Global Food Prices: Implications for Food Security in Malaysia[1]

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Abstract

This paper examines the factors that led to the recent price hikes in food commodities and the implications to food security in Malaysia. Unlike the previous price crises, the price upsurge in 2008 resulted from the convergence of fundamental and technical factors and the increase of energy prices. The high price of crude oil has increased the demand for biofuel such as biodiesel, which utilises palm oil as the main feedstock. If this development continues, it may affect Malaysia's capacity to produce more food as arable land will be dedicated to oil palm plantations. Hence, the landscape for food security concern has changed as energy and food demand are competing for the same pool of resources, in particular land and water. Further, low investments in agriculture and heavy emphasis on export crops have left the food sector unattended. Rice, which is the country's "security crop", failed to progress despite heavy subsidies and incentives provided by the government. This paper highlights the major issues faced by Malaysia in its bid to achieve "food security" as well as identify future challenges and policy options.

Introduction

Consumers worldwide have enjoyed low agricultural and food prices in the last three decades or so, until the food crisis struck in 2008. Food prices have risen to unprecedented heights, creating social unrest, particularly in the food deficit, low income countries. Malaysia, although a middle income nation by category, was not spared adversity as it has been a net importer of food in the last four decades. Food security has been the major concern under the country's agricultural policies and plans, but the performance of the food sector has not kept up with the intended targets. In fact, the country has grown to depend more on imports for most of its food requirements, including its staple food, rice. High food prices are a boon to producers but extreme volatility (as it occurred in 2008) disrupts markets, causes chaos and unnecessary wastage due to irrational and haste decisions. There are a number of interpretations of the crisis as either being a short-term shock or the beginning of an increasing long-term trend, or both.

The crisis has subsided but prices are still hovering at levels higher than they were in the 1990s, which tends to support the hypothesis that food will no longer be cheap. The equation of food has shifted to supply-constraint concerns, particularly land and water, which were assumed to be plentiful not so long ago. Demand may outstrip supply, leading to higher food prices in the future. With these trends lurking, Malaysia has to relook at its food security in a different context as the factors leading to the shift in price trends are no longer the same as that of the 1970s and 1980s. Hence, this paper will examine the implications of the recent trends in global food prices on the food security in Malaysia.

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This paper will revisit the food crisis in terms of the factors that were instrumental in pushing up commodities and food prices, with some references to the Malaysian situation. This is then followed up with a review of the Malaysian food security situation, with the last section concluding with some policy options.

Global Food Prices: 2008 Crisis

There is plenty of literature explaining the factors that contributed to the upsurge in agricultural and food commodity prices in 2008. However, since the crisis is "unique", particularly the extreme volatility and emergence of the "biodiesel factor" in price hikes, it warrants a revisit to understand the implications of these developments on food security. The following section discusses the extent and causes of the price increase.

The Extent

The price trends of the major commodities in the last three decades are depicted in Figure 1. The figure shows that commodities such as crude oil, vegetable oils (represented by palm and soybean oils) and cereals (maize, wheat and corn) have all experienced a dramatic increase in prices from the beginning of 2006. Visual inspection and simple statistical analyses indicate a number of glaring behaviour. Firstly, prices tended to move onto a higher plain in the beginning of 2006. For instance, the price of rice increased by 221% between January 2007 and May 2008, compared with an increase of 31% between January 2005 and May 2006. Secondly, prices tended to move in tandem with one another after 2006. As shown in Appendix 1, the correlation matrices of these prices before and after 2006 suggests that they showed a stronger relationship after 2006, which was not observable before. Thirdly, volatility increased in magnitude from 2007 onwards, as indicated by higher coefficient variations (Fatimah and Nasir, 2008).

Narrowing down to food, the FAO food price index increased by 26% and 24% in 2007 and 2008 respectively compared with 2006 when it rose 7% on average compared with 2005 (Figure 2). Between February and July 2008, international prices of all major food commodities reached their peak levels. The continuing surge in prices was led by vegetable oils, which increased by more than 154% during this period, compared with the same period in 2006, followed by cereal prices jumping by 136% and dairy products by 97%. However, later in 2008, some of the factors that pushed the food prices were reversed. Currently, the decrease in average of the vegetable oils price index for the first 11 months of 2009 compared with the same period in 2008 stands at 58%, while that for cereals and diary products decreased by 40% and 68% respectively. However, the average price indices for those commodities are still higher than the pre-crisis levels.

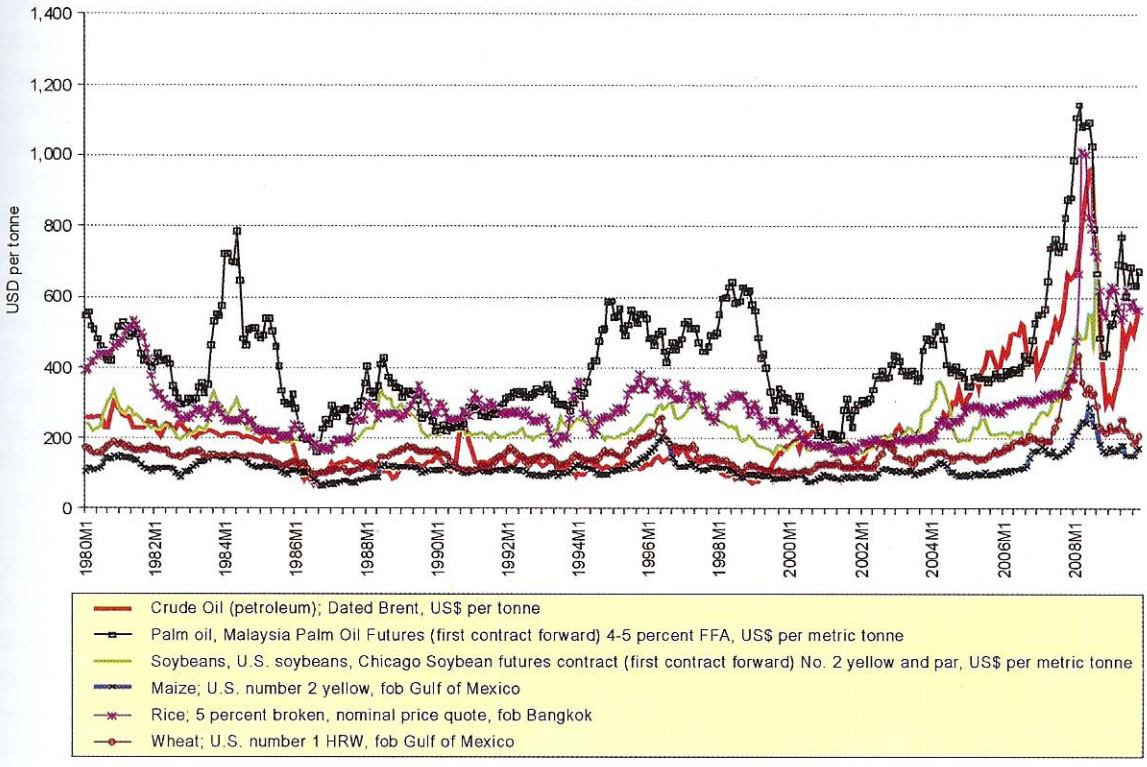
Causes of the 2008 Food Price Crisis

Like any other price crises, the fundamentals are the usual explanation for the situation. The crisis appeared to indicate a very tight supply situation: demand was chasing supply, which was severely constrained by natural and technical factors. However, this time around, the convergence of "systemic" and technical factors and the emergence of palm oil to meet biofuel demands have made the crisis unique and complicated. The following brief outline the major factors that contributed to the crisis.

The Fundamentals

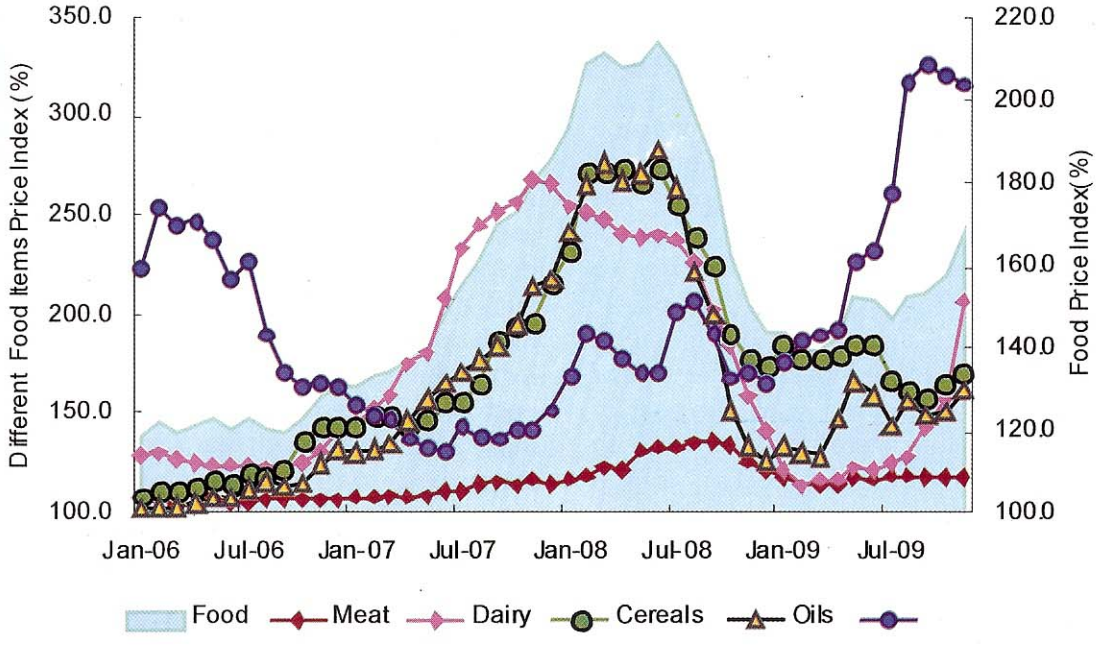
(i) Decline in growth of agricultural production, hence supply. The growth of agricultural output has somewhat declined in the last decade due to both short- and long-term factors. The demand, on the other hand, has strengthened with economic developments in some parts of the world. For instance, the annual growth rate of grains and oilseeds declined from 2.2% between 1970 and 1990 to about 1.3% in the 1990s. Trostle (2008) estimated that the growth rate of grain production would decline further to 1.2% between 2009 and 2017. In the short run, there was a temporal disruption in production. Although the world cereal harvests were good in 2004, production still declined by up to 2% in 2005 and 2007 (FAO, 2008). Cereal production by the world's eight major

Figure 1: Commodity Prices (Jan. 1980-Nov 2009, US$/tonne)



Source: IMF (2009)

Figure 2: World Price Index Movements for Different Food Sub-groups (Jan 2006-Nov 2009)



Source: FAO (2009a), World Food Situation: @ http://www.fao.org/worldfoodsituation/FoodPricesIndex/en/

producers experienced 4% to 7% decline. Weather problems were reported in countries such Northern Europe, Russia, Australia and Western Africa. For instance, six long years of drought in Australia reduced its rice crop by 98% (Mittal, 2009). Major rice producing countries such as Vietnam suffered serious infestation problems on the farm, while South Asian countries were struck with monsoonal floods and China had a season of bad weather.

These short-term supply disruptions point to the bigger issues at hand, which are resource constraints, notably climate change, land and water depletion. FAO anticipates that droughts, floods and freezing weather due to climate change will continue affecting agricultural output and food security in developing countries. Water shortage has become a serious issue in some parts of the world, particularly Africa, resulting in degradation of agricultural land.

(ii) Decline in global cereal stocks. World cereal stocks reached a record low in 2008, with FAO estimating that stocks stood at 405 million tonnes, down 22 million tonnes from the start of the season and the lowest ever recorded since 1982 (FAO 2008c). In fact, stocks have reduced by 3.4% annually since the 1990s. Wheat stocks dropped to 147 million tonnes, the lowest since 1977. The low level of stocks encouraged speculation, further fuelling food price hikes. A number of factors were responsible for declining grain stocks. Firstly, the level of public grain reserves has generally declined due to the perception that the markets have become liberalised. Hence, supplies of grains which were perceived as "cheap" and "plentiful" are readily available. The rise of "just in time" inventory management enables countries to obtain supplies at the right time and place. Secondly, public agencies have been discouraged from holding stocks as the cost of holding was high compared with the cost of obtaining supplies that were stable and low in prices. The cost of holding grain stocks is as high as 15-25% of the value of stock per year (Mittal, 2009). Thirdly, as mentioned earlier, the world cereals production has suffered due to natural calamities and other technical constraints, thereby impacting grain stocks.

(iii) Higher energy prices lead to higher production costs. The production of cereals is energy intensive. Crude oil enters the aggregate production function of the food commodities through various energy-intensive inputs (such as fertiliser production and fuel for processing), besides transportation/shipping. It is estimated that the doubling of energy prices increased production costs for corn, soybean and wheat in the United States by about 22% between 2002 and 2007 (Mitchell, 2008). Production cost increases raised the export prices of the major US food commodities by about 15-20%, which in turn contributed to the magnitude of the price increase. World Bank studies suggest that rising energy and fertiliser prices and the falling dollar contributed to about 35% of the rise in world food prices (Mitchell, 2008). In the poor and developing economies, the increase in input prices caused some farmers without access to credit to plant less or to shift to crops with less input requirements. The rise in energy prices also increases the cost of transporting food to importing countries. Hence the consequent reduction of production naturally led to price increases in the domestic market.

(iv) Strengthening food demand from emerging economies. The major determinants of food demand are income, population and tastes and preferences. These three variables have undergone a big shift in emerging economies that experienced economic growth brought about by decades of globalisation. Populous countries like India, China[3] and the emerging economies have experienced strong per capita income growth, which not only increased demand for food in general but high value food such as diary products, meat and related animal feeds, particularly corn and soybean. In short, increase in income changed consumers' tastes and preferences towards "higher value food items". It is reported that the consumption of meat in China has increased from 20kg per capita to 53kg per capita between 1990 and 2006. The production of meat is grain-intensive as grains are used in animal feed[4]. The demand

3 India and China account for one-third of the world population.

4 According to FAO (2008) the production of 1kg of beef requires 7-8.5kg of cereal, while for 1kg of pork, it is 5-7kg of cereals.

for staple food among the lower quintile of the population also increased as the income demand elasticity of this group is high. Coupled with the rising populations and urbanisation, the demand for cereals by the growing economies around the world has increased, putting pressure on the downward trend of world supply.

The Systemic Factor

(i) Underinvestment in agriculture. Studies and proven experiences show that investment in agricultural research typically ranks first or second in terms of returns to growth and poverty reduction, along with investments in infrastructure and education (Fan, 2007). Agricultural growth has been associated with promoting economic growth and relieving poverty. Besides, agricultural growth has been about four times more effective in raising the incomes of extremely poor people than GDP growth outside the sector (Ligon and Sadoulet, 2007). Despite such evidence, the reverse is shown in most poor and developing economies.

The public expenditure on agriculture as a share of total pubic spending in these economies has declined in the last two decades. The situation is critical in sub-Saharan Africa, a region heavily reliant on agriculture for overall growth and where public spending on agriculture accounted for 2.9% in 2000 compared with 3.7% in 1995 (Fan, 2007). The 2000 level is much below the target set by the Maputo Declaration of the African Union, which established that 10% of the budgetary allocations should go to agriculture and rural development (Mitchell, 2008) and far less than the 15% spent by Asian countries at the launch of their Green Revolution (Haggblade, 2007).

The same trend is observed in Malaysia. As shown in Table 1, the allocation for agriculture declined from 17% in 1990 to 5.8% in 2005, although agriculture continues to play a significant role in the economy, contributing 8.2% to GDP, while agricultural labour accounts for 12.9% of the total employment. The decline in allocation is accompanied by slower rate of growth of the sector, (1.2% per year in 2005 compared with the national average of 4.7% and 7% for the industry) and high import bills. The self-sufficiency level of food remained unchanged between these periods.

Table 1: Allocation to Expenditure and Status of Agriculture in the Malaysian Economy, 1995 and 2005

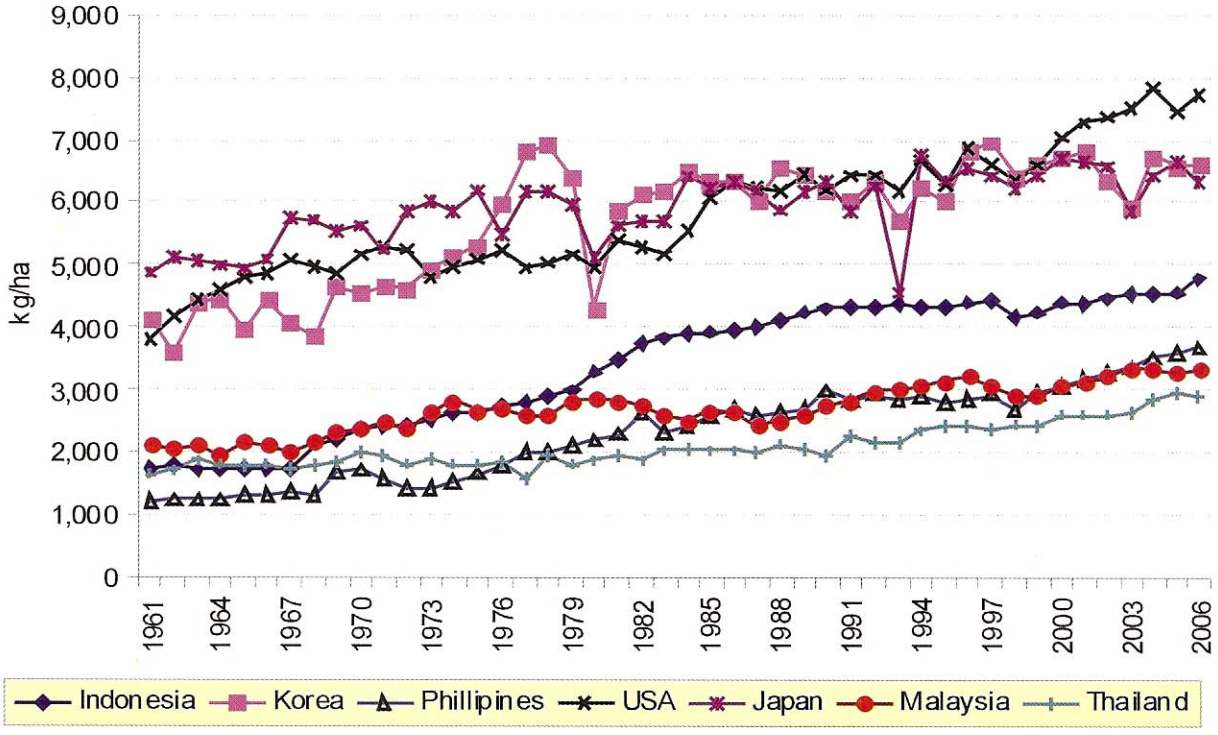
Item	% 1990	2005
Allocation for agriculture	17	5.8
Share of agriculture of GDP	18	8.2
Agricultural labour	26	12.9
Agricultural export	39	7
Food deficit (RM billion)	1	7
Rate of growth – agriculture	5.4	1.2
Rate of growth – overall economy	8	4.7
Rate of growth – industry	12	7
Self sufficiency level (SSL) – rice	79	72
SSL – vegetables	75	74
SSL – beef	23	23
SSL – mutton	10	8
SSL – dairy products	4	5
Imports of processed food/total	11	25

Source: Malaysia (1991) and (2006)

There is general consensus that the decline in agricultural expenditure worldwide is responsible for slow growth in food production, particularly in developing economies. According to FAO, the growth of productivity of grain has reduced from 3% to 6% in the 1960s to 1.2% in the 1990s. Figure 3 shows paddy productivity from 1960s to the early 21st century, based on data provided by FAO. The growth of productivity was higher during the Green Revolution era (1960s and 1970s) compared with the later periods.

(ii) Lopsided policy towards export crops at the expense of food. About three-quarters of the less developing economies depend on single commodities (such as bananas, tea, cocoa, coffee and cotton) for more than 20% of their total revenue from merchandise (FAO, 2004). This is partly due to the legacies of colonial plantation-based production and trade structures. The move towards liberalisation has reinforced these structures (Mittal, 2008). The real prices of these commodities have declined over the years and the markets for these commodities are highly volatile due to instability of supply, which is highly sensitive to natural hazards. Volatility badly affects income and employment in those countries, leaving them deeply in debt. Specialisation in a few

Figure 3: Paddy Productivity in Selected Countries, 1961-2006 (kg/ha)



Source: FAOSTAT (2008)

commodities for export has increased the dependence of developing countries on cheap and heavily-subsidised food imports from industrialised countries. Historical data shows that most developing economies have become net importers of food from the beginning of the 1990s, after having enjoyed food trade surpluses in the 1970s. During the crisis, most of these economies found that their domestic food production was not enough to provide for the local market.

Malaysia is also a case where its agricultural economy is concentrated on a few commodities, basically oil palm and rubber, with the later in decline after a head start in the 1970s. Malaysia was the world largest producer of palm oil since 1970 but its position was overtaken by Indonesia in 2008. The growing dominance of palm oil and other industrial crops, including rubber, cocoa, pepper and pineapple, are reflected in the land usage pattern (Table 2). The table summarises a number of observations. Firstly, in the 1960s, these crops accounted for more than 70% of land use. However, by 2005, it increased to 83.7%, indicating a continuous dominance of these crops on Malaysian agricultural land. This means that lesser land is dedicated to food crops. As at 2005, only 16.3% of the land was devoted to food crops such as rice, vegetables, fruits and coconuts. Secondly, in the last three decades, the composition of industrial and food crops have changed significantly. In the case of industrial crops, palm oil has surpassed rubber in terms of acreage and production. The share of palm oil of the total land area increased from a mere 2.1% in 1960 to 63.4% in 2005. The reverse has happened to rubber, declined from two-thirds of the total agricultural land use in 1960 to 19.6% in 2005. In the case of food crops, a structural composition also has taken place, although not that drastic. Most of the food crops have experienced a decline in acreage, with one notable exception: fruits. The acreage under fruits has increased from 1.5% in 1960 to 5.2% in 2005. Land under paddy has declined from 20.8% in 1970 to 7.1% in 2005.

Like other less developed countries that chose to specialise in cash or export crops at the expense of food crops and turn to imports for food, Malaysia's story is no different. It has increasingly grown to depend on food imports, including its staple, rice. As shown in Figure 4, Malaysia has been a net importer of food in the last four decades, with the deficit in food trade widening from RM1 billion in 1990 to RM9.7

Table 2: Malaysia: Land Usage, 1960-2005 (%)

Crop	1960	1965	1970	1975	1980	1865	1990	1995	2000	2005
Industrial crop	**68.5**	**71.7**	**68.0**	**69.3**	**71.7**	**76.1**	**81.3**	**77**	**80.2**	**83.7**
Rubber	65.7	66.9	58.6	51.2	45.1	39.3	44	30.6	26.1	19.6
Palm oil	2.1	4.0	8.4	16.5	23	29.9	30.4	37.9	48.8	63.4
Cocoa	0.0	0.1	0.2	0.7	2.8	6.1	6.3	7.9	4.7	0.5
Pineapple	0.6	0.6	0.6	0.5	0.3	0.2	0.1	0.2	0.3	0
Tobaco	0.1	0.1	0.1	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Food crops	**31.5**	**28.3**	**32.0**	**30.7**	**26.8**	**22.6**	**17.9**	**21.7**	**18.8**	**16.3**
Paddy	17.5	16.8	20.8	19.5	16.5	13.1	10	11.3	7.5	7.1
Coconut	9.2	8.1	8.7	7.4	7.9	6.7	4.7	5.7	4.1	2.8
Vegetables	1.3	0.7	0.5	0.3	0.3	0.3	0.5	0.3	0.8	1
Fruits	1.5	1.6	1.6	1.7	2.1	2.4	2.7	4.3	6.4	5.2
Others	1.9	1.1	0.4	1.9	1.5	1.4	0.9	1.3	1	0.3
Total	100.0	100.0	100.0	100.0	100	100	100	100	100	100
Total hectarage	2,667.0	3,066.0	3,445.0	3,887.0	4,446.6	4,952.4	6,636.3	5,716.3	5,368.3	6,382.0

Sources: Malaysia (various years)

Note: Paddy: Based on harvested area. Vegetables (only for the peninsula) include leafy, fruit and root vegetables. Fruits do not include pineapple.

billion in 2007. The need to ensure enough food for the population, reduce import bills and spearhead the growth of the food industry have prompted the government to devise a surplus balance of trade for food at RM1.2 billion in the year 2010 (Figure 4, Malaysia, 2006). However, this target was far from being attained and at the end of 2008, the country's food bill deficit stood at RM10 billion. As shown in Table 3, Malaysia imports more than it exports. It imports livestock and dairy products, fruits and vegetables, cereals (including rice and corn), animal feedstuff, food and beverages more that it can produce, resulting in deficits in these items.

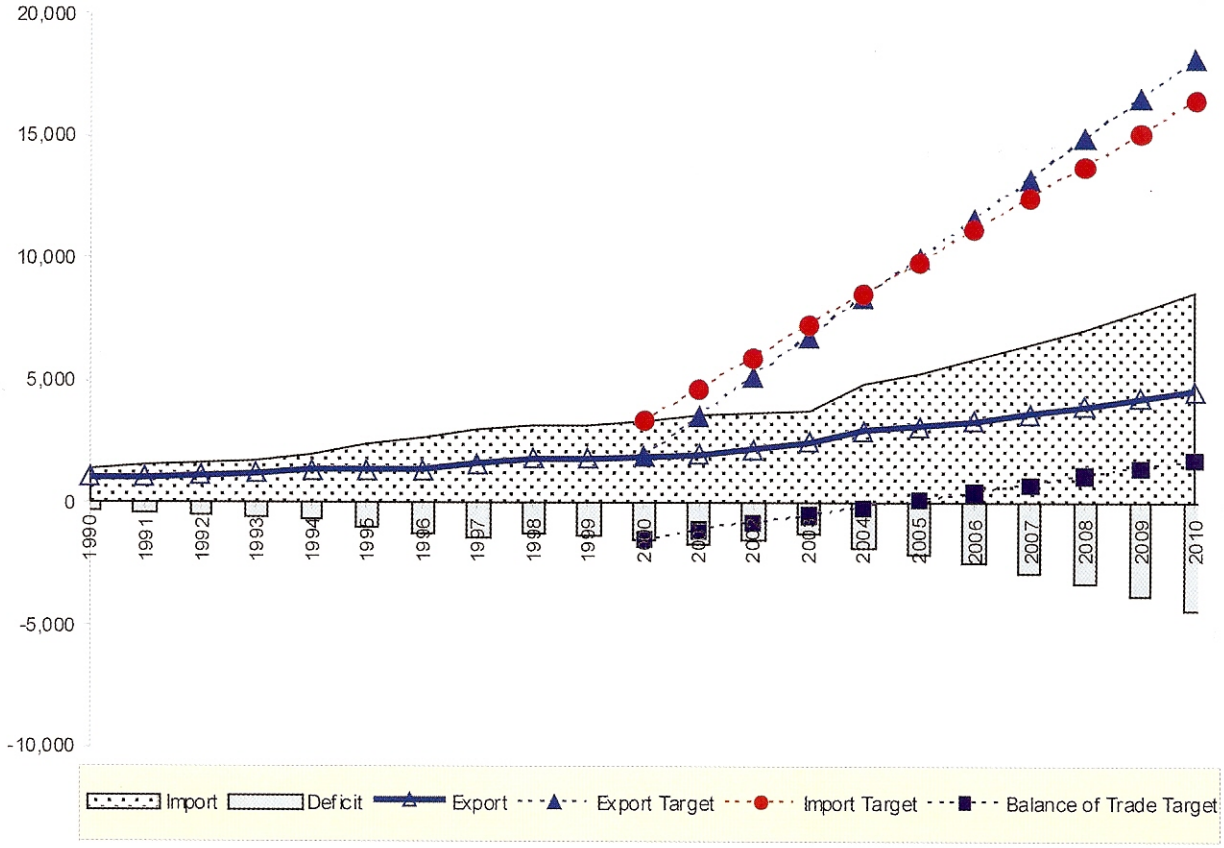
Biofuel demand competes with food for resources

The demand for biofuel has increased in the last few years as developed countries seek alternatives to fossil-based fuel which is unstable in price and supply as major suppliers lie at the world's most unpredictable and troubled region - the Middle East. With global warming, the cry for greenhouse gas (GHG) reduction under the Kyoto Protocol and the awakening of the Chinese and Indian economies and their lusty consumption of energy have all added up to the call for biofuel (ethanol and biodiesel). This has in turn increased the demand for feedstock, which include maize (for ethnanol) and palm oil and rapeseed (for biodiesel).

Under these developments, the demand for biofuel was "politically created" worldwide. That is, the demand curve was drawn through subsidies and mandates[5]. These policy instruments have driven the demand for biofuel and hence maize for ethanol and palm oil for

5 The US spent about US$5.5 billion to US$7.3 billion a year to support biofuel production. The EU subsidises biofuel production to the tune of US$4.6 billion. The European Union Biofuels Directive sets targets for a minimum fuel: rising from 2% in 2005 to 5.75% by 2010. By 2020, 20% of conventional motor fuels will be replaced with alternate fuels (e.g. biofuels, natural gas, and hydrogen fuels). The US is targeting 20% by 2030. The Canadian government supports new investment to meet a target that 35% of petrol containing an E10 blend will be in place by 2010. China mandates E10 in some areas. Japan has increased its target from the present level of 3% of renewable energy to 10% by 2020. Brazil now mandates a fuel blend of E25% nationally. Australia has set a goal of 1% renewable by 2010 and maximum blend is 10%. The other ASEAN countries are also pushing the demand curve further through mandatory requirement on biofuels. Thailand has mandated an ambitious 10% ethanol mix in gasoline starting in 2007. For similar reasons, the Philippines mandated 2% biodiesel to support coconut growers, and 5% ethanol in 2007. Indonesia sets a target for 10% biofuels by 2009. In Malaysia, a policy has been made to ensure the use of B5 blend of palm olein-based biodiesel in diesel oil in the transportation and industrial sectors in 2007 (Fatimah Mohamed Arshad, 2009).

Figure 4: Malaysia's Balance of Food Trade Plan (RM million)



Source: MoA (2007)

Table 3: Malaysia's Food Balance of Trade (RM million/%)

Sector	RM million/%							
	1990		1995		2000		2006	
	RM mn	%	RM mn	%	RM mn	%	RM mn	%
SURPLUS								
Live animals	317.5	22.4	412.3	43.7	194.7	19.8	184.9	16.9
Birds eggs	58.1	4.1	69	7.3	174.4	17.7	186.3	17
Fish crustaceans, molluscs and aquatic invertebrates, and preparations	242.2	17.1	51.5	5.5	197.6	20.1	252.9	23.1
Fruits	43.2	3						
Coffee, tea, cocoa, spices, and manufactures	758.9	53.4	372.2	39.5	340	34.5		
Miscellaneous edible products and preparations			38.4	4.1	78	7.9	470.2	43
Total	1,419.9	100	943.3	100	984.7	100	1,094.4	100
DEFICIT								
Meat and meat preparations	-204.3	8	-310.1	7.2	-706.8	12	- 898.6	9.3
Dairy products	-439.4	17.2	-775.1	18	-940.7	15.9	-1,205.8	12.5
Cereals and cereal preparations	-1,171.9	46	-1,685.8	39.1	-2,157.5	36.5	-2,976.2	31
Vegetables	-241.4	9.5	-523	12.1	-745.2	12.6	-1,284.6	13.4
Fruits			-108.7	2.5	-49.2	0.8	-292.1	3
Sugars, sugar preparations and honey	-349	13.7	-653.3	15.2	-731.5	12.4	-1,185.9	12.3
Coffee, tea, cocoa, spices, and manufactures					0	0	-946.2	9.8
Feeding stuff for animals	-20.1	0.8	-256.2	5.9	-576.7	9.8	-822.3	8.6
Miscellaneous edible products and preparations	-123	4.8						
TOTAL	-2,549.2	100	-4,312.2	100	-5,907.5	100	-9,611.7	100

biodiesel. It is estimated that about 100 million tonnes of cereals were diverted from human consumption to satisfy the thirst for fuel by vehicles in the developed economies. Land diversion to more corn production causes reduction in the acreage for wheat, and hence its supply. Since wheat and rice are substitutes in consumption and imports, the tight supply of the former affects the latter. Malaysia's palm oil is an efficient feedstock for the biodiesel production in Europe, where rapeseed oil is another major feedstock. The increase in demand for biodiesel has lead to an increase in the export of Malaysia's palm oil to Europe. As supply is inelastic, the upsurge in demand merely pushed up the price of crude palm oil to an all time high, reaching a peak of RM3,896 per tonne in March 2008.

Technical Factors

A myriad of technical factors played a crucial role in pushing cereal prices higher than the "normal" band. The first in the list is an unprecedented increase in the speculative activities in the agricultural derivatives market. This was prompted by the slowing down of the real estate industry in the US and the removal of quantitative restrictions on speculative positions in agricultural futures contracts. Financial investors saw opportunities when the global grain stocks were growing abnormally low to diversify their portfolios and maximise returns. According to IUF (2008), the amount of fund money invested in commodity prices climbed from US$13 billion in 2003 to US$260 billion in March 2008. Commodities traded in the futures exchanges, such as crude oil, corn, wheat and soybean, have been subject to extreme price volatility during this period. The economic role of a futures market is to "stabilise" prices through buying positions when prices are low and selling positions when prices are high. For instance, farmers are able to hedge production by selling their harvest ahead of time and buying stock in advance to minimise the risk of high prices. However, the abnormal increase in demand for commodity futures in 2007-08 put tremendous upward price pressure on food and energy commodities.

The other important technical factors include short-term measures taken by both exporting and importing countries to address food security issues. These measures include preemptive trade policies to secure access to food supplies, which have had a snowball effect. Among rice exporting countries, the tendency has been to ban or restrict exports, so as to increase supply and lower prices in the domestic market. For instance, exporting countries like India, Vietnam, China, Cambodia, Indonesia and Egypt responded to the crisis by restricting exports. Among some importing counties, on the other hand, it has led to distress buying by parastatal importers, with floatation of massive orders at increasingly high bid prices. Large purchase tenders made by the Philippines, the world's largest rice importer, have occurred at increasingly high prices, reaching US$1,000 a tonne in April 2008.

Impact on Malaysia

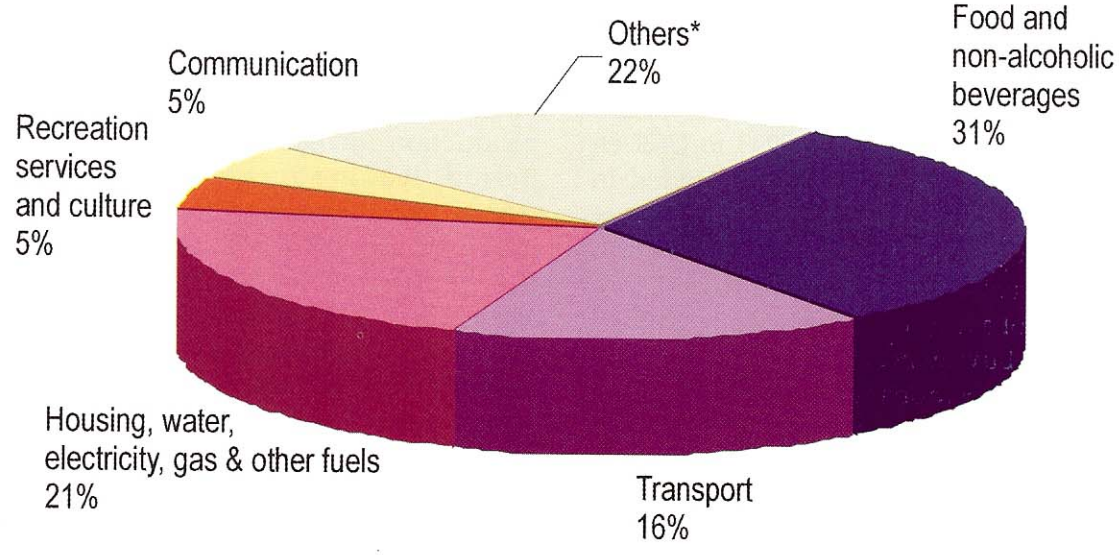
As a net food importer, the crisis affected Malaysia in terms of higher food import bills, increase in Consumer Price Index and a short spell of "social unrest" in the midst of the crisis. Income and population growth as well as changes in lifestyle resulting from urbanisation have increased the demand for food, generated changes in dietary habits and food purchasing and consumption patterns in Malaysia. Local production of major food items has not been increasing in tandem with domestic consumption. For example, the domestic consumption of rice increased at an annual rate of 2% during the last decade (1998-2007), but production increased by only 1% during the period, leading to the gap between these expanding. Consequently, rice imports increased from 594 million tonnes in 2000 to 843 million tonnes in 2006 (Ministry of Agriculture, 2008) and about 799 million tonnes in 2007, raising Malaysia's rice import bill from RM700 million in 2000 to RM10.1 billion in 2007 (Department of Statistics, 2008). In 2008, rice imports were increased further, to around one million tonnes due to the "rice crisis" of early 2008 that resulted from worries of deficiencies as world prices rocketed and supply was held back by export restrictions imposed by major exporters like India and Vietnam. However, imports eased slightly in 2009 but according to report from the Department of Statistics (2009a), the export of rice in the first 10 months

of 2009 amounted to about 0.9 million tonnes at a value of about RM1.6 billion. Malaysia's food deficit increased to RM10.9 billion in 2008 compared with RM4.9 billion in 2000.

Food comprises the biggest share of the Malaysian consumer's expenditure (Figure 5). The effect of the recent global price changes is reflected in Malaysia's consumer price index (CPI). The index for January to November 2009 increased by 0.5% to 112%, compared with 111.4% in the same period last year, which was a 5.4% increase over its 2007 level. According to the Department of Statistics, Malaysia, this rise in the CPI in 2008 and 2009 was, for the most part, caused by increases among main groups with high weights, mainly food (52.2% and 223.8% in 2008 and 2009[6] respectively). Although global food prices started to ease after July 2008, domestic food prices in Malaysia exceeded the already high levels of a year ago (Figure 6). Globally, the average food price index for the period January-November 2009 was about 150% down from about 195% in 2008. Apart from sugar, the food price indices for different items assumed a downward trend. The highest increase in food subgroups in 2008, compared with 2007, occurred for rice, bread and other cereals (19%), followed by milk and egg (13%) and meat (7%). The prices of these items continued their increase but at lower rate (bread and other cereals 11.5%; milk, cheese and eggs 5.1%; and meat 8.3%). The domestic prices in Malaysia remained adamantly high in 2009 as they continued their ascending rate. The consumer food price index from January to November 2009 increased to 120.6% compared with 115.7% during the same period in 2008. The 4.4% increase in the index for food and non-alcoholic beverages resulted mainly from increases in the indices of food at home and food away from home (4.2% and 5.1% respectively).The subgroups of the former that showed significant increases during this period were fish and seafood (6.3%), followed by rice, bread and other cereals (5.2%). Meanwhile, meat, fruits and dairy products milk, cheese and eggs increased by 4%, 3.9% and 2.9% respectively.

Under a "freer" market, the actual CPI would have been much higher if not for the government's efforts in curtailing food prices in the country. In its effort to protect poor consumers at large, the Malaysian government implemented price control schemes for

Figure 5: Baskets of Good and Services Purchased by Consumers

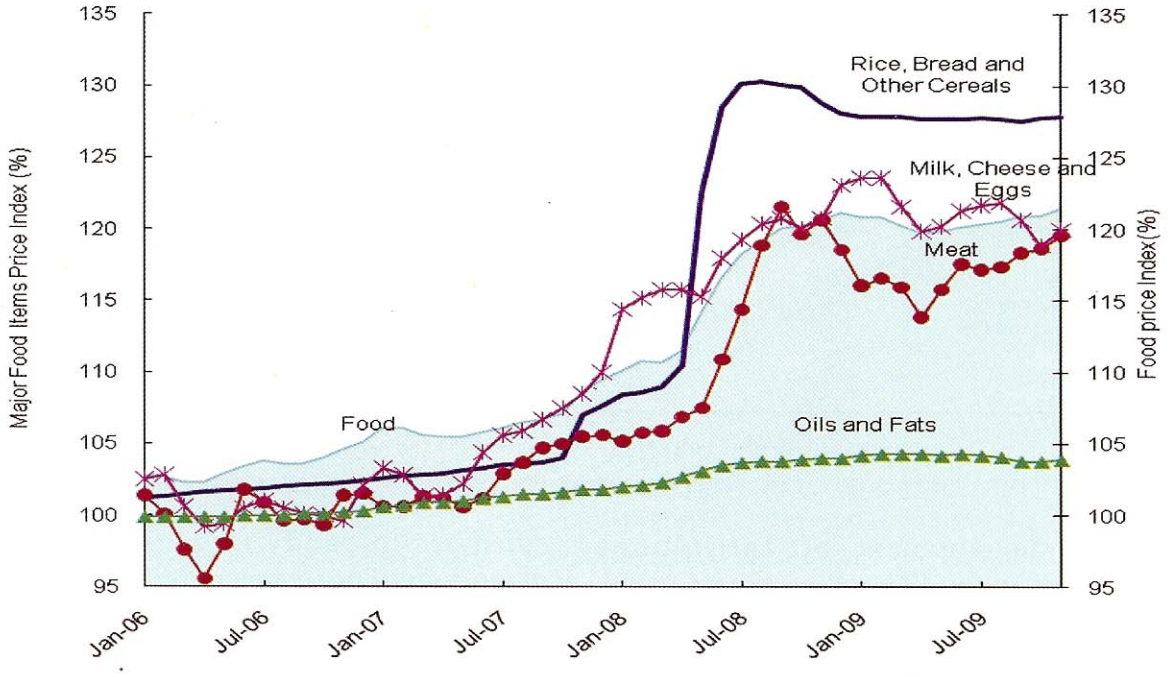


Source: Bank Negara Malaysia, 2009

*Note: *Others include clothing and footwear; furnishings, household equipment and routine health and miscellaneous goods and services*

6 Referring to January-November of the corresponding year

Figure 6: Consumer Price Index and the Movements of Price Index for Different Food Sub-groups in Malaysia (January 2006-November 2009)



Source: Department of Statistics, Malaysia, (2009b) and Bank Negara Malaysia (2009)

important food items (such as sugar, wheat, bread and cooking oil), diesel and LPG. As for rice, the Ministry of Agriculture and Agro-based Industry has continued the producer support price by increasing the minimum guaranteed price from RM650 per tonne to RM750 per tonne in May 2008. To ensure enough supplies of rice to poor consumers, the ministry has decided to provide a temporary subsidy of RM800 per tonne to millers, including BERNAS, to produce the lower grade ST15% rice.

The distributional impact of the increase in food prices can be gauged from the expenditure pattern of the consumers. The incidence of poverty in Malaysia was estimated at 3.6% in 2007, with the figure higher in the rural areas (7.1%) compared with the urban areas (2%). The incidence of hardcore poverty was estimated at 0.7% of the population (urban 1.4% and rural 0.3%). The poverty income line was RM691 for Malaysia[7]. As shown in Table 4, the poor group (RM600-699 expenditure class) spent about a third of their total expenditure on food and non-alcoholic beverages compared with 9.1% of the RM5,000 class. Equally, the poor group spent 4.5% of its total expenditure on rice compared with 0.5% by the latter. Clearly an increase in food prices, particularly rice, leaves little room for other expenses such as education, healthcare and non-food expenditures.

Food Security in Malaysia: The Need for a Relook

The World Food Summit in 1996 defined food security as existing when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food security concern is embedded in Malaysia's agricultural policy since its inception before Independence, with modifications over time. The level of "food sufficiency" has been used as a proxy to indicate the level of food security in the country and the food of concern is rice, which is the staple diet of the majority of the population.

7 The PLI for Peninsular Malaysia is RM661 per month, Sabah RM888 and Sarawak RM765 (Malaysia, 2006).

Table 4: Average monthly expenditure per household by household expenditure class, Peninsular Malaysia, 2004/5 (RM)

Expenditure class	<500	500-599	600-699	700-799	800-899	900-999	1,000-1,999	2,000-2,999	3,000-3,999	4,000-4,999	>5,000
Average monthly expenditure per household (RM)	375	554	649	753	850	947	1,461	2,407	3,412	4,427	7,531
Food and Non-Alcoholic Beverages (RM)	122	166	209	230	255	266	363	479	565	596	689
Rice (RM)	17	20	24	25	30	29	32	34	34	44	36
Food and Non-Alcoholic Beverages/Monthly expenditure per household (%)	32.5	30.0	32.2	30.5	30.0	28.1	24.8	19.9	16.6	13.5	9.1
Rice/Food and Non-Alcoholic Beverages (%)	13.9	12.0	11.5	10.9	11.8	10.9	8.8	7.1	6.0	7.4	5.2
Rice/Monthly expenditure per household (%)	4.5	3.6	3.7	3.3	3.5	3.1	2.2	1.4	1.0	1.0	0.5

Source: Department of Statistics (2005)

After the development of agricultural infrastructures in the 1960s, the country aimed for self-sufficiency in rice production in the 1970s and 1980s. The target was further revised, taking into account developments in domestic and international markets.

As shown in Table 5, the level of self-sufficiency in rice reached its peak in 1975 when Malaysia was able to secure 95% of its domestic requirement through home production. However, this level was not sustainable by 2005, as it had been reduced to 72%. Malaysia is self-sufficient in the production of fruits, pork, poultry and eggs but has to depend on imports for dairy products, beef and mutton and to some extent, fishery products (Table 6).

After the world cereal crisis of 1973, Malaysia embarked on an interventionist regime to protect its paddy and rice industry from the so-called "market vagaries". A number of market interventions were implemented and adjusted with the demands of time. Among the measures were price controls (floor and ceiling prices at the farm and retail levels respectively), import monopoly, public agency involvement in milling and processing, regulating physical rice movement, licensing, income transfer and subsidies. After four decades, little "liberalisation" effort was made, with the exception of corporatising the parastatal National Paddy and Rice Authority to become BERNAS Corporation and the floating of the ceiling price of high quality rice. The cost of subsidies to paddy farmers has grown in magnitude. For instance, fertiliser and price subsidies cost the government

RM1.8 billion between 1970 and 1980. Between 1980 until October 2009, the government spent RM9.6 billion on cash subsidies or about RM0.5 million annually on paddy farmers. Despite such heavy support, Nasir et al (2003) showed that the farmers are more responsive to price increase rather than fertiliser subsidies. Nevertheless, this "investment" has paid off in terms of protecting the paddy producers and consumers from the extreme swings of prices and maintaining a relatively "stable" rice market.

These strategies were criticised as being non-economical and not-sustainable as they incur a high cost on the government and eliminate the private marketing and storage sector (Williams and Wright, 1991). In the Asian context, the policy measures were perceived as conducive to economic growth (Timmer, 2004). Stability contributes to equity and poverty reduction by reducing the vulnerability of the poor to sudden increases in food prices or its availability. Greater equity also stimulates investment in human capital, especially in the rural areas, thus speeding up growth.

In response to the 2008 crisis, the Malaysian government announced a new Food Security Plan aimed at increasing food production and productivity to achieve self-sufficiency; to

Table 5: Rice Self-Sufficiency Level in Malaysia

Five Year Malaya/Malaysia Plan and National Agricultural Policy	Period	Self Sufficiency Level (SSL)	SSL Achieved (%)
First Malaya Plan	1956-60	-	54[a]
Second Malaya Plan	1961-65	-	60
First Malaysia Plan	1966-70	-	80.0
Second Malaysia Plan	1971-75	-	87.0
Third Malaysia Plan	1976-80	90	92.0
National Agricultural Policy I	1984-91	65	
Fourth Malaysia Plan	1981-85	65	76.5
Fifth Malaysia Plan	1986-90	65	75.0
Sxith Malaysia Plan	1991-95	65	76.3
National Agricultural Policy II	1992-2010	65	65.0
Seventh Malaysia Plan	1996-2000	65	71.0
National Agricultural Policy III	1998-2010	65	
Eighth Malaysia Plan	2001-2005	65	71
Ninth Malaysia Plan	2006-2010	65	72
National Food Security Policy	2008	80% by 2010	72

Source: Malaysia (various years).
Note: a – MARDITECH (2003). The Review of Paddy and Rice Industries in Malaysia
SSL achieved is quoted from www.ids.org.my/planpolicy/8thplan.htm. Untuk RM9 and figure for 2008 was from Ministry of Agriculture and Agrobased Industry (2008).

Table 6: Malaysia: Self Sufficiency Level in Food, 1971-2005

Year	Fruits	Vegetables	Beef	Mutton	Pork	Poultry	Eggs	Dairy	Fishery products
1990	110.4	75.2	23.8	10.5	113.9	106.3	109	4.3	91.1
1995	103	87	22	6	101	114	114	4	91
2000	91.3	88.5	22.7	6.4	80	127.8	139	4	89
2005	117	74	23	8	107	121	113	5	91
2007	105	89	25	9	116	121	114	5[a]	97

Data for 1971-1975 refers to Peninsular Malaysia only. a: refers to 2005
Source: Malaysia (various years).

provide adequate incentives and income to producers to produce more food and to ensure adequate safe and quality food for consumers. The government has identified four major commodities that are considered strategic to food security: rice, fisheries, livestock and vegetables. A number of strategies have been identified to raise the production of these commodities. The policy targeted to increase average yield from 3.47 metric tonnes/hectare in 2005 to 4.48 metric tonnes/hectare in 2010. This is to be complemented with other production-oriented strategies such as to increase cropping intensity, additional fertiliser subsidies, improvement in infrastructure and so on. New rice growing areas will be developed in Sabah and Sarawak to increase production. A number of strategies have also been identified to increase the production of fisheries, livestock and vegetables.

Resteering Malaysia's food security policy?

Malaysia has made vigorous attempts to ensure that "food security" (rice in particular) in the country fulfils its meaning, that food is physically and economically accessible by all,

available at the right time and place and provides the right nutritional value for human consumption. The "self-sufficient policy" for some selected food has been adopted as a major instrument of ensuring food security. While the performance of the rice industry is curtailed by a strict regime of market controls, it is the reverse for the other food sectors, which are left on their own to develop with minimal support. The paddy- and rice-centric policy that gave minimal concern to the other food crops is partially responsible for their poor performance, as reflected by low level of domestic production that magnified the food crisis in 2008. In view of the recent price shocks and the probability of serious supply constraints in the future, food may no longer be available as it was - cheap and in abundance. The supply equation is not only subjected to land and water constraints but also the hazards of "climate change" and competition with urbanisation and other industrial uses. The typical commodity price volatility due to periodic mismatch of supply and demand is expected to continue, particularly for a thin market such as rice. Hence, food security is still a relevant concern in the short run as well as in the long-term.

These are some of the adjustments recommended for the country's food policy to ensure growth, and therefore, food security:

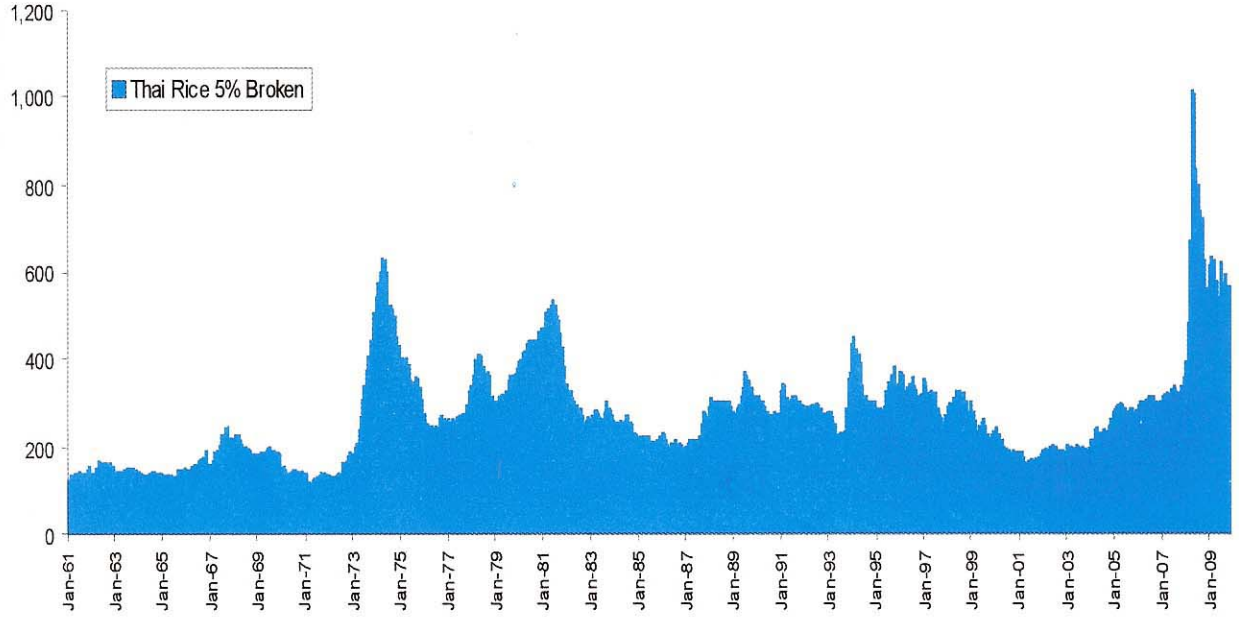
(i) *Conceptualising "food security" in the bigger context.* "Self-sufficiency" is not necessarily equal to "food security", most studies say. The definition provided by FAO illustrates this. The concept of food self-sufficiency is generally taken to mean the extent to which a country can satisfy its food needs from its own domestic production, which is regarded as the sole source of supply. Food security takes into account commercial imports as possible sources of commodity supply, brings in elements of stability of supply, access to food by the local population, food safety and dietary requirement for a healthy life. Being part of a bigger picture, overemphasis on self-sufficiency may deflect the other important concerns of food security, such as access to food at the right time and place, right nutrition for consumption, food safety and healthy life. Food security can be viewed as a continuous spectrum, from the micro perspective of nutritional requirements of individuals and the macro perspective that assures stable supplies in national, regional and local markets (Timmer, 2004). This entails a different policy framework altogether, involving the task of assuring that individual food requirements (micro level) are adequate to create market demand (macro level). It is a tough task in an open market-oriented economy, but it is only this kind of economy that assures rapid growth and poverty reduction that reduces significantly the problem of access to food. In fact, food security involves three spheres of activities; rapid economic growth, poverty reduction and stability. "Pro-poor growth" is one major effective instrument in food security in that the poor are included in the economic development. The balance between the public and private roles has to be at the right mix so the core group, that is the small producers and poor consumers, are taken care of. Strategies to enhance asset accumulation, including land consolidation and larger farm enterprises, are required for small producers to remain competitive. More effective rural credit systems will help this process as well as institutional changes in land tenure, which is long overdue in the Malaysian food production sector. The government should continue enhancing private markets by improving transportation, enforcing standards and measures in food transactions and implementing small-scale production and storage technology.

(ii) *Increase public funding for agriculture and food.* Investment in agriculture brings development to the agriculture and the rural community. Specifically, certain items in public expenditure prove to be high-yielding for specific targets such as productivity improvement and poverty reduction. In the case of Malaysia, its economic development model, particularly agrarian reform during the 1960s and 1970s, were successful in uplifting the country's rural economy, making Malaysia one of the major world

suppliers of agricultural raw materials such as palm oil, rubber, cocoa and pepper. However, it is in the area of food production that Malaysia is clearly lagging behind in all fronts. Based on a number studies, investment in agricultural R & D is instrumental in increasing productivity and hence food production. Malaysia needs to intensify its R & D in food in a bigger way to diversify its food production, raise productivity per hectare and per worker and to maintain adequate incentives to ensure continuous investment in the sector. New biological technologies and improved management of all inputs are deemed necessary for productivity gain. More research is needed to address sustainability issues in paddy production, such as depleting soil fertility due to too much fertiliser application and less biodiversity. Besides R & D, investment in infrastructure (such as roads, telecommunications and ports) is still much needed in the rural areas to reduce transaction and logistics costs. Thailand has a dynamic rural economy that can compete in a wide range of international markets partly because of its dense road network, which allows production and marketing systems to be better integrated and function more effectively (Timmer, 2004).

(iii) *Stability with growth is possible with some liberalisation; deregulation may prove productive.* The highly protected paddy and rice industry has shown stability since the inception of market control in the early 1970s, but at the expense of slow growth and high cost to the government. This trend may not be sustainable in the long term as the volatility of the thin world rice market will not end, as it has been in the last five decades or so (Figure 7). Under such an environment, the country needs a resilient paddy and rice sector, not a government-dependent one. Extreme climate change and depletion of resources may exacerbate this volatility in the future. The creation of a dynamic paddy and rice industry can occur only in a market-driven environment. Experiences in other developing economies indicate that well-functioning markets are the only mechanism allowing producers to realise their full potentials (Timmer, 2004). Governments cannot micro-manage farmers as agriculture is a

Figure 7: Thai Rice 5% Broken, Export Price (USD/t (fob)), Jan 1961-Nov 2009



Source: Thai Rice Exporters Association (2009)

complex venture, heterogeneous and risky. Farmers operate in a dynamic physical and economic environment that requires intimate micro-knowledge of the farm and its environment which bureaucrats are lacking. In other words, the amount of information required makes it impossible for government bureaucrats to design sensible micro-management. Income transfers such as direct subsidies do not build the economic foundation to support broad-based increases in welfare, unlike productivity improvement (Timmer, 2004). It is a well known fact that Malaysia's paddy and rice policy is very much dictated by social and political considerations, such that the commodity ceases to be a viable crop without heavy financial support from the government. Experiences of market liberalisation that promote growth have been proven in China and Vietnam. After Vietnam introduced market-oriented reforms in agriculture in 1989, productivity growth accelerated so quickly that Vietnam has upgraded its status from a net rice importer to the world's second largest rice exporter. Malaysia may have to redefine its paddy and rice as an "economic" commodity rather than a political one to wean out its total dependence on the expensive protectionist regime.

Conclusion

The food price crisis of 2008 was a turning point for food security in Malaysia and the world at large. Malaysia's capacity to provide access to food at the right form, time and place was critically tested during that year. Malaysia would have fumbled seriously (as has happened in the Philippines) had it not been for the reasonable economic growth it enjoyed in the last decade prior to the crisis. Malaysia was able to contain the crisis by providing supports and protection to both producers and consumers, through interventionist measures such as price control, subsidies and payment transfers. This experience proves the point that "food security" functions in three spheres, that is, economic growth, poverty reduction and stability; much beyond the scope of "food self-sufficiency", which was used as a "proxy" for food security measures for the country. This oversight deflects both the micro and macro elements needed to ensure food security. The micro dimension of food security involves ensuring that individuals have access to food in the right quantity and quality for healthy existence. The macro perspective refers to macro policies that ensure the poor and backward sectors (in particular food producers) are included in the growth process to improve their income and returns respectively.

Although Malaysia has achieved some growth in the industrial crop sector, the progress in the food sector lagged on all fronts. Production of food has not shown impressive growth due to a number of reasons such as under-investment because of low returns as prices are generally low, limited government expenditure on food and overemphasis on export crops. These developments have made the food sector non-competitive, compared with export crops that received generous support from the public and private sectors. Protection provides stability to

Appendix 1: Correlation between Prices, Jan 2000-Dec 2006 and Jan 2007-June 2008

Commodity	1/2000-12/2006	1/2007 - 6/2008	1/2000-12/2006	1/2007 - 6/2008	1/2000-12/2006	1/2007 - 6/2008	1/2000-12/2006	1/2007 - 6/2008	1/2000-12/2006	1/2007 - 6/2008
	Crude Oil		Palm oil		Soybean Oil		Maize		Rice	
Crude Oil	1	1								
Palm oil	0.41	0.93	1	1						
Soybean Oil	0.51	0.95	0.91	0.98	1	1				
Maize	0.42	0.83	0.77	0.83	0.80	0.89	1	1		
Rice	0.91	0.83	0.50	0.72	0.57	0.78	0.47	0.88	1	1
Wheat	0.70	0.81	0.69	0.89	0.71	0.89	0.77	0.70	0.62	0.50

Source: IMF (2009)

producers, consumers and the industry participants, but may not be economically sustainable in the long term. The long-term landscape for food in the world market will be dictated by the supply constraints such as depletion of resources (land and water), climate change and technological lags in the face of growing populations and demand for food. The food equation is further complicated by the emergence of the demand for biofuel, which uses food commodities (corn, palm oil, soybean, etc) as feedstock. This food versus fuel competition on already depleting resources will certainly affect food production, as proven during the 2008 crisis. Under such a situation, Malaysia has to "re-steer" its food security policy to include a broader context to achieve its true meaning, rather than focus on the "food self-sufficiency" objective. This involves a bigger commitment to agriculture and food, both in macro and micro dimensions of the industry, to ensure it is vibrant and resilient to face future challenges and not complacent through costly protective measures.

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