

Soaring food prices and its implications on core inflation

Over the recent period, food prices, including both raw food and seasonings and condiments rose substantially, causing higher pass-through to prices of prepared food. The effect was most notable during 2011 Q2, where prices of many prepared food items were marked up. In April 2011, prepared food price rose by 2.6 percent over the previous month – a new high record. This rate is considered high compared to its long-run average (since 2000) of approximately 0.2 percent. Such a strong pass-through in turn resulted in an acceleration of core inflation from 1.5 percent in 2011 Q1 to 2.4 percent in 2011 Q2, partly owing to a large share of food and beverages, totaling 24.4 percent in the Core Consumer Price Index basket. This scenario thus motivates the following questions: (1) what are the main factors affecting prepared food prices in Thailand?; (2) how can we explain the dynamic of food inflation; and (3) what are the implications on core inflation?

Factors affecting prices of prepared food in Thailand

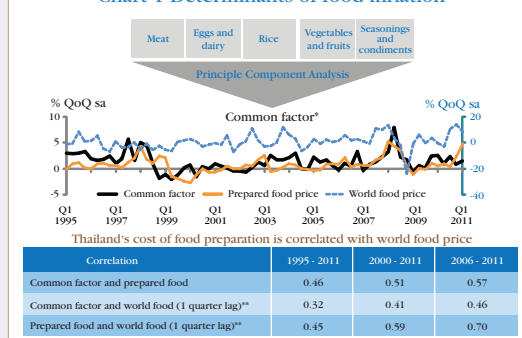
Two steps can be taken in order to find determinants of prepared food prices. The first step is to find an underlying factor that explains the costs of food preparation via constructing the Common Factor Index. This Index is calculated by extracting the Common Factor underpinning the costs of various prepared food inputs, including raw food; namely meat, eggs and dairy products, rice, vegetables and fruits; and seasonings and condiments. The statistical method employed in this calculation is Principle Component Analysis (PCA). The PCA-extracted common trend will then reflect the general factor affecting the costs of food preparation and thus can best explain their variations.

The second step then is to find the correlation between the Common Factor Index and potential factors underlying the costs of food preparation. It is found that world food prices significantly affect Thailand's prepared food prices through their impact on the costs of food preparation. This relationship is reflected by the high correlation coefficients between world food prices and the Common Factor, the Common Factor and prepared food prices, and world food prices and prepared food prices during 2006-2011 of 0.46, 0.57 and 0.70, respectively (Chart 1).

Dynamic of food inflation

The speed at which food inflation will subsequently taper off depends on its persistence. In other words, in the case of high persistence, when food inflation spikes up from a supply shock, it will take longer to adjust downwards relative to the case of low persistence. (Chart 2)

Chart 1 Determinants of food inflation

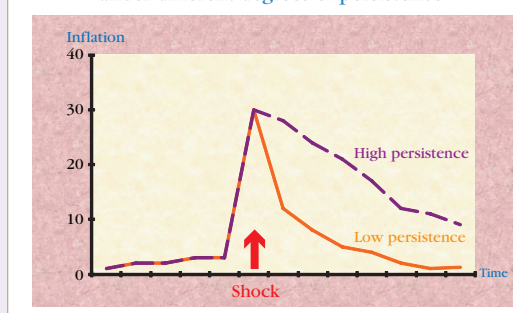


Note: * The constructed common factor is able to explain approximately 42.7 percent of the variation in the 5 variables

** World food is proxied by the International Monetary Fund's Food Index

Source: Ministry of Commerce and calculations by Bank of Thailand

Chart 2 Impact of a supply shock on inflation under different degrees of persistence

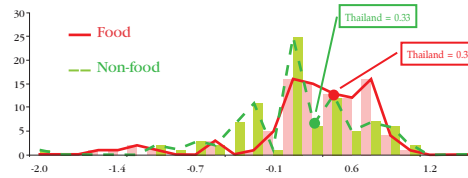


A popular method in calculating inflation persistence is to find the Sum of Autoregressive Coefficients (SARC) from the equation $\pi_t = \mu + \sum_{i=1}^p \phi_i \pi_{t-i} + u_t$, where π_t is the inflation rate and SARC = $\sum_{i=1}^p \phi_i$. In the case of Thailand, inflation generally has a relatively high persistence level compared to other countries, although it has edged down since 2000 after the adoption of the Flexible Inflation Targeting regime. In addition, there is higher persistence in food inflation compared to non-food inflation (Chart 3). Upon disaggregating the overall food category into raw food and other food including prepared food and seasonings and condiments, it is found that the persistence in food inflation is mainly caused by such other food. This fact may well reflect the gradual price adjustment process of prepared food outlets/restaurants.

Chart 3 Thailand's inflation persistence

(Sum of Auto Regressive Coefficients)	Food	Non-food
Thailand (1995 - present)	0.43	0.42
Thailand (2000 - present)	0.37	0.33
World mean	0.182	0.021
World median	0.243	0.000

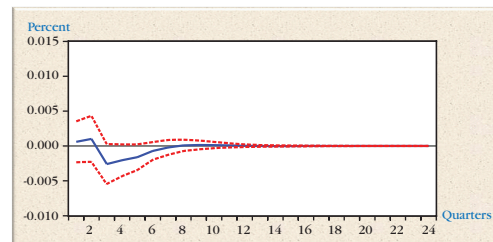
Food and non-food inflation persistence in 91 countries*



Note: * Walsh James, "Reconsidering the role of food prices in inflation", IMF Working paper (2011) whereby persistence is measured by the Sum of Auto Regressive Coefficients

The pass-through of food to core inflation

Chart 4 Impulse response of non-food inflation to a 1 standard deviation innovation in food inflation



Despite the fact that food prices have a relatively high portion in the Core Consumer Price Index basket and food inflation itself is highly persistent, the pass-through of food to non-food inflation, evident from the impulse response function of a typical Vector Autoregressive Model (VAR)^{1/} is not particularly obvious (Chart 4). This suggests that in the past, although increases in food prices would speed up core inflation, the risk that core inflation would increase continuously as a result of the pass-through of food

to non-food inflation was minimal. In other words, the second round effect of food inflation has been quite low. However, during the present setting where the economy is expanding at a solid pace and demand pressure is strong, as reflected by the higher-than-average capacity utilization rate, a 1 percent increase in food inflation will pass-through to core inflation by 0.05 percentage point more than when demand pressure is tame.^{2/}

In summary, the large proportion of food in the Core Consumer Price Index basket implies that food inflation dynamic is an important determinant of the overall inflation dynamic. This is reflected in the acceleration of core inflation during the previous periods. Moreover, although food inflation has a rather high persistence level, past data indicates that the pass-through to non-food inflation has not been obvious. In other words, the magnitude of the second round effect of food inflation is not large enough to sustain a continuous rise in core inflation. Nevertheless, when the economy is strong and demand pressure is high, the likelihood of a larger second round effect is estimated to be higher, potentially altering the inflation expectation. The BOT, therefore, places great emphasis on assessing developments and risks that can potentially affect economic growth, inflation and inflation expectation in the periods ahead.

^{1/} Using quarterly CPI data for food and non-food during 2000 - 2011 and employing 2 lags.

^{2/} Using the equation $\pi_{core,t} = C + \pi_{core,t-1} + \sum_{i=1}^2 \phi_i \pi_{t-i} + Dummy \sum_{i=1}^2 \phi_i \pi_{t-i}$ where Dummy = 1 when there is high demand pressure, i.e. the capacity utilization rate is higher than its average value since 2000, and Dummy = 0 otherwise.