

Global and Regional Food Consumer Price Inflation Monitoring

April 2014 – Issue 4

Global Overview

World inflation in food consumer products rose by 7.4% in 2013, following a 6.2% increase in 2012 (Table 1). Asian food inflation of 6.1% in 2012 and 8.7% in 2013 drove global food inflation, with all Asian sub-regions, except Eastern Asia, experience higher food inflation pressures in 2013. Consumers in Africa, on the other hand, benefited from a second year of easing food inflation, which fell from 13.5% in 2011 to 11.4% in 2012 and 7.1% in 2013.

Infra-annual trends show a significant deceleration in food prices in December 2013 and January 2014, the last month for which official data were collected. New FAO forecasts indicate a stabilization of food inflation in February to 5.9%, with a slight pick-up in March and April. These forecasts echo, in part, the recent recovery in agricultural commodity prices, which rose 2.7% and 2.3%, respectively, in February and March 2014. Food price inflation is expected to increase more significantly in Europe and in Asia, remain stable in Africa, and decrease in Latin America.

Chart 1 Food consumer price inflation – Global and regions (y-o-y)

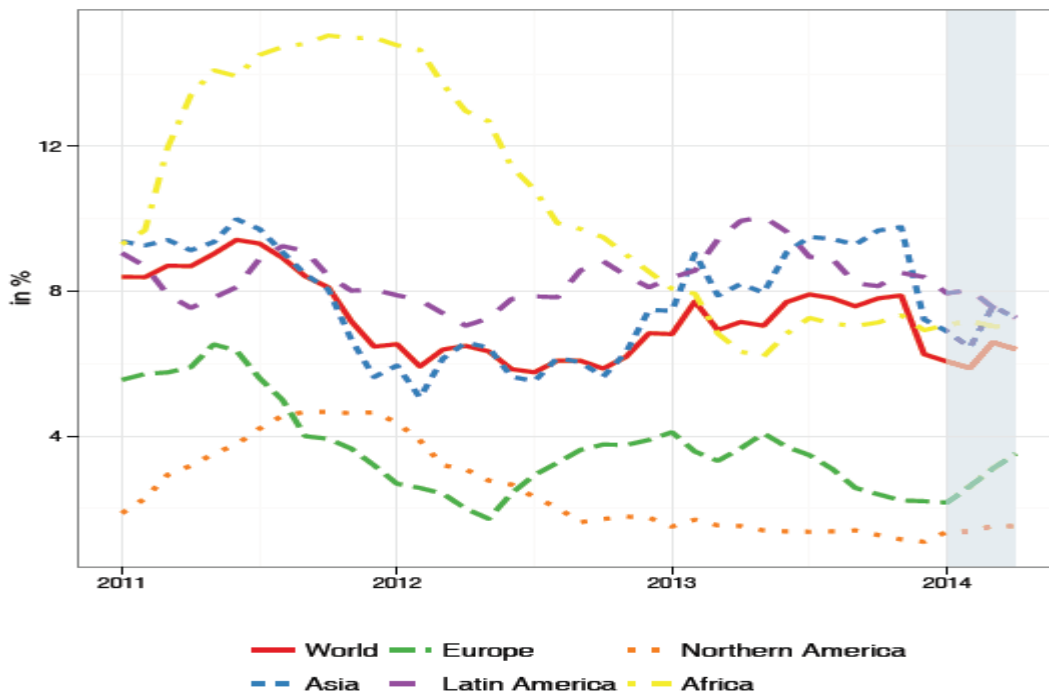


Table 1 Trends in global and regional consumer food price inflation

Growth rates in percent	2011	2012	2013	2014			
				Jan	Feb*	Mar*	Apr*
World	8.4	6.2	7.4	6.1	5.9	6.6	6.4
Africa	13.5	11.4	7.1	7.1	7.2	7.0	7.0
Southern Africa	7.0	7.3	5.7	4.2	5.3	5.8	6.0
Western Africa	9.3	8.7	6.8	5.7	5.9	5.7	6.1
Northern Africa	9.4	8.4	7.7	9.5	9.8	9.2	8.2
Central Africa	12.1	11.8	9.5	5.4	5.7	4.4	5.8
Eastern Africa	23.3	17.6	7.1	7.8	7.5	7.6	7.5
Americas	6.6	5.8	6.0	5.4	5.4	5.2	5.0
South America	9.5	8.4	10.6	9.5	9.4	9.1	8.7
Central America	5.9	6.9	5.5	5.2	5.7	4.6	4.5
Caribbean	7.2	6.3	5.6	2.4	2.6	2.1	2.5
Northern America	3.7	2.6	1.4	1.4	1.4	1.5	1.5
Asia	8.6	6.1	8.7	6.9	6.4	7.6	7.3
Eastern Asia	10.6	4.4	4.1	3.2	2.4	5.1	4.9
South-Eastern Asia	2.6	4.1	7.6	7.9	7.8	7.4	7.5
Western Asia	6.2	10.2	15.6	16.4	16.7	15.7	16.9
Southern Asia	8.8	8.1	13.3	9.6	9.4	9.5	8.9
Europe	5.1	2.9	3.2	2.2	2.6	3.1	3.5
Southern Europe	2.5	2.5	2.4	0.8	1.2	1.6	1.9
Eastern Europe	8.0	3.1	3.8	3.1	4.0	5.2	6.2
Northern Europe	5.1	3.0	3.1	1.7	1.1	1.6	1.0
Western Europe	2.3	2.9	2.8	1.9	2.1	1.7	1.7

Note: monthly inflation rates are year-on-year growth rates (month m / month m-12)

* Forecasts

Regional focus: Latin America

In 2013, the average price of food items purchased by Latin American¹ households increased by 8.9%, following a 7.9% increase in 2012. In May 2013, food price inflation of 10.1% was the highest in 5 years. Since then, inflation has constantly fallen, with our forecasts indicating a continuation of this trend for the first 4 months of 2014. This contrasts with other regions of the world, where a stabilization or slight pick-up in food prices is anticipated as a result of rising agricultural commodity prices. The recent recovery of some major currencies in the region may explain this trend, such as appreciation of the Brazilian Real, which rose by approximately 5% against the USD since the start of the year, as stronger national currencies reduce the import value of agricultural commodities which are usually traded in USD.

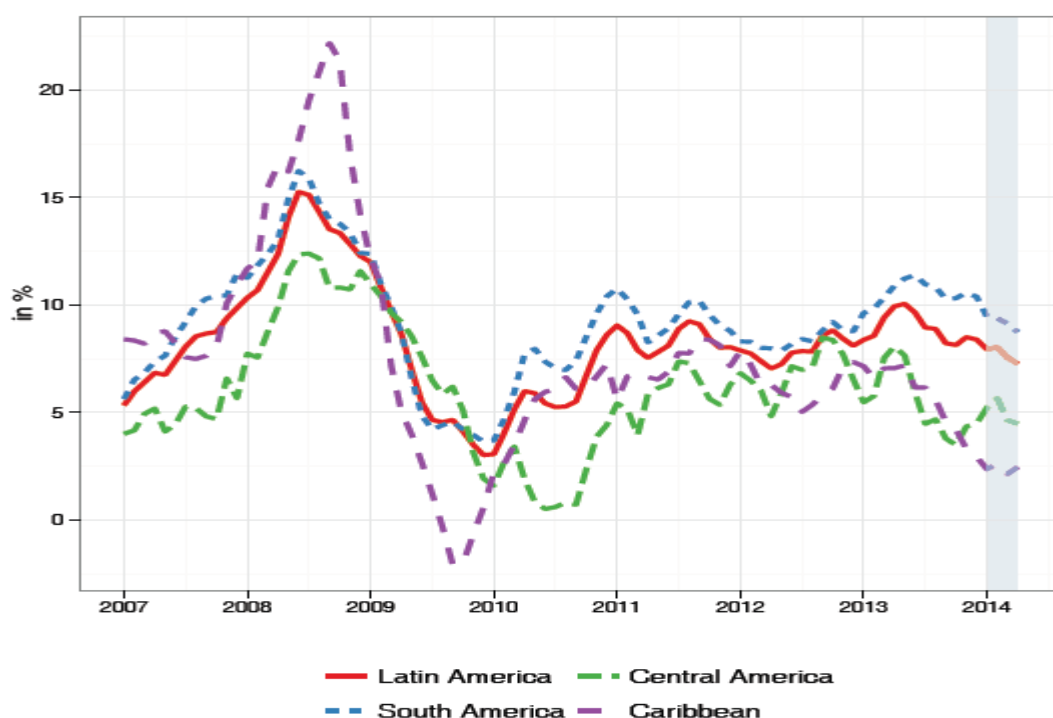
¹ In this release, the Latin America aggregate includes South America, Central America and Caribbean countries.

At the sub-regional level, Central America stands out slightly, as it experienced rising food inflation since October 2013. This is essentially the result of regular and higher than usual increases in the price of certain fruits and vegetables in Mexico, especially red and green tomatoes, which are a basic staple. Harvests in the states of Sonora, Sinaloa and Jalisco, the main producers of the commodity, have suffered from bad weather conditions at a time of the year when demand is typically high. As these factors phase out, food inflation in March and April is likely to slow down, in line with the trends projected for Latin America as a whole.

Since 2009, food inflation in South America has been constantly higher than in other sub-regions, and characterized by a high variability across countries. Countries such as Argentina and Venezuela have had to cope with structurally high inflation rates, in particular for food items. In the case of Venezuela, structural factors limiting the domestic supply of food products has been compounded by political, economic and monetary instability. As a result, food prices surged by 54.2% in 2013, with a peak of year-on-year inflation of 79% in November 2013.

Brazil also experienced sustained food inflation of 11.2% in 2013, with an annual rate almost double the general inflation rate of 6.2%. Food price inflation peaked in Brazil in April (14.0%) and slowed down after to reach a low of 7.3% in January 2014. Given the weak economic growth prospects for the beginning of 2014, the slight recovery of the Brazilian Real and the limited elasticity of domestic food prices to changes in prices on international commodity markets², Brazil is unlikely to see food inflation increase in the first half of 2014.

Chart 2 Food consumer price inflation – Latin America and sub-regions (y-o-y)

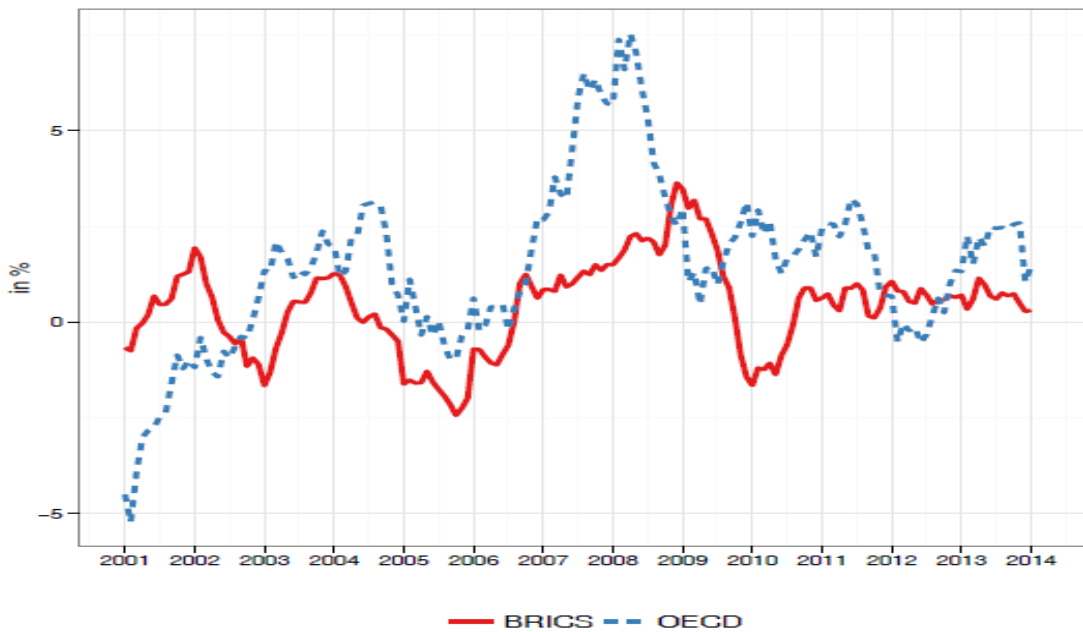


² For evidence, see for example M. Jalil and E. Tamayo Zea (2011), pp 161-162

Box 1 Real food consumer prices

Real food consumer prices measure the extent to which food prices rise relative to the price of the basket of all consumer goods. The computation of real food consumer prices for OECD and BRICS countries (Brazil, Russia, India, China and South Africa) shows that real food price inflation is still a feature in most countries, but is significantly higher and more volatile in the developing countries of BRICS compared to OECD countries (see Chart 3). This is explained in part by the higher weight of food in the consumer basket of developing countries, as well as the higher integration in developed countries between food markets and other sectors of the economy due to lengthier, more complex and diversified value-chains and market structures.

Chart 3 Real food consumer price inflation (y-o-y)



Box 2 Now-casting food consumer prices

This release provides global, regional and sub-regional forecasts of food consumer prices up to the current month, April 2014, also known as now-casts. The forecasting methodology used is described below.

Purpose

Consumer price indices (CPI) are disseminated by countries with a time-lag that typically varies from 1 to 4 months. Global CPI datasets, such as those disseminated by the ILO, the UNSD or the IMF, have a longer lag because of the time needed to collect, compile and publish the data provided by countries. In order to monitor current trends in food inflation, it is therefore necessary to forecast price changes to the current period. In this release, forecasts were provided for 3 months (February, March and April 2014).

Modeling approach

Econometric models were used to forecast monthly food price changes using augmented ARIMA (Auto-Regressive Integrated Moving Average) models tailored to each of the sub-regions. The regressors and the structure of lags were selected using a stepwise procedure based on the Akaike Information Criteria (AIC). Regional and global forecasts were derived by aggregating the forecasted sub-regional indices.

Explanatory variables

Explanatory variables included changes in daily exchange rates (for 14 currencies against the USD, including the Euro, the British Pound, the South African Rand, and the Brazilian Real), indices representing the main equity markets, and the FAO Food Price Indexes (FPIs). Changes in exchange rates explain changes in the food CPI as they affect the value of imported goods and, therefore, the overall price of the food basket purchased by households. Indices representing the main equity markets (S&P 500, Shanghai Stock Exchange, Bovespa Index, etc.) proxied activity data, where economic activity is known to be positively correlated with overall inflation. Finally, the FAO FPIs for the different commodity groups (Cereals, Vegetable Oils, Meat, Dairy, Sugar) were used as benchmarks for agricultural commodity prices on international markets. As the FPIs indices are available on a monthly basis after the month end, forecasts for the current month (April) were necessary, and obtained using ARIMA models for each of the sub-indices and prices from the main spot and futures markets (1 month ahead contracts). For example, the cereals price index was forecasted using the reference price for No.2 Yellow corn in Central Illinois, No.2 Milling Oats in Minneapolis and No. 1 soft white wheat in Portland, which are available daily. Finally, a principal component analysis was applied to each of the groups of variables (exchange rates, stock indices, commodity price indices) in order to extract the relevant information and limit redundancies.

Model selection

Out-of-sample forecasting accuracy for the augmented ARIMA models was compared to AR(1) and AR(0) models (random walk process) on the basis of the Root Mean Square Errors (RMSE), and their average capacity to predict the sign and direction of price changes. The table below shows that for South America, as in most of other sub-regions, forecasting Food CPIs using an augmented ARIMA model is superior to the AR(1) and AR(0) alternatives. In particular, the ARIMA model correctly predicts deflation episodes 67% of the time and correctly anticipates the direction of the changes more than 50% of the time.

Table 2 Food CPI forecasting accuracy (South America)

	ARIMA	AR(1)	AR(0)
RMSE	0.04	0.06	0.05
Sign	0.95	0.95	0.95
Sign < 0	0.67	0.00	0.00
Sign > 0	0.97	1.00	1.00
Direction	0.53	0.44	0.33
Direction < 0	0.57	0.33	0.33
Direction > 0	0.51	0.52	0.33

Definitions and Acknowledgements

FAO's Global and Regional Food Consumer Price Indices (CPI) measure food inflation for a group of countries at different geographical scales: sub-regional (e.g. South America), regional (e.g. Americas) and global (world, all countries). The Global Food CPI covers approximately 150 countries worldwide, representing more than 90% of the world population.

The aggregation procedure is based on the use of population weights. Population weights may better reflect regional food inflation and its impacts on households, while using the Gross Domestic Product (GDP) or any other measure of national income may better reflect the impact on the economy as a whole. Using GDP would also mean giving a higher weight to countries less exposed to food insecurity, because households in countries with higher GDP tend to be richer, spend a lower proportion of their income on food and benefit from an economic environment characterized by lower and less volatile consumer price inflation.

The source of data for the country CPIs is the International Labour Organization (ILO), the UN Statistics Division and websites of national statistical offices or central banks. We gratefully acknowledge the Statistics Division of the ILO for their methodological and technical guidance on the compilation of global and regional food inflation indices. Please also note that the ILO twice a year publishes world aggregates of food and all items CPI, based on GDP weights, as part of the Global Trends in the Labour Market (<http://laborsta.ilo.org/sti/>).

Because of significant conceptual and methodological differences involved in the compilation of national CPIs by countries around the world, global and regional CPI aggregates should be interpreted with caution.

Next release

Country Consumer Food Price Indices are updated every month on FAOSTAT. Regional and Global indices are updated every quarter. The next release presenting global and regional trends will be on July 18th 2014.

Contact information

For more information, or to enquire about the concepts, methods or data quality of the CPIs, contact the Price Statistics Team of FAO's Statistics Division (Price-Statistics@fao.org / +00 39 0657052553).