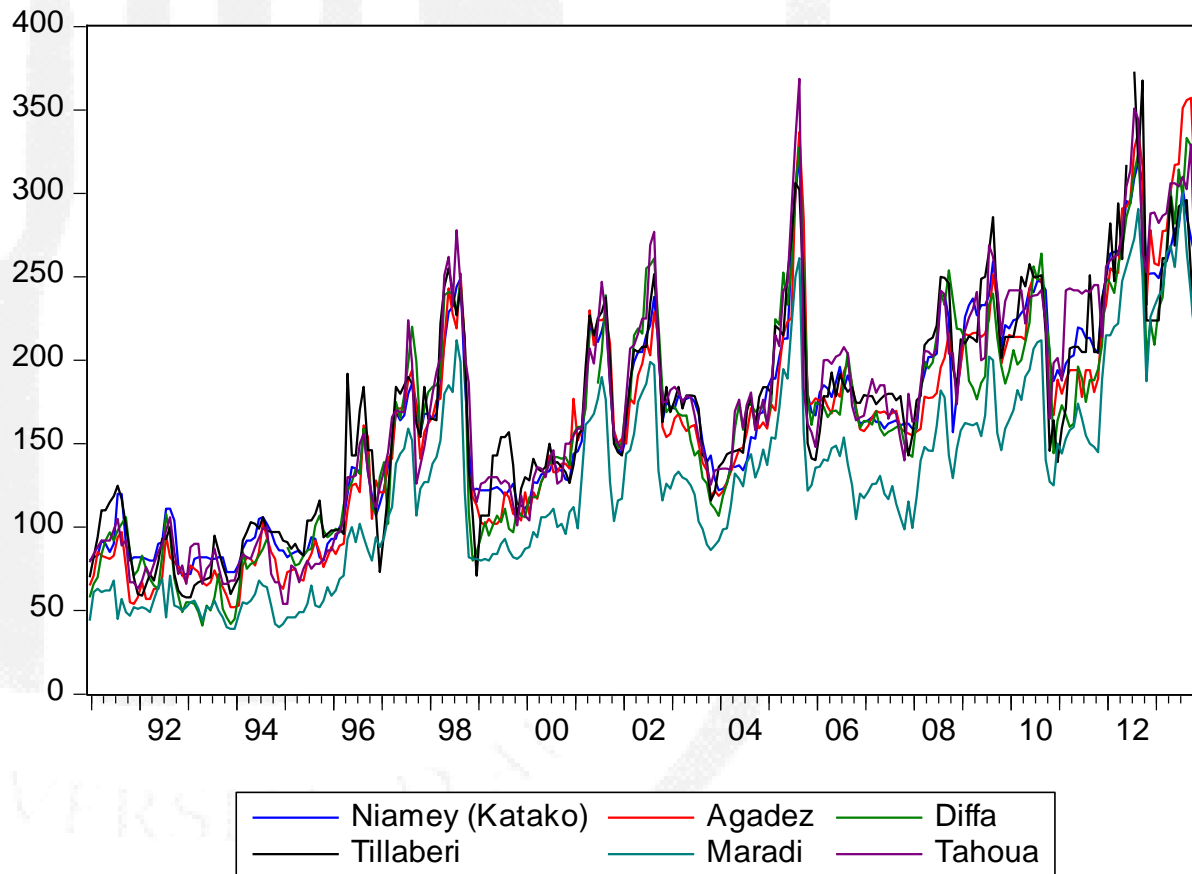
Food prices may not reflect food scarcity: information's cost

- Food crops are storable commodities, arbitragers (farmers and traders) participate to price regulation
- Storage decisions depend on price expectations that are conditional to available information (future harvest, prices near and far ...)
- Imperfect or biased information leads to errors in price expectations, inefficient arbitrage, and/or wait and see attitudes

Millet: the main food crop in Niger

- Millet is the main food crop and the staple diet.
- It is not traded on international markets, its price is given by regional conditions of supply and demand
- Millet price is positively correlated with other local grain prices, and negatively correlated with the price of livestock, held as buffer stock.
- The possibilities for substitution in consumption are limited, while livestock sales do not compensate for large grain price shocks

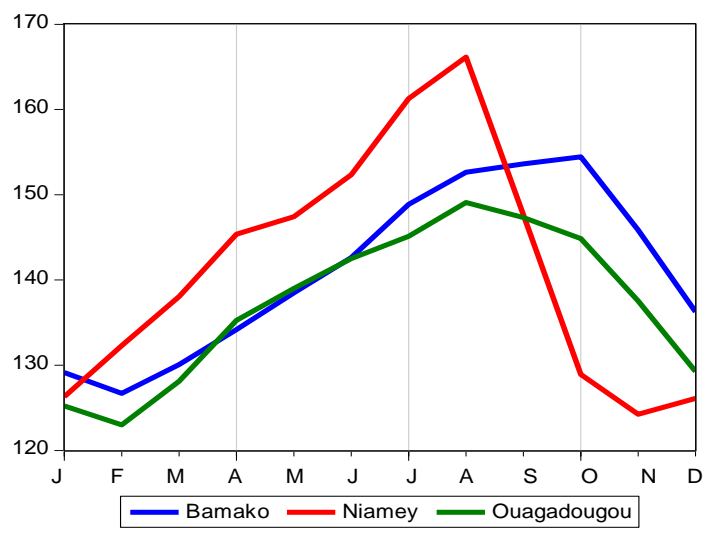
Main features of the millet price



- Positive trend
- Seasonal pattern
- Recurrent price spikes: 1997, 1998, 2001, 2002, 2005, 2012, 2013
- Spatial correlation

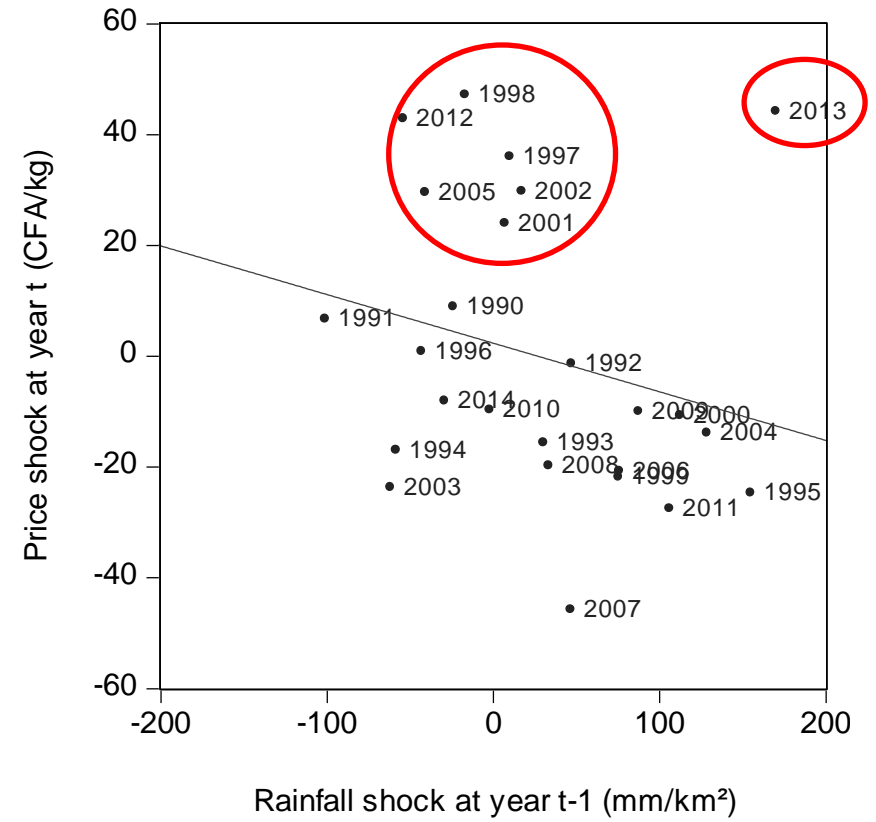
Apparent anomalies in the millet price

Strong seasonal pattern

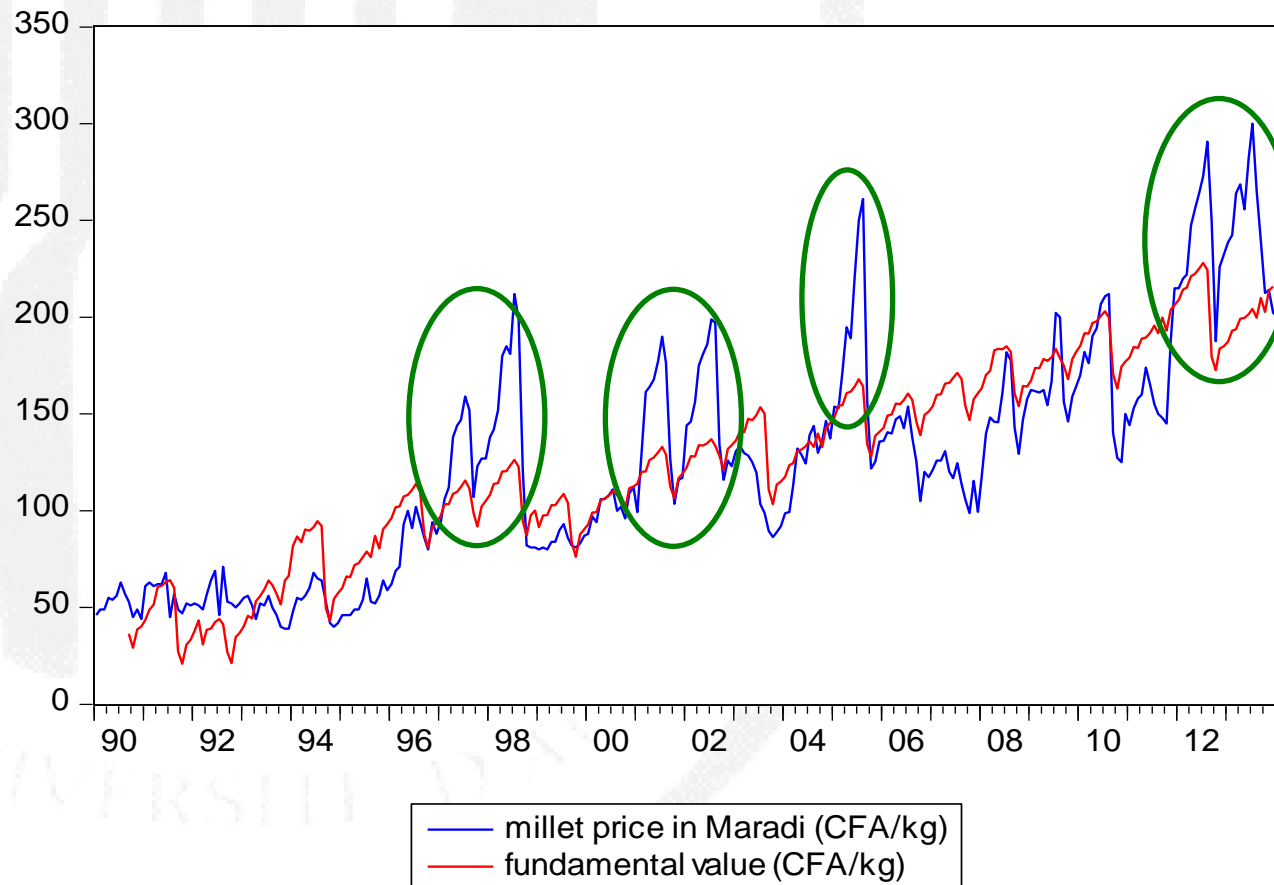


monthly averages Fcfa/kg

Weak correlation between price and rainfall shocks



Price gap relative to fundamental value



Fundamental value

estimated as function of:

- rainfall in the mil basin of Niger and Nigeria,
- price of Thai rice,
- real exchange rate relative to naira,
- oil price,
- seasonal dummies
- trend

The speculative bubbles hypothesis

- Prices go well above the millet's fundamental value (for instance 2005 and 2013) should we have a good estimation of the fundamental value
- We argue that arbitragers (farmers and traders) had over-optimistic price expectations, they hold excess inventories, leading to self-fulfilling expectations (Araujo-Bonjean & Simonet 2011).
- Non competitive trade sector favor this type of behavior but is not a necessary condition

To conclude

- Need for a desegregated approach to the food price issue:
 - Identification, monitoring and compensation of vulnerable socio-economic groups.
 - Controlling food prices (subsidies, trade restrictions ..) is costly and not efficient
- Need for appropriate policy responses to market failures:
 - Strengthening market's institutions: competition laws, information systems
 - Transparency in trade and fiscal policy, and in food aid management



Thank you for your attention