Impact of the Rising Prices of Food and Fuel on Poverty

in Cambodia, Ghana and the Philippines

Edited by Celia M. Reyes and Alellie B. Sobreviñas

Impact of the Rising Prices of Food and Fuel on Poverty in Cambodia, Ghana and the Philippines

BLANK PAGE

Impact of the Rising Prices of Food and Fuel on Poverty in Cambodia, Ghana and the Philippines

Edited by
Celia M. Reyes
Alellie B. Sobreviñas

Impact of the Rising Prices of Food and Fuel on Poverty in Cambodia, Ghana and the Philippines

Acknowledgements

This publication has been made possible through the PEP-CBMS Network Coordinating Team of the Angelo King Institute for Economic and Business Studies of De La Salle University-Manila with the aid of a grant from the International Development Research Centre (IDRC), Ottawa, Canada and the Canadian International Development Agency (CIDA).

Table of Contents

Preface

This study was conceived because of the significant increase in the prices of food and fuel which happened during the first half of 2008. In order to assess the impact of the price shocks on poverty, a study was conducted in three of the countries which have been implementing the community-based monitoring system (CBMS), including Cambodia, Ghana and the Philippines. The survey covered 5 villages in Cambodia, 3 communities in Ghana and 3 barangays in the Philippines. The study was conducted by the CBMS Teams in each of the three participating countries with Mr. Sothearith Try and Dr. Felix Asante leading the research team in Cambodia and Ghana, respectively. Meanwhile, the Philippine CBMS Team was headed by Dr. Celia Reyes who is also the CBMS Network's Project Leader.

The research adopted the CBMS methodology in determining the impact of prices increases. As such, it was conducted through an organized process of data collection and processing while empowering the communities to participate in the process. Aside from monitoring the CBMS core indicators of poverty, additional questions were asked to households in the selected sites in order to provide additional information on how households were affected by the price shocks. These additional questions capture the different indicators that could be used in assessing the impact of price increases through, for instance, changes in education and health expenditures. The strategies adopted by households in order to cope with the shock were also determined.

Since the sites covered have already implemented CBMS prior to this study, generation of panel data for the selected sites was possible. The data collected in the earlier survey served as baseline information on the situation of households in the CBMS sites. Hence, the CBMS data collected for this study became useful in monitoring changes in the poverty situation of the households. The household level data collected in the selected sites in the 3 CBMS countries also enables identification of affected households and their characteristics. At the same time, it helps in identifying who needed assistance.

The results of this study provide useful information to policymakers in terms of how households were affected by the price shocks and hence, encourage them to integrate these results in local planning and program implementation. In particular, the results would help them in identifying the eligible beneficiaries of specific government programs. Given this, this study was able to demonstrate the usefulness of household-level data collected through CBMS in monitoring poverty, in determining the impact of the price shocks on households and in promoting evidence-based policymaking and program implementation.

BLANK PAGE

Assessing the Impact of the Increase in the Prices of Food and Fuel in Cambodia, Ghana and the Philippines Using the CBMS Methodology: An Integrative Report[1]

Celia M. Reyes and Alellie B. Sobreviñas

BACKGROUND

During the first half of 2008, the world experienced a dramatic increase in the prices of food and fuel. The international nominal prices of all major food commodities reached their highest levels in nearly 50 years while prices in real terms were highest in nearly 30 years (FAO 2008). Furthermore, fuel prices have also been increasing for seven consecutive years, according to the US Energy Information Administration (2008). In fact, the oil price index during the first quarter of 2008 increased by 66.5 percent. The price of fuel also reached its peak during the month of July 2008.

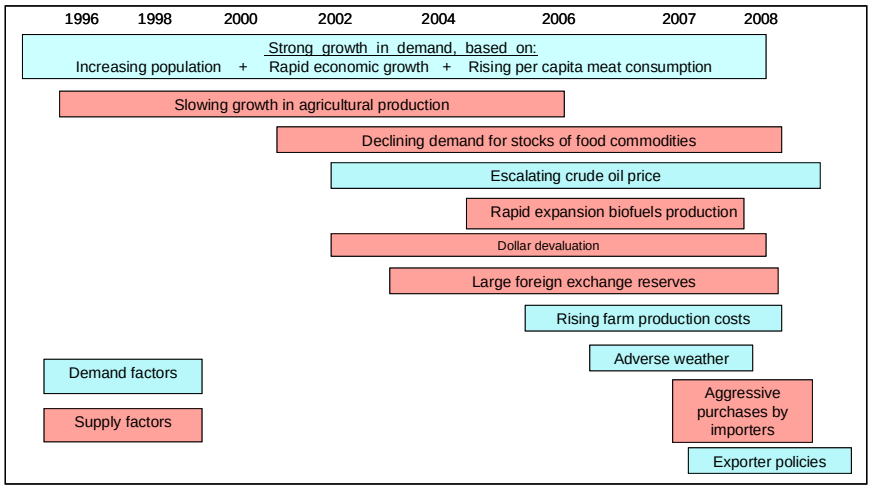
There were a number of factors that contributed to the recent increases in prices. These factors can be classified into three categories, as follows: 1) structural and cyclical factors; 2) supply and demand factors; and 3) international markets (ADB, 2008b). Trostle (2008) identified several specific demand and supply factors that have contributed to the dramatic increase in the prices of food commodities as shown in Figure 1.

The increase in the prices of food and fuel is evidenced by the national price data in the three developing countries covered in the study, namely, Cambodia, Ghana and the Philippines. Based on the data in Cambodia, the prices of food and non-food items rose gradually since mid-2000 along with the rising price of energy, and increased more rapidly after January 2008 and reached double digits between May and October 2008. Although the prices of consumer goods show reversed trends after October 2008, many consumer and productive goods in December 2008 remained higher than one year earlier.

---

[1] This report is a synthesis of the results of the studies conducted in three of the countries which implement the Community-Based Monitoring System (CBMS), namely, Cambodia, Ghana and the Philippines. The results of each country study were also published in the DLSU Business and Economic Review, Vol. 20 No. 1, July 2010.

Figure 1. Factors that Contributed to Higher Food Commodity Prices



Source: Trostle, Ronald. Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices. Economics Research Service, US Department of Agriculture. July 2008.

In Ghana, the national wholesale prices of grains in 2007, including maize, rice and cowpea, were above their 2006 levels. Maize prices increased by more than 12 percent in 2007 as compared to the previous year while local rice and cowpea prices rose by more than 5 percent and nearly 6 percent, respectively, during the same period. With the exception of cassava and gari, all prices in the starchy foods category rose in 2007 relative to 2006 with the price of plantain increasing by over 132 percent in 2007. Among all food categories, vegetables had the most significant rise in price in 2007, with tomato and groundnut prices increasing by as much as 75.7 percent and 64.5 percent, respectively.

In the Philippines, macro-level data also confirm the significant increases in the price of rice and fuel. The study in the Philippines focused on the increase in the prices of rice, which is the country's staple food. Data show that the price of rice significantly increased starting January 2008. In fact, the average monthly growth rates in farmgate, retail and world prices for the period January- September 2008 are estimated to be about 3.3 percent, 2.4 percent and 6.6 percent, respectively. During the period covered, price of fuel was at its peak during the month of July 2008 at about P60.24 per liter. The annual average price per liter of unleaded gasoline increased by 30.1 percent from P39.25 in 2006 to P51.07 in 2008 while the annual average price of diesel increased by 34.1 percent from P34.48 per liter in 2006 to 46.23 per liter in 2008.

The studies conducted in Cambodia, Ghana and the Philippines aimed to assess the impact of the rising prices of food and fuel using the Community-Based Monitoring System (CBMS) approach which has been implemented in these countries. Aside from determining the impact at the national level, the studies also analyzed the household-level impact of the crisis. In the analysis, the studies attempted to identify who were adversely hit by the price increases and to determine the coping mechanisms adopted by the households as well as the responses of the three countries' respective governments to the price increases.

DATA AND METHODOLOGY

CBMS surveys in the selected sites were conducted to collect information that would help determine the impact of the price increases. Aside from using the CBMS core questionnaire, a rider questionnaire was also prepared by each participating country in order to collect additional information on the coping mechanisms adopted by the households in response to the price increases. The rider questionnaire included questions which relate to, for instance, changes in food consumption, in health-seeking behavior, changes in education and employment situation, and in communication and transportation use, among others.

The surveys in the three countries were done from September to October 2009 in the sites indicated in Table 1. In Cambodia, the study covered 5 villages (Samraong Outrea, Bak Amraek, Svay Chrum, Reach Dounkeo, and Sdei Leu) in Battambang province. In the case of Ghana, the survey covered 300 households in the communities of Dodowa, Prampram and Ningo in the Dangme West District which were also surveyed in the 2004 Ghana CBMS round. In the Philippines, the study covered all households in three villages (barangays), namely, Barangay Santa Rita in Capas, Tarlac, and Barangay 51 and Barangay 85 in Pasay City, Metro Manila. The two urban barangays in Pasay City were included to represent low-income and middle-income barangays. The rural barangay in Capas, Tarlac was covered to capture the impact on rural households. Since existing CBMS sites were included in the surveys, the three country studies were able to create panel data that would be very useful in monitoring the welfare conditions of households based on the identified impact indicators.

Table 1. CBMS sites covered in Cambodia, Ghana and the Philippines

Country	CBMS Sites	No. of Households
Cambodia	5 villages (Svay Chrum, Reach Dounkeo, Samraong Outrea, Sdei Leu, Bak Amraek in Battambang Province)	1132
Ghana	3 communities (Dodowa, Ningo and Prampram in the Dangme West district of the Greater Accra region)	300
Philippines	3 barangays (Barangay Sta. Rita in Capas, Tarlac; Barangays 51 and 85 in Pasay City, Metro Manila)	863

KEY FINDINGS

The increase in prices adversely affected a significant proportion of households.

One of the more striking impacts of rising prices on poverty is not only in terms of increasing food insecurity of many people but also in terms of making the poor become poorer. In fact, the crisis pushed many people into deeper poverty, making it difficult for them to recover. It also further changed human capital in terms of education and led to poorer health as well as loss of productive assets, which resulted in the deterioration of the capability of the poor to cope with any future shocks or crises.

Based on the estimation for the Philippines, the increase in the average prices of rice and fuel generally increased the prices of goods and services being consumed by the households. This resulted in a proportional increase in the poverty threshold faced by the households. At the national level, the direct estimation using the 2006 Family Income and Expenditures Survey (FIES) data showed that the increase in the prices of rice and fuel forced more than 1.8 million additional people to fall below the poverty threshold. Aside from the increase in the headcount index, there is also an expected increase in the poverty gap from 9.0 to 9.9, indicating that the populations fall farther below on average from the poverty threshold. There is also an increase in the severity index by 0.5.

Taking into account the effects transmitted or channeled through the different sectors in the economy by using the Input-Output (I-O) framework for the Philippines, it is shown that the simultaneous increase in the prices of rice and fuel led to an increase in the poverty incidence by 2.5 percent, which translates

to about 2.2 million people. Poverty measures, including the poverty gap index and severity of poverty, also reflect a worsening of the condition of the households in the country due, in general, to the spike in prices. The results also show that there are some sectors that would be most affected by the rising prices. For instance, short-stay accommodations (other than hotels and motels) would be most affected by rice price increases while fuel prices greatly affected those sectors which are directly dependent on this product, particularly as inputs to production, including those involved in the manufacture of asphalt, lubricants and miscellaneous products of petroleum and coal.

Based on the Net Benefit Ratios (NBR) estimated for households in the Philippines using the national data, about 85.5 percent of households in the Philippines were expected to be negatively affected by the increase in rice prices while only 12.1 percent benefited. The rest are indifferent to the effects of rice price increases.

In 2008, about 43 percent of the households in CBMS villages in Cambodia are poor and more likely to be hit hard by the rising prices. This figure is higher than the provincial average statistics. The percentage of households who have moved out of poverty between 2006 and 2008 is found to be higher in the villages with good road access and market connection as well as those with irrigation for dry season rice growing and cash crop production. Meanwhile, the proportion of the population which fall into poverty or remain stuck in poverty is relatively higher in villages where households depend largely on off-farm activities and on buying foods from the market. In the Ghana study, it is highlighted that adequate nutrition for the population, especially poor people, is at risk when they are not shielded from the price increases. Higher food prices lead poor people to limit their food consumption and shift to even less-balanced diets, with harmful effects on health in the short and long run.

The impact of price increases varies across different groups of households

As mentioned earlier, the price increases has adversely affected most of the households since most of the households are net consumers of food and fuel. However, the impact still varies across different groups of households based on urbanity and geographical location, income groups, and sector.

Across income groups

As evidenced in the Philippine data, the poorest households are the worst hit by the price crisis. In fact, households in the Philippines which belong to the lowest income deciles (i.e., 1st to 5th income deciles) tend to be the most adversely affected groups. The decline in their NBRs after the rice price increase is higher vis-à vis the richer households. There are also some evidences which show that there are more non-poor gainers (75.7%) in the Philippines than poor gainers (24.3%).

While the increase in the prices has affected every aspect of life, the Cambodia study also confirmed that the poor are the hardest hit group since the majority of them are either classified as landless or land- poor group who own at most one hectare of land and who have limited capacity to earn incomes enough to offset the increased rates of food prices. The impact of surging food prices on the poor and the food insecure, meanwhile, is also confirmed in the study in Ghana. Only a few households (i.e., those which are considered net sellers of food) benefited from the higher prices.

Across geographical location

The impact of the price shocks also varies depending on the geographical location of households. In the case of Cambodia, people living in the village closer to the market center tend to suffer the most from the rising prices due to an increase in the number of poor households. Agriculturally dependent villages tend to gain well-being improvement from rising food prices through the sale of their farm produce, which in turn improves household consumption. Hence, these households have experienced higher rates of poverty reduction. In contrast, rising prices tend to slow down poverty reduction in the remote villages.

In the Philippines, results using the national data show that most of the losers are living in the National Capital Region (NCR) and CALABARZON[1] where households are generally net consumers of rice. Data also show that urban households in the county were more likely to be adversely affected by the increase in prices. In fact, about 94.1 percent of households in the urban areas were negatively affected compared with the 77.0 percent of the rural households affected. This is because most of the households surveyed in the Philippines are net consumers, which is true for both commodities (i.e., rice and fuel).

Farmers vs. non-farmers

Although it was initially expected that farmers would profit from rice price increases, results show that not all farm households benefited. In the Cambodia study, about 56 percent of the total 1,132 panel households are farmers. The rest of the households (44 %) are landless and get their livelihood from off-farm income activities. More than half (about 60 %) of the rice-producing households, who were cultivating at most one hectare of land, produced rice enough for a maximum of 4-6 months a year. As such, they also became net consumers of rice, especially during the period May and October 2008. Only about 21 percent of the rice farmers produced enough rice for their household

[1] This region is located just south of the National Capital Region (NCR) and is the second most densely populated region in the country.

consumption while another 19 percent of the rice farmers produced surplus rice which they could sell. This confirms that not all farmers benefited from the rice price increases since a large proportion of them are still considered net consumers of rice.

This observation is also true in the case of the Philippines. Although most of the rice farm households in the Philippines in 2006 were net producers of rice (78.0%), the proportion of net consumers was also fairly large (22.0%). Small farmers generally tend to be the most adversely affected by rice price increases since most of the rice farm households (about 8.8 %) in the country which are considered net consumers belong to the lowest income decile. Indeed, the data showed that the poorest farmers are the most adversely affected by the rice price increases. Because of this, policy interventions should thus focus on providing safety nets to poor farmers.

Households adopted different types of coping strategies in response to the crisis

Given the level of impact of the price increases, households adopted different coping strategies which may have short-term or long-term negative impact. In fact, some coping mechanisms may have negative consequences on health and education of the household members, especially the children and the elderly. In general, poor households tend to adopt coping strategies that are damaging and counter-productive in the medium and long run. On the contrary, non-poor households commonly employ coping mechanisms to maintain current consumption level (smoothing consumption). These households have more doable coping strategies compared with the poor households because they (non-poor households) may have more assets and savings to draw on in times of crisis.

Modifying expenses on health and nutrition

In order to cope with the increasing prices, some households had made adjustments in the way they eat and prepare food. One of the most common coping strategies adopted by households is eating less of what they usually used to eat. In Ghana, these changes had been made by households across income groups but have been conspicuous mainly among those in the 1st and 2nd quintiles. Some households in the Philippines also reported that they eat the same food for several days in a row, combine meals or eat ready-to-cook food. Some of these actions could have negative implications on the health and nutritional status of household members, especially the children. For instance, the risks with eating the same food on a daily basis are nutritional deficiencies and calorie intake shortfall. Combining meals and shifting preference for ready-to-cook food also entail the same health risks, especially for children and pregnant

women. Although some households ate less meat and more fish and vegetables, others did not reduce food consumption but rather shifted to more affordable foodstuffs and cheaper brands of their usual food basket. Poor households, in general, are more predisposed to change food consumption pattern. Since food accounts for a large chunk of the poor households' budget, they are very sensitive to price changes in food commodities.

The health-seeking aspect of households had also been changed in order to cope with the increasing prices. One of the common coping strategies adopted by households in the Philippines is going to government health centers/hospitals instead of private clinics/hospitals. Consulting an "albularyo" (quack doctor or witch doctor) instead of a doctor when they have health problems also became common among households during the period of rising prices. Some households also opted to use herbal plants (as an alternative to modern medicines) and generic drugs (instead of branded medicines). Another coping strategy which could negatively affect health conditions of the members is resorting to self-medication instead of getting proper prescription from a doctor. This was reported by some households in the Philippines.

Meanwhile, in Ghana, although the health-seeking behavior of households had changed, it was mainly as a result of the implementation of the National Health Insurance Scheme (NHIS). As such, households were given the opportunity to visit government hospitals or health centers where they are likely to benefit from the insurance scheme. However, there are still some households who reported that they decided not to bring their sick member to the hospital unless the person is in very critical condition.

Change in health-seeking behavior, in general, tends to be more common among poor households. Many studies on social impacts of aggregate shocks on household welfare suggest that poor households have higher propensity to cut back on medical expenses compared with non-poor households. In the Philippine study, a significant proportion of rural households shared that they changed their health-seeking behavior to cope with high prices. This proportion is higher than the urban households.

Modifying expenses on education

One of the common coping strategies adopted by households covered by the CBMS surveys is the reduction in expenses on education. Results for the Philippines reveal that there are some households which decided to transfer their children from private to public schools mainly because they could no longer afford to pay the tuition fees in the private schools. This is also observed in Ghana where transfer of children from private to public schools became more prevalent with the government's introduction of the Capitation Grant. The program allowed many parents to pay nothing or just a very small amount to

maintain their children in public schools as compared to paying much higher if their children were in private schools.

Some households even decided to withdraw their children from school due to a number of reasons. Some households may not have enough financial resources to support the education of their children while others have decided to have their children help in augmenting their meager income. These results were observed in Cambodia where children were taken out from school to help the family cope with the increased cost of living. Increase in the incidence of child labor, especially in areas where there is fast growth and development, were reported in Cambodia. The survey results in Ghana also reveal that some children of households had also dropped out of school mainly because they were needed to help in the family's farming business while others willingly dropped out of school because they were simply not interested in schooling. School drop-outs were also reported among children in the Philippines.

In general, transfer of children from private to public school as a coping mechanism is commonly found among non-poor households while withdrawing children from school is more prevalent among poor households. In the Philippine study, more households in the rural areas vis-à-vis the urban areas reported that at least one of their children stopped going to school.

Modifying other types of expenses such as electricity, and fuel and recreation, among others

In response to the price shocks, some households also tried to reduce other household expenses, including expenses on utilities, transportation, communication and recreation. For instance, in order to save money, some households tried to reduce expenses on electricity. Households in the Philippines, for instance, reported that they are disconnecting household appliances when not in use in order to reduce consumption. Other common strategies include cutting down on television viewing hours and replacing incandescent bulbs with fluorescent bulbs. Replacing incandescent bulbs with compact fluorescent bulbs with lower wattage is also very common in the Ghanaian households, especially among those in the second quintile.

Some households also adopted coping strategies that would help them save on fuel used in cooking. In particular, some households shifted from the use of Liquefied Petroleum Gas (LPG) to charcoal or firewood, which are cheaper energy sources. In the case of Ghana, charcoal was the most common fuel used for cooking among the households covered given its accessibility. Although LPG is cheaper, households would have to travel some distance to get their cylinders filled. Results, however, show a reduction in the proportion of households which used charcoal as fuel in general. This also reflects a shift to cheaper fuel among households in Ghana.

There were also notable changes in the recreation or leisure activities of households covered by the study. A majority of the Filipino households engaged less frequently in recreation or leisure activities given the increasing prices. Meanwhile, others substituted their leisure activities with less expensive ones. A higher proportion of urban households altered the way they carry out their recreational or leisure activities to mitigate the effects of rising prices. Among urban households, it is apparent that poor households are more likely to modify their expenses on recreation and leisure activities compared to non-poor households. The converse is true for rural households. Meanwhile, households in Ghana reported cancellation of the long-scheduled leisure activity and substitution of recreational activities.

Relying on additional sources of income

In order to increase income and cope with the rising prices, some households relied on additional sources of income. Most of the households, particularly in Ghana, did not depend on only one source of income but instead engaged in additional jobs so that they could meet their daily household expenses and save for future needs.

Given the increase in prices, a majority of households in the Philippines have at least one member who tried to explore employment opportunities in order to augment their income. Some household members also sought additional work besides their primary occupation. Other households even tried to seek employment in another area or country. This is also true in Cambodia where the number of migrants who either search for employment in other urban areas or sell labor along the Cambodia-Thai border or inside Thailand has been increasing in trend since the late 1990s. This gradually became the more important and dominant source of household income for the CBMS villages in Cambodia in 2008. Since more and more people are trying to search for work elsewhere outside the villages, the labor shortage for farming has also occurred and has often been replaced by either elderly and/or child labor. The wage labor for translation and ploughing are two or three times more expensive than the cost two or three years ago. At the same time, farm inputs such as fertilizers or chemical pesticides also rose. In order to save some money, children and the elderly became more valuable assets. In some instances, every household member had to work to cope with rising food prices. The situation is even worse for the poor children whose parents are mobile laborers. Thus, the rising food prices had further limited the ability of poor children to benefit from the government's free universal education for all and food for poor children at school since they are also brought along by their parents to the latter's work places/destinations.

In terms of seeking additional jobs as a coping strategy, the results from the rural and urban sites in the Philippines are different. In the rural site, a higher proportion of poor households said that they have additional job seekers compared with non-poor households. In contrast, a higher proportion of non-poor households in the urban sites in the Philippines responded that they seek additional jobs as a coping strategy. It appears that seeking additional work as a coping mechanism is not that common among urban poor households. The same goes with performing additional work.

Tapping various fund sources

Some households also resorted to borrowing money, selling and pawning assets. In Cambodia, some households accessed loans in order to support business, purchase food items or pay health care services. However, about half of the CBMS households reported that they used their loan for food consumption rather than for productive purposes. The rising prices of food and producer goods, therefore, have pushed many CBMS households into indebtedness. Borrowing of money is also a common coping strategy among households in Ghana and the Philippines. The major sources of credit were government banks, private banks, friends and neighbors.

Use of savings to purchase commodities that they normally purchase using their cash in hand is also another coping strategy among the households surveyed. Non-poor households are more likely to rely on their savings to purchase commodities. This may be partly attributed to the fact that it is among the non-poor households where more people report that they save money. Saving and the use of it turned out be an important coping mechanism for non-poor households in smoothing their consumption in times of high and rising prices. Meanwhile, a higher proportion of borrowers are expected to be found among poor households.

Some households covered in Ghana, Cambodia and the Philippines also had to sell or pawn their assets in order to repay loan, sustain food needs or set up or sustain their business. Rising prices, in many cases, had contributed to the acceleration of landless households in the CBMS villages in Cambodia as they sell their productive assets or small plots of land. Meanwhile, in Ghana, the properties usually sold include residential plots, agricultural or commercial land, farm animals, cars/vans, cell phones, household appliances, and livestock. In the Philippines, jewelry, agricultural land and cellphones were commonly sold or pawned. Middle-income households usually sell or pawn assets in order to sustain current consumption patterns instead of cutting back on expenses.

Results for the Philippines generally imply that in the rural setting, non-poor households are more inclined to sell properties than poor households apparently because the former have more belongings to put up for sale. In general,

higher proportions of pawners are found among non-poor households across the samples. Rural areas have higher proportions of borrowers, pawners, and sellers than urban areas based on the surveys conducted in the Philippines.

Selling or pawning of assets, especially the productive assets, means fast cash for the household. However, in the long run, the foregone income from the assets would outweigh the short-run benefit. For instance, selling or pawning agricultural land, farm animal, or farm implement greatly reduces the future income of farming households. Productive assets are supposed to remain in the hands of the households and to be utilized to increase income but in extraordinary times, they are forced to sell or pawn these properties. This leaves the households more vulnerable to move into poverty unless they are able to recover these assets at the soonest possible time.

Several programs were implemented to mitigate the impact of the price shocks but targeting remains a key concern

Because of the price increases, governments responded by implementing several programs which aimed to mitigate the impact of the rising prices and focused on those who are affected by the price shocks. However, results confirm that program targeting remains to be an issue. For instance, the Philippine government has intervened through direct sale of rice at subsidized prices. The National Food Authority (NFA) increased its participation in the market to reduce the long queues of people wanting to buy subsidized rice. More NFA outlets were established around the country. However, it was noted that among all NFA rice consumers, only 46.6 percent are considered poor. Furthermore, although the poor households are supposed to be the target beneficiaries of the highly subsidized rice, only 24.0 percent of these poor households were able to access NFA rice. Note that among households in the lowest income decile, NFA rice accounted for only about 12.7 percent of their total spending on rice. This implies serious leakage and undercoverage problems with the current targeting system. While there have been efforts to address the problem on leakages to the extent that the NFA Family Access Cards were issued, they have not been successful due to lack of household level data that would identify eligible beneficiaries. Consequently, considerable leakages and exclusion still prevail.

Aside from the NFA rice subsidy program, emergency food imports (e.g., allowing private sectors to import rice) to augment domestic rice supply was also sought during the period of the price increases. The government also announced that anti-hoarding measures would be introduced and encouraged fast food restaurants to reduce the portion of rice sold with meals. In addition, cash transfers to certain groups, called "*Katas ng VAT*", were implemented to mitigate the impact of higher inflation. Again, this requires a good targeting

system in order to ensure that the poor and deserving households would benefit from the program.

In the case of Ghana, the government has also tried to mitigate the negative impacts of rising costs of petroleum products and food in the country. In fact, a task force was constituted to study the situation on a continuous basis so as to recommend such actions that would be necessary from time to time, until stabilization and normalcy was achieved. Apart from measures taken to cushion the Ghanaian consumer against the rising food costs, such as the removal of import tariffs on rice, wheat, yellow corn and vegetable oil, the government also intervened to ensure that producers in the agricultural sector are well positioned to respond to the challenges and to take advantage of emerging opportunities. This was done by further instituting some measures such as subsidizing fertilizer, substituting cassava flour for wheat flour in bread and pastry products, supporting large-scale cultivation of rice and rehabilitating dams, among others. There were also additional proposed interventions such as investment in mechanization, expansion of irrigation facilities, strengthening and revolutionizing of the agricultural extension service, provision of post-harvest infrastructure, and support of farmers with soft loans. The government also removed excise duty and recovery levy on selected items, and increased support for the production cost of electricity, import wheat and rice, among others.

Meanwhile, the findings from the Cambodia study support stronger commitment and timely intervention to sustain small farmers and the poor. It was suggested that policy actions should accelerate efforts of rural infrastructure development: road and irrigation facilities, and effective extension service to support both crops and livestock production. For the landless poor, however, special social safety programs and vocational training should be reflected in the community development planning and funding. Support should be given to the affected small farmers to ensure that they remain in the producer group. In addition, there is a need for a safety net program that would ensure that poor children stay in school in spite of economic shocks such as the price shocks. A better targeting of policy interventions is therefore imperative to assist the poor and the vulnerable. The social safety net program could be implemented effectively through the involvement of local authorities.

SUMMARY AND CONCLUSION

The research in Cambodia, Ghana and the Philippines provided evidence that the increase in the prices of food and fuel in 2008 had worsened the poverty situation of some of the households, especially in terms of health and nutrition, education and loss of productive assets, among others. In fact, the price shock

has contributed to the increase in the incidence and depth of poverty. More disaggregated results, however, show that the impact varies across different groups of households based on the level of urbanity, geographical location, income group and sector.

The additional CBMS data collected in these countries confirm that households adopted different coping mechanisms in response to increasing prices. In particular, some households reported that they modified their expenses on food, health and education. Reduction in the amount spent on these necessities may have long-term effects on the poverty situation of the households. For instance, reduction in expenses on health, nutrition and education could have negative impact on the household and its members in the long run. In addition, households which sell or pawn their productive assets such as agricultural land, farm animal or farm implement could greatly reduce their future income. These make it more difficult for households to adapt to any future economic shocks.

The importance of implementing safety nets in order to protect the households, particularly the poor and the vulnerable groups, is also highlighted. However, results show that leakage and exclusion problems still prevail. Necessary intervention should, therefore, be implemented using a good targeting system that would identify the eligible beneficiaries. Proper targeting is needed to ensure that the poor (or those who actually need the intervention) would benefit from the program. The household-level data collected for all households in a particular community using the CBMS methodology would be very useful in achieving this. The results of the study in Cambodia, Ghana and the Philippines demonstrate the usefulness of household-level data collected by the local government units through CBMS not only in monitoring poverty but also in assessing the impact of shocks such as the price increases on the poverty situation of the households.

Impact of Hiked Prices of Food and Basic Commodities on Poverty in Cambodia: Empirical Evidence from Five CBMS Villages

Try Sothearith and So Sovannarith*

EXECUTIVE SUMMARY

This study on the impact of hiked prices of food and basic commodities on poverty is designed as a follow-up to a Community-Based Monitoring System (CBMS) survey conducted in 2006 in five villages of Battambang, a province in northwest Cambodia. The survey used the original CBMS questionnaires and added a number of questions concerning the impacts of hiked prices and the strategies that people used to cope and to maintain the status quo of their livelihoods and food security. This follow-up survey creates panel data of 1,132 households surveyed in 2006 and again in 2008. The CBMS panel data proved to be a powerful and cost-effective tool for monitoring poverty and assessing the impact of hiked prices on poverty, food security, and the coping strategies that rural people used in response to hiked prices. In the long run, it may also become a useful tool in keeping track of community development, growth, and the challenges that a community faces during periods of hiked prices. It is useful as well in making local planning more effective and helping communities cope with unexpected shocks and crises as well as in the implementation of national policy.

Cambodia and other CBMS sites experienced higher prices when there were changes in the demand for, and prices of, petrol, food, and other consumer goods in the international market in 2008. All consumer goods in rural areas increased at an alarming rate—86 percent higher than the national rate (34%) of inflation within the most recent three-year period. In September 2008, food and nonfood items, on average, were 94 percent and 71 percent more expensive, respectively, than in September 2005. However, this microstudy indicates that

* Deputy Director of Demography Statistics Census and Survey of the National Institute of Statistics (NIS), Cambodia and CBMS-Cambodia Team Leader; and Research Fellow, Rural Development and Livelihoods of the Cambodian Development Research Institute (CDRI), Cambodia, respectively

low prices for agricultural produce are the norm instead of high prices. After reaching their highest record of annual inflation at 37 percent in August 2008, the prices of food consumer items started to decline although they still remained at 32 percent in November 2008, higher than the same period in 2007.

During the period of higher prices, only about 23 percent of CBMS households were able to seize opportunities to increase their income. These included large landholding farmers, petty trade entrepreneurs, and moneylenders. About 77 percent of households, including the landless and the land poor who possess one hectare or less, were struggling to earn enough food for household consumption and became net buyers of food. Some of the affected households had to take their children out of school to help the family cope with food shortage or to sustain a business. Every family member had to work harder to earn enough income to offset higher food prices. About half of CBMS households reported taking out and using loans for food consumption rather than for productive purposes in the eight months prior to the survey in September 2008. Some had to sell productive assets or small plots of land in order to repay a loan or meet food needs. Others earned income by selling their labor when they became landless. Rising prices immediately resulted in food insecurity for many people and pushed small landholders into indebtedness as well as reduced the capacity of the poor to cope with future shocks or crises.

This kind of situation requires a stronger social safety net program to help small farmers remain in the producer group, help poor children stay in school, and help the poor and the vulnerable through better and more targeted policy intervention. The social safety net program can be implemented more effectively if the capacity of the commune council can be further enhanced and strengthened and if the council can be empowered to implement national policy.

Higher prices are often viewed both as a constraint and as an opportunity for farmers to increase agricultural diversification. Lack of savings, ineffective extension services, and imperfect markets are still obstacles to agricultural development. Small landholding farmers are being pushed out of the producer group due to lack of adequate support. The findings from the CBMS survey support stronger commitment and timely intervention for small farmers and the poor. Policy action should accelerate the development of rural infrastructure such as roads and irrigation facilities. It should also promote effective extension service to support farmers in crop and livestock production. Community development planning and funding should include special social safety net programs and vocational training for the landless poor.

INTRODUCTION

Cambodia has strengthened its capacity to respond to abnormal inflation of food and nonfood prices in order to sustain growth, ensure food security, and reduce poverty. Prices of food and nonfood items along with the price of energy rose gradually since the middle of the last decade. The prices increased more rapidly after January 2008 and reached double digits between May and October 2008. Although the sharp rise in prices of consumer goods was checked after October 2008, the prices of many consumer and productive goods remained higher in December 2008 than the previous year. This abnormal phenomenon has provoked enormous policy debates and myriad responses to ensure food security and speed up the pace of poverty reduction in Cambodia.

Cambodia is one of the net importing countries of oil and various consumer goods, except rice[1]. The integration of its economy with the international market has enhanced its economic performance and reduced poverty in the last decade or so. Any change in the demand for its produce and the prices of important products will unduly affect productivity and society as a whole. While economic and administrative reforms and infrastructure development are on track, Cambodia is still behind its neighbors in curbing shocks or seizing economic opportunities generated by rising prices. The recent fluctuation in prices has undermined the government's efforts to reduce poverty. Like in other developing countries, the landless poor in Cambodia have been seriously affected. About 20 percent of the landless rural population is characterized as net food buyers. These people have to take a variety of measures to cope with higher prices, such as reducing food consumption, which results in poor nutritional intake; taking their children out of schools; or working harder just to earn enough income to buy food commodities. In addition, 45 percent of Cambodians in rural areas are land poor, owning one hectare or less to grow rice for their own household consumption (Chan 2008). Rice growers are the dominant agricultural producers in the country. Many of the large-farm rice producers did not make any profits from selling their rice during the period covered by the price hikes since the price increase began after the harvests, and they had already sold their produce before the period of the price hike between July 2007 and July 2008. About 30 percent of Cambodia's population, or 4 million people, are considered poor and are struggling to survive even though labor wages have been doubled or tripled in many cases. The irregular nature of available jobs has limited the people's capacity to earn a stable income. As a result, children in poor households have to stop

[1] http://www.un.org.kh/attachments/060_RisingFoodPrices-UN_DiscussionPaper_June%202008.pdf

going to school to help earn income for the family and because their parents cannot continue to support their schooling any longer[2].

This study outlines the collective experiences of rural people in Cambodia in response to the abnormal inflation and change in prices of agricultural produce in the five CBMS sites. It is divided into seven sections. Section II lays out the research methodology and discussion of why the five CBMS sites were selected for this study. Section III discusses trends in the prices of food and nonfood items that are commonly consumed by the rural populace in Cambodia and the policy response of the government during the price hike. Section IV shows the impact of rising prices on poverty-reduction efforts at the village level while section V documents coping strategies in response to hike in food prices. Section VI presents the conclusion and policy implications from the micro perspective with a view to recommending more effective and appropriate interventions for coping with future abnormal economic phenomena like the price hikes discussed in this study.

RESEARCH METHODOLOGY

This study used the survey method to generate evidence of the positive and negative effects of surging prices on rural livelihoods and poverty in the five CBMS sites. It was also designed to build on the CBMS method and create a panel household dataset (i.e., households that were interviewed in 2006 and again in 2008 for poverty monitoring and improving local planning in CBMS sites). The evidence from this microsurvey was expected to provide policy recommendations aimed at mitigating the negative effects and promoting the positive ones of the price hike. The study focused particularly on household experiences and poverty in the five CBMS sites. In addition, this study was also designed to increase understanding of the coping strategies that poor households used in response to hiked prices. Assessment was made to focus on any possible food shortages during the lean period (May-October 2008) and on existing interventions to prevent people from sliding deeper into poverty. As for the positive effects, local farmers and producers were assessed to determine whether they gained any benefits from the hiked food prices in terms of producing surplus that they could sell to increase their income and improve their food security. Some questions were added to the 2006 CBMS questionnaire to capture the changes in the livelihood conditions and constraints to long-term expansion of agricultural production.

[2] http://www.caritascambodia.org/document/csostatement.pdf

Site Selection

With financial support from the CBMS network and the International Development Research Centre (IDRC), the 2006 survey was conducted in three communes of Krattie and Battambang province and six communes of Kompong Thom province. All villages and households were included in the 2006 survey. For the 2008 survey, Battambang was again selected since it is a fast-growing and developing area. It is also one of the rice surplus-producing provinces in Cambodia. In addition, Battambang province has experienced more dynamic economic activities and growth than the other two CBMS provinces. Five villages (Samraong Outrea, Bak Amraek, Svay Chrum, Reach Dounkeo, and Sdei Leu) under Phase I and II of CBMS sites were chosen from Prek Norint, Samrong Khnong, and Prek Luong Ek Phnom districts of Battambang province. Table 1 shows the number of total panel households and characteristics of each village.

The households interviewed in 2006 were also interviewed in September 2008 to create the panel household data made up of 1,132 respondents and inform the findings that will shed light on the issues covered this study.

Table 1. Village Selection Characteristics

Village	NHHs	Commune	Village Characteristics
Svay Chrum	216	Prek Norin	Close to the market center; rice farming and petty trade are the main sources of income
Reach Dounkeo	150	Prek Norin	Remote; wet- and dry-season rice production and fishing are the main sources of income
Samraong Outrea	343	Samrong Khnong	Good road access and connection to market; sources of income are rice farming, fruit trees, and petty trade
Sdei Leu	234	Prek Luong	Sources of income are cash crops and wet-season rice farming
Bak Amraek	189	Prek Luong	Sources of income are wet- and dry-season rice farming and fishing
Total	1132		

Design of Instruments

The questionnaires were developed and revised based on the previous CBMS questionnaire. As recommended during the meeting of the local CBMS team, individual information was used in this study. Items such as marital status, age, sex, literacy level, education, access to school, access to health care, reasons children drop out of school, occupation, child labor, disabilities, and price-related information were added to the questionnaires. The advisory team was consulted in the process of updating the instruments. The questionnaires were also pretested to uncover their weaknesses and form the basis for their revision. A total of 156 indicators focusing on the impact of rising prices were included in the questionnaire:

- **105 indicators: Quantitative CBMS panel, 2006 and 2008**
  Demography, housing and amenities, education, health, employment and occupation, income and expenditures, assets, land ownership and productivity, shocks/crises, domestic violence and security
- **51 indicators (people's perception): Changes within an 8-month period**
  Food, transportation, access to credit, employment, recreation and current state of well-being

Two forms were used in this study. Form A, the household listing form, was used to record preliminary information on the households and, at the same time, map each household in the village. This tool was used in conducting household interviews.

Form B, the household questionnaire, was used to collect a wide range of data. Basic data collected from each person included sex, age, relationship to the head of the household, education, and disabilities. The questionnaire also elicited information on the occupation and health of the individuals in the household as well as the physical condition of the house, energy sources used, source of drinking water, sanitation, household expenditures and income, animals taken care of by the members of the household, land ownership, occurrence of domestic violence, security and order, food, transportation, access to credit, employment, recreation, the well-being of the occupants of the household, any crises or "household disadvantages," and the mortality rate of the household members.

The other forms used in data gathering were the house sticker, control form for the supervisor, summation sheet of daily supervision for the commune councilor, daily report form for the enumerator , and the form for age conversion.

Recruitment of Enumerators

Schoolteachers are usually employed to conduct the population census and to administer the general election in Cambodia. This survey employed schoolteachers as enumerators for one month during the school break.

Members of the village development committee, which has become part of the voluntary commune planning and budgeting committee, were recruited and trained by the commune councils and the supervisory team to become enumerators. Those with good quantitative skills were also trained in data processing.

The village chief was not considered for any substantial role in the survey because he could play a helpful role without being the interviewer. As in phase II, the village chiefs assisted the enumerators in pinpointing geographical locations and mapping and arranging appointments with households. Commune councilors served as supervisors, field editors, and did manual data processing and analysis as well.

Training Activities

Field Operation Training (Supervisors and Enumerators)

Thirty individuals, including village chiefs and commune councilors, were trained on data collection for three days. An extra day was included for pretesting of the questionnaire. It was found that the schoolteachers absorbed instructions more quickly than nonteachers. Former enumerators in CBMS phase II were also found to understand instructions quickly.

On the third day of the training, the participants were requested to interview one another using the household questionnaire. The respondent acted as head of household and was made to answer all the questions as read by the interviewer and then vice versa. The exercises using the questionnaires were collected and corrected by the lecturers (supervisory members). Feedback was solicited after each exercise and was discussed during the lecture. The exercises were done in all of the training sessions on data collection.

Pretests

The data-collection instruments were pretested for one day. Each enumerator was requested to interview at least two households, one small and one large, to gain experience in interviewing different household sizes. The pretesting aimed to get feedback from the enumerators and possibly rectify any unclear questions or omit questions that are not applicable. During the pretesting, supervisors and supervisory members observed every enumerator who was interviewing a particular household.

After each training session on data collection, training on pretesting was conducted to test the trainees on the following capabilities: (1) absorption, (2) strength capacity for field supervisors, (3) ability to encode for enumerators, and (4) accuracy in checking for local supervisors. After each pretesting session, feedback was discussed and adjustments and recommendations were made.

Pretesting made the questionnaire more accurate, which was beneficial to the conduct of the actual census. The enumerators and supervisors became well versed in interviewing, encoding, and checking for errors. Problems and constraints encountered during pretesting were easily solved since it was discussed in the presence of the advisory team.

Training on Manual Editing

Training on manual coding was conducted for commune councilors who were involved in the project. Completed questionnaires were checked and verified, and the answers were coded by trained commune council members. These commune council members were supervised by the district and provincial CBMS team members. After manual coding, the questionnaires were submitted to the provincial leader for automated processing.

Manual editing tools were developed. Manual editing is divided into three parts: (1) the enumerators check all questions and answers for every interview questionnaire in their village; (2) commune councilors (who are supervisors during data collection) check data gathered in their commune by using the instruction manual for editing data; and (3) district and provincial CBMS team members conduct preliminary checking of questionnaires at the districts before the questionnaires are accepted, even if the field supervisors have already checked the questionnaires. All completed and checked questionnaires were sent to the National Institute of Statistics (NIS) for machine processing (data entry, analysis, and results). The instruction manual for manual editing and coding were printed in the Khmer language. All the data and results were translated into English before being sent to the CBMS network.

Training of Data Processors

At the NIS, the team selected and trained ten statistics officials to perform computerized data entry. An application frame in Statistical Package for the Social Sciences (SPSS) was developed and installed for them. The involvement of the statistics officials in this job was particularly helpful since some of them already had previous experience in data entry. However, there were not enough computers with the capacity for the SPSS program; thus, we had to use Excel instead.

Computer Processing

After manual data cleaning, data entry was done at the NIS. Before entering data, the CBMS team members at the NIS underwent training on the SPSS software. Training included data entry, data cleaning, and analysis. The CBMS supervisory team members from the central office supervised data entry and data cleaning. In case of errors, the concerned enumerator was requested to reinterview the household. Errors were mostly related to household income, expenditures, and assets.

The input documents were derived from the CBMS questionnaires, and the data entry system was designed to input data for each type of questionnaire separately. The household questionnaire (Form B) had two parts: the individual data file called the individual file (File A) and the household data file (File B). The listing form (Form A) and the household questionnaire (Form B) were used to create separate files for each village.

Analysis and Validation of the Survey Results

The most challenging part here was to determine the poverty line for each commune and the proportion of poor households in the village and commune. This was done on the basis of consumption expenditure per capita in line with the adopted national definition. The poverty line (PL) was defined as follows:

- The national rural poverty line in 2004 was used a base to generate the PL for 2006 and 2008.
- The PL was adjusted for rural inflation based on the 2005-2008 CDRI / NIS rural price survey covering 106 items.
- PL was determined to be 1,753 riels with 2004 as base:
- PL 2006= 2,079 riels (1,753 riels adjusted for 18.59% inflation between 2004 and 2006)
- PL 2006= 2,427 riels (1,753 riels adjusted for 38% inflation between 2004 and 2008)
- Movement in and out of poverty of panel households between 2006 and 2008

TRENDS IN PRICES OF FOOD AND NONFOOD ITEMS

National Trends in Prices of Food and Nonfood Items

Consumer prices in Cambodia remained somewhat stable between 2000 and 2003; however, prices increased beginning mid-2004 and reached the highest record between May and October 2008. Although the prices of consumer food items started to decline after reaching their highest recorded annual inflation rate of 37 percent in August 2008, prices still remained 32 percent higher in

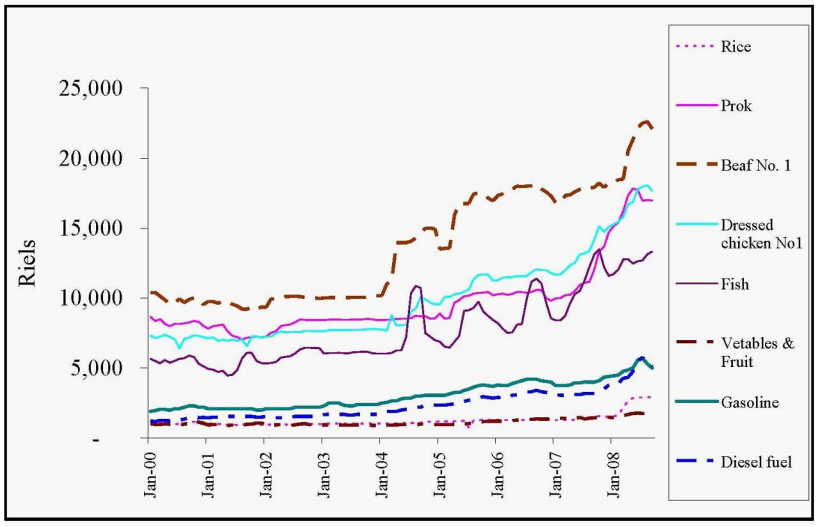
November 2008, which is higher than the same period in the previous year. Concerns about food security and poverty reduction in Cambodia stem from the increased prices of staple food, especially rice. Official statistics show that the price of rice has become more stable or at least has begun to decline from previous highs. However, the average price of rice in November 2008 was 2,780 riels per kilogram, which was still 77 percent higher than the same period in 2007. The price of meats such as pork, beef, and chicken remained 17 percent more expensive.

At the time this study was conducted, the official rural consumer price index (CPI) was not available from the Ministry of Planning. Therefore, for the purpose of this study, the authors used the change in prices from the CDRI price surveys of 106 food and nonfood items conducted in a number of village and district/provincial markets in October 2005 and again in March and September 2008. The survey suggests that the actual prices of all food and nonfood consumer items in rural areas were much higher than the national rate of price increase released by the government. All consumer goods in rural areas increased by 86 percent, which is alarming considering that the official CPI reported in Phnom Penh in the last three-year period was only 34 percent. The gap in the prices between urban and rural areas may be due to the high transaction cost and transportation cost of goods and services since infrastructure development is still in progress. Food and nonfood items, on average, were 94 percent and 71 percent higher, respectively, in September 2008 than the same month in 2005. This further increased by 13 percent for food and 30v for nonfood consumer items in rural areas.

Figure 1 shows the changes in the prices of selected agricultural commodities in Cambodia since mid-2005 along with increase in the price of oil and the increase in demand for cereal and oil crops in the international markets (FAO June 2008). High price events, like low price events, are not rare in agricultural markets and for farmers in Cambodia. High prices are often temporary compared to low prices, which persist for longer periods. What distinguishes the current situation for Cambodian farmers is the occurrence of higher prices of not just a select few but nearly all major food and other necessary commodities, and the possibility that prices may continue to remain high after the effects of the short-term shocks dissolve.

The recent price increases were driven mostly by changes in the demand for, and prices of, food and oil in the international markets where concerns about food security and poverty reduction are focused on the short-, medium-, and long-term impacts. The prices of food and other necessary commodities are historically highly volatile and started to rise along with the price of oil in

Figure 1. Trend in Prices of Selected Agricultural Products, January 2000-January 2008



Source: CPI, NIS, Ministry of Planing

2003.[3] The upward trend continued and reached double digits between 2007 and 2008 in most developing countries (ADB April 2008). Initial causes of the late-2006 price spikes included unseasonable droughts in grain-producing nations and rising oil prices. Oil prices further increased the cost of fertilizers, food transport, and industrial agriculture. The increasing use of biofuels in developed countries as a substitute for oil and the increasing demand for a more varied diet (especially meat) among the expanding middle-class populations of Asia also contributed to the price increase. All of these factors coupled with dwindling food stockpiles worldwide spurred the dramatic increase in global food prices. Short- and medium-term causes and their impacts on poverty reduction in developing countries remain a topic of debate in discussions on poverty reduction, inequality, and growth in developing countries. These may include structural changes in trade and agricultural production, agricultural price support and subsidies in developed nations, diversion of food commodities to high-input foods and fuel, commodity market speculation, and climate change.

[3] Andrew Bounds (2007-09-10). "OECD Warns Against Biofuels Subsidies". Financial Times

Government and Donor Responses to Rising Prices to Ensure Food Security and Sustain Growth for Poverty Reduction

The Cambodian government and other donors crafted an immediate policy in response to the food crisis to ensure sustainable growth for poverty reduction. The policy measures included a US$3.5-million fund from the government and the Asian Development Bank (ADB) for food security, a temporary prohibition on the export of paddy rice in order to increase internal stocks, and the sale of low-priced paddy rice to the poor before the 2008 national election. To increase employment and provide support to labor migrants, the government in late 2008 decided to issue passports to Cambodian cross-border migrants free of charge and encouraged recruitment companies to allow labor migrants to pay visa fees on credit. In addition, a health equity fund was established for the poor in 2007, which gave them better access to health care. The government also subsidized advanced farming practices that increase agricultural productivity, a measure meant to benefit agricultural producers. It also drew up an import policy for agricultural machinery and committed itself to further boosting agricultural growth through infrastructure development and other development strategies.

Farm Productivity and the Rising Prices of Farm Inputs

Prices of farm inputs such as fuel, transportation, fertilizers, and wage labor also increased at an alarming rate. For example, in May 2008, gasoline and diesel prices increased by 50 percent and 80 percent, respectively, higher than the same period in 2007. At the same time, the price of fertilizers increased by 80 percent to 200 percent and wage labor by 50 percent. The increase in the prices of farm inputs jacked up production costs by 30 percent for dry-season rice; by 70 percent for wet-season rice; and by 45% for maize, cassava, and soybean between May 2007 and May 2008[4]. Higher cost of farm inputs and inadequate irrigation were cited as limiting factors to agricultural intensification and diversification in the CBMS sites.

Table 2 shows the rice yield for the crop calendar 2007-2008 of landholding groups in each of the villages included in this study. On average, farmers in the CBMS villages produced around 2,380 kilograms of paddy rice per hectare. This yield was higher than the national average 1,889 kilograms of rice per hectare for wet-season rice. In contrast, the yield obtained by CBMS farmers for dry-season rice was lower than the national average of 3,684 kilograms per hectare in the same harvest season of 2008. While most CBMS villages obtained good harvest due to good weather conditions, Samraong Outrea experienced the lowest yield of paddy rice. Despite adequate rain, about 68 percent of farming households in Samraong Outrea reported lower returns from their farming activities while

[4] Quoted from Chan Sophal and Phim Runsinarith's Presentation at CDRI, 12 August 2008

22 percent reported the same volume of returns. A remarkably smaller proportion of farming households in the other village experienced a decline or no change in the yield of paddy rice obtained in the same harvest period.

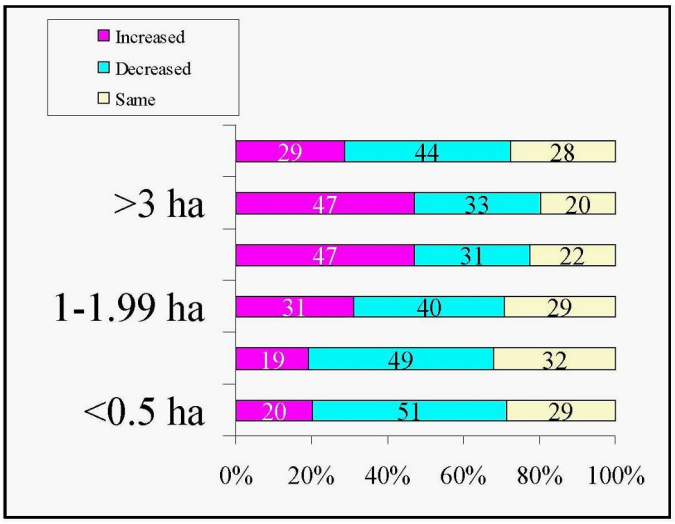
Table 2. Rice Yield of Landholding Groups by Village, 2008

Village	<0.5 ha	0.5-0.99 ha	1-1.99 ha	2-2.99 ha	>3 ha	Total
Svay Chrum	3,425	2,300	2,122	1,379	1,273	2,509
Reach Dounkeo	4,201	1,754	2,092	1,812	1,638	2,610
Samraong Outrea	2,291	1,801	1,623	1,918	1,686	1,967
Sdei Leu	3,598	2,056	1,711	1,700	1,471	2,565
Bak Amraek	3,172	1,555	1,694	1,750	1,687	2,455
Total	3,181	1,914	1,828	1,730	1,515	2,380

Only farmers with large landholdings, traders, and dry-season rice growers benefited from the opportunities generated by the hiked food prices (CDRI 2008; Fitzgerald and So 2007). In CBMS sites, only 11 percent of farming households that grew dry-season rice gained from the higher prices of paddy rice by selling some of their harvest. Therefore, the large majority of farmers who were wet-season rice growers did not gain anything from the price hikes, or if they did, made only meager marginal profits because of high production costs. Small landholding farmers were more productive than large landholding farmers in terms of the amount of paddy rice harvested per hectare (Table 2). However, only 20 percent of small farmers who cultivated one hectare or less of rice land compared to 47 percent of large landholding farmers reported obtaining better returns from their rice farming at the time of the survey than the previous year. Again, this was due to rising prices and demand for paddy rice.

About half of small farmers could not afford the higher prices of farm inputs to increase farm productivity and experienced no change in their yield of paddy rice and lower net profits from their rice farming (Figure 2). Chan (2008) said that while increasing demand and rising prices of agricultural produce opened up economic opportunities for many farmers in other areas of the country to produce surplus for sale, such opportunities were not cited by the village leaders and panel households in CBMS sites. In contrast to dry-season rice growers, the large majority of wet-season rice growers did not gain anything from the higher price of paddy rice since most of them had to sell their produce immediately after harvest or before the price of rice started to rise in February 2008.

Figure 2. Changes in Rice Income by Landholding Households Compared to the Previous Cropping Calendar in 2006-2007 (% of 448 respondent households)



Unpredictable changes in the price of agricultural produce and farm inputs are the most common constraint to agricultural growth and development in CBMS sites. These changes also limit Cambodian farmers' response to rising prices. High prices of, and high demand for, farm produce are often temporary while high prices of farm inputs persist for a longer period. This is to be expected since most farm inputs are imported from neighboring countries, and the cost of these inputs need to be adjusted based on the prevailing price of fuel and transportation. In addition, farmers often lack savings and therefore have to take out loans either from microcredit or microfinancing institutions (MFI) or from private moneylenders or traders. MFIs continue to provide small loans to farmers at an affordable monthly interest rate of 3 percent. Many farmers in CBMS sites have to buy farm inputs on credit or take out a loan with a monthly interest of 10 percent to 15 percent and promise to sell their harvest to their private credit providers who, in most cases, are traders or merchants. In such cases, many small landholding farmers who often cannot afford increased production expenditures or make just very marginal gains from their rice production find

rice farming not worth the effort. Others simply decide to sell their small plots of land and are evicted from the producer groups (Table 3).

Table 3. Percentage of Households with No Agricultural Land

Village	2006	2008	% change
Svay Chrum	45	47	2
Reach Dounkeo	33	39	6
Samraong Outrea	45	50	5
Sdei Leu	35	38	3
Bak Amraek	44	40	-4
Total	41	44	3

Impacts of Hiked Prices on Food Security

In CBMS sites, about 56 percent of the total 1,132 panel households were farmers. The rest of households (44%) are landless and get their livelihood from off-farm income-generating activities. Almost half (60%) of rice-producing households that cultivated one hectare or less of land produced just enough rice for a maximum of 4 to 6 months a year. This means they were also net buyers of rice especially between May and October 2008. Only about 21 percent of rice farmers produced enough rice for household consumption; another 19 percent of rice farmers produced surplus rice for sale at high prices (Table 4).

Nonetheless, about 77 percent of the households in CBMS villages were the net buyers of rice between May and October 2008. This percentage included landless households (44%) and small farmers (33%) who cultivated less than one hectare of land and could not produce enough rice for household consumption. This group of net buyers were the ones most affected by the rising prices of food and other necessary consumer items.

Increased Incomes and Household Food Security

According to CBMS panel data, food expenditure or consumption accounted for about 63 percent of total household expenditure in 2008, a decline from the 73 percent of total household expenditure in 2006. This figure suggests a general improvement in the well-being of people in CBMS villages. The proportion of

Table 4. Average Yield and Total Production by Size of Landholding Households

Landholding size	NHH	% HH	Yield (Kg/ha)	Total Production (Kg/hh)
<0.5 ha	272	43	3,181	820
0.5-0.99 ha	104	16	1,914	1,408
1-1.99 ha	136	21	1,828	2,195
2-2.99 ha	**59**	**9**	**1,730**	**3,733**
>3 ha	**65**	**10**	**1,515**	**7,199**
Total	636	100	2,380	2,132

food to nonfood expenditures changes when households have better income. According to a national survey on the impact of rising prices on food security conducted by CDRI in mid-2008, an increase of about 47 percent in income was enough to offset rising food prices between 2007 and 2008. Figure 3 shows the real per capita income (PCI) of CBMS panel households by landholding groups and changes in the PCI between 2006 and

All landholding groups dramatically increased their PCI between 2006 and 2008. Nonetheless, only about 23 percent of CBMS households with more than one hectare of land enjoyed an average annual growth in PCI of more than 50 percent a year. The landless and the land poor (who own one hectare or less) reported an annual growth rate in PCI of 29 percent to 40 percent, which is lower than the level needed to offset the increase in food prices (Figure 3).

The respondents were also asked whether they earned enough to meet household expenditures and if they ever faced any food shortage in the eight months prior to the survey period in September 2008. The answers are summarized by landholding group in Table 5. The responses again confirmed that any increase in the income of the landless and the small landholders was not sufficient to offset rising food prices in the eight months prior to the survey. Rising food prices pushed 33 percent of CBMS households into food insecurity. About 41 percent of the landless and approximately 30 percent of the small landholding farmers experienced food shortage since most of them depended heavily on unreliable income from selling their labor.

Impact on Poverty Reduction at the Village Level

While hiked prices between late 2007 and October 2008 affected every aspect of life, the poor were the hardest hit since majority of them were either

Figure 3. Real Per Capita Income and Percentage Changes, 2006-08

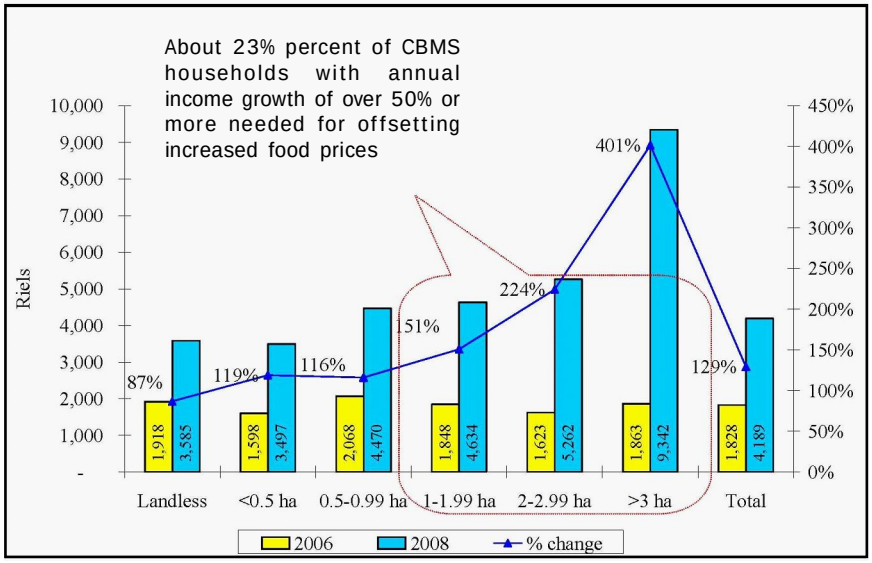


Table 5. Adequacy of Income of Landholding Groups 8 Months Before September 2008 (% of 1,132 panel households)

	Income for Household Expenditure				Food Shortage		
Landholding size	Enough	Not enough	Some saving	Total	Yes	No	Total
Landless	13.5	86.3	0.2	100	41	59	100
<0.5 ha	15.4	84.2	0.4	100	33	67	100
0.5-0.99 ha	24.0	75.0	1.0	100	30	70	100
1-1.99 ha	39.7	60.3	0.0	100	21	79	100
2-2.99 ha	39.0	61.0	0.0	100	15	85	100
>3 ha	53.8	44.6	1.5	100	14	86	100
Total	21.7	77.9	0.4	100	33	67	100

landless or land poor (owning one hectare of land or less) with limited ability to earn enough income to offset higher food prices. No official poverty data was available for 2008. The CSES 2004, however, showed that 27 percent of households in Battambang were considered poor in 2004. At 1 percent rate in poverty reduction (World Bank 2006), poor households should have been reduced from 27 percent in 2004 to approximately 23 percent in 2008. A total of 42,775 poor households or 269,217 individuals in this province were considered poor. They were more likely to be negatively affected by rising prices between January and October 2008.

Table 6 shows the proportion and changes in poor households in the five CBMS villages between 2006 and 2008. Poverty incidence in CBMS villages was reduced by 15 percent, on average, over this three-year period. Four out of five study villages experienced some reduction in poverty: Reach Dounkeo by 4 percent; Samraong Outrea by 27 percent; and Svay Chrum by 16 percent In 2008, about 43 percent of total households in CBMS villages, higher than the average provincial statistics, were poor and more likely to be hit hard by rising prices.

Table 6 also suggests that the impact of higher prices varied according to the specific location of CBMS villages. People in Svay Chrum, which is closer to the market center, suffered the most from higher prices due to the increase in the number of poor households. Villages dependent on agriculture such as Sdei Leu and Bak Amraek, fared relatively well in the midst of rising food prices because the households were able to sell farm produce. This directly contributed to the high rate of poverty reduction in these villages. In contrast, higher prices slowed down poverty reduction in the remote village of Reach Dounkeo.

Good road access and connection to market for selling farm produce and petty trading helped reduce poverty faster in Samraong Outrea compared to the other villages. This study also notes the important role of infrastructure development, such as the recent construction of roads and irrigation dams, in buttressing rural livelihoods against the negative impacts of rising prices of consumer goods. Infrastructure development promotes agricultural intensification and diversification, trading, and labor migration. This argument is supported by the movement in and out of poverty summarized in Table 7.

The percentage of households who moved out of poverty between 2006 and 2008 was found to be higher in villages with good road access and connection to markets (e.g., Samraong Outrea) and villages with irrigation for the production of dry-season rice and cash crops (e.g., Bak Amraek). In contrast, in villages where a large proportion of household income came from off-farm activities and where households bought food from markets (e.g., Svay Chrum and the

Table 6. Poverty Head Count and Village Characteristics, 2006-2008

Village	NHHs	Poverty Head Count 2006	Poverty Head Count 2008	Change 2006:2008	Village characteristics
Svay Chrum	216	28	44	16	Close to the market center; rice farming and petty trade are main sources of income
Reach Dounkeo	150	72	68	-4	Remote village; wet- and dry-season rice production and fishing
Samraong Outrea	343	63	36	-27	Good road access and connection to market; rice farming; fruit trees and petty trade
Sdei Leu	234	61	38	-23	Cash crop and wet-season rice farming
Bak Amraek	189	66	40	-25	Wet- and dry-season rice farming and fishing
Total	1132	58	43	-15	

Table 7. Movement In and Out of Poverty of Panel Households, 2006 and 2008 (% of 1,132 households)

Village	Stayed nonpoor	Moved out of poverty	Fell into poverty	Stayed poor
Svay Chrum	47	10	25	18
Reach Dounkeo	9	23	19	49
Samraong Outrea	27	**36**	9	27
Sdei Leu	35	27	4	34
Bak Amraek	25	**34**	9	31
Total	30	27	13	30

remote village of Reach Dounkeo), there was a relatively higher proportion of people that fell into and remained stuck in poverty.

HOUSEHOLD COPING STRATEGIES

Use of Child Labor

In the CBMS sites, 128 households (11% of the panel households) withdrew their children from schools so that the children could help earn additional income for the family. It is surprising that among the villages under study, increased incidence of child labor was high in areas where there is fast growth and development. The number of migrants searching for employment in urban areas or selling labor along the Cambodia-Thai border or inside Thailand has been increasing since the late 1990s. This gradually became the more important and dominant source of household income for the CBMS villages in 2008.

According to village leaders consulted during the survey, the number of households that encouraged their children to take time off from school to help in running the family business or to collect edible items from common fields could be higher than 11 percent. Since more and more people are searching for work outside the villages, there has also been some labor shortage for farming. Such shortage has been filled in by either elderly or child labor. Wages for translation and ploughing were two to three times more expensive at the time of the survey compared to two or three years ago. Farm inputs such as fertilizers and chemical pesticides were also expensive. To save money, children and the elderly became valuable assets as far as providing labor is concerned; every household member has had to work hard to cope with rising food prices. The situation was even worse for children whose parents are migrant laborers. Because some migrant laborers also bring their children along to work sites, these children have been unable to benefit from the government's free universal education for all and from the free food provided to poor children in schools. All respondents and village leaders interviewed wished for the prices of food commodities to go down.

Credit Access and Use

Rising prices of food and other goods pushed many CBMS households into indebtedness. About half of the CBMS panel households took out loans from either MFIs or relatives in the eight months prior to the survey in September 2008. About 53 percent of the poor households and 48 percent of nonpoor households had outstanding loans. Of the 565 households who took out loans within the eight-month period prior to the survey, 51 percent used the loan to

support business accounts; 29 percent used it to buy food; and 17 percent used it for health care purposes.

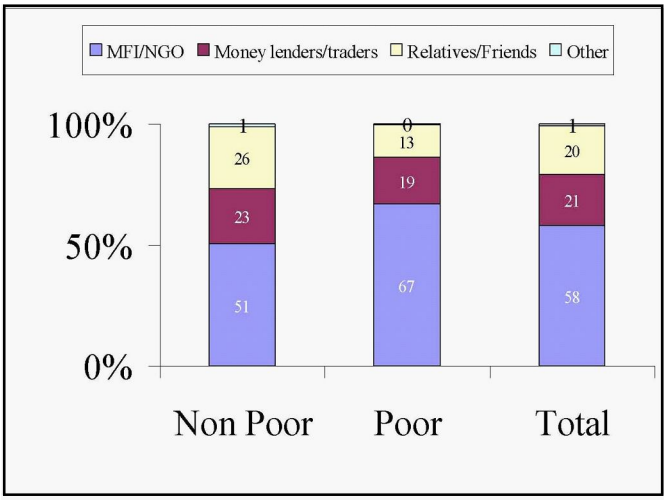
Table 8 further shows who between the male and female heads of the poor and the nonpoor households actually used the loans and for which purpose. During the period of higher prices of food and other consumer items, both the poor and nonpoor used their loans to sustain their businesses, especially when the demand for their services declined. Among the nonpoor households, the proportion of male household heads that used the loan to buy food and access health care was relative higher than the proportion of female household heads that did the same. This may be because there are fewer female earners, and females have lower incomes. However, in the poor groups, there was only minimal difference between households headed by males and females.

Table 8. Uses of Loans by Poor and Nonpoor Households in the Last 8 Months (% of 565 households with outstanding loans)

	Nonpoor			Poor		
	MHH	FHH	Total	MHH	FHH	Total
Farming	4	2	3	4	7	5
Support business	52	47	51	52	48	51
Food	18	23	19	30	29	30
Health care	21	24	22	11	12	11
Study	3	3	3	0	2	1
Resolving conflicts	1	0	1	0	0	0
Other	1	2	1	1	2	2
Total	100	100	100	100	100	100

The survey also suggests that a lower proportion of female-headed households borrowed money to sustain business than male-headed households during the period of hiked prices. In rural areas, women play critical roles in running small businesses and are held in high regard as far as financial management for the family is concerned. This may be the reason why females can somehow manage to use their savings to sustain their businesses before

Figure 4. Source of Loans (% of 565 Households With Standing Loans)



taking out loans. A critical point to note here is the recent growth of MFIs in the last two or three years. MFIs have been more active in providing loans to the poor at an affordable monthly interest rate of 3 percent and have been cited as a great help during the time of rising food prices. About 67 percent of the poor have access to MFI loans for both productive and consumption purposes at much lower interest rates than what is typically charged by private moneylenders, which is 10 percent to 15 percent (or even higher) per month if they borrow cash or in kind.

Selling Lands

About 4 percent of CBMS households decided to sell their land or other assets within the eight-month period prior to the survey in order to repay loans or set up or sustain businesses. In addition, about 10 percent of households had to seek additional jobs or work harder in order to earn enough income to buy food. Nonetheless, 24 percent of the poor and 21 percent of the nonpoor became reported becoming worse off, while around 71 percent of the poor and nonpoor were able to sustain their livelihoods. Only 5 percent of the nonpoor and 2 percentof the poor households were able to improve their lives during the period of hiked prices; about 4% were uncertain if they were able to maintain the status quo or not.

CONCLUSION AND POLICY IMPLICATIONS

The findings from CBMS survey confirmed a number of key lessons about people's experiences in responding to the recent phenomena of hiked prices of food and other basic commodities. First, the prices of food and other basic commodities still remained relatively high after they peaked at double digits—the highest in the history of inflation—since the mid-2000s. Although the CBMS villages are located in the surplus-rice-producing area of Battambang province, only about 23 percent of the CBMS households characterized as large rice farmers, petty traders, or moneylenders were able to seize the opportunity generated by rising prices to produce surplus for sale or to increase income. In contrast, about 77 percent of the landless and land-poor (with one hectare of land or less) households were or became net food buyers during the period of hiked food prices. Many of these households did not earn enough income to offset the price increases and to meet basic household expenditures. Household members had to work harder to earn money to buy food. Food insecurity became rampant.

Second, in response to rising prices, many children were pulled from schools to help augment family income. Aside from children, the elderly were also put to work in order to contribute to household income for food and other basic household expenditures. Many people migrated out of their villages in search of work to cope with the high cost of living. Many households also took out loans to support businesses, purchase food items, and access health care. In many cases, rising prices contributed to the increase of landless households in the CBMS villages.

The most striking impact of rising prices on poverty was to worsen food insecurity, make the poor poorer, and push many rural people into debts they would find difficult to pay off. Rising prices also negatively affected Cambodia's human capital in the following aspects: education, health, loss of productive assets, and reduced capability of small landholders and the poor to cope with future shocks or crises. This situation requires a stronger social safety net program to help small farmers remain in the producer group, poor children to stay in school, and better (and more targeted) policy intervention to support the poor and the vulnerable. The social safety net program can be implemented effectively with the involvement of local authorities or if the capacity of the commune council can be further enhanced and strengthened in favor of the poor, good governance, and the implementation of national policy.

Third, like other rural villages, CBMS farmers and villagers are connected to, or at least are no longer isolated from, changes in the global market. This is because the CBMS villages are situated in the fast-growing Battambang province. Located in northwest Cambodia, Battambang province boasts remarkable infrastructure development and cross-border formal and informal trade with

Thailand. Agricultural producers should thus seize this lucrative opportunity to increase production and diversification. The critical constraints to agricultural growth, however, persist in CBMS villages in the form of lack of agricultural know-how, irrigation, and effective extension services. The growth of MFIs so far has been highly appreciated by CBMS villagers for both productive and consumption purposes. The amount of loans provided and the availability of services have been effective enough to respond to the needs of small farmers and business entrepreneurs in rural areas. A long-term strategy should be put in place to build the capacity of small farmers in overcoming barriers to production, such as the high cost of fertilizers, labor shortage, poor irrigation, and inadequate road access.

References

ADB (April 2008). *"Special Report on Food Prices and Inflation in Developing Asia: Is Poverty Reduction Coming to an End?"* ADB: 1550 Metro Manila.

Chan Sophal (July 2008). "*Policy Brief: Impact Of High Food Prices In Cambodia*." CDRI - Cambodia's Leading Independent Development Policy Research Institute No. 02.

Evanic, M. & W. Martin (April 2008). "*Implications of Higher Global Food Prices for Poverty in Low-Income Countries*." World Bank: Policy Research Working Paper 4594

FAO (April 2008). "*Soaring Food Prices: Facts, Perspectives, Impacts and Action Required*," HLC/08/INF/1. www.fao.org/foodclimate

Fitzgerald, Ingrid & So Sovannarith (September 2007). "*Moving Out of Poverty?: Trends in Community Well-Being and Household Mobility in Nine Cambodia Villages"* (Phnom Penh: CDRI)

Hyun H. Son (May 2008), "*Has Inflation Hurt the Poor? Regional Analysis in the Philippines*," ADB.

NIS, MoP (2006), *"Statistical Year Book 2006,"* Phnom Penh: Cambodia

ODI (April 2008). "Rising Food Price: A Global Crises"

http://www.odi.org.uk/resources/odi-publications/briefing-papers/37-rising-food-prices-global-crisis.pdf

Polaski Sandra (May 2008) "*Rising Food Prices, Poverty, and the Doha Round." Policy Outlook*. www.un.org/ecosoc/docs/statement08/S_Polaski.pdf

PREM, A. a. D. "*Rising food prices: policy options and World Bank response*." ODI (April 2008). "Briefing Paper: Rising food prices: A global crisis."

United Nation (June 2008),."*Rising Food Prices – Discussion Paper*" http://www.un.org.kh/attachments/060_RisingFoodPrices-UN_DiscussionPaper_June%202008.pdf

World Bank, (2006), *"Cambodia Halving Poverty by 2015?: Poverty Assessment 2006"*. World Bank: Phnom PenhWorld Food Program (April 2008). "*WFP Media Backgrounder: Rising Food Prices: Impact on the Hungry*." www.folketinget.dk/samling/20072/almdel/URU/Bilag/99/544785.PDF

Annex 1. Change in the Returns from Rice Crops

Village	Landholding size	Increased	Decreased	Same	Total
Svay Chrum	<0.5 ha	26	47	26	100
	0.5-0.99 ha	24	12	65	100
	1-1.99 ha	40	27	33	100
	2-2.99 ha	71	29	0	100
	>3 ha	75	25	0	100
	Total	**39**	**29**	**32**	**100**
Reach Dounkeo	<0.5 ha	15	23	62	100
	0.5-0.99 ha		67	33	100
	1-1.99 ha	44	6	50	100
	2-2.99 ha	43	29	29	100
	>3 ha	67	17	17	100
	Total	**32**	**25**	**43**	**100**
Samraong Outrea	<0.5 ha	4	72	23	100
	0.5-0.99 ha	8	71	21	100
	1-1.99 ha	15	68	18	100
	2-2.99 ha	17	50	33	100
	>3 ha	8	67	25	100
	Total	**10**	**68**	**22**	**100**
Sdei Leu	<0.5 ha	32	46	21	100
	0.5-0.99 ha	24	59	18	100
	1-1.99 ha	53	24	24	100
	2-2.99 ha	64	21	14	100
	>3 ha	71	18	12	100
	Total	**46**	**35**	**18**	**100**
Bak Amraek	<0.5 ha	28	43	30	100
	0.5-0.99 ha	35	35	29	100
	1-1.99 ha	25	40	35	100
	2-2.99 ha	44	22	33	100
	>3 ha	13	38	50	100
	Total	**29**	**39**	**33**	**100**

Annex 2. Percentage of Source of Income by Villages, 2008

Village	Crops	Livestock	Selling labor	Petty Trade	CPR	Rental	Other	Total
Svay Chrum	24	10	48	11	1	5	1	100
Reach Dounkeo	36	9	45	6	1	1	2	100
Samraong Outrea	19	9	49	15	0	1	8	100
Sdei Leu	35	17	23	7	5	5	9	100
Bak Amraek	25	20	30	5	1	15	3	100
Total	26	13	39	10	2	5	5	100

Annex 3. Reasons for Borrowing Money

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Producing	22	1.9	3.9	3.9
	Purchasing food	135	11.9	23.9	27.8
	Treatment of diseases	96	8.5	17.0	44.8
	Study	11	1.0	1.9	46.7
	Conflict settlement	3	.3	.5	47.3
	Support for business	290	25.6	51.3	98.6
	Loss of job	1	.1	.2	98.8
	Other, specify	7	.6	1.2	100.0
	Total	565	49.9	100.0	
Missing	System	567	50.1		
Total		1132	100.0		

Annex 4: Changes in Status of Living of Poor and Nonpoor Households at the Time of Survey vis-à-vis 8 Months Prior

	Better	Normal	Worse	No	Total
Number of Households					
Nonpoor	30	458	138	20	646
Poor	10	338	118	20	486
Total	40	796	256	40	1132
% with same group					
Nonpoor	5	71	21	3	100
Poor	2	70	24	4	100
Total	4	70	23	4	100

Effects of Rising Food and Oil Prices on Rural Households in Ghana: A Case Study of Selected Communities in the Dangme West District Using the CBMS Approach

Felix A. Asante, Cynthia A. Tagoe and Alfred A. Boakye*

INTRODUCTION

Background

Developments in the global agricultural front in 2007 such as rising food prices posed significant threats to Ghana's macroeconomic stability and overall development. Global food prices increased over 50 percent as a result of the use of crops for biofuel, rising cost of production, climate change, and increase in demand as a result of population increase. Petroleum and other fuel price increases were also driving up food prices, particularly because of the high transport costs of low-value, high-volume commodities such as staples. The increase in crude oil prices fueled large increases in the cost of production (tractor services, fertilizer) and, more importantly, distribution.

Developments in the global scene always have repercussions for individual countries, and this translates and trickles down eventually to the household. Over the past five years, there have been steady increases in the price of fuel on the global market and because of the importance of fuel in the production, marketing, and transportation/haulage of food products and the desire of every producer/farmer to cover their costs, inflation and higher prices have been the result. The effects of increased food costs for a country like Ghana, which relies on food imports to supplement domestic production and consumption, cannot be underestimated since these are felt at all levels of the economy and society. These effects, however, have mostly been analyzed from the macro level where the figures at the national or country level have been the focus of discussion. But since the individual and, by extension, the household is at the receiving end of all these costs triggered by global happenings, there is the need to also look

* Senior Research Fellow, Institute of Statistical, Social & Economic Research (ISSER), University of Ghana, Legon, Ghana; PhD student in Geography and Resource Development, University of Ghana, Legon, Ghana; and Graduate Assistant, University of Ghana, Legon, Ghana, respectively

into the situation at the individual/household level especially because the expenditure on food forms a large proportion of the budget of many poor households particularly in rural communities in developing countries such as Ghana. With the increase in food expenditure, households will have less money to spend on other things or consumer goods, less money to invest in education, health, and general livelihood.

The Community-Based Monitoring System (CBMS) is a tool designed for assessing impact of programs and projects in the context of local governance and decentralization. It has indicators that enable an assessment of one's living condition, health, education, and poverty level at the household level. It provides information at the household level for the use of local government units and other organizations working at that level for the purposes of planning, implementing, and monitoring programs. It also utilizes local government units and community personnel in the process, making it a cost effective and helpful tool for capacity building of local personnel. It is very flexible and allows varied issues to be assessed and monitored. Issues specific to the districts like access to community services and facilities, political/community participation, migration, agriculture, and waste management can be monitored through the CBMS approach. With its core indicators and questionnaire, the CBMS approach enables the collection and analysis of data at the district level because it is easily adaptable to the district-specific situation and uses local resources in terms of community enumerators in the assessment. This study using the CBMS approach assesses the effects of rising food and oil prices on households in Ghana using the rural district of Dangme West as a case study.

The Dangme West District is the largest district by land area in the Greater Accra Region of Ghana. Geographically, the district is located in the southeastern part of Ghana (see Figures 1 and 2) and shares boundaries with Yilo and Manya Krobo districts in the northwest, Akwapim North district in the west, North Tongu on the northeast, Tema and Adenta municipalities in the southwest, and Dangme East district in the east. The Volta River and the Atlantic Ocean wash the northeastern and southern portions of the district, respectively. The district has a total land area of about 1,442 square kilometers, accounting for about 42 percent of the region's land area and accommodates 98,809 inhabitants, accounting for 3.4 percent and 3.3 percent of the regional and country's population in 2000, respectively (Population and Housing Census 2000). About 48 percent of the population is male and 51.8 percent, female. The dependency ratio (proportion of the population aged 0-14 and 65+ years old to the economically active population, aged 15-64 years old) is 0.79.

The Dangme West District is more rural than urban with 76 percent of the population living in rural areas. This is further supported by the dominance of agriculture as the main occupation, accounting for 58.6 percent of the labor

force in the district. Trading and fishing account for 22.1 percent and 6.4 percent of the labor force, respectively, with the latter mostly made up of older people. Though the district capital is located just about 25 kilometers from Accra, the capital of Ghana, poverty in the district is endemic and can be compared with poor districts in other parts of the country. Due to the district's proximity to Accra and the lack of industry and work for the youth who are not too keen on agriculture and fishing, there is a lot of commuting from towns in the district like Dodowa, Prampram, Dawhenya, and Afienya to Accra for various reasons, including employment.

Figure 1. Map of Ghana

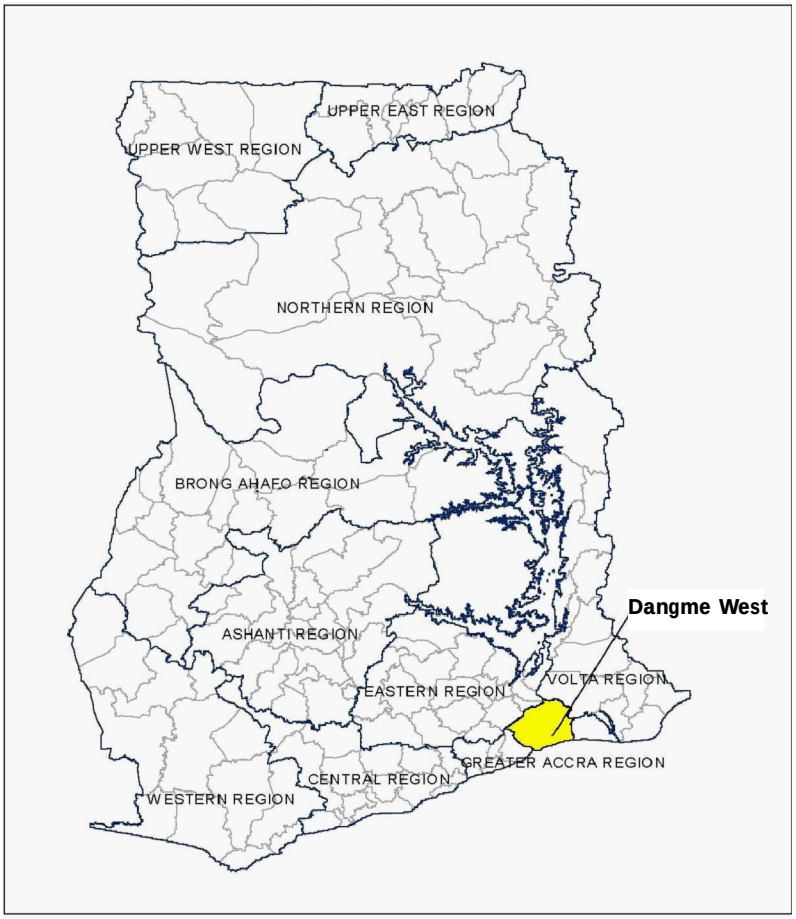
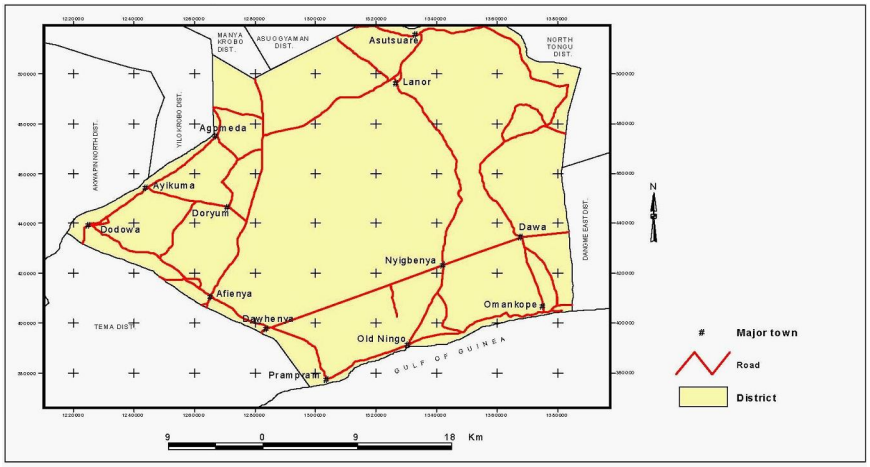


Figure 2. Map of Dangme West District



Structure of the Report

Chapter One covers the background and objectives of the study while Chapter Two highlights the methodology employed in the collection, in the study area as well as the method of analysis. The global overview of the rising food and oil prices with a special focus on the situation as experienced in Ghana is discussed in Chapter Three. Some background characteristics of respondents in the study area are explored from the data in Chapter Four. The effects of the rising food and oil prices on households are analyzed specifically in terms of their food consumption and health-seeking behaviors, changes over the past year in their education and employment situation, communication and transportation, their financial management and recreational practices are presented in Chapter Five. Chapter Six presents the summary and conclusions from the study.

STUDY DESIGN AND METHODOLOGY

Study Area and Communities

The CBMS was piloted in the Dangme West District in 2004-2005. Thus, it became the obvious choice in the selection of a study area where the effect of the rising food and oil prices on rural households in Ghana could be studied. The existing structures and cordial relationship with the assembly and particularly the staff also informed this selection.

The Dangme West District is located in the southeastern part of Ghana in the Greater Accra Region. The district has a total land area of about 1,442 square kilometers. It shares boundaries with Yilo and Manya Krobo districts on the northwest, Akwapim North district on the west, Tema Municipality on the southwest, and Dangme East district on the east. The Volta River and the Atlantic Ocean wash the northeastern and the south portions of the district, respectively.

Dangme West District is one of the hottest and driest parts of the country. Temperatures are appreciably high for most parts of the year with the highest during the main dry season (November-March) and the lowest during the short wet season (June-August). The absolute maximum temperature is 40 degrees Celsius. Mean annual rainfall increases from 762.5 millimeters on the coast to 1,220 millimeters to the north and northeast close to the foothills of Akwapim Range.

The unreliability of rainfall and the dependence of farmers on the rainy season make farming a vulnerable occupation. Periodic main crop failures are a common phenomenon even in the better-watered northern parts. The predominant vegetation type found in the district is the short grass savannah interspersed with shrubs and short trees, a characteristic of the subsahelian type. The soils are highly elastic when wet but become hard and compact when dry and then crack vertically from the surface. This renders the soil unsuitable for hand cultivation. The main occupational activity of the economically active population is agriculture (crop farming, livestock, and fishing).

The total population of Dangme West District is 98,809 (2000 Population and Housing Census). Generally, the district has a lower population density than the average for the country, 55.3 persons per square kilometer against the national average of 63 persons per kilometer. Of the total population in 2000, 48.2 percent are males and 51.8 percent, females. The dependency ratio (proportion of the population of ages 0-14 and 65+ years and the economically active population, 15-64 years) is 79 percent.

Study Design – The Questionnaire

The Ghana CBMS Price Increases Impact questionnaire was adopted from the Philippines's CBMS approach and was revised to suit Ghanaian conditions. The questionnaire included issues relevant in assessing the effects of rising food and oil prices on rural households in Ghana such as changes in food consumption and health-seeking behaviors, changes over the past year in education and employment situation, communication and transportation, financial management, and recreational practices. It kept the core CBMS questions on household characteristics, education, political participation, employment and health, child mortality, housing and shelter, lighting, water and sanitation, income and livelihood, peace and order, and access to social and community services. These were part of the original CBMS questionnaire used in the pilot study.

Selection of Enumerators and Fieldwork

With the assistance of the district planning officer, efforts were made to track some of the enumerators used in the 2004-2005 survey because of their familiarity with the survey but this did not yield much fruit. So a new team was constituted, and this was made up of teachers coming from the communities surveyed. A one-day training was organized by the Ghana team for the enumerators. The district planning officer was involved in the identification and selection of the local enumerators for the survey.

The three communities of Dodowa, Prampram, and Ningo in the Dangme West District which were surveyed in 2004 were revisited. A hundred households from each of the communities totaling 300 were randomly sampled and surveyed in October 2008.

Method of Analysis

All the 300 questionnaires collected from the field were checked, coded, and analyzed using Statistical Package for the Social Sciences (SPSS). However, local capacity to analyze the data collected in the field was lacking, which necessitated the "outsourcing" of the task to a data entry manager outside the district. Quintiles using household income were constructed. The first quintile represents the poorest and the fifth quintile the richest groups. Thus, as one moves from the first quintile to the fifth quintile, one is moving from the poor to the rich.

OVERVIEW OF THE RISING FOOD AND OIL PRICES

Rising Food and Oil Prices – Global Context

One emerging factor behind rising food prices was the high price of energy. Energy and agricultural prices have become increasingly linked. With oil prices at an all-time high in July 2007 and the US government subsidizing farmers to grow crops for fuel, US farmers have massively shifted their cultivation towards biofuel feedstocks, especially maize, often at the expense of soybean and wheat cultivation. About 30 percent of US maize production in 2008 was processed into ethanol rather than going into the food and feed markets. High energy prices have also made agricultural production more expensive by raising the cost of mechanical cultivation and of inputs such as fertilizers and pesticides, as well as of transportation of inputs and outputs (von Braun 2008).

Another source of the current price increases is the growing world population's demand for more and different kinds of food. Rapid economic growth in many developing countries has pushed up consumer purchasing

power, generated rising demand for food, and shifted food demand away from traditional staples and towards high-value foods such as meat and milk. This dietary shift is leading to increased demand for grains to feed livestock. Lastly, poor weather has also played a role in the rise of food prices. For example, severe drought in 2007-2008 in Australia, one of the world's largest wheat producers, has cut into global wheat production.

High food prices have radically different effects across countries and population groups. At country level, countries that are not food exporters will benefit from improved terms of trade, although some of them are missing out on this opportunity by banning exports to protect consumers. Net food importers, however, will struggle to meet domestic food demand. Given that almost all countries in Africa are net importers of cereals, they will be hard hit by rising prices. At the household level, surging and volatile food prices hit the poor and food insecure. The few poor households that are net sellers of food will benefit from higher prices.

Adequate nutrition for the population, especially for poor people, is also at risk when they are not shielded from price increases. Higher food prices lead poor people to limit their food consumption and shift to even less-balanced diets, with harmful effects on health in the short and long run.

Rising Food and Oil Prices – Country Context

Balance of Trade

Total export receipts (f.o.b) increased by about 11 percent in 2007 to US$4,194.7 million, from US$3,726.7 million in 2006 (Table 1). This growth was fuelled by increases in the volume and prices of commodities, especially gold and cocoa. Total import receipts (f.o.b) increased at an even faster rate of 16 percent in 2007 to US$8,073.6 million, from US$6,753.7 million in 2006. The growth in imports was due to increases in both the oil and nonoil bill. Trade deficit worsened in 2007, reaching a high of US$3,878.9 million, an increase of 21 percent over the 2006 value of US$3,027.0 million.

Total merchandise exports for the first half of 2008 amounted to US$2,885.4 million, compared with US$2,142.8 million (a growth of 34.7%) for the same period in 2007. Total merchandise imports for the period January to June 2008 amounted to US$4,945.6 million, compared with US$3,473.6 million for the same period in 2007 (an annual growth of 42.4%).

For the half year of 2008, the merchandise trade deficit was provisionally estimated at US$2,060.2 million, compared with a deficit of US$1,330.7 million for the same period in 2007. The current account is provisionally estimated to have recorded a deficit of US$1,171.3 million (in part due to an increase of US$411.0 million in the oil import bill), compared with a deficit of US$639.8 million for the same period in 2007.

Table 1. Balance of Trade, 2003-2007 (US$ million)

	2003	2004	2005	2006	2007*
Merchandise Trade Balance	**-670.43**	**-1,592.81**	**-2,545.11**	**-3,027.00**	**-3,878.86**
Exports (f.o.b)	**2,562.39**	**2,704.47**	**2,802.21**	**3,726.68**	**4,194.71**
Cocoa Beans & Products	817.73	1,025.67	908.36	1,187.44	1,103.24
Gold	830.13	840.21	945.82	1,277.25	1,733.78
Timber & Timber Products	174.74	211.71	226.54	206.71	250.13
Other Exports	739.79	626.87	721.49	1,055.28	1,107.56
Imports (f.o.b)	**-3,232.82**	**-4,297.27**	**-5,347.32**	**-6,753.68**	**-8,073.57**
Nonoil	-2,669.88	-3,522.31	-4,217.88	-5,107.52	-5,968.31
Oil	-562.94	-774.97	-1,129.44	-1,646.16	-2,105.26

Source: ISSER 2008.
* Provisional

Domestic Food Prices

Towards the latter part of 2007, food prices became an important social, economic, and humanitarian issue worldwide. Food prices have economic growth implications and consequently threaten the poverty reduction efforts of developing economies such as Ghana. It is estimated that over 50 percent of the consumer price index is attributable to food. Thus, food prices have important implications for inflationary pressures.

Despite unfavorable global developments, Ghana is still self-sufficient in most of her basic food items, including maize, cassava, yam, and plantain. Ghana still records a deficit in the production of rice, meat, and fish, and some quantities of these are usually imported to augment local production.

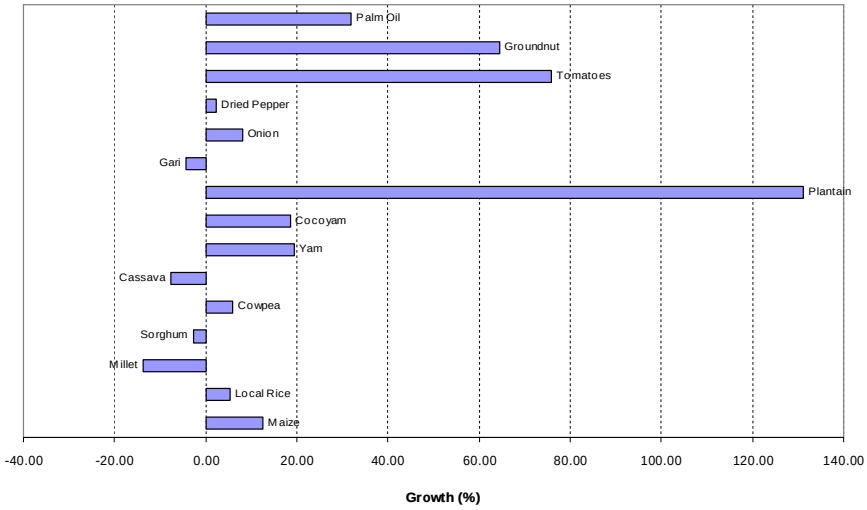
Average national wholesale prices of grains in 2007 show that while maize, rice, and cowpea prices were above their 2006 levels, millet and sorghum were down in price (Figure 3). The reduction in the price of millet and sorghum by 13.6 percent and 2.6 percent, respectively, was in spite of the floods in the Northern and Upper East regions. Indeed, over the past three years, millet and sorghum prices have been following a downward trend. Maize prices increased by more than 12 percent from 2006 to 2007, while local rice and cowpea prices rose by more than 5 percent and nearly 6 percent, respectively.

With the exception of cassava and gari, all prices in the starchy foods category (Table 2) rose in 2007 relative to 2006. The price of plantain went up by

over 132 percent in 2007. Prices of yam and cocoyam also appreciated by 19.3 percent and 18.6 percent, respectively.

Among all food categories, vegetables had the most significant rise in price in 2007. The lowest of these price appreciations was that of dried pepper, which gained only about 2.2 percent in 2007 relative to 2006. Onion prices went up by about 8.2 percent over the period. Tomato and groundnut prices, however, increased by as much as 75.7 percent and 64.5 percent, respectively.

Figure 3. Changes in Nominal Wholesale Prices of Selected Commodities, 2006/07



Government's Mitigating Policies

The Government of Ghana has, in the face of challenges, especially the rising fuel and food prices and the increases in the cost of agricultural inputs, sought to mitigate the negative impacts of global food price increases without jeopardizing the potential benefits. The government also engaged the nation on measures to mitigate the effects of the rising costs of petroleum products and food in the country. In this light, the government formed a task force to study the situation on a continuous basis so as to recommend the necessary actions from time to time, until stabilization and normalcy was achieved.

Table 2. Changes in Nominal Prices of Major Food Items, 2002-2007 (%)

Food Items	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Grains					
Maize	11.58	41.54	56.92	-29.72	12.43
Local Rice	16.07	32.04	23.46	4.99	5.34
Millet	1.78	17.76	66.63	-2.31	-13.64
Sorghum	-2.63	26.98	61.70	-12.73	-2.57
Cowpea	29.77	10.11	44.07	-1.58	5.93
Starchy					
Cassava	-11.06	27.26	43.02	3.14	-7.60
Yam	10.37	16.70	23.08	3.68	19.33
Cocoyam	-0.28	31.06	23.21	13.21	18.68
Plantain	12.47	27.74	4.45	14.30	131.07
Gari	-9.98	11.10	75.55	7.89	-4.46
Vegetables/ Others					
Onion	41.08	-2.42	39.50	-9.52	8.20
Dried Pepper	40.31	8.89	19.52	7.75	2.19
Tomatoes	39.92	14.41	41.76	-2.09	75.78
Groundnut	32.83	10.90	45.73	14.41	64.53
Palm Oil	27.37	2.93	6.50	-0.22	32.02

Source: ISSER 2008.

* Provisional

Apart from measures taken to cushion the Ghanaian consumer against rising food costs such as the removal of import tariffs on rice, wheat, yellow corn, and vegetable oil, the government intervened to ensure that Ghana's farmers were best positioned to take advantage of emerging opportunities. To ensure that producers in the agricultural sector were well positioned to respond to the challenges and to take advantage of emerging opportunities, the government further instituted the following measures:

- Subsidizing fertilizers to reduce farm production costs and ensure the effective distribution of fertilizers to farmers for a good harvest;

- Substitution of cassava flour for wheat flour in bread and pastry products;
- Support of large-scale rice cultivation in northern Ghana; and
- Rehabilitation of dams damaged in northern Ghana by the 2007 floods.

In addition, the following proposed interventions did not preclude ongoing investments for agricultural development, particularly those that sought to contribute to the achievement of food security and emergency preparedness.

- Investment in mechanization (procurement and distribution of tractors, implements, shellers, rice mills, power tillers, etc.);
- Expansion of irrigation facilities, i.e., dams and dugouts, pumping water from rivers and streams, sinking of boreholes, etc;
- Procurement of sheep and goats under the Livestock Development Project;
- Strengthening and revolutionizing of the agricultural extension service;
- Provision of postharvest infrastructure, including storage and processing infrastructure;
- Increase in mechanization services throughout the value chain (from land preparation to harvesting and processing); and
- Support for farmers in the form of soft loans to increase the production of staple food.

Other interventions that were put in place by government included the following:

- Removal of the excise duty and debt-recovery levy on premix oil to assist fishing communities;
- Reduction in the excise duty and debt-recovery levy on gas oil, kerosene, and marine gas oil;
- Increase in the government's support for the production cost of electricity to bring relief to domestic consumers;
- Importation and stockpiling of supplies of wheat and rice to enhance food security (carried out in consultation between the government and its development partners);
- Increase in the supply of tractors at subsidized rates to farmers by the Ministry of Food and Agriculture (MoFA). MoFA also hastened the provision of small irrigation dams and, through its extension services, supervised the supply of improved seeds and ensured adherence to best practices among farmers;

- Acceleration in the pace of implementation of the Millennium Challenge Account program in all selected districts under the direction of the Millennium Development Authority.

Characteristics of Respondents in Study Area

The study took place in the Dangme West District of the Greater Accra region. It covered three towns—Dodowa, Ningo, and Prampram. A total of 300 respondents were interviewed. The respondents were either household heads or a household member nominated to represent the head of household. There were more males interviewed than females, with Ningo showing the highest percentage of male representation (Table 3).

Table 4 reveals that most of the respondents in the study area were married. In Ningo, the percentage of respondents that was married was as high as 75 percent; in Dodowa and Prampram, it was 65 percent.

The oldest of the respondents was 82 years of age (located in Dodowa) while the youngest was 20 years of age (located in Ningo). The minimum mean age recorded was 40 years (Prampram), and the highest mean age was 44 years (Ningo).

Table 3. Sex of Respondents (Heads of Households)

Town	Sex	Frequency	Percent
Dodowa	Male	71	72.4
	Female	27	27.6
	Total	98	100.0
Ningo	Male	86	85.1
	Female	15	14.9
	Total	101	100.0
Prampram	Male	82	81.2
	Female	19	18.8
	Total	101	100.0

Source: CBMS Survey Data, 2008

Table 4. Marital Status of Respondents (Heads of Households)

Town		Frequency	Percent
Dodowa	Married	64	65.3
	Informal/loose union	11	11.2
	Divorced/separated	13	13.3
	Never married	7	7.1
	widowed	3	3.1
	Total	98	100.0
Ningo	Married	76	75.2
	Divorced/separated	4	4.0
	Never married	12	11.9
	Widowed	9	8.9
	Total	101	100.0
Prampram	Married	66	65.3
	Informal/loose union	9	8.9
	Divorced/separated	8	7.9
	Never married	11	10.9
	Widowed	7	6.9
	Total	101	100.0

Source: CBMS Survey Data, 2008

Table 5. Age of Respondents on Last Birthday

Town	N	Minimum	Maximum	Mean	Std. Deviation
Dodowa	98	20	82	42.2	13.0
Ningo	101	23	79	44.3	14.6
Prampram	101	20	79	39.7	13.8

Source: CBMS Survey Data, 2008

EFFECTS OF RISING FOOD AND OIL PRICES ON HOUSEHOLDS

Food- and Energy-Consumption Behavior of Households

Food-Consumption Behavior

The major staple food of the respondents in the Dangme West District is corn or maize. Results presented in Table 6 indicate that all three towns—Dodowa, Ningo, and Prampram—have a high percentage of respondents who use maize/corn as their main staple both currently and in the past year. Last year, 26 percent of respondents in Dodowa used maize/corn as their main staple but that percentage currently stands at 40.2 percent. No change was observed among respondents in Ningo. There was a slight change in Prampram where 58 percent currently use maize/corn as a main staple against 58.2 percent last year. Maize/corn dominates as a main staple because the main dish of people in this area is kenkey which is prepared with maize. Other staples are tubers (yam, cassava, cocoyam) and rice. Again more than 14 percent of respondents in Dodowa had switched from a single staple to mixed staples. This was not the case in Ningo and Prampram.

Associating income levels of households with their major food staples indicated that all households regardless of income status patronized all food staples, both currently and a year ago (Table 7). This scenario is true in Prampram, but it was also observed that the upper 20 percent of households in Ningo in terms of income use rice as a major food staple both currently and a year ago. In Prampram, no households in the upper 20 percent (in terms of income) used rice as the sole major staple; in Dodowa, between 11 percent and 12 percent of households did a year ago and still use it currently.

It was also noted that some respondents had switched from certain staples to other staples, citing affordability as the main reason (Table 8). About 53 percent of male-headed households cited inability to afford certain staples as the main reason for switching to other staples while 20 percent of female-headed households indicated the same. It was interesting to note that 60 percent of female-headed households disclosed needing to save money as the reason for switching from some expensive staples like rice and yam to less expensive ones like cassava and maize.

Results based on income levels of households also indicated that the major reason for households switching from some staples to others was the increasing cost of staples (Table 9). This reason was cited by households in Dodowa at all income levels. In Ningo, only households in the lowest 20 percent gave this reason while half of households in the lowest 20 percent in Prampram cited the same reason. Households in the last 20 percent and 40 percent income groups in Dodowa also indicated that they could now afford the purchase of certain food staples, which is why they changed from some staples to others.

Table 6. Major Staples of Households (%)

	Dodowa		Ningo		Prampram	
	Currently	Last year	Currently	Last year	Currently	Last year
Corn/maize	40.2	26.0	62.0	62.0	58.0	58.2
Tubers (Yam, cocoyam, cassava)	13.4	13.0	3.0	3.0	5.0	4.1
Rice	31.7	33.0	1.0	1.0	7.0	7.1
Mixed	14.6	0.08	34.0	34.0	30.0	30.6

Source: CBMS Survey Data, 2008

There were some slight changes in the places where households usually bought their food within the last year (Table 10). For instance, in Dodowa, 23.1 percent of male-headed households bought their food from local markets a year ago, but this slightly increased to 23.4 percent currently. There were no changes among female-headed households. Likewise, no changes were observed among households that purchased and still purchase food from supermarkets. There was some shift among female-headed households concerning purchases of food from kiosks. While there were no female-headed households that purchased food from kiosks in the past year, 3.5 percent now purchase food from kiosks. Ningo and Prampram present quite similar results with a few exceptions. For example, while no female-headed households purchased food from supermarkets in these towns, 0.5 percent of male-headed households purchased food from supermarkets last year in Ningo and 0.5 percent currently purchase from supermarkets in Prampram.

Results indicated that there were no clear-cut differences in households as far as buying of staples from local markets according to income strata is concerned. This means that all households across income levels purchased food staples from their local markets both currently and a year ago (Table 11). However, only households in the fifth quintile in Ningo purchased food staples from the supermarket currently and a year ago as against households in the third quintile in Prampram. Households in the third and fourth quintiles in Dodowa also purchased food staples from the supermarket both currently and a year ago. There were no major changes in the place of purchase of food staples across all communities.

Female-headed households gave no reasons for changing the place of food purchase but reasons given by male-headed households include the inability to

Table 7. Major Staples of Households by Income Levels (%)

	Quintile	Dodowa		Ningo		Prampram	
		Currently	Last year	Currently	Last year	Currently	Last year
Corn/ maize	1st quintile	18.2	11.5	19.4	19.4	20.7	22.8
	2nd quintile	30.3	30.8	24.2	24.2	15.5	14.0
	3rd quintile	27.3	30.8	16.1	16.1	19.0	19.3
	4th quintile	15.2	19.2	21.0	21.0	19.0	17.5
	5th quintile	9.1	7.7	19.4	19.4	25.9	26.3
Tubers (Yam, cocoyam, cassava)	1st quintile	36.4	30.8	33.3	33.3	20.0	0.0
	2nd quintile	18.2	30.8	0.0	0.0	20.0	25.0
	3rd quintile	27.3	15.4	66.7	66.7	0.0	0.0
	4th quintile	9.1	15.4	0.0	0.0	40.0	50.0
	5th quintile	9.1	7.7	0.0	0.0	20.0	25.0
Rice	1st quintile	7.7	18.2	0.0	0.0	14.3	14.3
	2nd quintile	23.1	24.2	0.0	0.0	14.3	14.3
	3rd quintile	19.2	18.2	0.0	0.0	42.9	42.9
	4th quintile	38.5	27.3	0.0	0.0	28.6	28.6
	5th quintile	11.5	12.1	100.0	100.0	0.0	0.0
Mixed	1st quintile	16.7	12.5	26.5	26.5	16.7	16.7
	2nd quintile	41.7	37.5	5.9	5.9	23.3	23.3
	3rd quintile	33.3	37.5	5.9	5.9	16.7	16.7
	4th quintile	8.3	12.5	14.7	14.7	26.7	26.7
	5th quintile	0.0	0.0	47.1	47.1	16.7	16.7

Source: CBMS Survey Data, 2008

Table 8. Reasons for Change in Major Staples by Sex of Household Head (%)

Sex of HH head	Reasons	Town			Total
		Dodowa	Ningo	Prampram	
Male	Can't afford to buy anymore	33.3	6.7	13.3	53.3
	To save money	6.7	-	-	6.7
	Can now afford to buy	6.7	-	-	6.7
	Other	26.7	-	6.7	33.3
	Total	73.3	6.7	20.0	100.0
Female	Can't afford to buy anymore	20.0	20.0	-	40.0
	To save money	40.0	-	20.0	60.0
	Total	60.0	20.0	20.0	100.0

Source: Survey data 2008

Table 9. Reasons for Change in Major Staples by Household Income Level (%)

Reasons	Income Quintile	Dodowa	Ningo	Prampram
Can't afford to buy anymore	1st quintile	40.0	100.0	50.0
	2nd quintile	20.0	0.0	0.0
	3rd quintile	20.0	0.0	0.0
	4th quintile	0.0	0.0	50.0
	5th quintile	20.0	0.0	0.0
To save money	1st quintile	66.7	0.0	100.0
	3rd quintile	33.3	0.0	0.0
Can now afford to buy	1st quintile	50.0	0.0	0.0
	2nd quintile	50.0	0.0	0.0
Other	2nd quintile	75.0	0.0	0.0
	3rd quintile	0.0	0.0	100.0
	4th quintile	25.0	0.0	0.0

Source: Survey data 2008
Note: Quintiles are based on estimated household income

Table 10. Usual Place of Food Purchase by Sex of Household Head (%)

	Sex of Household Head	Dodowa		Ningo		Prampram	
		Currently	Last year	Currently	Last year	Currently	Last year
Local market	Male	23.4	23.1	30.6	30.8	32.0	32.1
	Female	35.1	35.1	21.1	21.1	22.8	24.6
Supermarket	Male	1.4	1.4	0.0	0.5	0.5	0.0
	Female	1.8	1.8	1.8	1.8	0.0	0.0
Kiosk	Male	0.5	1.4	0.0	0.5	0.5	0.0
	Female	3.5	0.0	0.0	0.0	0.0	0.0
Other	Male	0.9	0.5	5.9	5.4	4.5	4.5
	Female	0.0	0.0	10.5	10.5	3.5	1.8

Source: CBMS Survey Data, 2008

afford buying food from such venues and the need to save money (Table 12). Among male-headed households, only those from Ningo (25%) indicated that they could no longer afford the food prices at their previous places of purchase and therefore switched to other places where prices were cheaper. About 25 percent of the respondents from Dodowa insisted that they had changed the place of food purchase because they wanted to save money.

Table 13 shows that all households in the fifth quintile in Ningo said that they could no longer afford to buy food in the usual places where they used to; hence, they shifted to other places. Households in the fourth quintile in Dodowa indicated the need to save money as the major reason for changing their usual place of purchase for staple food.

Table 14 shows the percentage of households that made adjustments in their patterns of food preparation. The most changes came from male-headed households. Results show that 38.2 percent of male-headed households made changes compared to 30 percent of female-headed households that did the same. In Dodowa, for example, 10.6 percent of male-headed households made changes compared to 8 percent of female-headed households. In Ningo, 16.6 percent of male-headed households made changes in food preparation patterns compared to 16 percent of female-headed households.

Table 11. Usual Place of Food Purchase by income Level (%)

	Income Quintile	Dodowa		Ningo		Prampram	
		Currently	Last year	Currently	Last year	Currently	Last year
Local market	1st quintile	18.1	18.3	22.5	21.3	17.9	17.6
	2nd quintile	29.2	26.8	17.5	17.5	17.9	18.8
	3rd quintile	25.0	26.8	16.3	16.3	16.7	16.5
	4th quintile	19.4	19.7	17.5	18.8	23.8	23.5
	5th quintile	8.3	8.5	26.3	26.3	23.8	23.5
Supermarket	3rd quintile	25.0	25.0	0.0	0.0	100.0	100.0
	4th quintile	75.0	75.0	0.0	0.0	0.0	0.0
	5th quintile	0.0	0.0	100.0	100.0	0.0	0.0
Kiosk	2nd quintile	66.7	80.0	0.0	0.0	0.0	0.0
	3rd quintile	0.0	0.0	0.0	0.0	100.0	100.0
	5th quintile	33.3	20.0	0.0	0.0	0.0	0.0
Other	1st quintile	50.0	100.0	21.1	22.2	25.0	27.3
	2nd quintile	0.0	0.0	15.8	16.7	16.7	9.1
	3rd quintile	50.0	0.0	5.3	5.6	25.0	27.3
	4th quintile	0.0	0.0	21.1	16.7	25.0	27.3
	5th quintile	0.0	0.0	36.8	38.9	8.3	9.1

Source: CBMS Survey Data, 2008
Note: Quintiles are based on estimated household income

Table 12. Reasons for Change in Usual Place of Food Purchase (%)

Sex of Household Head		Town			Total
		Dodowa	Ningo	Prampram	
Male	Can't afford to buy anymore		25.0		25.0
	To save money	25.0			25.0
	Other	25.0		25.0	50.0
	Total	50.0	25.0	25.0	100.0

Source: CBMS Survey Data, 2008

Households have adopted quite a number of strategies to cope with changing economic trends, and this is also reflected in their food preparation patterns. In Dodowa, the most significant change was that about 30 percent households ate less than the amount they normally used to eat. Other coping strategies adopted by Dodowa households included skipping meals, combining meals, parents eating less so that their children could have more food, mixing varieties, and shifting from perfumed (fragrant) rice to local rice. In Ningo, the most prevalent coping strategy was for households to skip meals. In Prampram, households opted to eat less than what they normally ate and to skip meals (Table 15).

Households across all income levels adopted one or more of the coping strategies enumerated in Table 16. In Dodowa, households in the first and second quintiles adopted various approaches in food preparation and consumption. For example, only households in the first quintile in Dodowa ate ready-to-cook food and also shifted from buying perfumed or fragrant rice to local rice due to the former's high cost. In Ningo, the major strategy adopted by households in the first quintile was that of eating the same kind of food for a number of days, while households in the second quintile combined meals.

The most common reason for changes in the pattern of food preparation and consumption by households was the general increase in the cost of living (Table 17). It appears that male-headed households were hardest hit by the rise in the cost of living. In Dodowa, as much as 76 percent of male-headed households were in this category compared to 12 percent of female-headed households. In Ningo, 75 percent of male-headed households cited this reason compared to 37.5 percent in Prampram.

The pinch of economic hardship was felt by all households across all income levels, particularly those in the first and second quintiles in Dodowa, the first and fifth quintiles in Ningo, and the second quintile in Prampram (Table 18).

Table 13. Reasons for Change in Usual Place of Food Purchase (%)

Reasons	Income Quintile	Dodowa	Ningo	Prampram
Can't afford to buy anymore	5th quintile	0.0	100.0	0.0
	2nd quintile	100.0	0.0	0.0
To save money	2nd quintile	100.0	0.0	100.0
Other	4th quintile	0.0	0.0	100.0

Source: CBMS Survey Data, 2008
Note: Quintiles are based on estimated household income

Table 14. Changes in Household Food Preparation by Sex of Household Head (%)

Sex of Household Head		Town			Total
		Dodowa	Ningo	Prampram	
Male	Yes	10.6	16.6	11.1	38.2
	No	18.1	14.6	29.1	61.8
	Total	28.6	31.2	40.2	100.0
Female	Yes	8.0	16.0	6.0	30.0
	No	38.0	8.0	24.0	70.0
	Total	46.0	24.0	30.0	100.0

Source: CBMS Survey Data, 2008

Table 15. Coping Strategies Adopted by Households in Food Preparation (%)

Coping Strategy	Dodowa	Ningo	Prampram
Eating less than the usual amount	29.7	14.7	37.5
Skipping meals	8.1	32.4	37.5
Combining meals	5.4	17.6	12.5
Parents eating less	2.7	8.8	0.0
Eating same food for days	21.6	2.9	0.0
Eating more carbohydrates	13.5	17.6	0.0
Eating more ready-to-cook food	2.7	0.0	0.0
Mixing varieties	13.5	2.9	0.0
Shifting from perfumed (fragrant) rice to local rice	2.7	2.9	12.5

Source: CBMS Survey Data, 2008

Table 16. Coping Strategies Adopted by Households in Food Preparation by Income Levels (%)

Coping Strategy	Income Quintile	Dodowa	Ningo	Prampram
Eating less than the usual amount (e.g., Where a household once ate three meals daily, it now eats only once or twice daily.)	1st quintile	36.4	0.0	16.7
	2nd quintile	45.5	20.0	33.3
	3rd quintile	0.0	0.0	16.7
	4th quintile	0.0	60.0	16.7
	5th quintile	18.2	20.0	16.7
Skipping meals	1st quintile	33.3	36.4	0.0
	2nd quintile	66.7	18.2	16.7
	3rd quintile	0.0	0.0	16.7
	4th quintile	0.0	9.1	66.7
	5th quintile	0.0	36.4	0.0
Combining meals	1st quintile	0.0	66.7	0.0
	2nd quintile	0.0	16.7	0.0
	3rd quintile	50.0	0.0	0.0
	4th quintile	50.0	0.0	100.0
	5th quintile	0.0	16.7	0.0
Parents eating less	1st quintile	0.0	33.3	0.0
	2nd quintile	100.0	0.0	0.0
	5th quintile	0.0	66.7	0.0
Eating the same food for days	1st quintile	25.0	100.0	0.0
	2nd quintile	37.5	0.0	0.0
	3rd quintile	12.5	0.0	0.0
	4th quintile	25.0	0.0	0.0
Eating more carbohydrates	1st quintile	40.0	33.3	0.0
	2nd quintile	20.0	33.3	0.0
	3rd quintile	40.0	16.7	0.0
	4th quintile	0.0	16.7	0.0
Eating more ready–to-cook food	1st quintile	100.0	0.0	0.0
Mixing varieties	1st quintile	20.0	0.0	50.0
	2nd quintile	20.0	0.0	0.0
	3rd quintile	20.0	100.0	0.0
	4th quintile	40.0	0.0	0.0
	5th quintile	0.0	0.0	50.0
Shifting from perfumed (fragrant) rice to local rice	1st quintile	100.0	0.0	0.0
	3rd quintile	0.0	100.0	0.0

Source: CBMS Survey Data, 2008
Note: Quintiles are based on estimated household income

Table 17. Reasons for Changes in Food Preparation Pattern by Head of Household (%)

Town	Coping Strategy	Sex		All
		Male	Female	
Dodowa	Loss of main source of income	4.0	4.0	8.0
	General increase in cost of living	76.0	12.0	88.0
	Other	4.0		4.0
	Total	84.0	16.0	100.0
Ningo	General increase in cost of living	75.0	6.3	81.3
	Other	12.5	6.3	18.8
	Total	87.5	12.5	100.0
Prampram	Loss of main source of income	4.2	0.0	4.2
	General increase in cost of living	37.5	4.2	41.7
	Other	45.8	8.3	54.2
	Total	87.5	12.5	100.0

Source: CBMS Survey Data, 2008

Energy-Consumption Behavior

Generally, charcoal was the most commonly used cooking fuel for all households in the study area because it is the most easily available. LPG is cheaper but not as easily available. Household members would have to travel some distance to get their LPG cylinders filled while charcoal is usually delivered door-to-door. There were notable changes in the use of the different types of cooking fuel by households. For instance, in Dodowa, 44.2 percent of households used charcoal last year against 38.3 percent currently. In Ningo, 58 percent of male-headed households used charcoal last year compared to 57.1 percent currently. However, LPG was more widely used by male-headed households than female-headed ones. In Dodowa, while 24.7 percent of male-headed households used LPG for cooking, only about 10 percent of female-headed households did so. Use of LPG as cooking fuel was not common in Ningo.

Table 18. Reasons for Changes in Food Preparation Patterns by Income Level of Household (%)

		Dodowa	Ningo	Prampram
Loss of main source of income	2nd quintile	50.0	0.0	0.0
	4th quintile	0.0	0.0	100.0
	5th quintile	50.0	0.0	0.0
General increase in cost of living	1st quintile	40.9	30.8	10.0
	2nd quintile	22.7	11.5	20.0
	3rd quintile	13.6	7.7	10.0
	4th quintile	18.2	19.2	50.0
	5th quintile	4.5	30.8	10.0
Other	1st quintile	0.0	50.0	30.8
	2nd quintile	100.0	0.0	7.7
	3rd quintile	0.0	0.0	15.4
	4th quintile	0.0	33.3	23.1
	5th quintile	0.0	16.7	23.1

Source: CBMS Survey Data, 2008
Note: Quintiles are based on estimated household income

A higher percentage of households did not experience any changes in their electricity consumption than those who did. Male-headed households dominated the latter. In Dodowa, 29.7 percent of male-headed households adjusted their electricity consumption compared to 6.3 percent of female-headed households. In Ningo and Prampram, the male-headed households that changed their electricity consumption were 36.5 percent and 26 percent, respectively, while for female-headed households, it was 15.4 percent and 5.2 percent, respectively (Table 19).

The main reasons cited for changes in electricity consumption were increases or decreases in electricity tariffs and increases or decreases in usage. On the whole, more male-headed households cited increases in electricity tariffs compared to female-headed households (Figure 5). In Dodowa, while 57 percent of male-headed households cited increases in electricity tariffs, only 14.8 percent of female-headed households gave the same reason. In Ningo, 70.2 percent of male-headed households cited this particular reason compared to 15 percent of female-headed households. About 2 percent each of male-headed and female-headed households decreased their usage of electricity. The same trend was noticed in Prampram where about 74 percent of male-headed households cited increase

Table 19. Change in Household Electricity Consumption by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Yes	29.7	6.3	35.9
	No	42.2	21.9	64.1
Ningo	Yes	36.5	15.4	51.9
	No	38.5	9.6	48.1
Prampram	Yes	26.0	5.2	31.2
	No	55.8	13.0	68.8

Source: CBMS Survey Data, 2008

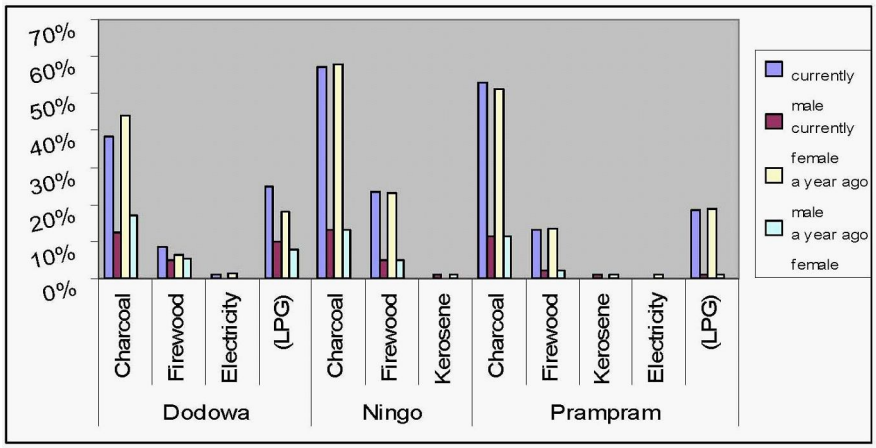
in tariffs as the cause for changes in household electricity consumption compared to about 14 percent of female-headed households.

Table 20 shows that the reasons cited for changes in electricity consumption were confirmed by households across income strata, especially in Dodowa where households in the fourth quintile said their consumption changes were due decreases in electricity rates. In Ningo, households in the first quintile cited increased usage while in Prampram, only households in the fourth quintile gave decreased usage as the reason.

Households in the study area adopted different strategies to change in their electricity-consumption patterns. Generally, the most common strategies across towns to cut down on electricity consumption were replacing incandescent bulbs with compact fluorescent ones and reducing the use of household appliances (Table 21). As much as 64 percent of households in Dodowa replaced their incandescent bulbs, which consume more electricity, with energy-saving compact fluorescent bulbs. In addition, 16 percent disconnected their electrical appliances when not in use. In Ningo, the percentage of households that did the latter was approximately 24 percent. Ningo households also replaced incandescent bulbs with compact fluorescent bulbs. The most common strategy adopted by 60 percent of Prampram households was to disconnect household electrical appliances when not in use. About 20 percent of Prampram households also replaced incandescent bulbs with compact fluorescent bulbs to save on electricity.

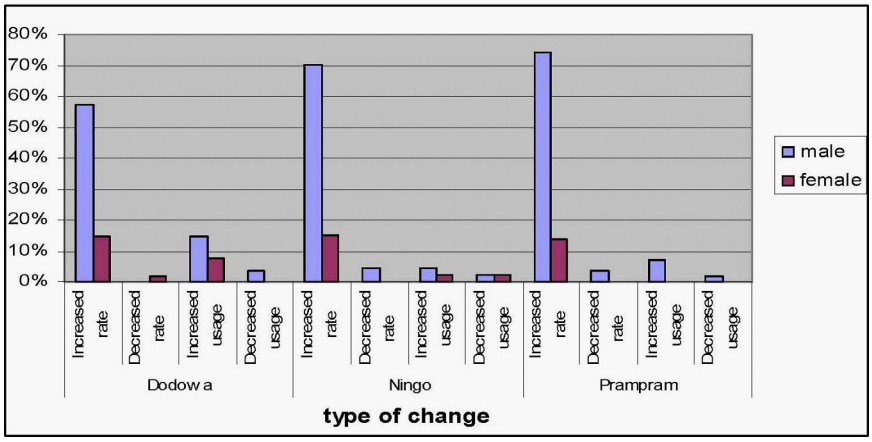
In terms of income levels of households, it was noted that households in the second and third quintiles in Dodowa disconnected household appliances when not in use while it was households in the first, fourth, and fifth quintiles in Ningo that did same (Table 22). In Prampram, this measure was implemented

Figure 4. Main Fuel for Cooking by Sex of Household Head



Source: CBMS Survey Data, 2008

Figure 5. Reasons for Change in Electricity Consumption by Sex of Household Head



Source: CBMS Survey Data, 2008

Table 20. Reasons for Change in Electricity Consumption by Income Level of Household

		Dodowa	Ningo	Prampram
Increase in electricity rates	1st quintile	15.4	22.5	21.6
	2nd quintile	28.2	10.0	17.6
	3rd quintile	20.5	12.5	21.6
	4th quintile	25.6	20.0	19.6
	5th quintile	10.3	35.0	19.6
Decrease in electricity rates	2nd quintile	100.0	50.0	0.0
	3rd quintile	0.0	50.0	0.0
	4th quintile	0.0	0.0	100.0
Increased usage	1st quintile	16.7	100.0	25.0
	2nd quintile	16.7	0.0	25.0
	3rd quintile	16.7	0.0	50.0
	4th quintile	33.3	0.0	0.0
	5th quintile	16.7	0.0	0.0
Decreased usage	1st quintile	50.0	50.0	0.0
	4th quintile	50.0	0.0	0.0
	5th quintile	0.0	50.0	100.0

Source: CBMS Survey Data, 2008
Note: Quintiles are based on estimated household income

Table 21. Coping Strategies Used by Households to Change Electricity-Consumption Patterns

Strategies	Dodowa	Ningo	Prampram
Disconnecting household appliances when not in use	16.0	24.2	60.0
Cutting down TV viewing hours	4.0	15.2	0.0
Ironing many things at a time	12.0	9.1	13.3
Lessening the use of household appliances	4.0	12.1	3.3
Replacing incandescent bulbs with fluorescent ones	64.0	27.3	20.0
Disconnection of electricity	0.0	12.1	3.3

Source: Survey data 2008

Table 22. Coping Strategies Adopted by Households in Changing Electricity Consumption Patterns

		Dodowa	Ningo	Prampram
Disconnecting household appliances when not in use	1st quintile	0.0	37.5	5.6
	2nd quintile	0.0	0.0	27.8
	3rd quintile	50.0	0.0	22.2
	4th quintile	50.0	25.0	27.8
	5th quintile	0.0	37.5	16.7
Cutting down on TV-viewing hours	1st quintile	100.0	20.0	0.0
	2nd quintile	0.0	20.0	0.0
	3rd quintile	0.0	20.0	0.0
	5th quintile	0.0	40.0	0.0
Ironing many things at a time	1st quintile	0.0	33.3	0.0
	2nd quintile	33.3	0.0	25.0
	3rd quintile	0.0	0.0	25.0
	4th quintile	66.7	0.0	25.0
	5th quintile	0.0	66.7	25.0
Lessening the use of household appliances (other than TV)	1st quintile	0.0	25.0	0.0
	2nd quintile	0.0	25.0	0.0
	3rd quintile	0.0	25.0	100.0
	4th quintile	100.0	25.0	0.0
Replacing incandescent bulbs with compact fluorescent bulbs (low wattage)	1st quintile	18.8	22.2	0.0
	2nd quintile	37.5	0.0	66.7
	3rd quintile	18.8	0.0	16.7
	4th quintile	18.8	22.2	0.0
	5th quintile	6.3	55.6	16.7
Disconnection of electricity	3rd quintile	0.0	50.0	0.0
	4th quintile	0.0	25.0	100.0
	5th quintile	0.0	25.0	0.0

Source: Survey data 2008
Note: Quintiles are based on estimated household income

across all income levels. Only households in the first quintile in Dodowa reduced their TV-watching hours as a strategy to lower electricity bills. It was also noted that all Dodowa respondent households in the fourth quintile opted to reduce the use of household appliances other than TV.

Health-Seeking Behavior

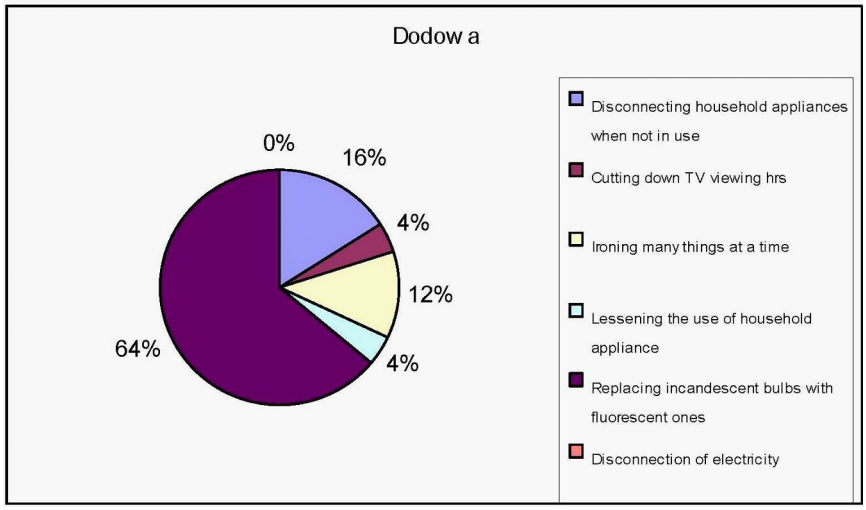
Generally, not many respondent households experienced changes in meeting their healthcare needs, except in Ningo where 61.3 percent of male-headed households experienced such changes compared to 35.5 percent of female-headed households (Table 23). Only 3.2 percent of Ningo households experienced no changes whatsoever in contrast to more than 77 percent in Prampram and 67 percent in Dodowa. Over 26 percent and 6 percent of male- and female-headed households in Dodowa, respectively, said they experienced changes in meeting their health-care needs.

The general impression in the study area in relation to meeting healthcare needs is that many households have resorted to visiting government hospitals for consultation and hospitalization. This is attributed to the introduction of the National Health Insurance Scheme (NHIS), which is mostly operational in government hospitals and health centers. This assertion is supported by the fact that the NHIS has been established in all districts in Ghana since 2005 and that the proportion of the Ghanaian population registered with the NHIS increased from 15 percent in 2005 to 38 percent in June 2007, or approximately from 3.2 million in 2005 to 8.2 million people by June 2007 (midyear operational status report, NHIS 2007). Furthermore, the current policy with regard to accessing the NHIS is that only government hospitals are mandated to provide services related to the NHIS. Therefore, it makes sense for most households to seek medical care in government-run hospitals. In Dodowa, 52 percent of households changed their patterns of meeting their health-care needs and chose to visit government hospitals compared to 20 percent in Prampram that did the same. Over 22 percent of households in Ningo resorted to self-medication while 20 percent in Prampram did the same. Again, almost 26 percent of households in Ningo used medicinal plants or herbal medicines as alternatives to pharmaceuticals (Table 24).

Education and Work/Employment

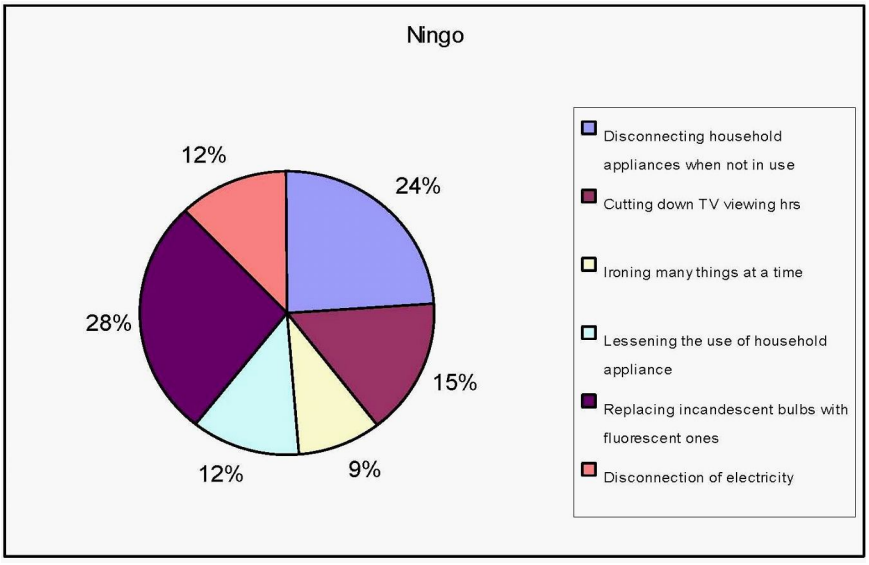
Generally, children in households were transferred from private to public schools, with more children male-headed households being transferred than children from female-headed households (Table 25). The most prominent transfers were those in Ningo where 53.3 percent of children from male-headed households were transferred from private schools to public schools while only 20 percent of children from female-headed households in the same town did the same. In

Figure 6. Coping Strategies Adopted by Households to Change Electricity-Consumption Patterns, Dodowa



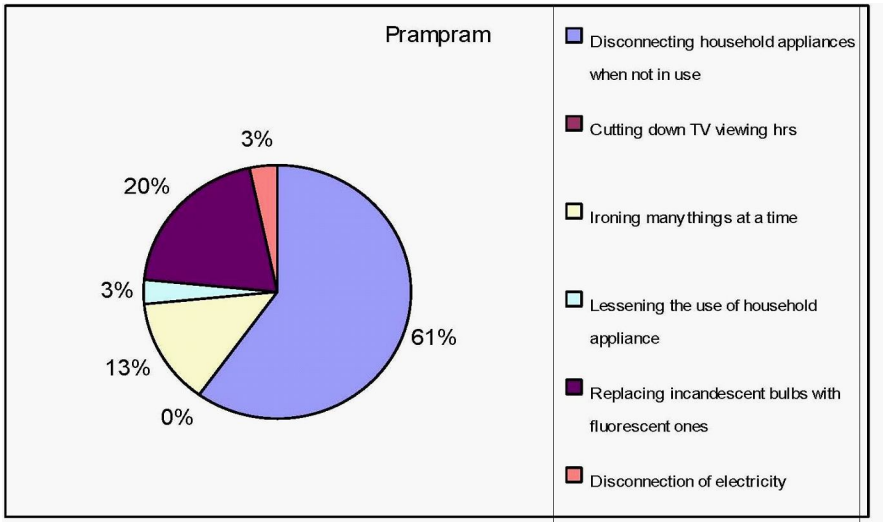
Source: CBMS Survey Data, 2008

Figure 7. Coping Strategies Adopted by Households to Change Electricity-Consumption Patterns, Ningo



Source: CBMS Survey Data, 2008

Figure 8. Coping Strategies Adopted by Households to Change Electricity-Consumption Patterns, Prampram



Source: CBMS Survey Data, 2008

Table 23. Changes in Meeting Healthcare Needs by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Yes	26.8	6.1	32.9
	No	45.1	22.0	67.1
	Total	72.0	28.0	100.0
Ningo	Yes	61.3	35.5	96.8
	No	3.2	0.0	3.2
	Total	64.5	35.5	100.0
Prampram	Yes	18.1	4.2	22.2
	No	63.9	13.9	77.8
	Total	81.9	18.1	100.0

Source: Survey data 2008

Table 24. Changes in Patterns Adopted by Households to Meet Health-Care Needs (%)

	Dodowa	Ningo	Prampram
Patronizing government health centers for consultation and hospitalization	52.0	33.3	20.0
Consulting a pharmacist instead of a doctor	4.0	0.0	10.0
Resorting to self-medication	12.0	22.2	20.0
Taking medicines for relief of symptoms but not for curing the disease	12.0	3.7	10.0
Taking medicines in lower dosages	0.0	0.0	10.0
Not bringing sick household member to the hospital unless that person is in very critical condition	16.0	11.1	10.0
Using medicinal plants or herbal medicines as alternatives to pharmaceuticals	4.0	25.9	10.0
Buying generic instead of branded drugs	0.0	3.7	10.0

Source: CBMS Survey Data, 2008

Table 25. Children Transferred to Public Schools by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Yes	11.0	1.2	12.2
	No	61.0	26.8	87.8
	Total	72.0	28.0	100.0
Ningo	Yes	53.3	20.0	73.3
	No	20.0	6.7	26.7
	Total	73.3	26.7	100.0
Prampram	Yes	7.0	0.0	7.0
	No	74.6	18.3	93.0
	Total	81.7	18.3	100.0

Source: CBMS Survey Data, 2008

Prampram, only 7 percent of children were transferred, and these children came from male-headed households.

The main reason for transferring children from private schools to public schools was inability to pay tuition fees charged by private schools (Table 26). The plausible explanation could be the fact that the introduction of the capitation grant by the government made public schools cheaper. Almost 50 percent of male-headed households in Dodowa said they could no longer afford tuition fees in private schools compared to 10 percent of female-headed households that said the same thing. In Ningo, 63.6 percent of male-headed households indicated their inability to afford tuition fees, which resulted in the transfer of children, while 9.1 percent of female-headed households transferred their children for the same reason. The other reason for school transfer cited by 9.1 percent of male-headed households was transfer of residence.

Children in the study area did not usually drop out of schools, except for a few cases in Dodowa (about 3 percent for female-headed households) and 10 percent in Ningo (for male-headed households). Prampram had no reported case of children dropping out of school (Table 27).

There were two major reasons for children dropping out of school. Among the households whose children dropped out of school in Dodowa, 50 percent said the children had to stop schooling so they could assist in family farms and businesses, while the rest indicated that the children themselves were not interested in schooling (Table 28). All the school dropouts were from female-headed households. All male-headed households in Ningo revealed that the children dropped out of school for lack of interest.

Only a few household heads lost their jobs in the past year. The most significant job loss was in Dodowa where about 9 percent of male-headed households had lost their jobs (Table 29). There were no job losses among female-headed households in Prampram.

The main reasons given for job losses included company going bankrupt and closing down, getting fired due to work-related problems, end of contract, and illness/disability. Dodowa had the most reasons for job losses. Other reasons for the loss of jobs were pregnancy and, to a lesser extent, the seasonality of agriculture which renders some agricultural workers (especially laborers) jobless at certain times of the year. On the whole, male-headed households lost more jobs than female-headed households.

Households in the study area did not depend on only one job but diversified so they could meet their daily household expenses and save for future needs (Table 31).

Table 26. Reasons for Changing Children's School by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Cannot afford tuition anymore	50.0	10.0	60.0
	Changes in budget priorities	10.0	0.0	10.0
	Other	30.0	0.0	30.0
	Total	90.0	10.0	100.0
Ningo	Cannot afford tuition anymore	63.6	9.1	72.7
	Transfer of residence	9.1	0.0	9.1
	Other	0.0	18.2	18.2
	Total	72.7	27.3	100.0
Prampram	Changes in budget priorities	33.3	0.0	33.3
	Transfer of residence	16.7	0.0	16.7
	Other	50.0	0.0	50.0
	Total	100.0	0.0	100.0

Source: CBMS Survey Data, 2008

Table 27. Children Previously Enrolled but Dropped Out by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Yes	0.0	2.5	2.5
	No	71.3	26.3	97.5
	Total	71.3	28.8	100.0
Ningo	Yes	10.0	0.0	10.0
	No	70.0	20.0	90.0
	Total	80.0	20.0	100.0
Prampram	Yes	0.0	0.0	0.0
	No	80.6	19.4	100.0
	Total	80.6	19.4	100.0

Source: CBMS Survey Data, 2008

Table 28. Reasons for Dropping Out from School by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	To help in family farm/ business	0.0	50.0	50.0
	Not interested in going to school	0.0	50.0	50.0
	Total	0.0	100.0	100.0
Ningo	To help in family farm/ business	0.0	0.0	0.0
	Not interested in going to school	100.0	0.0	100.0
	Total	100.0	0.0	100.0

Source: CBMS Survey Data, 2008

Table 29. Household Members who Lost their Jobs

Town		Sex		All
		Male	Female	
Dodowa	Yes	8.5	1.2	9.8
	No	63.4	26.8	90.2
	Total	72.0	28.0	100.0
Ningo	Yes	5.1	1.3	6.4
	No	78.2	15.4	93.6
	Total	83.3	16.7	100.0
Prampram	Yes	7.4	0.0	7.4
	No	77.7	14.90	92.6
	Total	85.1	14.9	100.0

Source: CBMS Survey Data, 2008

Table 30. Major Reasons for Job Loss by Sex of Household Head (%)

Town	Reason	Sex		All
		Male	Female	
Dodowa	The company went bankrupt and closed down	11.1	0.0	11.1
	Fired because of work-related problems	33.3	0.0	33.3
	End of contract	22.2	11.1	33.3
	Illness/Disability	11.1	0.0	11.1
	Other	0.0	11.1	11.1
	Total	77.8	22.2	100.0
Ningo	End of contract	20.0	0.0	20.0
	Other	60.0	20.0	80.0
	Total	80.0	20.0	100.0
Prampram	The company went bankrupt and closed	14.3	0.0	14.3
	Fired because of work-related problems	14.3	0.0	14.3
	End of contract	14.3	0.0	14.3
	Other	57.1	0.0	57.1
	Total	100.0	0.0	100.0

Source: CBMS Survey Data, 2008

Table 31. Reasons for Seeking Additional Employment

Town	Reason	Frequency	Percent
Dodowa	To meet daily household expenses	21	42.9
	To save money for future needs	27	55.1
	Other	1	2.0
	Total	49	100.0
Ningo	To meet daily household expenses	10	100.0
Prampram	To meet daily household expenses	10	55.6
	To save money for future needs	8	44.4
	Total	18	100.0

Source: CBMS Survey Data, 2008

Communication and Transportation

Generally, the number of households that used cell phones between last year and now increased (Table 32). There was a 17 percent increase in male-headed households in Dodowa that currently use cell phones compared to last year. Female-headed households in the same town show an almost 4 percent increase in cell phone usage.

The major reason for general changes (mostly increases) in the use of cell phones was affordability. Most respondents in the study area confirmed that cell phones were now more affordable compared to last year. About 68 percent of male-headed households in Dodowa affirmed this compared to 21 percent of female-headed households that said the same thing. Interestingly, a few female-headed households (5.3%) disclosed that their inability to afford the use of cell phones resulted in the outright termination of their cell phone use. About 13 percent of female-headed households in Ningo indicated their ability to afford the use of cell phones compared to 50 percent of male-headed households. The same magnitude (40%) of both male- and female-headed households in Prampram affirmed their ability to use cell phones (Table 33).

On average, cell phone users in Dodowa paid GH¢14.43 per month for cell phone service a year ago. This rate has since increased to the current GH¢16.8. In Ningo, the monthly average cost for using a cell phone was GH¢13.85, but this figure currently stands at GH¢17.39. In Prampram, the monthly cell phone usage last year was GH¢19.56; this figure has increased to the current GH¢23.86 (Table 34).

The reasons for differences in cell phone use expenditure by households are varied and sparsely distributed in terms of percentages with the most dominant reason being increases in cell phone usage leading to higher monthly expenditure (Table 35). In Dodowa, for instance, 30.5 percent of male-headed households indicated increased usage of cell phones as the main reason for increased monthly average cell phone expenditure; 8.5 percent of female-headed households gave the same reason. About 20 percent of male-headed households again revealed that monthly average cell phone expenditure went up mainly because of increases in network rate charges. About 55 percent of male-headed households said that increased usage of their cell phones has led mainly to higher monthly average expenditure compared to 24 percent of female-headed households that said the same thing. Other reasons advanced for increased monthly cell phone expenditure include higher taxes (after the introduction of the **Talk Time Tax**), the use of more than one cell phone, and increases in the number of new business contacts and contracts leading to increases in calls and texts made per month**.**

The usual mode of transport in the study area was walking (Table 36). The percentage of household heads that walked as a means of transport was 20.7

Table 32. Cell Phone Usage by Sex of Household Head

		Using a cell phone currently			Using a cell phone a year ago		
		Male	Female	All	Male	Female	All
Dodowa	Yes	67.1	19.5	86.6	50.0	15.9	65.9
	No	4.9	8.5	13.4	22.0	12.2	34.1
	Total	72.0	28.0	100.0	72.0	28.0	100.0
Ningo Town	Yes	72.6	23.3	95.9	68.5	19.2	87.7
	No	4.1	0.0	4.1	8.2	4.1	12.3
	Total	76.7	23.3	100.0	76.7	23.3	100.0
Prampram	Yes	72.0	16.1	88.2	68.8	14.0	82.8
	No	11.8	0.0	11.8	15.1	2.2	17.2
	Total	83.9	16.1	100.0	83.9	16.1	100.0

Source: CBMS Survey Data, 2008

Table 33. Reason for Use/Nonuse of Cell Phone by Sex of Household Head (%)

Town	Reason	Sex		All
		Male	Female	
Dodowa	Can now afford to have a cell phone	68.4	21.1	89.5
	Cannot afford to have a cell phone anymore	0.0	5.3	5.3
	Other	5.3	0.0	5.3
	Total	73.7	26.3	100.0
Ningo	Can now afford to have a cell phone	50.0	12.5	62.5
	Other	37.5	0.0	37.5
	Total	87.5	12.5	100.0
Prampram	Can now afford to have a cell phone	40.0	40.0	80.0
	The unit was stolen	20.0	0.0	20.0
	Total	60.0	40.0	100.0

Source: CBMS Survey Data, 2008

Table 34. Monthly Cell Phone Usage Cost

Town		Minimum	Maximum	Mean	Std. Deviation
Dodowa	Amount paid for calling/texting per month currently	1.50	70.00	16.80	13.60
	Amount paid for calling/texting per month a year ago	2.00	60.00	14.43	11.55
Ningo	Amount paid for calling/texting per month currently	4.00	130.00	17.39	21.84
	Amount paid for calling/texting per month a year ago	0.12	100.00	13.85	17.09
Prampram	Amount paid for calling/texting per month currently	5.00	115.00	23.86	20.83
	Amount paid for calling/texting per month a year ago	2.00	115.00	19.56	20.47

Source: CBMS Survey Data, 2008

percent in Dodowa and 43.6 percent in Prampram among male-headed households a year ago. Currently, it is 21.3 percent in Dodowa and 49.4 percent in Ningo. The next common means of transport are public utility vehicles (PUVs). In Dodowa, over 26 percent of male-headed households travel by means of PUVs currently compared to about 14 percent a year ago. There were some slight increases in Ningo and Prampram.

In Dodowa, there was a sharp decrease in the number of male-headed households who use their own private vehicle—from 31 percent a year ago to 12 percent currently—while that of female-headed households dropped from 3.4 percent to 1.3 percent. Other forms of transportation are mass transit, school/office vehicles, and bicycle.

On the whole, the major reason why respondents and their household members in the study area walked to their work places or school was the fact that the work places or schools were near their homes. In Dodowa, almost 80

Table 35. Reason for Cell Phone Usage/Nonusage by Sex of Household Head (%)

Town	Reason	Sex		All
		Male	Female	
Dodowa	Cannot afford to reload anymore			
	Can now afford to reload	3.4	0.0	3.4
	Increased usage	3.4	3.4	6.8
	Decrease in rates	30.5	8.5	39.0
	Increase in rates	8.5	5.1	13.6
	Other	20.3	8.5	28.8
	Total	8.5	0.0	8.5
Ningo	Can now afford to reload	74.6	25.4	100.0
	Increased usage	0.0	3.0	3.0
	Decrease in rates	54.5	24.2	78.8
	Increase in rates	0.0	3.0	3.0
	Other	6.1	3.0	9.1
	Total	6.1	0.0	6.1
Prampram	Cannot afford to reload anymore	66.7	33.3	100.0
	To save money	1.7	0.0	1.7
	Can now afford to reload	0.0	1.7	1.7
	Spend reload money on food or	1.7	0.0	1.7
	other expenses	1.7	0.0	1.7
	Decreased usage	1.7	0.0	1.7
	Increased usage	45.0	11.7	56.7
	Increase in rates	25.0	5.0	30.0
	Other	3.3	1.7	5.0
	Total	80.0	20.0	100.0

Source: Survey data 2008

percent of respondents cited this reason while about 67 percent of respondents in Ningo said the same. Other important reasons given by respondents were the need to save money, unaffordability of PUV fare the need to prioritize meager income by using available money on food, the paths to their work sites being unpassable to vehicles, and the fact that some workers just want to exercise while going to work.

Table 36. Usual Mode of Transport by Sex of Household Head (%)

Sex of Household Head	Type of vehicle	Dodowa		Ningo		Prampram	
		Currently	Last year	Currently	Last year	Currently	Last year
Male	Private	12.0	31.0	4.7	5.7	12.8	10.5
Female	vehicle	1.3	3.4	0.0	0.0	3.2	0.0
Male	Public Utility	26.7	13.8	14.1	13.2	13.8	15.1
Female	Vehicle	8.0	3.4	9.4	7.5	0.0	3.5
Male	Mass	6.7	10.3	0.0	0.0	1.1	0.0
Female	Transit	0.0	3.4	0.0	0.0	0.0	1.2
Male	School/	1.3	0.0	0.0	0.0	2.1	2.3
Female	Office	0.0	0.0	0.0	0.0	0.0	0.0
	Service						
Male	Walking	21.3	20.7	49.4	49.1	43.6	44.2
Female		9.3	6.9	4.7	1.9	6.4	5.8
Male	Bicycle	6.7	3.4	4.7	3.8	2.1	0.0
Female		5.3	0.0	2.4	1.9	0.0	0.0
Male	Other	0.0	0.0	8.2	13.2	9.6	0.0
Female		1.3	3.4	2.4	3.8	5.3	0.0

Source: CBMS Survey Data, 2008

Financial Management Practices of Households

Table 38 shows that male-headed households were able to save more than female-headed households. Dodowa had the highest percentage (over 58%) of male-headed households that were able to save while Ningo had the lowest savings rate among male-headed households (17%). Dodowa also had the highest percentage (about 20%) of female-headed household that were able to save. In Ningo and Prampram, only 7.9 percent of female-headed households were able to save.

Ability of households to use cash-in-hand to purchase commodities was again dominated by male-headed households in Dodowa (48%). In Ningo, only 15 percent of male-headed households had this ability. Although more male-headed households in Dodowa were able to save, they also dominated in borrowing money from other sources. About 29 percent and 23 percent of male-headed households in Dodowa and Ningo, respectively, borrowed money.

Table 37. Reasons for Walking to Work/School (%)

Town	Reason	Frequency	Percent
Dodowa	The workplace is near	15	78.9
	To save money	2	10.5
	The path is not passable for vehicles	2	10.5
	Total	**19**	**100.0**
Ningo	The workplace is near	28	66.7
	Cannot afford PUV fare	6	14.3
	The path is not passable for vehicles	7	16.7
	Other	1	2.4
	Total	**42**	**100.0**
Prampram	The workplace is near	30	76.9
	Spend transportation fare on food and other expenses	1	2.6
	The path is not passable for vehicles	4	10.3
	Other	4	10.3
	Total	**39**	**100.0**

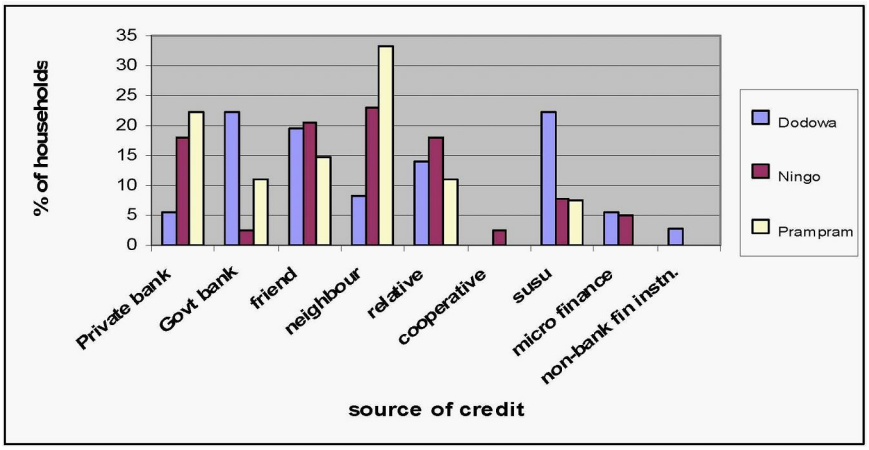
Source: CBMS Survey Data, 2008

Those who borrowed did so from a variety of sources, including private banks, government banks, friends, neighbors, relatives, savings and loans companies (susu), microfinance institutions (MFIs), nongovernment organizations (NGOs), and others (Figure 9). The most common creditors in Dodowa were government banks (22%) and savings and loans companies (22%). No money was sourced from cooperatives or NGOs here. In Ningo, the most common source of borrowed funds was neighbors (23%) followed by friends (about 21%). No Ningo respondent household borrowed from nonbank financial institutions. In Prampram, neighbors (33.3%) were the most common sources of credit for households. No credit was sourced from cooperatives, MFIs, nonbank financial institutions, and NGOs.

Sale of properties or assets was not very popular among respondents as shown in Table 39. In Dodowa, only 22 percent of respondents said they had previously sold properties or assets. In Ningo, the percentage was even lower at 5 percent.

The sale of personal assets by households took place mostly in Dodowa where a wide range of properties, including residential plots, agricultural or commercial land, farm animals, cars/vans, cell phones, household appliances, and livestock were disposed off by households (Figure 10). Residential plots as

Figure 9. Source of Borrowing (credit) for Households



well as cell phones topped the list of items that were sold in Dodowa while the common assets sold in Ningo were residential plots and farm animals. The only assets sold by Prampram respondent households were household appliances.

Recreational Practices/Leisure

Households in the study area engage in a wide range of recreational activities ranging from travel/tourism to playing board games (Figure 11). The recreational activities include sports and exercise, watching movies, playing football, gambling and betting, and eating out once in a while. The most common recreational activity was movie watching with Prampram having the highest percentage of households (about 46%) that indulged in this recreational activity and Dodowa, the least (32%). Gambling and betting were not common recreational activities in Dodowa, while travel/tourism was not a common recreational activity in Ningo. Other recreational activities mentioned by households were listening to the radio or music and swimming at the beach.

There were a few changes to the recreational patterns of households in the study area as seen in Figure 12. These changes included cancellation of long scheduled leisure breaks, engaging in frequent recreation (for those households that do not engage in recreation), and substitution of recreational activities.

Standard of Living

The standard of living of households is defined in terms of whether they are better off, worse off, or if they have remained the same. In general, households that indicated they were currently worse off than they were last year slightly outnumber those that had experienced improvements in their lives. For instance, in Dodowa, about 34% of male-headed households indicated that they were

Table 38. Saving and Borrowing Behavior by Sex of Household Head (%)

	Dodowa		Ningo		Prampram	
	Male	Female	Male	Female	Male	Female
Ability of households to save	58.5	19.5	16.8	7.9	34.7	7.9
Use of savings to buy commodities using cash-in-hand	47.6	12.2	15.3	6.1	25.7	6.9
Money borrowing by household member	29.3	13.4	22.9	7.3	15.8	7.9

Source: CBMS Survey Data, 2008

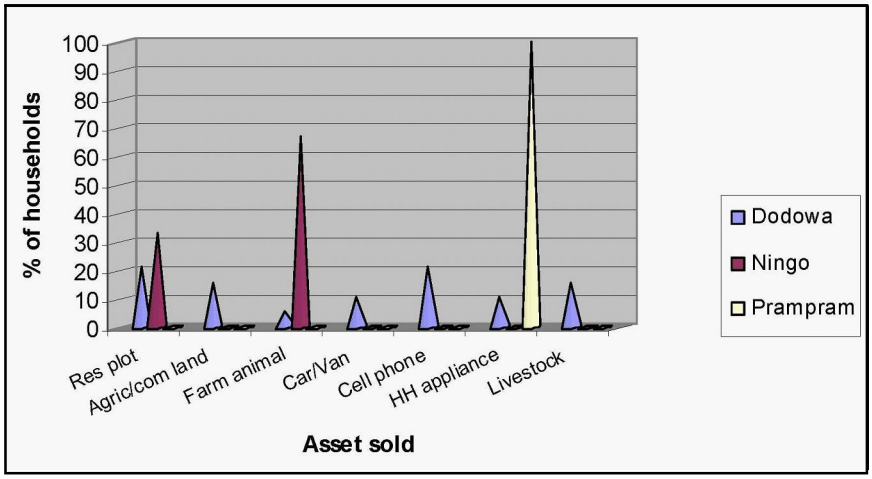
Table 39. Sale of Properties or Assets by Household Members

Town	Sex	Frequency	Percent
Dodowa	Yes	18	22.0
	No	64	78.0
	Total	82	100.0
Ningo	Yes	4	4.9
	No	78	95.1
	Total	82	100.0
Prampram	Yes	5	5.1
	No	94	94.9
	Total	99	100.0

Source: CBMS Survey Data, 2008

currently better off than they were a year ago, while about 12 percent of female-headed households there said the same. However, 52 percent of households in Ningo (46.5% male-headed and 5% female-headed) said that their living standards are currently worse off than they were a year ago. Those households that had seen no changes ranged from 5 percent for female-headed households to 19 percent for male-headed households. Table 40 also shows that there were more conspicuous changes in male-headed households than in female-headed ones.

Figure 10. Type of Assets or Properties Sold by Households



A comparison was made between the poorest (first quintile) and richest (fifth quintile) households in relation to their current and year-ago monthly expenditures on electricity and mobile phone calls/texts (Table 41). There were no statistically significant differences between these expenses among the poorest and richest households, except for the amount spent monthly on calling/texting a year ago. For example, at -0.211, the correlation between the electricity bills paid a year ago by the poorest and richest households were not statistically significant. On the other hand, the Pearson correlation between the expenditures made by these households on texting/calling a year ago was -0.951, which was statistically significant and near perfect correlation but negatively.

Table 42 shows a further comparison between the lowest 40 percent of households, i.e., the first and second quintiles (poor) and the highest 40 percent of households, i.e., fourth and fifth quintiles (nonpoor). The difference in mean expenditure made by the nonpoor and poor households ranges between GH¢0.65 and GH¢31.3, and at Pearson's correlation of 0.000, the differences in expenditure made by households with respect to monthly electricity bills a year ago is perfectly not related. On the other hand, at Pearson's correlation of 1.000, the expenditure made by both poor and nonpoor households with respect to the amount paid for

Figure 11. Types of Recreational Activities Engaged In by Households

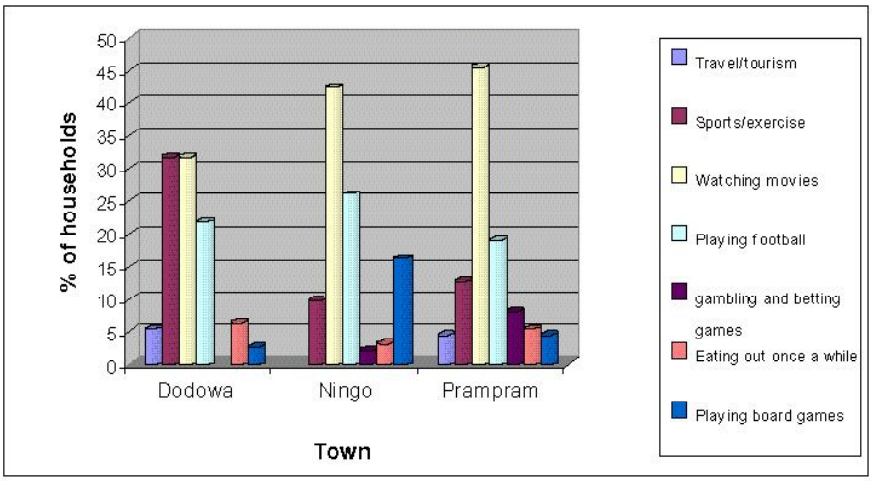


Figure 12. Changes in Recreation Patterns of Household Members

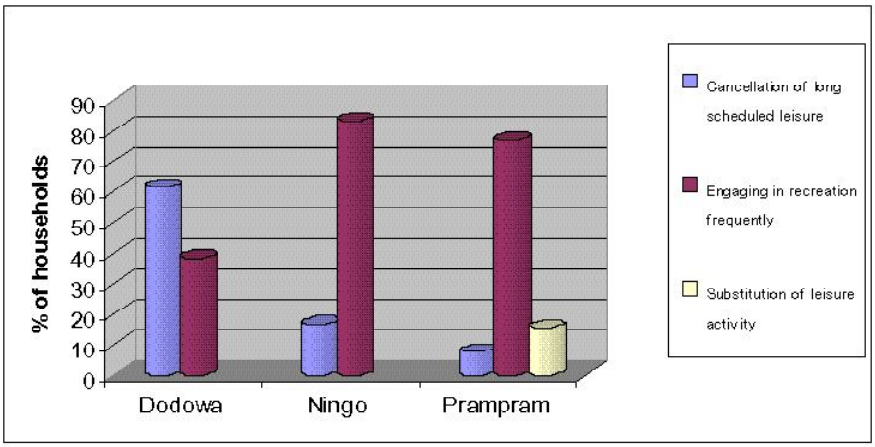


Table 40. Standard of Living by Sex of Household Head (%)

Town		Sex		All
		Male	Female	
Dodowa	Better off	33.8	12.5	46.3
	The same	18.8	5.0	23.8
	Worse off	18.8	11.3	30.0
	Total	71.3	28.8	100.0
Ningo	Better off	21.8	8.9	30.7
	The same	12.9	5.0	17.8
	Worse off	46.5	5.0	51.5
	Total	81.2	18.8	100.0
Prampram	Better off	33.7	5.9	39.6
	The same	17.8	5.0	22.8
	Worse off	33.7	4.0	37.6
	Total	85.1	14.9	100.0

Source: CBMS Survey Data, 2008

complete trips using public vehicles was perfectly related to each other and statistically significant. Differences between most current expenditure among poor and nonpoor households were not statistically significant.

Estimating Government Policy Impact on Rice Production and Consumption in Ghana

Finding the ratio of domestic price of rice to its border price in Ghana involves the estimation of the Nominal Protection Coefficient of rice which is given by:

$$NPC_r = P_{dr} / P_{br}$$

Where,
NPC_r = Nominal Protection Coefficient for rice in Ghana,
P_{dr} = Domestic price of rice at the wholesale level,
P_{br} = Border price of rice at the wholesale level (international trade or world price times the rate of exchange.

Table 41. Differences in Expenditure Between the Poorest and Richest Households

		Mean	Std. Deviation	Std. Error Mean	Correlation	Sig.
Pair 1	Electricity bill last month for 1st quintile	4.95	1.52405	.45952	0.008	0.982
	Electricity bill last month for 5th quintile	13.27	9.57174	2.88599		
Pair 2	Electricity bill about a year ago for 1st quintile	3.00	0.84984	.26874	-0.211	0.558
	Electricity bill about a year ago 5th quintile	8.65	6.03715	1.90912		
Pair 3	Amount paid for calling/ texting per month currently for 1st quintile	5.95	2.37123	.71495	-0.072	0.833
	Amount paid for calling/ texting per month currently for 5th quintile	37.27	15.38890	4.63993		
Pair 4	Amount paid for calling/ texting per month a year ago for 1st quintile	4.25	0.95743	.47871	-0.951	*0.049
	Amount paid for calling/ texting per month a year ago for 5th quintile	35.00	23.80476	11.90238		

Source: CBMS Survey Data, 2008

* Statistical significance at 5% level

Table 42. Differences in Expenditure Between Poor and Nonpoor Households

		Mean	Std. Deviation	Std. Error Mean	Correlation	Sig.
Pair 1	Electricity bill last month for poor households	5.46	2.65844	0.38777	-0.081	0.588
	Electricity bill last month for non-poor households	19.04	24.16190	3.52438		
Pair 2	Electricity bill about a year ago for poor households	3.67	1.95734	0.29178	0.000	0.999
	Electricity bill about a year ago for non-poor households	12.17	12.08827	1.80201		
Pair 3	Amount paid for calling/ texting per month currently for poor households	7.69	3.34254	0.45486	-0.113	0.417
	Amount paid for calling/ texting per month currently for non-poor households	38.99	28.59715	3.89158		
Pair 4	Amount paid for calling/ texting per month a year ago for poor households	6.09	2.30970	0.36071	0.099	0.537
	Amount paid for calling/ texting per month a year ago for non-poor households	29.76	26.01925	4.06352		
Pair 5	Amount for complete trip for public vehicle currently for poor households	1.60	0.37417	0.16733	0.784	0.117
	Amount for complete trip for public vehicle currently for non-poor households	4.96	4.16029	1.86054		
Pair 6	Amount paid for complete trip for public vehicle a year ago poor households	0.80	0.14142	0.10000	1.000	***0.000
	Amount paid for complete trip for public vehicle a year ago non-poor households	1.45	0.49497	0.35000		

Source: CBMS Survey Data, 2008

*** Statistical significance at 1% level

The coefficient relates the price received by the producer to the price which he would have received under the assumption of free trade. If the NPC is less than unity it means that domestic price is less than world price and is indicative of taxation of rice. A value of NPC greater than unity means that domestic (support) price is higher than world price which reveals that there is discrimination in favour of domestic price of rice. A value of NPC that is equal to 1 indicates that there is no distortion of output prices.

It also important to estimate the nominal protection rate (NPR) which is defined in percentage form as:

$$NPR = 100(NPC_y - 1)$$

The impact of government policies on the price of rice is measured by the Nominal Protection Rate (NPR), defined as the percentage by which domestic price of rice (P_{dr}) exceeds border price (P_{br}), converted at the official exchange rate.

In this analysis, the border equivalent price or world price of imported milled rice (25% broken) adjusted for international freight and insurance costs (in domestic price) have been estimated to serve as a yardstick and to indicate the extent to which domestic prices have been distorted by government intervention. The domestic price has been estimated by adjusting for handling, transport and market margins from the farm gate to the domestic market. Imported rice (25% broken) is used in this estimation because it is equivalent to the local rice. The bulk of rice consumed in Ghana is imported and government intervention of tariff removal on rice and other food commodities like wheat, yellow corn and vegetable oil (for cooking) was towards imported rather than locally produced food items. Government directly taxed imported rice while the tax on local rice was indirect in that it is done mainly through taxes on farm inputs rather than directly taxing milled local rice.

The Nominal Protection Coefficients (NPC) of rice imported into Ghana from 1990 to 2008 show a rather erratic trend starting from 2.96 in 1996 and dropping to a low of 0.87 in 1998 and rising to 2.64 in 2006 and dropping again to 2.22 in 2007 (Table 43, Figure 13). NPC for all years under review are greater than one (except in 1998) which indicate that government policy in Ghana especially towards rice production is intended to positively affect local production of rice in that domestic price of rice is higher than the world price of rice. This highlights the fact that government policy causes injuries to consumers' ability to purchase local rice. Rice has an almost inelastic demand in Ghana and therefore even if domestic prices increase, demand is not expected to fall significantly. Government policy is therefore discriminatory against world prices and this is intended to encourage local production of rice. The Ghana government

in May 2008 announced removal of import duties as well as debt recovery levy and excise duty on premix fuel and staples including rice, wheat, yellow corn and vegetable oil. This was mainly done to bring relief to Ghanaians in the midst of the global challenges resulting from crude oil and food price hikes. However, the NPC for 2008 stood at 2.19 indicating that domestic price of imported rice was still much higher than its world prices. This phenomenon was confirmed by reports that despite the tariff removal on imported rice and other food items, prices on the domestic market were still high. Therefore the conclusion is that government intervention did not make any impact or was very minimal if any at all.

The trends in the Nominal Protection Rate (NPR) show the magnitude of the impact of government interventions on domestic prices. Ghana has very high protection levels over the period 1996 to 2008 except for 1998. Protection levels peaked at over 196% (1996) and dipped to -12.94% (1998), steadily rising to over 157% in 2003 and to almost 122% in 2007. This is expected because according to David and Huang (1996), exporting countries have negative protection, while importing countries have zero or positive NPR. Exporting countries have negative protection rates because they are interested in preventing the collapse of the world rice market while importing countries like Ghana are interested in protecting and possibly encouraging their local production of rice. The logic behind these high protection rates is to encourage local production of rice which incorporates cost cutting technologies making local production cheaper than imported rice. But the effect of these high nominal protection rates has rather made the consumer worse off since local production has not been able to match demand forcing the consumer to purchase imported rice which is still high (in price). In 2008 the nominal protection rate was 119.27%. In effect government policies were rather protecting the exporting countries.

The Nominal Protection Coefficient for fertilizer in 2007 is estimated to be 1.37. The border price of fertilizer imported into Ghana is not available for 2008 which was the year government subsidized the prices of the input. Although this may be premature, inferences drawn from experts in the field indicate that the subsidies on fertilizer in 2008 did not make any major impact because the prices of fertilizer in 2008 where not very different from those in 2007. The figure of 1.37 indicates that policies did not actually subsidise fertilizer and therefore the rice industry was not protected from price hikes on the international market. The mitigation measures to contain the rising crude and food prices in 2008 cost the country GH¢ 92.47 million in direct revenue loss as a result of the removal of the tariffs. This translated into a simple per capita revenue loss of GH¢ 4.2.

Figure 13. Trend of Nominal Protection Coefficient for Rice in Ghana (1996-2007)

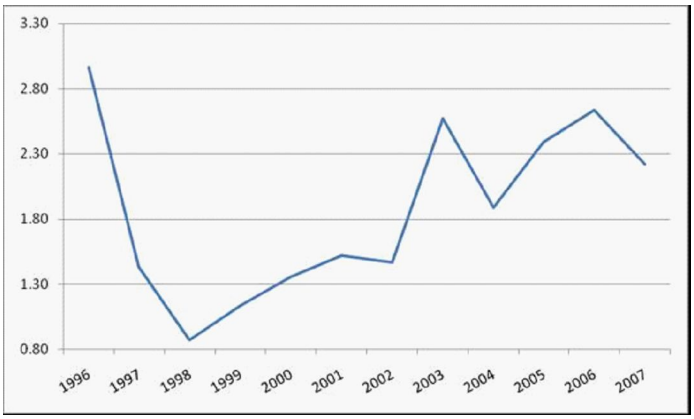


Table 43. Nominal Protection Coefficients and Rates for Rice in Ghana (1996-2008)

Year	NPC	NPR (%)
1996	2.96	196.48
1997	1.43	43.04
1998	0.87	-12.94
1999	1.13	13.45
2000	1.36	35.67
2001	1.52	51.94
2002	1.46	46.41
2003	2.57	157.18
2004	1.89	88.80
2005	2.39	138.81
2006	2.64	163.69
2007	2.22	121.72
2008	2.19	119.27

Source: MoFA Ghana, FAO, Author's estimation

SUMMARY AND CONCLUSIONS

Summary

This study sought to examine the effects of rising food and oil prices on rural households in Ghana in relation to their food, access to health care and education, changes in their work situations, their financial management practices, and their recreational and leisure practices using three selected communities in the Dangme West District of the Greater Accra region—Dodowa, Ningo, and Prampram. A total of 300 households were interviewed. The ages of respondents ranged between 20 years and 82 years. The major food staple in the study area was corn or maize. Results also indicate that some households had made adjustments in their food preparation patterns as well as changed the places where they shopped for food items. Some of the changes made to food preparation patterns included the household eating less of what it usually used to eat, the household skipping meals, parents eating less amounts of food so their children could have more, and shifting from imported fragrant rice, which was very expensive, to the relatively cheaper local rice. The changes in food preparation patterns had generally been informed by increases in the cost of living. These changes had been made by households across income groups but have mainly been conspicuous among those in the first and second quintiles.

Changes in electricity consumption of households were noticed, and the main reason cited by households was the increase in electricity tariffs as well as an increase in the amount of electricity consumed by the households. In response to these, households adopted strategies to respond to changes in electricity consumption. The major strategy was the replacement of incandescent bulbs, which consume higher wattages, with compact fluorescent bulbs which consume less electricity and therefore lead to reduced electricity tariffs. This was mainly practiced by households in the second quintile across all communities.

Health-seeking behavior of households had changed mainly as a result of the implementation of the National Health Insurance Scheme (NHIS). This had given the households the opportunity to visit government hospitals or health centers where they are likely to benefit from the insurance scheme.

Children within some households had been moved from private schools, which are expensive, to public schools, which are relatively cheaper, made more so with the government's introduction of the Capitation Grant. This means that many parents pay nothing or very little to maintain their children in public schools as compared to paying much higher if their children were in private schools. Some children had dropped out of school mainly because they were needed to help in the family's farming business, although some children willingly dropped out of school because they were simply not interested in schooling.

Job losses were not very common in the study area but among households that lost jobs, the major reasons cited included the fact that the companies they were working for went bankrupt and closed down while others got fired due to work-related problems. Furthermore, households did not depend on only one job but diversified in terms of jobs so they could meet their daily household expenses which were rising.

Changes in the use of cell phones were noted in the study area and this was mainly due to the ability of household members to afford cell phones although the service charge was rising. The major reasons for these changes were increase in the usage of cell phones while others have decreased their use of cell phones due to increasing service charges per month. Results also indicate that there was no statistically significant difference between current expenditure among poor and nonpoor households (based on classification of households according to income quintiles) although some expenditure on cell phone usage and public vehicle usage showed statistically significant differences a year ago.

Most people in the study area usually walked to places they were going but the most popular vehicles used as a means of transport were the public utility vehicles (Trotro). Increases in the cost of fuel and consequently the cost of transportation by both private vehicles and public utility vehicles resulted in some household members walking to school or work in order to save money.

Financial management practices of households were evident in their ability to save although male-headed households did better in this regard than female-headed households. Borrowing of money was common among households, and the major sources were government banks, private banks, friends, and neighbors.

Households also engaged in recreational activities when they found the time and the popular activities included sports and exercise, watching movies, playing football, gambling and betting, and eating out once in a while, among others.

Finally, households were divided concerning the issue of whether their standard of living was better off, worse off or had remained the same. In general, households that indicated they were worse off currently than they were last year slightly outnumbered those who had seen improvements in their lives. There were others who had seen no changes at all in their standards of living.

Conclusions

There was an impact of the rising food and oil prices on rural households in Ghana. Some households took advantage of the government's programs, e.g., joining the National Health Insurance Scheme, thus moving from the private to the public health care system and also taking advantage of the capitation grants to public schools by withdrawing their children from private schools to public schools.

Food consumption behavior changed. Households ate less of what they usually used to eat and also skipped meals and shifted from expensive staples to relatively cheaper ones.

References

Chaudhry, A. R., Javed, M. S., Qureshi, K. A., & Salimi V. B. (1993): *An Economic Analysis Of Rice Pricing In Pakistan*. Pakistani Journal of Agrcultural science Vol. 30, No.4. Faculty of Agricultural Economics and Rural Sociology.

Cristina C. David & Jikun Huang (1996): Political Economy of Rice Price Protection in Asia. The University of Chicago Press

ISSER (2008): State of the Ghanaian Economy in 2007. Institute of Statistical, Social and Economic Research (ISSER), University of Ghana, Legon.

NHIS (2007) Mid-Year Operational Status Report, National Health Insurance Authority (NHIA).

Von Braun, J. (2008). Rising Food Prices. What should be done? IFPRI Policy Brief, April.

Waqar Akhtar, Muhammad Sharif and Nadeem Akmal (unpublished): Analysis of Economic Efficiency and Competitiveness of the Rice Production Systems of Pakistan's Punjab

BLANK PAGE

Analysis of the Impact of Changes in the Price of Rice and Fuel on Poverty in the Philippines

Celia M. Reyes, Alellie B. Sobreviñas, Joel E. Bancolita and Jeremy L. De Jesus*

Abstract

The study aims to assess the impact of rising prices of rice and fuel on poverty in the Philippines. In particular, the variations in the potential effects among different group of households were analyzed using household level data. Results of the study confirm that the impact of increasing prices of rice and fuel vary across different groups of households depending on the sector of employment, level of urbanity, income group and geographical location. In fact, there are losers and gainers from the recent increases in the prices of rice and fuel. In response to higher prices, households adopted different coping mechanisms, some of which are damaging and counter-productive in the medium- and long-run. The Philippine government has also responded by implementing programs that would mitigate the negative impact of soaring prices. It is recommended that household level data for all households in the community, such as those being generated by the community-based monitoring system (CBMS) being implemented by local government units, be used to identify eligible beneficiaries through some proxy means test model. This would help reduce leakage of program benefits to the non-poor as well as ensure that the poor benefit from these programs.

Keywords: poverty, community-based monitoring system, impact analysis, prices, rice, fuel, coping mechanisms, pass-through rates, net benefit ratio

* Director, Research Associate, Senior Programmer and Research Assistant, respectively, of the CBMS Philippines Team

INTRODUCTION

The world experienced a dramatic increase in food and fuel prices during the first half of 2008. According to the Food and Agriculture Organization (FAO 2008), international nominal prices of all major food commodities reached their highest levels in nearly 50 years, while prices in real terms were highest in nearly 30 years. The FAO food price index[1] increased by 53 percent for the first three months of 2008 compared to the same three months of the previous year. The current agricultural market is characterized by the increase in international prices of nearly all major food and feed commodities. Leading the list of commodities is vegetable oil, which increased by more than 97.0 percent, and followed by grains, which hiked by about 87.0 percent. The price hike is expected to have adverse effects on poverty and is worrisome precisely because it is expected to hurt the poor the most.

Meanwhile, fuel prices have also been increasing for seven consecutive years (Energy Information Administration 2008). During the first quarter of 2008, the oil price index increased by 66.5 percent. The impact of higher fuel prices depends on two components: (1) direct effect of higher prices of petroleum products consumed by the household; and (2) indirect effect on the prices of other goods and services consumed by households that use fuel as an intermediate input. These changes in the global food and fuel prices are also affecting developing countries, including the Philippines. Given this, it is very important to determine the effects of these price changes on poverty. This would eventually help governments identify the right policy responses.

Although the discussion in this paper focuses on the impact of rice and fuel price changes, the same framework may be used in analyzing the potential impact of future economic shocks on prices of commodities.

This paper consists of four major parts. The first part presents a short introduction on the trend in the international and domestic prices of rice and fuel, including a brief discussion on the causes of the recent spike in prices. A brief review of the literature, as well as the objectives of the study, is also presented under this section. The second major part describes the methodology and the data used in the study while the third part discusses the results by analyzing the pass-through rates, as well as how price changes channels through other sectors of the economy based on the Input-Output framework. The impact of rising prices of rice and fuel are discussed separately. In addition, the impact of the simultaneous change in rice and fuel prices on poverty is also presented. The fourth and fifth sections explain how individual households and the

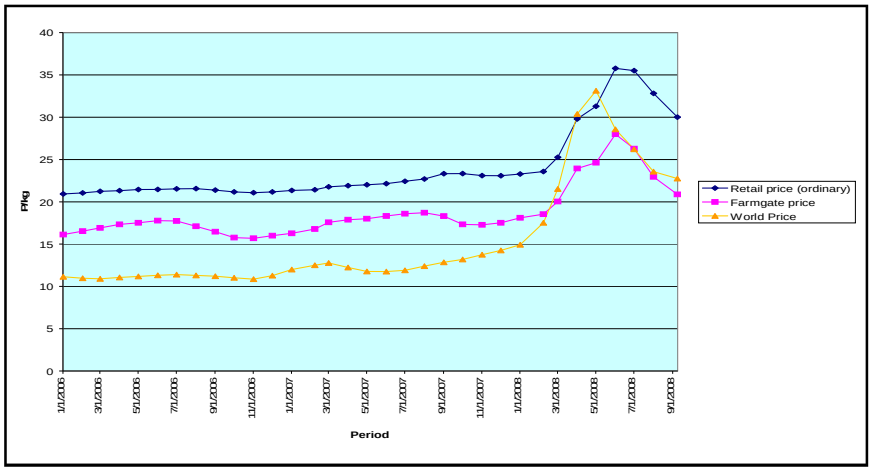
[1] The FAO food price index is a trade-weighted Laspeyre's index of international quotations expressed in US dollar prices for 55 food commodities.

government respond to the increasing prices, respectively. The former focuses on the household coping mechanisms while the latter highlights the government's specific actions and policy responses. The last section of this paper draws some conclusion and presents some policy recommendations.

Trend in Rice Prices

The farmgate (producer), retail (consumer), and international prices of rice show a fairly stable trend during the period January 2006 to December 2007, averaging 0.39 percent, 0.43 percent and 1.12 percent, respectively, in monthly growth (Figure 1). However, rice prices significantly increased starting January 2008. In fact, the average monthly growth rates in farmgate, retail, and world prices for the period January-September 2008 are estimated to be about 3.3 percent, 2.4 percent and 6.6 percent, respectively. It is worth noting that the huge gap between farmgate and retail prices of rice remains throughout the period. On the average, the domestic retail price of rice is higher than the price at the farm level by about 21.8 percent. The difference includes the cost of transporting rice produce from the farm to the market. This may also indicate the power local traders have in terms of controlling the market price of rice (Intal and Garcia 2005). In some cases, wholesalers are capable of creating artificial shortages by hoarding rice so as to drive up prices, or of flooding the market with their stocks to lower rice prices.

Figure 1. Trends in Farmgate, Retail and World Prices of Rice January 2006 – September 2008



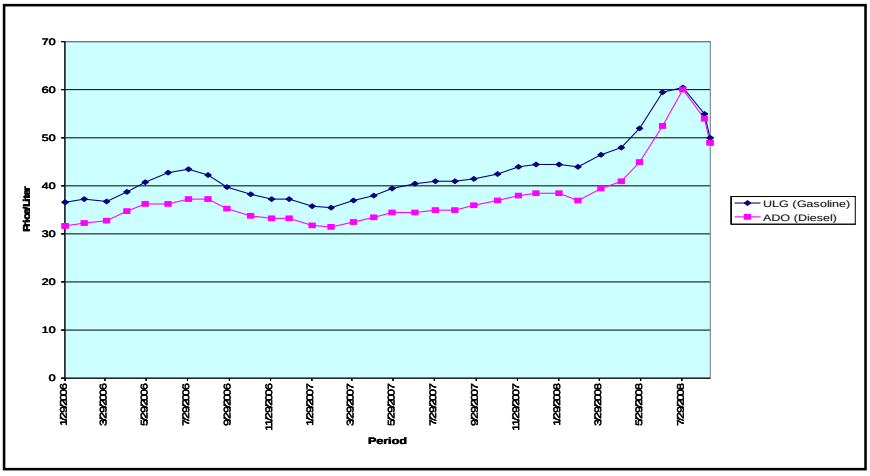
Notes: International prices cover prices of white broken rice, Thai A1 Super, f.o.b Bangkok (Friday closing price).
Farmgate price is calculated as the rice equivalent price (palay price/ 0.65)
Sources: Bureau of Agricultural Statistics (BAS); Food and Agriculture Organization (FAO)

On the average, international prices are lower than retail prices by about 38.3 percent. Although the gap between world prices and domestic prices is also notable, the difference between world price and retail prices started to narrow down during the month of January 2008. In fact, in April and May of 2008, the world prices even exceeded domestic retail prices. This may possibly be due to the heavy government interventions on the rice sector. During the period covered in this study, the price of rice was at its highest in June 2008. In particular, the retail price of ordinary rice reached its peak at about P35.78 per kilogram while farmgate price (rice equivalent price) of rice was also highest during the same month at about P27.98 per kilogram. On the other hand, international rice prices were at their highest during the month of May 2008 at P33.12 per kilogram.

Trend in Fuel Prices

Figure 2 shows the trend in the prices of fuel, particularly of unleaded gasoline and diesel, during the period January 2006 to September 2008. Data show fairly stable trend in prices during the period. Prices started to continuously increase from March 2007, and significant spikes were recorded in 2008. During the period covered, the fuel price was at its peak in July 2008 at about P60.24 per liter. The annual average price per liter of unleaded gasoline increased by 30.1 percent from P39.25 in 2006 to P51.07 in 2008. In addition, the annual average price of diesel increased by 34.1 percent, from P34.48 per liter in 2006 to 46.23 per liter in 2008.

Figure 2. Trend in the Fuel Prices, January 2006- September 2008



Source of basic data: Department of Energy (DOE)

One of the major factors that contributed to higher prices during the period is the scarcity of oil due to reduced supplies from the Organization of the Petroleum Exporting Countries (OPEC) and reduced production in non-OPEC economies. The changes in prices are expected to greatly affect not only the sectors that are directly dependent on fuel (e.g., transportation sector) but other sectors of the economy as well.

Underlying Causes of the Recent Spikes in Prices

The previous sections highlighted the significant increases in rice and fuel prices in 2008. Based on an Asian Development Bank (ADB) document, factors that contributed to the recent increases in food prices, including rice, can be classified into three sets: (1) structural and cyclical factors; (2) supply and demand factors; and (3) international and domestic markets (ADB 2008b). Structural factors are the major causes of high international rice prices in recent years. In particular, there is a shortfall in production relative to consumption. As mentioned earlier, another factor that contributes to the high prices of rice is the rising scarcity of oil due to the drop in supplies from the OPEC and decline in production in non-OPEC economies. Note that one of the major inputs to rice production is fertilizer which, in turn, is highly dependent on petroleum products. Cyclical factors, on the other hand, include unfavorable weather and outbreak of pest infestations.

The demand factors that have contributed to increasing prices include the growing population and strong income growth in emerging economies. There has also been a rising demand for biofuel, which means grains are being redirected away from its primary use as food or feed. In terms of supply, one important factor is urbanization and the competing demand for land for commercial versus agricultural purposes. Less investment in agricultural technology, infrastructure and extension programs may also have contributed to the modest growth in rice supply. The government's decisions to restrict exports and to administratively control prices have also affected food prices. The reduction in taxes and import duties on imported grains in net importing countries (temporarily) as well as price subsidies, have also shielded consumers (ADB 2008b). In the Philippines, the current problem with increasing rice prices is allegedly related to some big businessmen's hoarding practices. Worse, since small farmers have limited resources as well as limited access to credit and storage facilities, they are sometimes forced to sell their palay produce even at low prices.

Review of Literature

A number of earlier studies have analyzed the welfare impact of price changes. Methods used in these studies differ considerably. Some researchers

focused on the country-level impacts while others looked at the household-level impacts. Furthermore, some studies focused on specific commodities such as rice, while others covered a number of major commodities. A few researches also adopted a specific econometric model for the analysis.

It is recognized that analyzing the economy-wide impact of soaring prices is important precisely because a large increase in the prices of food and fuel may threaten macroeconomic stability as well as the country's overall growth. This is especially true for low-income, net importing countries. Most of the developing countries are particularly vulnerable because of certain characteristics such as having high levels of chronic hunger and being highly dependent on imports of petroleum products and, in a number of cases, on imports of major grains. In looking at the impact of price increases at the country level, FAO (2008) focused on the following: (a) food import bills; (b) current account deficits; (c) transmission of international prices to domestic prices; (d) consumer price index and per-capita consumption of cereal. Based on FAO's analysis, developing countries in general could face a significant increase (i.e., 33 %) in aggregate food import bills. In some cases, the increase in food import bills could also lead to a substantial widening of the current account deficit, especially among poor countries. This could affect other macroeconomic variables such as exchange rate, the reserve position of the national bank, and the country's indebtedness.

In terms of price transmission, results for the seven Asian countries included in the study revealed that about one-third of the increase in real US dollar prices was passed to domestic markets. These results confirm Sharma's (2002) generalization that transmission elasticities during the 1995-1996 price increases in Asian countries are usually low, especially for rice.

The ADB study (2008) also evaluated the macroeconomic impacts of rising food prices on households by using poverty and distribution analysis. Applying the Oxford Economics global model, the study traced the impacts of rapidly climbing food and energy prices on developing economies in Asia, including the Philippines, within two scenarios: The first supposes that the 57.5 percent increase in world food prices in the first quarter of 2008 continues until year-end, and the second assumes that the 66.5 percent rise in world oil prices is added on top of the food price increase. The results were not presented as projections but as mere indications of how countries could respond to shocks coming from unprecedented rise in food and fuel prices. Nonetheless, four findings on the expected impact of food and fuel increases on the macroeconomy were identified, namely: (1) higher domestic prices; (2) fall in private consumption; (3) higher interest rates dampening fixed investments; and (4) significant decline in gross domestic product (GDP) because of diminished consumption and investment demand.

The study also analyzed the impacts of higher food prices on poverty and inequality using household data in two countries, Philippines and Pakistan. Simulations adopted three different scenarios: these scenarios assumed that the increase in food prices is either10.0 percent, 20.0 percent, and 30.0 percent. Results thereafter show that the increase in food prices in the Philippines by 10.0 percent, 20.0 percent, and 30.0 percent brings with it the threat of an additional 2.72 million, 5.65 million, and 8.85 million poor people, respectively. It should be noted though that the estimates were arrived at using the national poverty line instead of the US$1/day poverty line to factor out the less sensitivity of the latter to the headcount ratio, and that the estimates are concerned only with the price effect on consumers (i.e., not accounting for producers).

The increase in food prices also tends to intensify income inequality in the Philippines. Results show that increases in food prices by 10.0 percent, 20.0 percent, 30.0 percent will raise the Gini index by 0.55, 1.10, and 1.65 percentage points, respectively. The paper's findings also include a reduction in the average standard of living of different income groups: specifically, a 4.16 percent decline precipitated by 10 percent jump in food prices. The paper estimated how much would be needed to shield from the negative effects those consumers who were already considered poor prior to the price increases, as well as the nonpoor people who might be pushed into poverty due to high food prices. To address the increase in food prices, the study recommended that export restrictions should be discouraged, domestic markets should be unrestricted, and government controls over prices and resource allocation should be avoided. To alleviate the social impacts of such price shocks, the extremely poor must be provided well-targeted assistance in the form of cash transfers, food-for-work, feeding programs, and food stamps; and small and marginalized farmers must have equal access to credit, fertilizer, improved seeds, pesticides, electricity, and water and should be provided market access across the region and in the global marketplace. It was also recommended that in the long-run, improvements should be made on land and labor productivity in agriculture through long-term investments and technological advances, including upscaling of research and development (R&D), and sustainable land use.

Dessus *et.al*. (2008), on the other hand, used a sample of 73 developing countries (covering 88% of the population living in developing countries) to estimate the change in the cost of alleviating urban poverty due to the recent increase in food prices. Aside from measuring the impact of food price changes on the headcount poverty, the study distinguished the cost attributable to the "new poor" from that of the existing poor even before the price increases. However, the paper focused only on urban households and ignored the second round or multiplier effects that could occur in the longer run. The paper utilized the micro dataset part of the *Global Income Distribution Dynamics (GIDD) Model*

to estimate the initial and final poverty deficit (PD) while taking full account of household heterogeneity. Results reveal that in most of the countries covered, the estimated monetary cost of additional urban poverty is small relative to GDP, although poverty rates increase significantly. Furthermore, countries with high initial poverty rates and poverty gaps are vulnerable to increases in food prices.

At the microeconomic level, the first step in doing the analysis is to determine the proportion of net seller and net buyer households and their characteristics. After that, the next step would be to determine the likely welfare impact of a price change across household types (FAO 2008). Note that the impact across households varies depending on existing consumption patterns and household market position as net buyers and net sellers. Most of the recent studies, however, adopted nonparametric techniques in the analysis to allow convincing demonstration and presentation of results with minimum unnecessary assumptions (e.g., Deaton 1989, Budd 1993, Barrett and Dorosh 1996, and Minot and Goletti 2000). These techniques allow very useful graphical displays of the results that can be easily interpreted by the policymakers.

To understand how price changes affect household welfare, Deaton (1989, 1997) highlighted the importance of measuring the *net benefit ratio* (NBR). The NBR is defined as the value of a commodity's net sales as a proportion of income. It is actually the difference between the production share and consumption share of rice in total expenditures. Given this, net sellers are expected to have positive NBRs while net buyers have negative NBRs. The NBR for a particular commodity represents the "before-response" or impact elasticity of expenditures (or real income) with respect to the price change of that commodity. Total expenditure is used as a proxy for income because expenditures data tend to be a more reliable indicator of household welfare (Deaton 1989, Budd 1993, Barrett and Dorosh 1996).

In his analysis, Deaton (1989, 1997) combined household data and hypothesized price changes to study the distributional impact of higher rice prices in Thailand. The same methods were used in studies on the distributional effect of higher food prices in Côte d'Ivoire (Budd 1993), in Madagascar (Barrett and Dorosh 1996), and in Vietnam (Minot and Goletti 2000). In this approach, the *first-order welfare effect* of rice price change is proportional to NBR. The NBR is a very short-term measure in that it assumes no response from households as producers or as consumers. In particular, it assumes no change in labor markets or nonfarm income will arise from the price change in food. In the short run, those who are net buyers in the cities and in the rural areas (including the poorest rural households that are predominantly net buyers) who spend a large share of their income on food, will be the most adversely affected. One of the major results of Deaton's (1989) study is that higher prices of rice would benefit rural households in Thailand at all levels of living. However, the group of

households in the middle of the income distribution would have the largest percentage income gains from rice price increases.

Loening and Oseni (2007) discussed how the longer-run effects arising from induced wage responses to price changes can be captured by combining Deaton's model with Ravallion's (1990) approach. They also estimated econometrically the short- and long-run wage elasticities with respect to food price with regional panel data (using an error-correction model). The equation is based on the Ethiopia Central Statistical Agency's (CSA) consumer price index (May 2003-January 2007), which captures monthly data from 119 urban and semi-rural markets across the country. To complement the welfare approximation, Loening and Oseni (2007) constructed an *asset index*. In doing so, information on household assets and characteristics of household dwellings are used to create a wealth index as a proxy for the economic status of households. Factor analysis method was then used to aggregate the ownership and access to assets into a single variable. To gain a sense of the varying impact of food prices increases on different subgroups, and results of the food expenditure surveys, Loening and Oseni (2007) analyzed the data by income quintile. The possible impact of food price increases on distribution is also determined based on the percentage reduction in the average standard of living of different income groups. Gini index can also be used to measure inequality. Results of their study on Ethiopia reveal that at the aggregate national level, there would be positive welfare impact although relatively small. Rural households are likely to benefit more as compared to the urban households. Furthermore, better-off households in the rural areas would benefit the most from food price increases. The lower and middle income household groups are also the most adversely affected.

Minot and Goletti (2000) also analyzed the effects of a change in rice prices on income and poverty in Vietnam. They measured the before-response effect and the after-response effect. The former refers to the effect in the very short term (i.e., before the producers and consumers respond to the price change). Based on Minot and Goletti's (2000) study, two delta regions in Vietnam (that are rice surplus regions) would benefit from higher rice prices while the remaining five regions (the rice-deficit areas) would be negatively affected on average. Furthermore, higher prices of rice also tend to benefit the rural households at the expense of urban households.

Ackah and Appleton (2003) analyzed the food and consumption behavior of Ghanian HHs using the *Almost Ideal Demand System* (AIDS) model developed by Deaton and Muellbauer to obtain price and income elasticity estimates for six major food categories comprising the basic subsistence staples for most poor HHs. They adopted the estimation of a linear approximate AIDS for food demand using cross-sectional data. The model has a number of desirable properties. For instance, the model was able to treat zero and non-zero

consumption in the same way. It is also simple to estimate and free from restrictive assumption of homotheticity, which allows it to capture any differences in the consumption bundles among the different income groups. Another advantage of this model is the tractability and flexibility in overcoming the problem of aggregation. Furthermore, Ackah and Appleton (2003) used the *money metric indirect utility function* in measuring the impact of food price changes on households. Their study focused on the changes in consumer welfare resulting from the variations in food price, assuming income effects away. Hence, their analysis also does not take into account the supply responses through production and labor adjustments. The concept called *compensating variation* may be used in quantifying the change in welfare. Compensating variation is the income/monetary transfer that is needed to restore the household to the initial position before the (price) shock occurred, expressed as a percentage of the initial level of total consumption expenditure. In this computation, substitution effects and household responses in production and consumption decisions are not accounted for. Therefore, the results are to be interpreted as the upper bound of the likely impact. It also assumes that price changes are transmitted with the same degree to different types of households, whether they are urban consumers or smallholder farmers in a remote area and with limited access to larger markets and therefore, relatively insulated from international price movements. Results of the study showed that urban poor households are the most adversely affected by higher food prices.

In her paper, Son (2008) analyzed the impact of higher food prices on the average standard of living and on poverty. The study showed the dominating effect of rising food prices on poverty over the period 2003-2006. She also developed the operational price index called the "*price index for the poor*" (PIP), which indicates whether the price changes hurt the poor relatively more than the nonpoor. The weights used in constructing the PIP are determined by the price elasticity of poverty measure. It takes into account the consumption patterns of the poor. The formulae for aggregating regional price indices into the national price indices were also developed so as to identify the regional contributions of price changes to the national inflation rate. In addition, she developed a methodology to measure the impact of prices on poverty based on the three most popular measures of poverty: (1) headcount ratio; (2) poverty gap; and (3) severity of poverty. Results of her study on the Philippines confirmed that some households would benefit while others are negatively affected by rising food prices. Many urban and rural poor who are usually food consumers will be the most adversely affected by food price increases. Based on PIP, higher inflation is faced by the poor as compared to the official rate based on the Laspeyres price index. Inflation also hits the poor consumers harder than the nonpoor consumers. The study concluded the following: (1) a 10 percent increase in food prices will

lead to an additional 2.3 million poor people in the Philippines; (2) a 10 percent increase in nonfood prices will result in an additional 1.7 million poor people; (3) a 10 percent increase in rice prices will lead to an additional 0.66 million poor people; and (4) a 10 percent increase in fuel prices will result in an additional 0.16 million poor people.

To deal with the harmful effects of food price surges, Son (2008) suggested safety measures, the most crucial of which is direct government interventions aimed at stabilizing food prices through improved productivity. Public investment on agricultural infrastructure such as farm-to-market roads, irrigation, and post-harvest facilities should be beefed up. Son (2008) also recommended that monetary policy will not be the best tool to curb inflation because its source is the increase in food prices (and not from nonfood consumption items) and its contractionary nature may drive the economy into recession, therefore harming the poor even more.

Objectives of the Study

The review of literature indicated that there are several methodologies in analyzing the impact of rising prices on poverty. The review further shows that while several studies have already been done to examine the impact of the recent price increases on the Philippines, there has been no study capturing the duality of households. Moreover, while there had been many anecdotes on households' responses, there has been no systematic analysis of the coping mechanisms adopted by households. Thus, this paper attempts to apply relevant methodologies to assess the household level impacts. Particular attention will be given to the impact on rice farm households as well as poor households.

The study's general objective is to assess the impact of rising food and fuel prices on poverty. The specific objectives are:

i. Analyze the differential effects on different group of households. As such, the variations in the impact on different groups of households based on urbanity, income group and geographical location were analyzed.
ii. Identify the losers and gainers from the price increases.
iii. Identify the coping mechanisms adopted by households.

METHODOLOGY

Method of Analysis

This study adopted some of the methodologies employed in earlier studies as discussed in the previous sections. In analyzing the effects of rising prices, focus was given on the household level. In this paper, pass-through rates of price

increases were determined and results based on the Input-Output Accounts of the Philippines were presented. Some nonparametric techniques were also employed so as to present graphical displays that would help in analyzing the varying effects on different household groups. In addition, this study conducted a Community-based Monitoring System (CBMS) survey to determine the impact of rising prices at the household level.

It is recognized that the effects of price changes depend on whether a household is a net producer or a net consumer of a commodity. In fact, a price change has the opposite effect on the real income of producers and consumers. Examining how the net positions of households vary across income distribution would also help in determining which groups of households are expected to gain or lose from commodity price changes. In the case of rice, the NBR as used by Deaton (1989) is computed as the main indicator of the welfare of each household. As such, the NBR would allow the study to capture the duality (i.e., both producer and consumer of rice) of households in the Philippines. The NBR can be computed as follows:

$$NBR = \frac{p_i y_i - c_i q_i}{x_i} = \frac{p_i y_i}{x_i} - \frac{c_i q_i}{x_i}$$

where:
p_i = producer price of palay
y_i = volume of rice production
c_i = consumer price of rice
q_i = quantity of rice consumed
x_i = total household expenditures

In simple terms, NBR can be seen as the difference between the palay income share ($\frac{p_i y_i}{x_i}$) and the share of rice consumption in the total expenditure ($\frac{c_i q_i}{x_i}$). Given the above formula, the value of NBR is expected to be positive for net producers/net sellers of rice and negative for those who are net consumers. Given an increase in rice prices, net producers will gain while net consumers will lose, while the opposite would be true in the case of a price decrease. The behavior of NBR across income distribution reflects how a change in prices affects households across income distribution. As much as possible, this study

disaggregates the results by level of urbanization (rural vs. urban areas), by geographical location, and by income deciles.

The impact of the recent increases in rice prices was estimated using 2006 FIES data as the baseline information. Aside from descriptive analysis, nonparametric techniques in density estimation and regression are employed so as to present useful graphical displays.

To determine the effects of rising prices of rice per household based on the NBR, the actual change in rice prices from 2006 to 2008 was used in the estimation. In particular, the retail price of rice in the equation of NBR was increased 39.6 percent while farmgate price of palay was brought higher by 34.9 percent. The changes in the NBR are then compared among different household groups.

In analyzing the impact of fuel price increases, a nonparametric analysis of the fuel consumption patterns across different households group was done. Since households in the Philippines are generally net consumers of fuel products, this study focused only on the demand side. The direct effects of fuel price changes, particularly to direct consumers of gasoline and diesel, were also analyzed and compared across household groups.

The 2000 Input-Output (I-O) Accounts of the Philippines were used in the analysis so as to determine not only the direct effects of price changes but the indirect impact on other sectors of the economy as well. The I-O tables provide the disaggregative measures of the economic structure of the country. They present in a table format the inter-relationships between industries in an economy in terms of the production and the uses of their products, and the imported products. One of the basic assumptions of this framework is that the inputs used in producing a product are related to the industry output by a linear and fixed production coefficient. This means that any increase or decrease in inputs will result in a proportional increase or decrease in the level of output. In addition, it also assumes homogeneity, which means that each industry produces a single output. Each industry also has a single input structure and there is no substitution between the products of different industries.

Data Used

This study utilized household level data from the Family Income and Expenditures Survey (FIES) of the Philippines conducted by the National Statistics Office (NSO) in 2006. The survey collects data on family income and living expenditures, and related information affecting income and expenditure levels and patterns. Detailed data on rice consumption and production from the FIES were utilized. Secondary data on rice were also sourced from the Bureau of Agricultural Statistics (BAS), the National Statistics Office (NSO), and the Food and Agriculture Organization (FAO). On the other hand, data on fuel consumption were sourced from the FIES while data on fuel prices were collected from the

websites of the Philippine Department of Energy (DOE) and the International Monetary Fund (IMF). The I-O Accounts of the Philippines prepared by NSO and the National Statistical Coordination Board (NSCB) were also used.

To support the analysis and to gather more detailed information on how households are coping with the increasing prices, a rider questionnaire (attached to the CBMS Core questionnaire) was administered to selected *barangays* in the Philippines. The rider questionnaire intends to capture different indicators that could be used in measuring the impact of price increases through changes in their consumption patterns. To come up with specific case studies, three barangays were selected to represent urban and rural areas. Barangay 51 and Barangay 85 in Pasay City were selected to represent the urban areas, while Barangay Santa Rita in Capas, Tarlac was chosen to represent a rural area. Barangays 51and 85 consist of 316 and 208 households, respectively, while Barangay Santa Rita is composed of 339 households, of which a third are rice farmers.

RESULTS AND DISCUSSION

This chapter consists of two major parts. The first section discusses the impact of international price changes on domestic markets, and analyzes the effect on other sectors in the economy and consequently on household spending. The second part focuses on the impact on the household level based on the 2006 FIES data and 2008 CBMS survey data. As much as possible, results are disaggregated by urbanity, by income group, and by region so as to identify which groups of households would benefit and which ones would lose from price changes.

Impact (Pass through) of International Price Changes on Domestic Markets

In determining the economy-wide effects, one simple approach is to determine the pass-through rates. Note that the impact of rising prices on domestic economies depends on the extent to which changes in international market prices of commodities have been transmitted to the domestic economies. The trend in the ratio of domestic price-to-foreign price (in local currency) of a commodity would determine the pass-through rates in the recent period. A decline in the ratio during the current period as compared to the previous period (i.e., before there was a significant increase in the prices of the commodities) would indicate that the government somehow intervened, which prevented a full pass-through of the changes in the foreign price. To have a more detailed analysis of the pass-through rate, a regression analysis was also conducted with the following structure:

$$\ln Pd = a + b_1 \ln e + b_2 \ln P^*$$

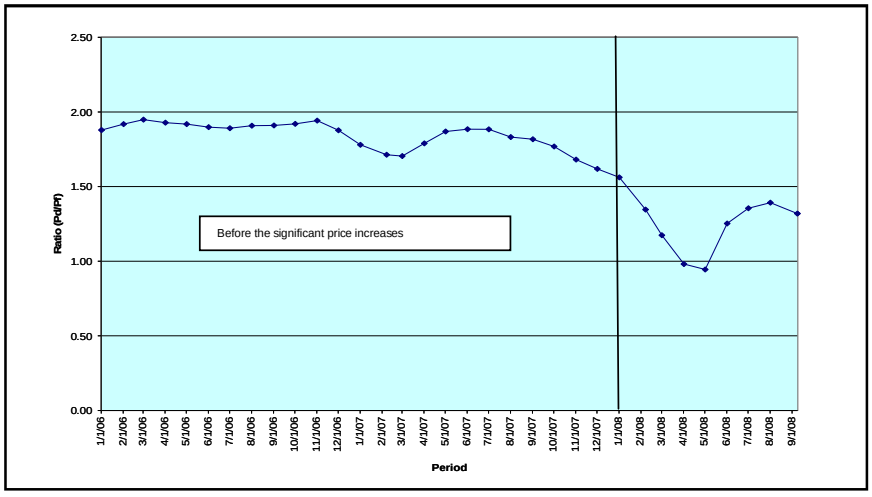
where:

Pd = domestic price
e = exchange rate (P/$)
*P** = foreign price (in US$) per unit of imports

Pass-Through Rates for Rice

Figure 3 reveals a decline in the ratio of domestic price- to foreign price during the period (January 2008 to June 2008) of significant rice price increases as compared to the previous months. In fact, the ratio significantly decrease starting January 2008. Although the ratios started to increase again in July 2008, it is important to note that the ratio has not gone back to its original level. Before the significant price increases (covering the period January 2006 to December 2007), the average ratio was about 1.84 while the ratio was lower in 2008 at an average 1.26. The decline in the ratio confirms that the government did not allow a complete pass-through of the changes in the foreign price. In fact, in April and May 2008, the ratio of domestic price- to foreign price is less than one. This is the period when world price of rice was higher than its domestic price. The subsidy provided by the government during this period may have contributed to this pattern.

Figure 3. Trend in the Ratio of Domestic Price of Rice to Foreign Price (in local currency) January 2006- September 2008



Source of basic data: Bureau of Agricultural Statistics (BAS)

For the regression analysis, domestic price was represented by the retail price per kilogram of regular milled rice while foreign price is represented by the price of white broken rice, Thai A1 Super, f.o.b. Bangkok (Friday closing price). Regression estimation utilizing the data for the period January 2000 to December 2006 (which serves as the reference period) results to the following equation: ln *Pd* =4.77- 0.342 ln*e* + 0.278 ln *P**. Since the coefficients of ln*e* and ln *P** are less than one, it may imply that there is no full pass-through of world prices during the period (Table 1). Using the estimated regression model, the domestic prices after the reference period were projected based on the actual exchange rates and foreign price of rice. Results show that the ratio between the actual domestic prices to the projected domestic price is less than one from November 2007 to April 2008, which may indicate a heavy government intervention during these periods. While the world price of rice started to decline in June 2008, domestic prices only started to decrease during the month of July. This may reflect a lag in the transmission of world prices to domestic prices of rice.

Pass-Through Rates for Fuel

In terms of fuel prices, data reveal that the ratio of domestic price to foreign price[2] slightly declined during the period when there were significant increases in fuel prices (Figure 4). In particular, the average ratio before the price increases (covering the period January 2006 to March 2008) was about 1.88 as compared to 1.60 during the period of rising fuel prices. This trend may, therefore, indicate that the market did not allow a full pass-through of the changes in the foreign price of fuel (in local currency).

The results of the regression analysis utilizing monthly data from January 2003 December 2006 reveal the following relationships: ln *Pd* = 6.28 – 1.30 ln*e* + 0.83 ln *P**.

Since the coefficients are less than 1.0, there is no complete pass-through of fuel prices. Using this model, the estimated domestic prices of fuel for 2007 and 2008 are shown in Table 2. Results show that the ratio of domestic price to foreign price remains below 1.0 in 2007 and 2008. This also reflects an incomplete pass-through of the changes in the foreign price of fuel.

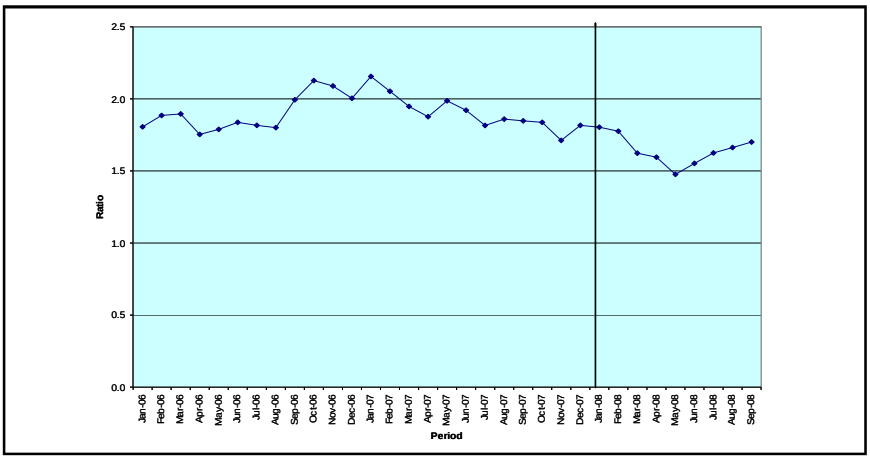
[2] In the absence of data on foreign price of unleaded gasoline and diesel, the world price of crude oil per barrel was converted into price per liter by using the conversion rate of 158.987 liters per barrel of crude oil.

Table 1. Actual and Projected Price of Rice, January 2007-September 2008

Period	Actual domestic price of rice (a)	Projected domestic price of rice (b)	Ratio (a)/(b)
Jan-07	21.35	21.18	1.01
Feb-07	21.43	21.60	0.99
Mar-07	21.77	21.71	1.00
Apr-07	21.91	21.66	1.01
May-07	22.01	21.75	1.01
Jun-07	22.15	21.82	1.02
Jul-07	22.43	22.08	1.02
Aug-07	22.70	22.09	1.03
Sep-07	23.36	22.58	1.03
Oct-07	23.33	23.19	1.01
Nov-07	23.10	23.85	0.97
Dec-07	23.08	24.60	0.94
Jan-08	23.31	25.21	0.92
Feb-08	23.58	26.47	0.89
Mar-08	25.26	27.57	0.92
Apr-08	29.80	30.16	0.99
May-08	31.30	30.26	1.03
Jun-08	35.79	28.60	1.25
Jul-08	35.51	27.93	1.27
Aug-08	32.82	26.82	1.22
Sep-08	30.01	26.02	1.15

Note: Price of fuel used is the average price for diesel and unleaded gasoline
Sources: BAS and author's estimation

Figure 4. Trend in the Ratio of Domestic Price of Fuel to Foreign Price (in local currency), January 2006-September 2008



Source of basic data: Department of Energy (DOE)
Note: Price of US Crude Oil per barrel was converted to local price per liter.

Measuring the Direct and Indirect Effects of Rising Prices of Rice and Fuel on Poverty

Direct Estimation: Based on Changes in CPI

Given the patterns of consumption in 2006, any increase in average prices of rice and fuel during the period 2006 to 2008 would generally increase the prices of goods and services being consumed by households. This means that there will be a proportional increase in the poverty threshold faced by households. Based on simple computation, the weights of rice and fuel in the consumers' basket of the consumer price index (CPI) in the Philippines were used. Note that rice carries a weight of 9.4 percent while fuel (including gasoline and diesel) has a weight of 1.3 percent.

Results of the simple estimation reveal that consumer prices would increase by about 4.1 percent on top of the normal inflation. This means that the minimum amount of per capita income that the population should have so as to meet it basic nutritional requirements would now be about P15,674. This would force more than 1.8 million additional people to fall below the poverty threshold (Table 3). Aside from the increase in the headcount index, there is also an expected increase in the poverty gap, indicating that the population falls farther below on average from the poverty threshold. In fact, the poverty gap index rose from 9.0 before the price hike, to 9.9 after price increases. There is also an increase in the severity index by 0.5.

Table 2. Actual and Projected Price of Fuel, January 2007-September 2008

Period	Actual domestic price of fuel (P/Liter) (a)	Projected domestic price of fuel (P/Liter) (b)	Ratio (a)/(b)
Jan-07	33.75	32.56	1.04
Feb-07	33.45	34.33	0.97
Mar-07	34.70	36.99	0.94
Apr-07	35.70	39.87	0.90
May-07	36.95	40.49	0.91
Jun-07	37.45	42.03	0.89
Jul-07	37.95	45.45	0.84
Aug-07	37.95	43.20	0.88
Sep-07	38.70	46.24	0.84
Oct-07	39.70	49.02	0.81
Nov-07	40.95	55.20	0.74
Dec-07	41.45	55.44	0.75
Jan-08	41.45	45.79	0.91
Feb-08	40.45	45.63	0.89
Mar-08	42.95	50.73	0.85
Apr-08	44.45	52.75	0.84
May-08	48.45	59.28	0.82
Jun-08	55.95	63.44	0.88
Jul-08	60.24	65.41	0.92
Aug-08	54.45	57.91	0.94
Sep-08	49.45	51.69	0.96

Table 3. Poverty Measures: Before and After Rice and Fuel Price Increase (direct estimation based on CPI)

Indicator	Before Price Increase	After Price Increase	Change
% increase in general prices			4.1
Proportion of poor HHs (%)	26.4	28.4	2.0
Magnitude of poor (population)	25,189,434	27,017,826	1,828,392
Headcount Index	30.0	32.2	2.2
Poverty Gap Index	9.0	9.9	0.9
Poverty Severity Index	3.7	4.2	0.5

Note: Poverty measures are based on poverty indices from the Foster, Greer and Thorbecke (FGT) (1984) class
Source of basic data: 2006 FIES, NSO

Capturing the Effects on Other Sectors: Based on the Input-Output Framework

Although the direct estimation presented in the previous section already shows the effect on poverty, the Input-Output (I-O) framework would further allow this study to better capture the overall effects of price changes. Using the 2000 Input-Output Accounts of the Philippines, the impact of price changes that channel through other sectors of the economy are captured in the estimation. The sectors greatly affected by rice and fuel price increases are also identified.

Rice Price Increases: Effects on Other Sectors

Here, the changes in the prices of retail and farmgate prices of rice are incorporated to the Rice and Corn Milling[3], and Palay categories of the I-O Tables. Holding other factors constant, the increase in rice prices is also expected to affect other sectors in the economy. Among the major sectors, short-stay accommodations (other than hotels and motels) will be most affected (Table 4). These are probably the same businesses that provide food services or offer rice meal. Based on the estimation, there would be about a 16.5 percent increase in the prices as a result of rice price increases. Industries involved in the production of miscellaneous food products and animal feeds are also among those greatly

[3] Under the "rice and corn milling" category of the input-output table, it was assumed that rice carries a weight of 71.0 percent based on the BAS 2008 production data.

Table 4. Major Sectors Affected by Rice Price Changes

Sector	% Change in Prices
Other short-stay accommodation, n.e.c.	16.5
Miscellaneous food products	12.7
Manufacture of animal feeds	6.3
Restaurants, bars, canteens & other eating and drinking places	5.4
Hotels and motels	2.7

affected. So would restaurants, bars and canteens, and other eating and drinking places, as well as hotels and motels.

Holding other factors constant, a 39.6 percent increase in the retail prices of rice and 34.9 percent increase in farmgate prices of rice would lead to a 2.14 percent increase in the prices of goods and services, in general. Based on the items consumed by the households, total household expenditures may increase by about 2.97 percent[4] on top of the normal inflation. This would mean that poor households in the Philippines (those with annual per-capita income below P15,057 on average) would require at least P333 to cover the additional expenses of each household member.

Fuel Price Increases: Effects on Other Sectors

As mentioned earlier, the increase in fuel prices can have direct and indirect impact on the welfare of the population. Since most of the households in the Philippines are consumers—rather than producers—of fuel, this section discusses the effects of fuel price increases that channel through consumption only. The 2006 FIES data revealed that households in the Philippines spent an average of P2,039 on fuel (consisting of liquefied petroleum gas and petroleum products—e.g., kerosene/gas.) (Table 5). This is about 1.5 percent of the household's average expenditures. Disaggregated results show that urban households generally spend a higher proportion of their household expenditures on fuel. By comparing across income deciles, it is observed that poorer households

[4] This is a based on the weighted average of the increase in prices of goods and services consumed by households as reflected in the 2000 Input-Output Accounts of the Philippines.

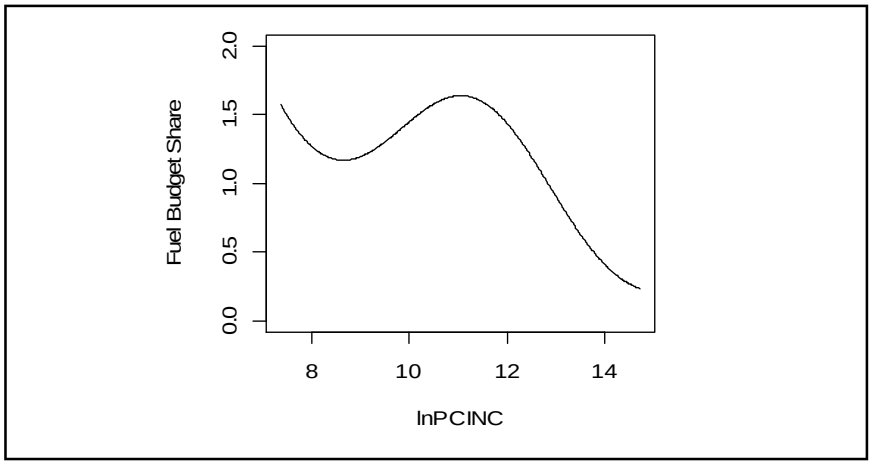
Table 5. Fuel Consumption of Different Groups of Households, 2006

	Petroleum + LPG	
	Ave. Expenditures (P)	Share to Total Expenditures (%)
Philippines	2,039	1.5
Urbanity		
1. Urban	2,845	1.6
2. Rural	1,246	1.3
Income Decile		
1	522	1.6
2	667	1.3
3	785	1.2
4	1,006	1.3
5	1,330	1.4
6	1,822	1.6
7	2,479	1.7
8	3,119	1.8
9	3,796	1.6
10	4,864	1.2

Source of basic data: 2006 FIES, NSO

tend to have higher expenditures on fuel than do the richer households. Richer households in general have a higher fuel budget share compared to those in the lower income deciles although the share is starting to decrease among those at the 9th income decile. Overall, the share of petroleum and liquefied petroleum gas (LPG) combined to total expenditures is higher (1.6%) for the poorest group of households relative to those belonging to the 2nd to 5th income deciles. This trend in fuel consumption is supported by the nonparametric regression of fuel budget share and per-capita income (Figure 5).

Figure 5. Nonparametric Regression of Fuel Budget Share (LPG and Petroleum)



Source of basic data: 2006 FIES, NSO

To analyze the impact of fuel price increases, shocks were incorporated to the petroleum refineries category of the I-O Tables. Note that the increase in the prices of petroleum products impacts a number of sectors in the economy, especially those directly dependent on these products. Since there are many industries that use fuel as inputs to production, the prices of the outputs of many industries are also affected. Most affected by fuel surges is the industry that is engaged in the manufacture of asphalt, lubricants, and miscellaneous products of petroleum and coal, as such is expected to experience an increase in prices by about 22.8 percent (Table 6). Relatively large price increases are also recorded for the transportation industry, including air transportation (10%) and public utility cars and taxicab operations (9.9%). Prices of jeepney, tricycles (motorized and non-motorized) and other road transport (7.2%) and bus line operation

Table 6. Major Sectors Affected by Fuel Price Changes

No.	Industry	Change in Prices (%)
1	Manufacture of asphalt, lubricants and miscellaneous products of petroleum and coal	22.8
2	Air transport	10.0
3	Public utility cars and taxicab operation	9.9
4	Tourist buses and cars including chartered and rent-a-car	9.3
5	Rubber tire and tube manufacturing	9.1
6	Jeepney, tricycles (motorized and non-motorized) and other road transport	7.2
7	Bus line operation	7.1
8	Manufacture of structural concrete products	7.0
9	Postal and courier activities	6.5
10	Manufacture of miscellaneous chemical products	6.5
11	Cement manufacture	6.1

Source of basic data: 2000 I-O Accounts of the Philippines

Table 6 (Continued)

No.	Industry	Change in Prices (%)
12	Manufacture of pesticides, insecticides, etc.	6.0
13	Sea and coastal water transport	5.7
14	Manufacture of ice, except dry ice	5.4
15	Manufacture of synthetic resins, plastic materials and other man-made fiber except glass	5.0
16	Manufacture of fertilizers	4.9
17	Stone quarrying, clay and sand pits	4.6
18	Manufacture of perfumes, cosmetics and other toilet preparations	4.5
19	Crude oil and natural gas	4.4
20	Chromite mining	4.4
21	Electricity	4.1
22	Renting of equipments	4.0

Source of basic data: 2000 I-O Accounts of the Philippines

(7.1%) also increased. Note that the increase in the prices of road transportation such as jeepneys, tricycles and buses could affect the middle-income and poor households more since these are the groups who consume much of these services. It is also important to note that some agriculture-related industries such as the manufacture of pesticides and insecticides (6%) and fertilizers (4.9%) also exhibited an increase in prices since these industries, particularly the fertilizer industry, are highly dependent on fuel as an input. This may mean that eventually, farmers (who are usually poor) would also be affected by fuel price increases. Even the price of electricity is expected to increase by about 4.1 percent as a result of the fuel price increase.

Holding other factors constant, a 30.1 percent increase in the average price of unleaded gasoline from 2006 to 2008 is expected to result to a 1.5 percent increase in the average prices of goods and services (assuming that prices of all types of petroleum, including LPG, would increase at the same rate). However, average household expenditures are expected to increase by a higher rate (i.e., about 1.9%). This is primarily because of the larger increase in the prices of goods and services commonly consumed by households. Note that the 1.9 percent increase in prices of goods and services consumed by households is also on top of the normal inflation that they would experience.

Simultaneous Increases in Rice and Fuel Prices: Effects on Other Sectors

A simultaneous change in the prices of rice (39.6% for retail prices and 34.9% for farmgate prices) and fuel (30.1%) was simulated using the I-O Tables. Results show that there would be a 3.7 percent increase in the prices of goods on top of the normal inflation. However, in terms of the goods and services consumed by households, an average of 5.2 percent increase is expected due to rice and fuel increases. This is also on top of the normal inflation being experienced by the households.

Table 7 shows that the industry focused on the manufacture of asphalt, lubricants and miscellaneous products and coal would be most affected, judging from the 22.9 percent increase in the price of its outputs. In addition, businesses offering short-stay accommodations (other than hotels and motels) and manufacturing miscellaneous food products and animal feeds are also greatly impacted. As expected, those in the transportation sector are also affected.

Simultaneous Change in the Prices of Rice and Fuel: Impact on Poverty Incidence

In the previous section, the estimation of the direct effects of rice price changes revealed that poverty would increase by about 2 percent. However, estimation based on the I-O framework resulted in a higher increase in general prices (i.e., 2.5%). This is primarily because this estimation captures the effects

Table 7. Major Sectors Affected by the Simultaneous Changes in Rice and Fuel Prices

No.	Industry	Change in Prices (%)
1	Manufacture of asphalt, lubricants and miscellaneous products of petroleum and coal	22.9
2	Other short-stay accommodation, n.e.c.	17.2
3	Miscellaneous food products	13.8
4	Air transport	10.2
5	Public utility cars and taxicab operation	10.0
6	Tourist buses and cars including chartered and rent-a-car	9.3
7	Rubber tire and tube manufacturing	9.2
8	Manufacture of animal feeds	7.5
9	Jeepney, tricycles (motorized and non-motorized) and other road transport	7.2
10	Bus line operation	7.2

of price changes that channel through other sectors of the economy. Results show that there would be a 5.2 percent increase in the total household spending as a result of rice and fuel price increases. This would mean that the national poverty threshold would now be about P15,840 per capita per year. Thus, poor households in the Philippines (those living below the poverty threshold of about P15,057 per-capita per year) would need an additional P783 per person to maintain their original utility level. Given an average household size of five, a poor household would need at least P3,915 additional income per year to cope with the higher prices of rice and fuel.

In 2006, there are about 25.2 million poor people in the Philippines. Based on the 2006 FIES data, there are about 2.2 million people with per capita income that is 5 percent higher than the provincial poverty threshold. Since this is the

most vulnerable group, the 5.2 percent increase in the household expenditures would force such households to fall below the poverty line. In fact, about 2.3 million more people will become poor as a result of the higher prices of rice and fuel (Table 8). Holding other factors constant, poverty incidence would go up by about 2.5 percent)—from 26.4 percent pre-rice price increase to 28.9 percent after the price increase. The number of poor households would grow because their real income is reduced by the rice price increases. The headcount index, in fact, would increase by 2.7 percent. Poverty gap is also expected to widen: i.e., the poor households become poorer as their per-capita income falls far below the poverty threshold. As expected, poverty also becomes more acute as reflected by the rise in the poverty severity index.

Table 8. Poverty Measures: Before and After Rice and Fuel Price Increase (based on I-O framework)

Indicator	Before Price Increase	After Price Increase	Change
%increase in prices			5.2
Proportion of poor HHs (%)	26.4	28.9	2.5
Magnitude of poor (population)	25,189,434	27,466,699	2,277,265
Headcount Index	30.0	32.7	2.7
Poverty Gap Index	9.0	10.1	1.1
Poverty Severity Index	3.7	4.3	0.6

Note: Poverty measures are based on poverty indices from the Foster, Greer and Thorbecke (FGT) (1984) class Source of basic data: 2006 FIES

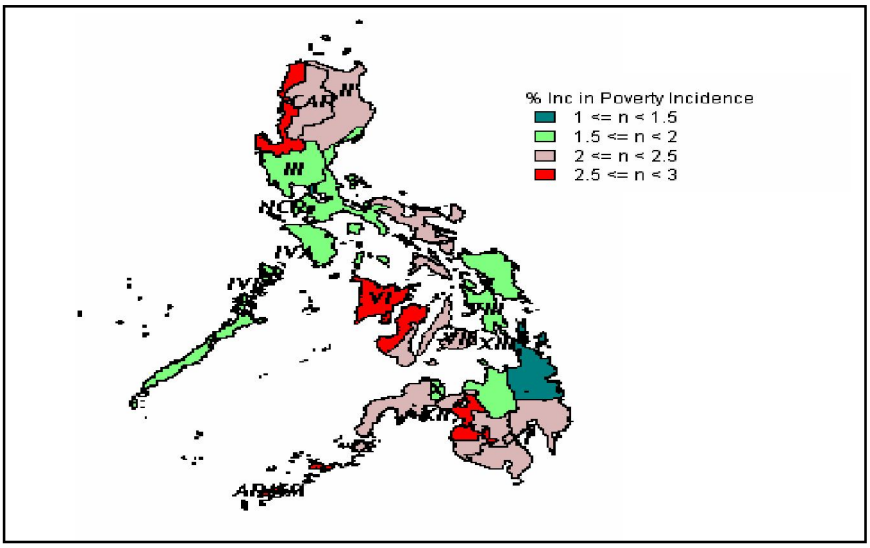
Because of rice price hikes, both urban and rural poverty would increase (Table 9). However, the percentage increase in poverty incidence is higher in the rural areas than in the urban areas. In fact, rural poverty would increase by 2.5 percentage points while that in the urban areas would increase by only 1.4 percentage points. As expected, poverty rate across all regions in the Philippines would also rise. The incidence of poverty is largest in ARMM (3.8%) and lowest in the NCR (1.3%). Figure 6 shows the percentage increase in poverty incidence across different regions in the Philippines as a result of the increase in rice and fuel prices.

Table 9. Poverty Incidence Based on the Level of Urbanization and Geographical Location Before and After Rice Price Increase (%)

	Poverty Incidence (Before Rice Price Increase)	Poverty Incidence (After Rice Price Increase)	% Increase in Poverty Incidence
Philippines	26.4	28.9	2.5
Urbanity			
1. Urban	14.6	16.0	1.4
2. Rural	35.9	38.4	2.5
Region			
NCR	5.2	6.5	1.3
CAR	29.8	32.2	2.4
I – Ilocos	22.9	26.6	3.7
II - Cagayan Valley	18.2	21.4	3.2
III - Central Luzon	14.5	16.7	2.2
IVA – CALABARZON	14.7	16.9	2.2
IVB – MIMAROPA	38.6	41.0	2.4
V – Bicol	40.2	43.3	3.1
VI - Western Visayas	28.1	31.1	3.0
VII - Central Visayas	24.9	27.4	2.5
VIII - Eastern Visayas	36.0	38.6	2.6
IX - Zamboanga Peninsula	42.0	44.5	2.5
X - Northern Mindanao	35.5	37.6	2.1
XI – Davao	29.7	32.4	2.7
XII - SOCCSKSARGEN	31.6	34.6	3.0
XIII – Caraga	42.8	44.9	2.1
ARMM	48.5	52.3	3.8

Source of basic data: 2006 FIES, NSO; Incidence of poverty after price increase is based on author's estimation; 2006 data are used as baseline information

Figure 6. Percentage Increase in the Poverty Incidence Across Different Regions in the Philippines Due to the Increase in Rice and Fuel Prices



Source of basic data: 2006 FIES (NSO) and author's estimation

Impact of Rising Prices of Rice on Different Household Groups

As highlighted earlier, households that are net producers are expected to benefit while those who are net consumers tend to lose from increasing prices. The succeeding sections examine the results further by determining which household groups would benefit (and conversely, be adversely affected) most relative to the other groups.

Income Distribution

The income distribution based on geographical location and level of urbanization provides the foundation for understanding the likely differences in the impact on different households. This also helps to understand the distributional effects of price changes.

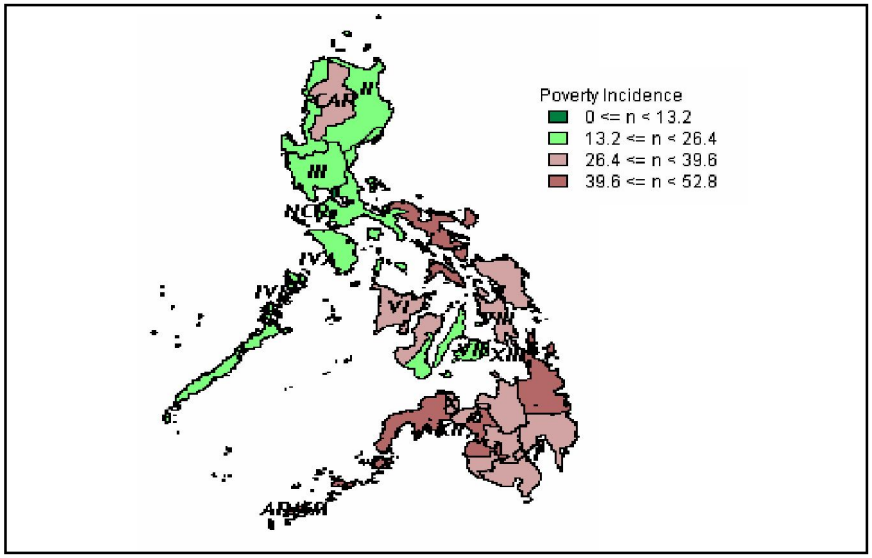
The 2006 FIES reveals the disparities in living standards across all regions in the Philippines. Ignoring price differences, NCR has the highest annual per-capita income (*PCINC*) at an average amount of P80,950 (about US$1,578[5]) per year when compared across all regions. This value is more than four times that

[5] The average exchange rate in 2006 is P51.31 per US$.

of ARMM's average annual *PCINC* of P18,083 for all households. It is also important to highlight that urban households in regions near NCR (i.e., CALABARZON. CAR, and Central Luzon) generally have higher income levels compared to those in other regions (Annex A).

In 2006, the poverty threshold for the Philippines was about P 15,057 (US$293) per capita per year. This translates to a poverty incidence (among families) of about 26.4 percent during the period. Figure 7 shows the poverty rates across regions in the Philippines. Across all regions, poverty is highest in ARMM (48.5%), followed by Caraga (42.8%), Zamboanga Peninsula (42%) and Bicol (40.2%). The lowest poverty incidence is in NCR at 5.2 percent.

Figure 7. Poverty Rates in the Philippines, 2006 (in %)



Source of basic data: 2006 FIES, NSO

It is also important to highlight that rural poverty is greater compared to urban poverty (Table 10). In fact, the poverty incidence in the rural areas is about 35.9 percent—more than twice the poverty rate in urban areas (14.6%).

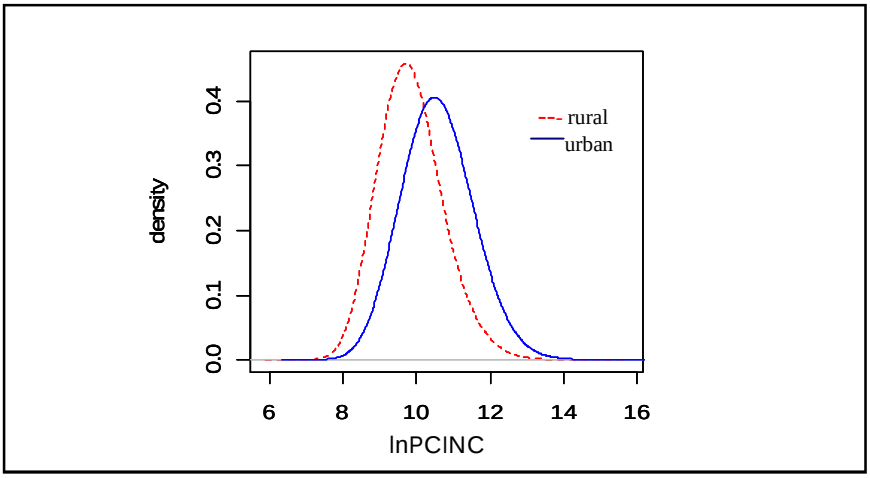
Figure 8 further highlights how income is distributed across households in urban and rural areas. Here, the height of the curve corresponds to the number of observations that fall into the band. It is clear that urban households generally have higher living standards compared to rural households. This is well-documented in developing countries such as the Philippines. The long upper tail

Table 10. Average Annual Income of Households and Poverty Incidence, by Urbanity, 2006

	Ave. Per Capita Income (Pesos)	Poverty Incidence(%)
Philippines	42,823	26.4
Urban	59,238	14.6
Rural	26,677	35.9

Source of basic data: 2006 FIES, NSO

Figure 8. Distribution of Income by Urbanity, 2006



of the distribution demonstrates the presence of extremely rich households and illustrates the existence of inequality predominantly across urban households. Urban households, on the average, have *PCINC* of P59,238, which is more than twice the average *PCINC* of rural households' P26,677 (Table 11). The measures of dispersion, particularly the coefficient of variation, show the variations among the urban households and among the rural households.

Rice Consumption Patterns

Based on the 2006 FIES data, rice is consumed by about 97.4 percent of households in the Philippines. However, there is also a great deal of variation in the patterns of rice consumption across different households groups (Table 12). In 2006, the average annual household rice expenditures in the Philippines was

Table 11. Distribution of Income in Urban and Rural Areas, 2006

	Philippines	Urban	Rural
Mean Income (P)	42,823	59,238	26,677
Standard Deviation (P)	61,678	77,085	34,292
Coefficient of Variation	1.44	1.30	1.29
Minimum PCINC (P)	1,576	2,488	1,576
Maximum PCINC (P)	2,495,499	2,495,499	1,602,242

about P11,461, which accounts for about 11.9 percent of their total expenditures. The share of rice to total household expenditure is higher for rural households. It is important to highlight that the rice budget share (*RBSHARE*) among the poorest households (those at the lower deciles) is higher compared to the richest households (those at the higher income deciles). In fact, the share of rice to total budget generally decreases as households move from a one decile to a higher level.

Holding other factors constant, it is expected that the significant increase in rice prices can adversely affect the lower-income groups. In particular, it is expected to result in welfare losses for those already living below the poverty line and can possibly drive others into poverty. This can lead to more unequal distribution of income. Therefore, safety measures should be provided to the poorest households to mitigate the negative impact of increasing rice prices on them. Results of the 2006 FIES also reveal that households in NCR have the least rice budget share (*RBSHARE*) at 5.1 percent while households living in ARMM have the highest *RBSHARE* at 19.4 percent (Annex B and Figure 9).

The abovementioned generalizations are also supported by the joint density of *RBSHARE* and *PCINC* (Figure 10). These contours are similar to smoothed histograms in a three-dimensional view. The heights of the histograms are the fraction of households at the levels of *PCE* and *RBSHARE* represented by the coordinates at the base. Therefore, the points that are linked by a contour have the same density. The plots clearly illustrate the variation in *RBSHARE* within each group of households. For rural households with *PCINC* of about P10,000, there are groups whose expected *RBSHARE*s are as low as 5 percent and as high as 13 percent. Variation in *RBSHARE* is also observed for urban households. Note that there are smaller contours that lie separately from the major contours. These represent the outliers with respect to the main distribution

Table 12. Rice Expenditure Patterns Across Different Group of Households, 2006

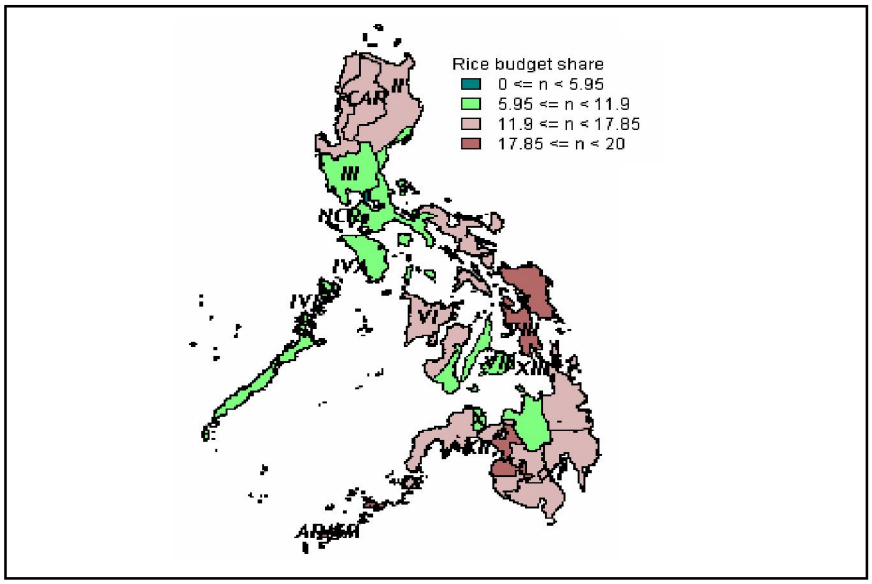
	Ave. HH Expenditures (P)	Ave. HH Rice Expenditures (P)	Ave. Rice Budget Share (%)
Philippines	147,180	11,461	11.9
Urbanity			
1. Urban	199,129	11,276	8.4
2. Rural	96,084	11,642	15.2
Income Decile			
1	35,243	6,266	17.5
2	52,332	9,802	18.8
3	65,522	11,372	17.5
4	78,790	11,990	15.5
5	95,226	12,151	13.1
6	115,962	12,229	10.9
7	143,384	12,358	9.0
8	181,311	12,465	7.2
9	244,257	12,664	5.5
10	459,756	13,308	3.5

Source of basic data: 2006 FIES, NSO

and may indicate some important information about the situation of poor households. For instance, for the poorest urban households, a very wide variation in the *RBSHARE* is recorded, i.e., some groups are expected to have about 3 percent while others have about 25 percent.

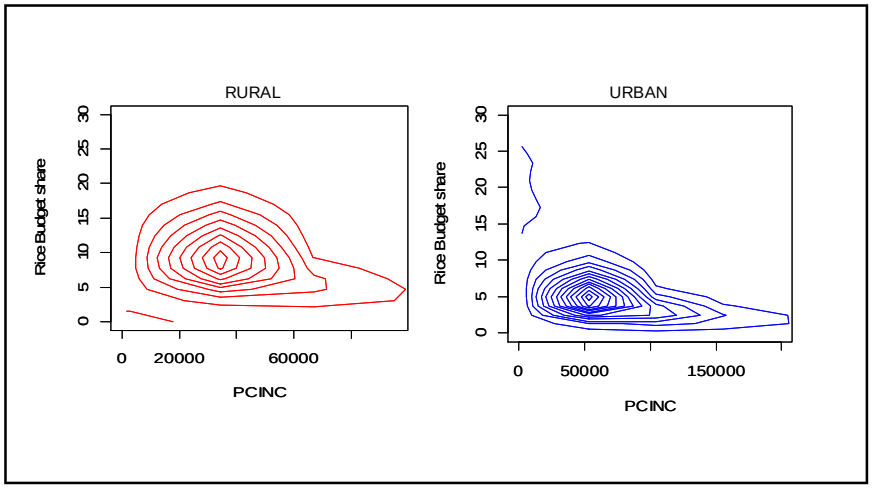
The nonparametric regression between *RBSHARE* and ln*PCINC* also reveals that the share of rice to total budget decreases as income increases (Figure 11). The generally downward sloping curves for both groups of households confirm Engel's law that the share of rice expenditures on total budget decreases as living

Figure 9. Average Rice Budget Share of Different Groups of Households, 2006 (in %)



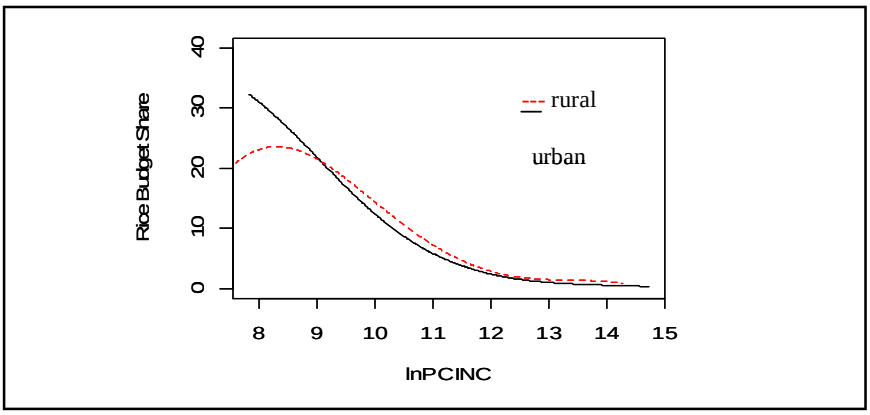
Source of basic data: 2006 FIES

Figure 10. Patterns of *RBSHARE* and Per Capita Income, 2006



Source of basic data: 2006 FIES

Figure 11. Nonparametric Regression of *RBSHARE* and ln*PCINC*, 2006



Source of basic data: 2006 FIES

standards rise. In fact, the richest households on the average allotted a considerably smaller proportion of their budget to rice compared to other households. However, in absolute terms, the amount they spend on rice may exceed those of the poorest households.

Poor rural households at the bottom of the expenditure distribution exhibit a very interesting pattern. In fact, for households with very low income levels, the share of rice consumption increases with income but beyond a certain level, the share of rice to total budget begins to fall. Although this could possibly be because there are fewer observations in this extremely low income range, such trend provides an important insight into the rice consumption patterns of this household group. Such implies a number of possibilities. It may be that the poorest households are consuming other cereal products (e.g., instant noodles) or are eating less rice because they cannot afford it and may even simply suffer from hunger. For this group of households, a unit increase in income would tend to increase their consumption of rice and hence, the share of rice to total expenditures becomes larger. At the other end of the distribution, however, a flatter curve is observed for both rural and urban groups, reflecting lower expenditure elasticity for richer households. This means that the share of rice to total budget does not change significantly as households become very rich. Figure 11 also demonstrates the welfare effects of price changes that operate through consumption. For instance, if farmers continue to receive the same price for production (i.e., farmgate prices remain constant) but consumer prices rise, the poorest households will be hurt more than the richest households.

Based on the 2006 FIES, poor households spend about 19.9 percent of their expenditures on rice while nonpoor households allot 9 percent of their budget to rice (Table 13). In fact, poor households spend an average of P2,082 of their budget for rice consumption. On the other hand, nonpoor households consume about P4,888 of their total budget for rice. This means that while the amount allotted by nonpoor households to rice is higher, its share to their total expenditures is relatively lower.

It is also worth noting that among all the National Food Authority (NFA) rice consumers, only 46.6 percent are considered poor. In addition, among all poor households (who are supposed to benefit from subsidized NFA rice), only 24 percent were able to access NFA rice. This also provides some indication on the program's performance with regard targeting the poor.

Table 13. Rice Expenditure Patterns of Poor and Nonpoor Households, 2006

	Poor	Nonpoor
Ave. HH expenditures (P)	10,466	54,314
Ave. *RBSHARE* (%)	19.9	9.0
Rice Expenditures (P)	2,082	4,888
Share to total NFA rice consumers (%)	46.6	53.4
Proportion of NFA rice consumers (%)	24.0	76.0

Source of basic data: 2006 FIES and author's computation

Results of the 2006 FIES also reveal that only about 13.9 percent of households in the Philippines consume NFA rice (Table 14 and Annex C). On the average, NFA rice represents about 5.5 percent of the households' total rice expenditures. Note that for households in the lowest income decile, NFA rice accounted for only about 12.7 percent of their total spending on rice. Based on the level of urbanity, households in urban areas generally have lower NFA rice share (3.5%) to total household rice consumption. Across different regions, the largest proportion of households who consume NFA rice is located in Bicol region (46.7%). On the other hand, the least proportion of NFA rice consumers is in Western Visayas (2.9%) (Annex C and Figure 12). These findings may be attributed to the extent of the government's interventions, particularly the NFA interventions, in these regions.

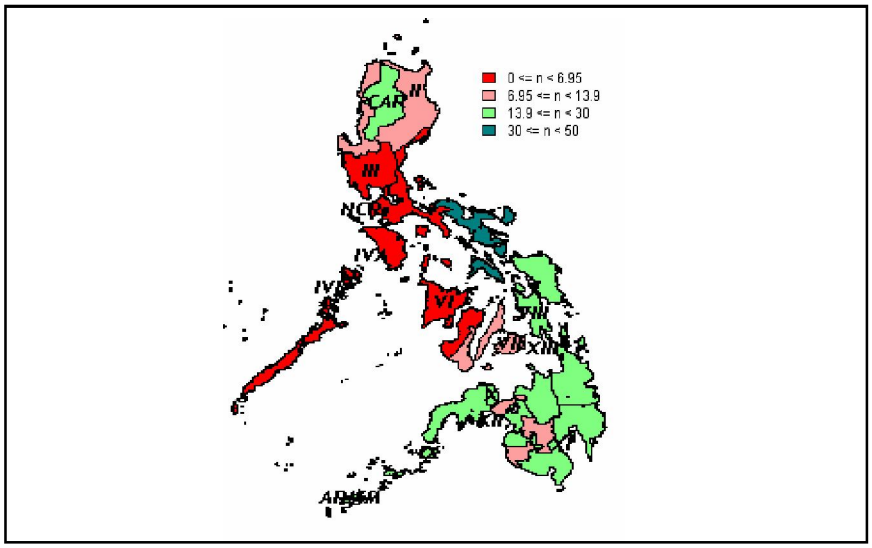
Table 14. Patterns in NFA Rice Consumption, 2006

	Share to Total Rice Expenditures (%)	Proportion of NFA Rice Consumers (%)
Philippines	5.5	13.9
Urbanity		
1. Urban	3.5	8.2
2. Rural	7.4	16.7
Income Decile		
1	12.7	22.9
2	10.3	21.9
3	8.4	18.7
4	7.0	15.7
5	5.8	14.4
6	4.2	10.7
7	2.5	7.9
8	2.3	6.6
9	1.2	3.7
10	0.7	2.3

Source of basic data: 2006 FIES, NSO

Moreover, households that either produce palay or receive a net share of palay produced by other households, did not sell all their palay produce in the market. In fact, about 28.2 percent of their own palay produce in 2006 were consumed at home while about 0.8 percent were given away as gifts. This means that only about 71 percent of these household's palay produce (including their own palay production and their net share of palay produced by other households) are sold in the market.

Figure 12. Proportion of NFA Rice Consumers Across Different Regions, 2006



Source of basic data: 2006 FIES, NSO

Rice Production Patterns

Based on the 2006 FIES, about 14.4 percent of households in the Philippines were producers of rice (Table 15 and Annex C). A large proportion (about 41.8%) of the income of these rice producers comes from rice production. As expected, the proportion of rice producers in rural areas is higher compared to urban areas. It is also observed that there are more rice producers among the poorest households, i.e., those at the 2nd and 3rd deciles have the higher probability of involvement in rice production.

The largest proportion of rice producers is recorded in CAR (38%) and Cagayan Valley (35.6%). Data also show that the palay income share decreases as households move up the income decile. This means that the poorest households have the highest palay income share while the richest households have the lowest palay income share. Richer households, in fact, have more opportunities to be involved in other economic activities and do not need to rely heavily on rice production income. On the other hand, poorer households are more dependent on palay production as a source of income. Palay income share is highest among

Table 15. Proportion of Rice Producers and Palay Income Share, 2006

	Proportion of Rice Producers (%)	Ave. Palay Income Share Among Rice Producers (%)
Philippines	**14.4**	**41.8**
Urbanity		
1. Urban	4.6	42.1
2. Rural	24.1	41.7
Income Decile		
1	17.7	47.5
2	20.7	47.4
3	22	46.5
4	19.2	44.2
5	15.9	40.1
6	13.9	39.5
7	11.1	37.3
8	9.5	33.1
9	8.5	31.1
10	5.8	27.6

Source of basic data: 2006 FIES, NSO

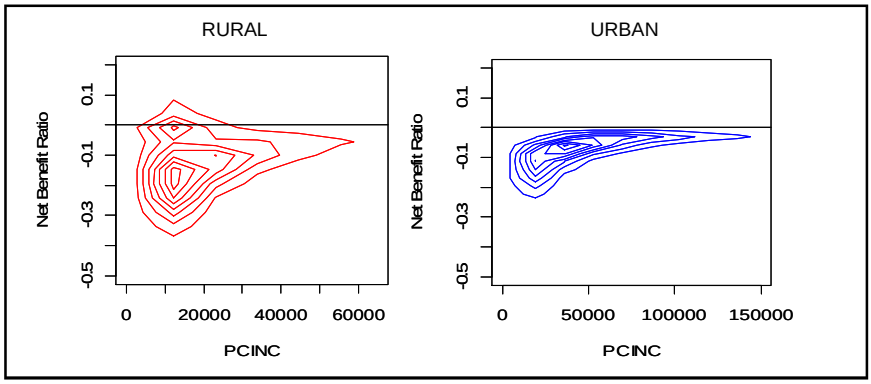
households in the following regions: (1) ARMM (77%); (2) Central Luzon (55.8%); (3) SOCCSKSARGEN (55.2%) ; and (4) Davao (53.2%) (Annex D).

Net Consumers and Net Sellers of Rice

Figure 13 shows that most households in the Philippines are expected to be net consumer of rice (i.e., most of the households across different income

groups in both urban and rural areas have expected NBRs of less than 1). In the figure, the horizontal line divides the net producers and the net consumers of rice. Although most of the rice producers are located in the rural areas, it is notable that a large proportion of rural households are still considered net consumers. Meanwhile, as expected, urban households are generally expected to be net consumers of rice. This also confirms the earlier generalizations that most households living in urban areas are expected to be negatively affected by rice price increases.

Figure 13. Distribution of NBR **across different levels of living standards in rural and urban areas, 2000.**



Note: *PCINC* in thousand pesos
Source of basic data: 2000 FIES, NSO

Data from the 2006 FIES confirms that there are more net consumers (84.7%) of rice than net producers (12.8%) in the Philippines (Table 16, Annex E, and Annex F). This shows that more households in the country would be negatively affected by the increase in rice prices. The same generalization is arrived at when results are disaggregated by urbanity, by income decile, and by region. It is important to highlight that within each group of households, a higher proportion of net consumers (93.8%) is recorded in urban areas as compared to rural areas (75.8%). While majority of households in the rural areas are also net consumers of rice, the proportion of net producers within these areas is also expectedly higher compared to urban households. Moreover, the groups of households at the 3rd, 2nd and 4th deciles recorded the highest proportion of net rice producers (17.4%, 16.1% and 16%, respectively) relative to other groups. As expected, the largest proportions of net rice consumers are reported for those at the 10th (92%), 9th (89.8%) and 8th (89.8%) deciles.

Table 16. Proportion of Net Consumers and Net Producers by Group of Households, 2006

	Net Consumers (%)	Net Producers (%)	Zero Net Consumption (%)
Philippines	**84.7**	**12.8**	**2.4**
Urbanity			
1. Urban	93.8	5.0	1.2
2. Rural	75.8	20.5	3.7
Income Decile			
1	74.7	13.9	11.4
2	79.7	16.1	4.1
3	79.9	17.4	2.7
4	81.9	16.0	2.1
5	84.7	14.1	1.2
6	86.7	12.7	0.6
7	88.3	10.9	0.8
8	89.8	9.9	0.4
9	89.8	9.6	0.6
10	92.0	7.6	0.5

Source of basic data: 2000 FIES, NSO

Across all regions, NCR (98.6%) and CALABARZON (96.2%) recorded the highest proportion of net consumers while Cagayan Valley (36.8%) and Ilocos Region (29.1%) recorded the largest proportion of net producers.

Based on the distribution, most of the net producers in the Philippines are located in the rural areas (80.7%) while most of the net consumers are located in the urban areas (54.9%) (Table 17). Although most net producers in the Philippines belong to the lower income deciles (i.e., 3rd, 2nd and 4th deciles) and most net consumers are in the upper income deciles, it is of no surprise that the

poorest households (especially those who belong to the 1st income decile) are the most vulnerable to price changes. This means that the poorest households are the ones who are most adversely affected by price increases, eroding their purchasing power, and thereby worsening their poverty situation. Of all regions in the Philippines, most of the net consumers are located in NCR (15.8%) and CALABARZON (14.7%) while most net producers are in Central Luzon (13.2%) and Ilocos Region (12.4%) (Annex F).

Table 17. Share of Each Group of Households to the Total Net Consumers and Net Sellers in the Philippines, 2006

	Net Consumers (%)	Net Producers (%)	Zero Net Consumption (%)
Philippines	**100.0**	**100.0**	**100.0**
Urbanity			
1. Urban	54.9	19.3	24.2
2. Rural	45.1	80.7	75.8
Income Decile			
1	8.8	10.8	46.7
2	9.4	12.6	16.8
3	9.4	13.6	11.0
4	9.7	12.5	8.5
5	10.0	11.0	4.9
6	10.2	9.9	2.5
7	10.4	8.5	3.4
8	10.6	7.7	1.6
9	10.6	7.5	2.5
10	10.9	5.9	2.0

Source of basic data: 2000 FIES, NSO

NBR: Measuring the Impact of Increasing Prices of Rice

To determine the direct impact of rice price increases on household welfare, a simulation was done and the variation in NBR among different groups of households was analyzed. In particular, the simulation involved a 39.6 percent increase in retail prices of rice, which is the actual increase in the average retail prices of rice between the periods 2006 (baseline period) and 2008. On the other hand, the average farmgate price of palay rose by about 34.9 percent, from P10.88 in 2006 to about P14.68 in 2008. Given the negative NBRs, households in the Philippines would be negatively affected by the increase in both farmgate and retail rice prices (Table 18). Again, it is the rural households that would have much to lose. The poorest households are also the most adversely affected.

Table 19 reiterates the earlier results. In fact, about 85.5 percent of households in the Philippines would be negatively affected while only 12.1 percent of the households would benefit from the increase in rice prices. There is also a small proportion (2.4%) of households that are not directly affected by rice price changes; these would be households whose palay income share is equal to the rice budget share as well as those that do not produce palay nor consume rice such as those in regions where the main staple is not rice.

Disaggregation of the results by urbanity, income decile, and region follows the same trend. A larger proportion of losers is recorded for the urban areas (94.1%) as compared to rural areas (77%). Table 20 reveals that based on the distribution, most of the losers in the Philippines are, in fact, living in the urban areas (54.6%) while most of the gainers are located in the rural areas (80.6%). Most of the gainers belong to the 3rd, 2nd and 4th income deciles.

When viewed based on the regional patterns, one finds that a larger proportion of households in each region would tend to lose from rice price increases. Most of the losers are living in NCR (15.7%) and CALABARZON (14.6%).

As mentioned earlier, among all poor households (who are supposed to benefit from subsidized NFA rice), only 24.0 percent purchase NFA rice. This is an indication of the extent of NFA interventions in the country. Assuming that all poor households would consume NFA rice only, their NBRs would slightly change (Table 21). Although NBRs of poor households remain negative (i.e., -0.063), there would be a slight positive effect in their net position. This means that, given their level of production and consumption, poor households would benefit if they could access the subsidized NFA rice. On the other hand, if nonpoor households are not allowed to access the highly subsidized NFA rice but instead

Table 18. Net Benefit Ratios of Different Groups of Households Before and After Price Increases

	Ave. NBR Before Price Increases	Ave. NBR After Price Increases	Change in NBR
Philippines	**-0.05**	**-0.07**	-0.022
Urbanity			
1. Urban	-0.060	-0.085	-0.025
2. Rural	-0.033	-0.052	-0.019
Income Decile			
1	-0.089	-0.128	-0.039
2	-0.086	-0.125	-0.039
3	-0.066	-0.098	-0.031
4	-0.058	-0.086	-0.028
5	-0.054	-0.078	-0.025
6	-0.039	-0.058	-0.019
7	-0.035	-0.051	-0.016
8	-0.026	-0.038	-0.012
9	-0.012	-0.019	-0.007
10	-0.003	-0.006	-0.003
Region			
NCR	-0.051	-0.071	-0.020
CAR	-0.006	-0.014	-0.008
I – Ilocos	-0.019	-0.032	-0.013
II - Cagayan Valley	0.118	0.153	0.035
III - Central Luzon	0.005	0.002	-0.003
IVA – CALABARZON	-0.075	-0.105	-0.030
IVB – MIMAROPA	-0.012	-0.025	-0.013
V – Bicol	-0.071	-0.103	-0.032
VI - Western Visayas	-0.064	-0.093	-0.029
VII - Central Visayas	-0.060	-0.087	-0.026
VIII - Eastern Visayas	-0.113	-0.162	-0.048
IX - Zamboanga Peninsula	-0.055	-0.081	-0.025
X - Northern Mindanao	-0.077	-0.109	-0.032
XI – Davao	-0.080	-0.114	-0.034
XII – SOCCSKSARGEN	-0.035	-0.056	-0.020
XIII – Caraga	-0.078	-0.114	-0.036
ARMM	-0.049	-0.075	-0.026

Source of basic data: 2000 FIES

Table 19. Proportion of Losers and Gainers After Rice Price Increases (in %)

	Losers	Gainers	Not Affected
Philippines	85.5	12.1	2.4
Urbanity			
1. Urban	94.1	4.7	1.2
2. Rural	77.0	19.3	3.7
Income Decile			
1	76.0	12.6	11.4
2	80.8	15.1	4.1
3	81.0	16.3	2.7
4	83.0	14.9	2.1
5	85.7	13.1	1.2
6	87.2	12.2	0.6
7	88.5	10.7	0.8
8	90.1	9.5	0.4
9	90.1	9.3	0.6
10	92.4	7.1	0.5
Region			
NCR	98.6	-	1.4
CAR	77.0	22.9	0.1
I – Ilocos	72.8	26.7	0.4
II - Cagayan Valley	62.7	36.2	1.2
III - Central Luzon	84.8	14.9	0.3
IVA – CALABARZON	96.4	2.9	0.7
IVB – MIMAROPA	76.6	23.3	0.1
V – Bicol	82.1	17.3	0.6
VI - Western Visayas	82.7	16.6	0.7
VII - Central Visayas	80.5	8.4	11.1
VIII - Eastern Visayas	86.3	13.3	0.3
IX - Zamboanga Peninsula	74.7	12.2	13.0
X - Northern Mindanao	84.5	7.5	8.0
XI – Davao	89.7	6.1	4.2
XII – SOCCSKSARGEN	81.9	16.9	1.1
XIII – Caraga	84.5	14.1	1.4
ARMM	84.2	15.7	0.1

Note: based on author's estimation
Source of basic data: 2006 FIES

Table 20. Distribution of Losers and Gainers After Rice Price Increases (in %)

	Losers	Gainers	Not Affected
Philippines	100.0	100.0	100.0
Urbanity			
1. Urban	54.6	19.4	24.2
2. Rural	45.4	80.6	75.8
Income Decile			
1	8.9	10.4	46.7
2	9.5	12.5	16.8
3	9.5	13.5	11.0
4	9.7	12.4	8.5
5	10.0	10.8	4.9
6	10.2	10.1	2.5
7	10.4	8.8	3.4
8	10.5	7.9	1.6
9	10.5	7.7	2.5
10	10.8	5.9	2.0
Region			
NCR	15.7	3.3	7.9
CAR	1.6	4.0	0.1
I – Ilocos	4.6	12.0	1.0
II - Cagayan Valley	2.6	10.7	1.7
III - Central Luzon	10.9	13.6	1.3
IVA – CALABARZON	14.6	6.0	3.8
IVB – MIMAROPA	2.8		0.2
V – Bicol	5.6	8.3	1.3
VI - Western Visayas	7.6	10.8	2.3
VII - Central Visayas	7.0	5.1	33.9
VIII - Eastern Visayas	4.7	5.2	0.6
IX - Zamboanga Peninsula	3.1	3.6	19.1
X - Northern Mindanao	4.5	2.8	14.9
XI – Davao	5.1	2.4	8.4
XII – SOCCSKSARGEN	4.1	6.0	2.0
XIII – Caraga	2.5	3.1	1.5
ARMM	3.0	3.0	0.1

Note: based on author's estimation
Source of basic data: 2006 FIES

Table 21. NBRs of Poor and Nonpoor Households

	NBR(Original)	NBR(Scenario 1)	Difference in NBR
Poor	-0.113	-0.063	0.051
Nonpoor	-0.025	-0.039	-0.014

Notes: Scenario 1 assumes that all poor households purchase NFA rice only while nonpoor households buy non-NFA rice. The provincial average prices of fancy and premium rice are used to proxy commercial price of rice.

had to contend with commercial rice, results would show a decrease in their NBRs by about 0.014, reflecting a decline in their welfare status.

Impact of Rice Price Increases on Rice Farm Households

Net Position of Rice Farm Households

Although most of the rice farm households in the Philippines in 2006 are net producers of rice (78%), the proportion of net consumers is also fairly large (22%) (Table 22). It is possible that the income derived by these households from rice production is not sufficient to support their home consumption. In some cases, rice producers sell their palay produce so that they will have the cash to finance other household expenses. Some farmers are also forced to sell their palay produce to traders who dictate the buying price (which is usually lower than the market rate). Although such households reserve a certain amount of their harvest for their own consumption, most also purchase rice from the market on an as-needed basis.

In terms of urbanity, a larger proportion of rice farm households are net producers in both urban (84.1%) and rural areas (76.8%). However, as expected, most of the net producers are living in the rural areas. Across income deciles, it should be noted that a relatively large proportion (i.e., 33.8%) of rice farm households at the lowest income decile are considered net consumers. In fact, most of the rice farm households that are net consumers belong to the 1st income decile (i.e., about 18.8%). On the other hand, most of the richest farmers (88%) are net producers of rice. These results also confirm that small farmers tend to be the most adversely affected by rice price increases. Across all regions, although net producers accounted for a higher proportion of rice farm households, it is important to note that a significant proportion of the poorest households are net consumers of rice. In fact, most of the rice farm households (about 8.8%) in the Philippines that are considered net consumers belong to the lowest income decile (Table 23). This further confirms that the poorest farmers are expected to be the most adversely affected by rice price increases.

Table 22. Proportion of Rice Farm Households which are Net Consumers and Net Producers (in %)

	Net Consumers (%)	Net Producers (%)
Philippines	**22.1**	**78.0**
Urbanity		
1. Urban	15.9	84.1
2. Rural	23.2	76.8
Income Decile		
1	33.8	66.2
2	28.7	71.3
3	25.4	74.6
4	23.0	77.0
5	18.9	81.1
6	17.1	82.9
7	15.9	84.1
8	12.6	87.4
9	10.3	89.7
10	11.7	88.3
Region		
NCR	100.0	0.0
CAR	40.3	59.7
I – Ilocos	21.7	78.3
II - Cagayan Valley	8.3	91.7
III - Central Luzon	5.5	94.5
IVA – CALABARZON	28.2	71.8
IVB – MIMAROPA	25.4	74.6
V – Bicol	26.6	73.4
VI - Western Visayas	27.4	72.6
VII - Central Visayas	28.2	71.8
VIII - Eastern Visayas	40.5	59.5
IX - Zamboanga Peninsula	22.5	77.5
X - Northern Mindanao	26.2	73.8
XI – Davao	16.3	83.7
XII – SOCCSKSARGEN	15.1	84.9
XIII – Caraga	18.6	81.4
ARMM	9.9	90.1

Source of basic data: 2006 FIES

Table 23. Distribution of Rice Farm Households that are Net Consumers and Net Producers (in %)

	Net Consumers (%)	Net Producers (%)
Philippines	**100.0**	**100.0**
Urbanity		
1. Urban	11.3	17.0
2. Rural	88.7	83.0
Income Decile		
1	18.8	10.4
2	18.6	13.1
3	17.6	14.6
4	13.9	13.1
5	9.4	11.5
6	7.5	10.3
7	5.6	8.3
8	3.8	7.4
9	2.8	6.8
10	2.1	4.6
Region		
NCR	0.8	3.5
CAR	8.4	0.0
I – Ilocos	12.0	12.3
II - Cagayan Valley	3.3	10.3
III - Central Luzon	2.8	13.8
IVA – CALABARZON	3.9	2.8
IVB – MIMAROPA	7.6	6.4
V – Bicol	10.9	8.5
VI - Western Visayas	15.5	11.6
VII - Central Visayas	6.6	4.8
VIII - Eastern Visayas	12.4	5.2
IX - Zamboanga Peninsula	3.7	3.6
X - Northern Mindanao	2.9	2.3
XI – Davao	1.4	2.0
XII – SOCCSKSARGEN	3.8	6.0
XIII – Caraga	2.5	3.1
ARMM	1.6	4.1

Source of basic data: 2006 FIES

It is also important to mention that based on the 2006 FIES, a large proportion of rice farm households are considered poor. In fact, about 33.5 percent of rice farmers are income poor. This may indicate that the rice production income of some farmers is not enough to sustain the basic nutritional requirements of household members. Results also reveal that about 20 percent of poor households in the Philippines are involved in rice production. Understanding why rice farm households are generally poor requires much deeper analysis. However, in general, rice farm households have relatively lower nonfarm income as compared to nonrice farm households. Since small rice farms have income too small to move a household out of poverty, nonfarm economic activities would play an important role in providing additional sources of income.

Rice Farm Households : Losers and Gainers

A large proportion of those households involved in rice production could gain from rice price increases. However, it should be noted that a large proportion of rice farm households would still tend to lose from such price changes. In fact, while 73.7 percent of rice farm households would benefit from rice price increases, about 26.3 percent of them would lose from such price changes (Table 24). This may include small rice farmers who cultivate a small piece of land and produce a minimal amount of rice produce. In particular, poor farmers have a lower average rice production (P25,440 per year) while nonpoor farmers have an annual average rice production of about P55,701. In addition, poor farmers who lose from rice price increases have an average rice production amounting only to P10,701 per year while their average rice consumption is about P16,179 per year. This confirms that the value of production of these farmers may actually be less than the value of their rice expenditure for the entire year. In fact, the average ratio of the value of rice consumption to total rice production of rice producers is greater than one (i.e., 1.1). This would also imply that, in general, small farmers who are usually poor would lose from rice price increases.

As expected, most of the rice farm producers who are losers are located in the rural areas (88.5%). At the same time, more rice farmer gainers are located in the rural areas (82.8%) (Table 25). Analyzed by income groups, most of the rice farm households that would be negatively affected by the rice price increases are in the lower deciles. Although most of the gainers belong to the 3rd and 4th income deciles, it is important to note that the rice farm households located at the extremes of the income distribution (i.e., poorest and richest) would have a lower share to total gainers in the Philippines. In fact, only 9.9 percent of the total gainers in the Philippines belong to 1st income decile while only 4.6 percent of them belong to the 10th income decile.

The distribution of rice farmers who become losers and gainers after rice price increases show that the households greatly affected by rice price changes

Table 24. Proportion of Rice Farm Households which Lose and Gain After Rice Price Increases (in %)

	Loser (%)	Gainers (%)
Philippines	26.3	73.7
Urbanity		
1. Urban	19.3	80.7
2. Rural	27.6	72.4
Income Decile		
1	40.3	59.7
2	32.8	67.3
3	30.1	69.9
4	27.8	72.2
5	24.9	75.1
6	20.6	79.4
7	17.1	82.9
8	14.7	85.4
9	12.2	87.9
10	15.5	84.5
Region		
NCR	100.0	-
CAR	46.3	53.7
I – Ilocos	27.9	72.1
II - Cagayan Valley	9.3	90.7
III - Central Luzon	7.9	92.1
IVA – CALABARZON	32.3	67.7
IVB – MIMAROPA	28.6	71.4
V – Bicol	31.8	68.2
VI - Western Visayas	33.3	66.7
VII - Central Visayas	35.5	64.5
VIII - Eastern Visayas	44.8	55.2
IX - Zamboanga Peninsula	27.8	72.2
X - Northern Mindanao	28.4	71.6
XI – Davao	19.6	80.4
XII – SOCCSKSARGEN	17.0	83.0
XIII – Caraga	23.3	76.7
ARMM	11.5	88.5

Source of basic data: 2006 FIES

Table 25. Distribution of Rice Farm Households which Lose and Gain After Rice Price Increases (in %)

	Losers (%)	Gainers (%)
Philippines	100.0	100.0
Urbanity		
1. Urban	11.5	17.2
2. Rural	88.5	82.8
Income Decile		
1	18.8	9.9
2	17.8	13.1
3	17.5	14.5
4	14.1	13.0
5	10.4	11.2
6	7.6	10.4
7	5.0	8.7
8	3.7	7.6
9	2.7	7.0
10	2.4	4.6
Region		
NCR	0.7	-
CAR	8.1	3.3
I – Ilocos	13.0	11.9
II - Cagayan Valley	3.1	10.8
III - Central Luzon	3.4	14.2
IVA – CALABARZON	3.7	2.8
IVB – MIMAROPA	7.2	6.4
V – Bicol	11.0	8.4
VI - Western Visayas	15.8	11.3
VII - Central Visayas	7.0	4.5
VIII - Eastern Visayas	11.5	5.1
IX - Zamboanga Peninsula	3.8	3.5
X - Northern Mindanao	2.6	2.4
XI – Davao	1.4	2.0
XII – SOCCSKSARGEN	3.5	6.2
XIII – Caraga	2.6	3.0
ARMM	1.6	4.3

Source of basic data: 2006 FIES

are those living in rural areas. In fact, a larger proportion of losers (and gainers) are located in the rural areas. When viewed by income deciles, the households most adversely affected are those at the 1st, 2nd and 3rd income deciles. A large proportion of losers and gainers belong to these groups of households too, which demonstrates that it is the relatively poor rice farm households who are affected more by the rice price changes. Most losers are living in Central Luzon, Ilocos Region, and Western Visayas.

Although the average farmgate prices also increased, the change is not enough to benefit all rice farm households. This is because even rice farmers themselves are highly dependent on the rice market. In fact, about 75.1 percent of all rice farm households in 2006 also purchase rice from the market. As mentioned earlier, most of the farmers, in practice, sell their own produce to traders and then later on buy from the market some of the rice they would consume. Some would opt to buy the cheaper rice alternative, such as the NFA rice, which is highly subsidized by the government. About 10.1 percent of rice producers in 2006 also purchased NFA rice from the market.

Moreover, it should be noted that not all gainers of rice are rice producers. In 2006, about 88.2 percent of the gainers are involved in rice production while the remaining 11.8 percent are non-rice producers (Table 26) . This means that some households that do not directly produce palay may also benefit from rice price increases. This includes households that allow other households to use their piece of land for palay production and receive a net share of palay during harvest. Still, a large proportion of gainers turn out to be rice producers when results are disaggregated by income decile, with households at the 3rd decile having the largest proportion of rice producers who benefited from rice price increases. Furthermore, there are more nonpoor gainers (75.7%) than poor gainers (24.3%).

The same trend is observed in both urban and rural areas. While no households in NCR is expected to benefit from rice price hikes, data for ARMM showed that a slightly higher proportion of poor households (50.7%) would benefit as compared to nonpoor households (49.3%) (Table 27).

Summary of Results

Based on the discussions in the previous sections, the effects of rising prices on the welfare of different household groups in the Philippines were identified. Some of the most important results are summarized below.

Table 26. Distribution of Rice Farm Households which Lose and Gain After Rice Price Increases

Region	Gainers (%)	
	Rice Producers	Non-Rice Producers
Philippines	88.2	11.8
Urbanity		
1. Urban	78.2	21.9
2. Rural	90.6	9.4
Income Decile		
1	84.0	16.0
2	92.4	7.7
3	94.6	5.4
4	93.0	7.0
5	91.4	8.6
6	90.8	9.2
7	86.6	13.5
8	84.6	15.4
9	80.5	19.6
10	69.1	30.9
Region		
NCR	89.2	10.8
CAR	89.2	10.8
I – Ilocos	87.5	12.5
II - Cagayan Valley	89.2	10.8
III - Central Luzon	92.2	7.8
IVA – CALABARZON	78.4	21.6
IVB – MIMAROPA	93.8	6.3
V – Bicol	88.8	11.2
XI – Davao	72.9	27.1
XII – SOCCSKSARGEN	90.2	9.8
XIII – Caraga	90.1	9.9
ARMM	93.8	6.2

Source of basic data: 2006 FIES, NSO

Table 27. Proportion of Poor and Nonpoor Households Among All Gainers in Each Group of Households

Region	Gainers (%)	
	Poor	Nonpoor
Philippines	24.3	75.7
Urbanity		
1. Urban	17.2	82.8
2. Rural	74.0	26.0
Region		
NCR	0.0	0.0
CAR	40.0	60.1
I – Ilocos	18.3	81.7
II - Cagayan Valley	10.1	89.9
III - Central Luzon	11.6	88.4
IVA – CALABARZON	19.3	80.7
IVB – MIMAROPA	39.1	60.9
V – Bicol	27.5	72.5
VI - Western Visayas	22.2	77.8
VII - Central Visayas	36.0	64.0
VIII - Eastern Visayas	25.6	74.4
IX - Zamboanga Peninsula	36.0	64.0
X - Northern Mindanao	31.7	68.3
XI – Davao	27.2	72.8
XII – SOCCSKSARGEN	21.7	78.3
XIII – Caraga	37.4	62.6
ARMM	50.7	49.3

Source of basic data: 2006 FIES, NSO

Rice Price Increases: Effects on Different Group of Households

- Most households in the Philippines are net consumers, rather than net producers, of rice. In fact, there are about 84.7 percent net consumers and 12.8 percent net producers in the country in 2006.
- Based on the NBR, about 85.5 percent of households would be negatively affected while only 12.1 percent would benefit from the increase in rice prices. The rest (2.4%), including those whose palay income share is equal to the rice budget share as well as households that do not gain income from palay and do not consume rice at the same time, are not directly affected by rice price changes.

- Although 14.4 percent of households in the Philippines produce rice in 2006, not all would benefit from the increase in rice prices. In particular, only 73.7 percent of all rice farm households in the country would gain from such price changes.
- Not all gainers of rice are rice producers. In fact, in 2006, about 88.2 percent of the gainers are involved in rice production while the remaining 11.8 percent are non-rice producers. This means that some households that do not directly produce palay could also benefit from rice price hikes. This includes households that allow other households to use their piece of land for palay production and receive a net share of the palay during harvest.
- There are more nonpoor gainers (75.7%) in the Philippines than poor gainers (24.3%)—a trend observed in both urban and rural areas. While no households in NCR is expected to benefit from rice price increases, data for ARMM showed that a slightly higher proportion of poor households (50.7%) would benefit compared to nonpoor households (49.3%).
- Urban households would be the more adversely affected than those in rural areas. About 94.1 percent of households in urban areas would lose, primarily because a majority of urban households are net rice consumers. On the other hand, while 77 percent of rural households are also negatively affected, it is important to note that most gainers are rice producers who are located in the rural areas.
- Households belonging to the lowest income deciles (i.e., 1st to 5th income deciles) tend to be the most adversely affected group. The decline in their NBRs after rice price hikes is higher as compared to the richer households. It is also important to note that the poorer households are the most vulnerable to price changes.
- Although a large proportion of rice farmers (73.7%) would benefit from rice price increases, a significant proportion (26.3%) is still expected to lose. It is also important to highlight that the poorest farmers tend to be the most adversely affected by a rice price hike. Rice producers who belong to the 1st income decile, in fact, tend to have the largest proportion of losers (40.3%).

Fuel Price Increases: Effects on Different Group of Households

- Households in the Philippines, in general, spend a relatively smaller proportion of their budget on fuel than they do on rice. In fact, only about 1.5 percent of their total expenditures are allotted to fuel (including petroleum and LPG). The amount of fuel expenditures increases as households move up the income decile scale. However, in general, the

overall fuel budget share of the poorest group of households (i.e., those at the 1st income decile) is higher compared to those that of the richest households (i.e., 10th income decile).

Rice and Fuel Price Increases: Impact on Poverty

- The increase in fuel prices would affect other sectors that are highly dependent on fuel as a major input to production. Aside from the transportation sector, other industries such as those in the agriculture-related sectors (e.g., manufacturers of pesticides, insecticides, and fertilizer) are also affected. Eventually, farmers (especially those who are poor) would also be affected by fuel price increases.

On Program Targeting

- Only about 13.9 percent of households in the Philippines consume NFA rice. On the average, NFA rice represents about 5.5 percent of the households' total rice expenditures. Note that for households in the lowest income decile, NFA rice accounted for only about 12.7 percent of their total spending on rice.
- Among all NFA rice consumers, only 46.6 percent are considered poor. In addition, among all poor households (who are supposed to benefit from subsidized NFA rice), only 24 percent are able to access NFA rice. This also provides some insights on the implementation weaknesses in some programs originally aimed at targeting the poor.

RESULTS OF THE CBMS SURVEY IN SELECTED BARANGAYS

Impact on Households

Because CBMS data would be used in analyzing the impact of rising prices, the CBMS core questionnaire, together with a rider questionnaire, was administered to households in October 2008 in three barangays in the Philippines. The rider questionnaire included questions that capture the changes in the consumption patterns of households as well as the coping mechanisms adopted by households in response to the recent increase in prices. The survey covered the period January to June 2008, when prices of rice and fuel soared. In selecting the study coverage, importance was given to selecting barangays representing the urban and rural areas. To capture the differences in the impact of rising prices on different type of households, it was ensured that low-income barangays and middle-income barangays were represented. Given these criteria, the following locations were included in this study: (1) Barangay Santa Rita in Capas, Tarlac (to represent the rural area); (2) Barangay 51 in Pasay City (to represent

low-income households); and (3) Barangay 85 in Pasay City (to represent middle-income households).

Households in the three barangays were asked how they perceived their present condition compared to their situation six months ago (Table 28). Interpreting data, especially on perceptions, should be approached with caution. Perceptions are highly subjective and influenced by external factors such as mood of the respondent at the time of the interview, respondent's overall disposition on life (pessimists versus optimists), and other psychological factors. Nonetheless, one's psyche is strongly linked to one's economic situation; therefore, self-rated status and other perception data cannot be dismissed altogether. For this study, results show that Barangay Santa Rita has the highest proportion of households that reported an improvement in their condition (17.1%), while Barangay 51 has the lowest proportion (5.5%)—significantly lower than that of Santa Rita and Barangay 85 (13.4%). Barangay 51, which has the highest proportion of households that reported no change in their situation (70.9%), scored 6 and 10 percentage points higher than Barangay 85 and Barangay Santa Rita, respectively. Moreover, Barangay 51 also has the highest proportion of households whose perceived deterioration in status (23.6%) is a notch higher than that of the other two barangays. It is notable that about a quarter of households living in each barangay claimed that they became worse off compared to their condition six months ago. Although this may not be attributable solely to the increasing prices of rice and fuel, the fact remains that rising prices reduced the purchasing power, especially of poor households, and might have contributed to their perception of declining economic status.

Table 28. Self-Rated Status of Households in 3 Barangays (%)

	Santa Rita	Brgy. 51	Brgy. 85
Better off	17.1	5.5	13.4
The same	60.8	70.9	64.2
Worse off	22.1	23.6	22.4

Source: 2008 CBMS Survey

Within Barangay Santa Rita, perceptions of rice farming households are slightly different from those of nonfarming households (Table 29). The proportion of households that reported an improvement in their condition is almost the same for both groups (i.e., around 17%). However, the proportion of rice farming households that reported a worsening of their situation is about 4

percentage points less than that of non-rice farming households. While not a foolproof assertion, these results may imply that not all rice farming households benefited from the spike in rice prices.

Table 29. Self-Rated Status of Rice Farming and Nonrice Farming Households in Barangay Santa Rita (%)

	Rice farming households	Nonrice farming households
Better off	16.8	17.3
The same	63.7	59.3
Worse off	19.5	23.4

Source: 2008 CBMS Survey

By categorizing rice farming households in Barangay Santa Rita by income quintiles, one finds that a larger proportion of rice farm households belonging to the 4th and 5th quintiles reported an improvement in welfare (20.8% and 16.1%, respectively) as compared to those at the lowest quintile (10%) (Table 30). Note too that an even larger proportion of lower-income rice farmers reported a decline in welfare. These results connote that a larger proportion of higher-income rice farmers are benefiting from the price surge than do lower-income rice farmers. This is mainly because the former have more resources for utilization and mobilization and are in a better position to increase their production in response to high prices. Assuming everything else is constant, poor farmers are less likely to benefit from price increases unless the households can get hold of sufficient capital to expand their rice production. This is the tipping point where the government's intervention is most welcomed. Credit programs can enhance poor rice farmers' capacity to effectively respond to opportunities posed by increases in prices and hence be able to increase their profit. Also, the provision of affordable agricultural inputs would lower farmers' risks of incurring huge debts.

After decomposing the data into five income groups (quintiles), results show that higher income brackets generally have more respondents reporting an improvement in their condition compared to six months ago and less respondents saying that their condition deteriorated compared to six months ago. Judging by the households' responses, it is apparent that the poor saw their situation worsen and the nonpoor perceived an improvement in their economic

Table 30. Self-Rated Status of Households in Barangay Santa Rita by Income Group (%)

Income Group	Better off	The same	Worse off
1	10.0	65.0	25.0
2	29.4	41.2	29.4
3	9.5	76.2	14.3
4	20.8	58.3	20.8
5	16.1	71.0	12.9

Source: 2008 CBMS Survey

state. This suggests that soaring food and fuel prices tend to impact poor households more than nonpoor households. Thus, government efforts should be appropriately channeled to poor households hurt by high prices of food, including rice.

Based on the 2006 FIES, only about 13.9 percent of households in the country consume NFA rice. On the other hand, about 41.9 percent, 47.9 percent and 23 percent of households in Barangay Santa Rita, Barangay 51 and Barangay 85, respectively, purchase NFA rice. While the figures are comparable due to differences in geographical coverage, it is likely that the significant difference in the proportion of NFA rice consumers may be partly due to the shift in consumption of households from commercial rice to the cheaper NFA rice. It is also important to note that in 2008, about 37.2 percent of rice farm households in Barangay Santa Rita consume NFA rice while a larger proportion (44.3%) of nonrice farmers purchase NFA rice.

Although a larger proportion of poor households were able to access NFA rice more than did the nonpoor households, data still confirm undercoverage. This is true for all barangays included in the study (Table 31). In particular, Barangay Santa Rita reported that 62.0 percent of poor households consumed NFA rice in 2008 while 36.6 percent of the nonpoor households in the barangay were able to access NFA rice. In addition, 47.9 percent and 23.0 percent of households in Barangays 51 and 85, respectively, were able to access NFA rice. As highlighted earlier, this trend demonstrates the fact that not all poor households benefit from the cheaper NFA rice.

Table 31. Proportion of NFA Rice Consumers in Three Selected Barangays (%), 2008

Group	Barangay Sta. Rita (Tarlac)	Barangay 51 (Pasay)	Barangay 85 (Pasay)
Entire Barangay	41.9	47.9	23.0
Income poverty			
Poor	62.0	80.7	33.3
Nonpoor	36.6	43.4	21.7
Rice Farmers vs. Nonrice farmers			
Rice Farmers	37.2		
Non-rice farmers	44.3		

Source of basic data: 2008 CBMS Survey

Households' Coping Mechanisms

As mentioned earlier, this study also intends to determine how the different groups of households are coping with the increase in prices in general, and increase in rice and fuel prices in particular. To provide a foundation for the analysis, Table 32 presents the distribution of income in the three selected barangays. Note that the average income is highest for those households living in Barangay 85 (P77,321), followed by Barangay 51 (P63,434) and Barangay Santa Rita (P44,785). Based on the responses of the households in the rider questionnaire, a number of coping mechanisms adopted by the households have been identified. The succeeding sections present the similarities and differences in the coping mechanisms of households living in the three different barangays.

A majority (or about 97.7%) of households in the three barangays did not change the type of staple food they consumed during the period January-June 2008 (Annex H). There are, however, some changes in other aspects of their consumption pattern due to the rise in rice and fuel prices.

Rice consumption in the country has continuously increased, which according to analysts, is an indication that most Filipinos remain poor as they lack the means to expand their choice of food (Sabangan 2008). Moreover, data from the Department of Agriculture's Bureau of Agricultural Statistics (DA-BAS) showed that annual per-capita rice consumption in the Philippines increased by

Table 32. Distribution of Household Income in 3 Barangays, 2008

	Santa Rita	Brgy. 51	Brgy. 85
Mean Income	44,785	63,434	77,321
Standard Deviation	79,619	73,106	90,839
Minimum PCINC	3,200	4,000	2,300
Maximum PCINC	1,269,000	1,089,000	1,058,000

Note: Income in pesos; Source: 2008 CBMS Survey

28.3 percent (to 118.7 kg in 2006 as compared to 92.53 kg in 1990). In monthly terms, this sums up to an increase in rice consumption from 7.7 kg to 9.8 kg per person. It is also important to note that rice consumption in the Philippines is relatively higher when compared to those of higher-income countries in Asia. For instance, Japan and Taiwan recorded an annual per-capita rice consumption of about 61 kg and 48 kg, respectively.

As the price of rice continues to rise, it is expected that Filipinos will substitute with cheaper food stuff (i.e., corn, root crops). Nevertheless, due to the availability of cheaper types of rice in the market, notably NFA rice priced at P18.25/kg and subsidized imported rice from the United States and Thailand at P25/kg, consumers did not make an abrupt shift from rice to non-rice food. Another factor worth noting is that rice is a staple commodity in Philippine diet, deeply ingrained in its culture, language, and national consciousness. A poor household (or any household for that matter) expects rice to be present in the dining table, either with or without a viand to go along with it.

Changes in Rice Consumption Patterns

Rural Community

Results from Barangay Santa Rita show that the proportion of households consuming NFA rice increased by 22.4 percent. Among those households that changed the type of rice they consume, about 65.9 percent said they cannot afford to buy the more expensive product (i.e., the commercial rice) anymore. The shift from commercial rice to NFA rice can be reflected in the data for Barangay Santa Rita. In particular, 66 households (19.5%) in the barangay who consumed commercial rice six months ago now consume NFA rice (Table 33).

The shift from commercial rice to NFA rice is also evident even for rice farming households in the barangay. During the survey, about 37.2 percent of

rice farmers consumed NFA rice. This is a significant increase compared to six months ago's 15 percent. In addition, the proportion of rice farm households that consumed commercial rice significantly decreased from 39.8 percent to 21.2 percent. Twelve households (10.6% of rice farmers) that previously consumed their own harvest and 20 households (17.7% of rice farmers) that previously consumed commercial rice had both now shifted to NFA rice. Farmers normally resort to such—i.e., sell their produce at a price higher than that of NFA rice or consume less expensive rice—to cope with the increase in production costs and hence, earn more.

Moreover, according to the farmers' groups National Rice Farmers Council and Rice Watch and Action Network, palay production costs have increased to as much as P10 per kilo for the June planting season this year. Based on the figures released by the Bureau of Agricultural Statistics, the average price of urea during the planting season in June this year was P1,754.31 per sack (an increase of 78.49 percent from P982.84 only per sack in June last year). On top of higher fertilizer prices, other cost of production inputs posted a sharp increase from an average cost of P7.40 per kilo only last year (Ordinario 2008). It is customary for farmers to leave some cavans of rice to be milled later for their daily consumption. However, for farmers to pay off debts incurred for rice production and still have some savings, they have to make changes in their consumption pattern, which in this case, involves the type of rice that they consume. It is important to highlight that even farm households tend to shift to NFA rice. In fact, those who consume NFA rice increased from 17 farm households six months ago to 42 farm households. On the other hand, the number of farm households that consume commercial rice decrease from 45 to 24 households.

Urban Community

Data from Barangay 51 reveal that although there had been minimal change in the proportions of type of rice being consumed in the past six months, 35 households (7%) shifted to NFA rice from commercial rice while 213 households (42.5%) stuck with NFA rice as staple food, bringing the total proportion of NFA rice-consuming households to 50 percent. For the mostly poor residents, the high price is the main factor hindering them from purchasing the commercial grade rice. Households that cannot anymore commercial rice tend to substitute it with the cheaper NFA rice.

On the other hand, Barangay 85, the relatively well-off community, has seen its rice consumption virtually unchanged for the past six months. That is, only nine households (5.2%) shifted from commercial rice to NFA rice. The unchanged rice consumption pattern is mainly because food, specifically rice, is only a small part of their consumption. In addition, Barangay 85 has only 41 (23.6%) NFA rice-consuming households, relatively fewer than the number in Barangay 51 (248 households or 49.5%).

Table 33. Rice Consumption Patterns of Households in 3 Barangays, 2008

Barangay	Proportion	Findings
Santa Rita (all households)	31.6	No change (commercial rice)
	19.5	From commercial to NFA
	0.6	From commercial to own harvest
	0.6	From NFA to commercial
	18.9	No change (NFA rice)
	3.5	From own harvest to NFA
	25.4	No change (own harvest)
Santa Rita (rice farming HHs)	21.2	No change (commercial rice)
	17.7	From commercial to NFA
	0.9	From commercial to own harvest
	15.0	No change (NFA rice)
	10.6	From own harvest to NFA
	40.7	No change (own harvest)
	43.7	No change (commercial rice)
Barangay 51	7.0	From commercial to NFA
	6.2	From NFA to commercial
	42.5	No change (NFA rice)
	0.2	From NFA to own harvest
	0.4	No change (own harvest)
	69.5	No change (commercial rice)
Barangay 85	5.2	From commercial to NFA
	0.6	From commercial to dole-out rice
	5.2	From NFA to commercial
	18.4	No change (NFA rice)
	1.2	No change (own harvest)

Source: 2008 CBMS Survey

Changes in Consumption, Preparation and Purchase of Food

In terms of consumption pattern, about 16.5 percent of households in Barangay Santa Rita reported that there had been changes in the way they eat and prepare food during the period of high prices. Meanwhile, the figures for Barangay 51 and Barangay 85 are 25.7 percent and 20.1 percent, respectively. This finding suggests that the recent spike in food and fuel prices have greater influence on the food consumption pattern of urban households (Table 34). Data also confirm that within a rural farming barangay (i.e., Santa Rita), 42 of the households that do not engage in farming have to make necessary alteration to their food consumption pattern to cope with rising food and fuel prices.

Table 34. Changes in Household Consumption, Preparation, and Purchase of Food

Food consumption pattern changed	Magnitude	
	Number	Proportion
Santa Rita	56	16.52
Santa Rita (Rice Farming HHs)	14	12.39
Santa Rita (Nonrice farming HHs)	42	18.58
51	134	25.72
85	36	20.11

Source of basic data: 2008 CBMS survey

Rural Community

The household coping mechanism most practiced by households in Barangay Sta Rita is eating less meat and more fish and vegetables. About 60.7 percent of the households claimed that this is their major coping mechanism. Another way is by modifying their cooking method (48.2%) and by eating less than three meals a day (37.5%). For households who shifted to cheaper food or eat at lesser frequency, these practices can probability result to malnutrition. In

Table 35. Household Coping Strategies (Food Consumption), by Barangay (%)

Household food coping mechanism	Brgy. Santa Rita	Barangay 51	Barangay 85
Forced to eat two meals or less a day	37.5	4.5	16.7
Irregular meal pattern	14.3	6.0	5.6
Combining meals	10.7	38.8	5.6
Parent ate less	23.2	5.2	8.8
Eating less meat and more fish vegetables	60.7	6.0	30.6
Eating more ready-to-cook food and less prepared food	26.8	23.1	8.8
Eating the same food for several days in a row	17.9	38.8	5.6
Substitute meat extenders for real meat	17.9	12.7	5.6
Modified cooking method	48.2	6.7	13.9
Mixing commercial rice with NFA rice	19.6	51.5	16.7

Source of basic data: 2008 CBMS Survey

some cases, the higher expenditures on rice due to higher prices may also reduce their expenditures on health and education. Furthermore, this may reduce their budget for agricultural inputs (e.g., fertilizers, fuels) that are critical to rice production.

Urban Community

In contrast, households in Barangay 51 have a different set of household coping mechanisms. Mixing commercial rice with NFA rice is the top strategy employed by households (51.5%) to cope with high and rising food prices. For households used to commercial rice as staple food, the next best thing to do is to blend cheaper NFA rice with commercial rice. Usually, it would be a 50-50 commercial-and-NFA rice mix, or in worse cases, with more of the NFA rice. To illustrate, if a family with six members and consuming an average of 1 kilo of rice per day decides to mix NFA rice with commercial rice at a 50-50 ratio, such can save as much as P73 (26.6%) per week (Table 36). This weekly savings translates to a monthly savings of P292. This amount may be meager but within the context of subsistence living among poor households, this savings is enough to support the education of children or to cover other expenses such as investment for their health and nutrition.

Table 36. Simulated Savings Model by Mixing NFA Rice with Commercial Rice

Ratio		Savings per week	
NFA Rice	Commercial Rice	Magnitude	Proportion
100	0	P145	53.2
90	10	P131	47.9
80	20	P116	42.6
70	30	P102	37.2
60	40	P87	31.9
50	50	P73	26.6
40	60	P59	21.3
30	70	P44	16.0
20	80	P29	10.6
10	90	P15	5.3
0	100	P0	0%

Source: Author's estimate based on NFA rice priced at P18.25 and commercial grade well-milled rice pegged at P39 for a household with 6 members.

Data also show other coping mechanisms employed by households in Barangay 51. To cope with rising food prices, households in the barangay would also change the way they eat and prepare food. For instance,For the period January-June 2008, 38.8 percent ate the same food for several days in a row. The same proportion of households combined meals (ie., reduced the frequency of meal times), and 23.1 percent ate more ready-to-cook food and less prepared food. These three household coping strategies in Barangay 51 have negative implications on the health and nutrition of household members. Eating the same foodstuff on a daily basis can bring about nutritional deficiencies and calorie intake shortfall. Combining meals and shifting to ready-to-cook food also entail the same health risks, especially for the children and pregnant women.

Meanwhile, results from Barangay 85 present another set of household coping mechanisms different from those taken by the two previous sites. Eleven households (30.6%) said that they ate less meat and more fish and vegetables. Eating two meals or less in a day and mixing commercial rice with NFA rice is also common. Households in Barangay 85 that made changes to their consumption pattern because of high food prices mainly substituted relatively more affordable foodstuff or chose cheaper brands in their usual food basket.

Changes in the Place Where Households Buy their Staple Food

In terms of food market preferences, the proportion of households that currently buy their staple food from aggregated commercial markets is highest in Barangay 85 (92.2%). Only 5.6 percent of households buy from government-run markets (i.e., Tindahan ni Gloria and NFA Rolling Stores) (Table 37). In contrast, 78.3 percent of households in Barangay 51 go to commercial marketplaces and 21.1 percent, to government-controlled stores. In Barangay Santa Rita, 48.7 percent of households buy food from commercial sources and 26.9 percent purchase from government-run sources.

Rural Community

Aside from shifting from one type of rice to another, most households in Barangay Santa Rita also shifted from one staple food market to another. Most notable is the increase in the proportion of households that purchase rice from the NFA rolling stores. In particular, about 13 percent of households that used to purchase rice from the wet market now buy rice from NFA rolling stores. About 1.5 percent of households who previously bought rice from *sari-sari* stores now purchase rice from NFA rolling stores as well. Furthermore, some households (about 0.6%) who previously went to supermarkets now buy rice from sari-sari stores.

Table 37. Food Market Preferences in 3 Barangays

Barangay	Food Market	Proportion of HHs		Change
		At present	Six months ago	
Santa Rita	Wet market	21.2	34.5	-13.3
	Supermarket	8.9	10.0	-1.2
	NFA rolling store	24.2	9.4	14.8
	Tindahan ni Gloria	2.7	2.7	0.0
	Sari-sari store	18.3	16.8	1.5
	Grocery	0.3	0.3	0.0
Brgy. 51	Wet market	40.3	40.5	-0.2
	Supermarket	12.4	9.5	2.9
	NFA rolling store	10.3	10.7	-0.4
	Tindahan ni Gloria	10.9	11.4	-0.6
	Sari-sari store	21.7	23.1	-1.4
	Grocery	3.9	4.3	-0.4
Brgy. 85	Wet market	70.4	70.4	0.0
	Supermarket	5.6	5.6	0.0
	NFA rolling store	3.9	2.8	1.1
	Tindahan ni Gloria	1.7	1.1	0.6
	Sari-sari store	12.3	13.4	-1.1
	Grocery	3.9	4.5	-0.6

Source: 2008 CBMS Survey
Note: HHs that consume part of their own harvest are treated as not applicable therefore the tally per barangay will not sum up to 100.

Urban Community

The distribution of households according to food markets in Barangay 51 and Barangay 85 remained essentially the same during the past six months, with the exceptions of 11 households. Of the 11, seven households shifted from sari-sari-store to NFA rolling stores while the remaining four households shifted to either NFA rolling stores or Tindahan ni Gloria from either supermarket or wet market. In Barangay Santa Rita, 13.0 percent of households shifted from wet market to NFA rolling stores (Table 38).

Forty-one households surveyed in Barangay Santa Rita reported that the reason behind their change in preference of food market was the unaffordable food prices in commercial marketplaces, while majority of households in Barangay 51 and Barangay 85 stated that their primary reason was to save money. The

Table 38. Changes in Preference for Food Market Among Households by Barangay

Barangay	Proportion	Findings
Santa Rita	13.0	From wet market to NFA rolling store
	0.6	From supermarket to NFA rolling store
	9.1	No change (NFA rolling store)
	2.7	No change (Tindahan ni Gloria)
	1.5	From sari-sari store to NFA rolling store
Brgy. 51	0.2	From supermarket to NFA rolling store
	8.7	No change (NFA rolling store)
	1.4	From sari-sari store to NFA rolling store
	0.2	From wet market to Tindahan ni Gloria
	10.7	No change (Tindahan ni Gloria)
Brgy. 85	0.6	From wet market to NFA rolling store
	0.6	From supermarket to NFA rolling store
	2.8	No change (NFA rolling store)

Source: 2008 CBMS Survey

results suggest that even though urban households can still afford food prices in commercial centers, for example, they would rather shift to government-run stores to avail of foodstuff at a cheaper price. This maximizing behavior of consumers, particularly of the nonpoor households, prove to be the source of leakages in government programs intended for the poor only, e.g., NFA-subsidized rice.

Changes in the Type of Fuel Used for Cooking

There had only been subtle changes in the preferred type of cooking fuel, particularly with the shift from petroleum-based products to non-petroleum cooking fuel. No abrupt changes happened because instead of opting to replace the type of cooking fuel, the household would rather scrimp and save to mitigate any increase in fuel expenses. This strategy includes making changes in cooking and food preparations (Table 39).

In Barangay Santa Rita, 1.2 percent of all households who previously used LPG shifted to charcoal (Table 40). In addition, 2.1 percent of LPG users six months ago now shifted to firewood for cooking. The change is mainly because households can no longer afford to buy the more expensive fuel. Some respondents explained that they were doing this to save more money (and have more money to finance their other needs). Three households each in Barangay 51 and Barangay 85 also shifted from an expensive cooking fuel to a cheaper one. The substitution is either from LPG or kerosene to either firewood or charcoal.

Changes in Electricity Consumption Pattern

The average electric bill of households in Barangay Santa Rita has generally increased during the period covered by the study. The patterns of electricity consumption in the barangay have also changed (Table 41). For most households (51.1%), the main reason for such change is the increase in electricity rates. Some households (i.e., 16%) decrease their electric usage so as to lower their electric bill.

Given the increasing prices, some households adopted certain coping mechanisms. Majority (i.e., 88.7%) reported that they disconnect household appliances when not in use. About 68 percent also cut down television viewing hours. To save energy, 36.1 percent replace incandescent bulbs with fluorescent bulbs. Other coping mechanisms adopted by households are: (1) lessening the use of household appliances other than the television (29.9%); (2) using laundry fabric softeners to do away with ironing (16.5%); (3) voluntary disconnection of electricity (2.1%); and (4) resorting to electricity pilferage.

The average electric bill of households in Barangay 51 also increased during the past six months. Majority of these households (66.1%) declared that rising electricity rates is the reason for the increase. Given the circumstance, households

Table 39. Changes in the Type of Fuel Used for Cooking Among Households in 3 Selected Barangays

Barangay	Cooking Fuel	Proportion of HHs		Change
		At present	Six months ago	
Santa Rita	Kerosene	0.3	0.6	-0.3
	Firewood	35.7	34.8	0.9
	Charcoal	23.9	22.4	1.5
	Electricity	1.2	1.2	0.0
	LPG	38.9	4.1	-2.1
Brgy. 51	Kerosene	16.1	15.2	0.9
	Firewood	4.6	5.3	-0.7
	Charcoal	16.7	17.0	-0.3
	Electricity	0.6	0.6	0.0
	LPG	55.6	55.1	0.0
	Super kalan*	8.0	8.4	0.4
Brgy. 85	Kerosene	27.4	27.9	-0.4
	Firewood	3.9	3.9	-0.6
	Charcoal	7.3	5.6	0.0
	LPG	60.9	62.0	1.7

*Super kalan is a stove and LPG tank rolled into one. Its exclusion from the LPG category is arbitrary because no code is provided for in the survey instrument.

Note: Households that buy already cooked food are treated as not applicable therefore the tally per barangay will not sum up to 100.

Source: 2008 CBMS Survey

Table 40. Number and Proportion of Households which Shifted to Another Type of Fuel

Barangay	Number	Proportion	Findings
Santa Rita	4	1.2	From LPG to charcoal
	7	2.1	From LPG to firewood
Brgy. 51	1	0.2	From LPG to charcoal
	2	0.4	From kerosene to firewood
Brgy. 85	2	1.1	From LPG to charcoal
	1	0.6	From kerosene to charcoal

Source: 2008 CBMS Survey

Table 41. Electric Consumption Pattern Changed

Coping Mechanism	Sta. Rita	Brgy. 51	Brgy. 85
Changed in electric consumption pattern	28.6	48.0	26.8
Disconnecting household appliances when not in use	88.7	84.5	83.3
Cutting down TV viewing hours	68.0	51.2	66.7
Using laundry fabric softeners to do away with ironing	16.5	53.6	8.3
Lessening the use of household appliances (other than TV)	29.9	27.8	39.6
Resorts to electricity pilferage	1.0	1.6	
Replacing incandescent bulbs with fluorescent lamps	36.1	1.2	10.4
Voluntary disconnection of electricity	2.1		

Source: 2008 CBMS Survey

had to cope by making changes in their electric consumption. These mechanisms include disconnecting appliances that are not in use (84.5%), shortening their TV viewing hours (51.2%), and using laundry fabric softeners to do away with ironing (53.6%). Unlike the two other barangays, the average electric bill in Barangay 85 slightly dropped (0.8%), mainly because of decreased usage as a natural response to high electricity rates. Households in Barangay 85 practiced the same conservation strategies as the other two barangays.

Changes in Education-Related Expenses

Results also reveal that some households coped with increasing prices by sacrificing some health-related expenses, which can have long-term effects on the poverty situation of the household. For instance, some children (6-16 years old) were forced to stop schooling due to financial limitations. In Barangay Santa Rita, about 24 households (7.1%) have at least one child who stopped schooling. However, only a few families (0.9%) decided to transfer their children (6-16 years old) from private to public schools when the tuition fees in private schools became unaffordable.

In Barangay 51, only five households (1%) have at least one child who was enrolled last school year but stopped going to school this year. There was no reported instance of a child being transferred from a private institution to a public school in the said barangay.

Barangay 85 presents a different case. Five households (2.8%) have at least one of their children transferred from a private school to a public one during the current school year. Out of these households, three shared that this was because they could not anymore afford the tuition fee of their children. Four households reported that at least one of their children had stopped going to school during the current school year. Each of the households pointed to unique reasons, including the need for the child to help with the family business, no money for education, child's lack of interest in going to school, and illness or disability.

Changes in Health-Related Expenses

Among the three barangays for this study, Santa Rita has the highest proportion (43.4%) of households that said there were changes in the way they meet their health and medical needs (Table 42). One possible explanation is that rural households have different but not necessarily varied suite of coping strategies than do urban households. Urban households, on the other hand, can still manage not to alter their health-seeking behavior by tapping other coping strategies available to them.

Table 42. Meeting Medical/Health Care Needs Changed

Barangay	Number	Proportion
Santa Rita	147	43.36
Brgy. 51	114	22.4
Brgy. 85	18	10.06

Source: CBMS Survey

Rural Community

Because of increasing prices, about 70.1 percent of households in Barangay Santa Rita now go to government health centers/hospitals instead of private clinics/hospitals (Table 43). Furthermore, majority of the households (61.2%) would rather consult an *albularyo* (quack doctor or witch doctor) instead of a medical doctor for their health problems. There is also a significant proportion (39.5%) of households in the barangay that uses herbal plants as alternatives for pharmaceuticals.

Urban Community

In contrast, 75.4 percent of households in Barangay 51 now resort to self-medication instead of getting proper prescriptions from a medical doctor. Also, 36.8 percent of households reported that they shifted from branded drugs to generic drugs. Another significant number (25.4%) stopped going to private clinics or hospitals and rather opted for government health centers or hospitals. The same set of coping strategies are also practiced by 10 percent of households in Barangay 85.

The variety in the health-related coping strategies between the two barangays can be associated with the following factors: local customs and epidemiology, presence of health and wellness facilities, access to health services, and income.

Changes in Communication-Related Expenses

Forty-six households (25.7%) that experienced an increase in their cell phone expenses said that the main reason they cut down on their cell phone expenses is to save money. On the other hand, a larger proportion of households (39.7%) that saw a decline in their cell phone expenses in the past six months

Table 43. Changes in Health-Related Expenses

Household medical/health coping mechanism	Santa Rita	Brgy. 51	Brgy. 85
For health-related concerns the household goes to government health centers/hospitals instead of private clinics/hospitals	70.1	25.4	38.9
The household consults with an albularyo instead of a doctor regarding their health problems	61.2	23.7	11.1
Resorts to self-medication instead of getting proper prescription from a doctor	15.7	75.4	77.8
Taking medicines for relief of symptoms but not medicines for curing the disease	1.4	24.6	33.3
Taking medicines in lower dosage (for example, cutting a tablet into half)	2.0	9.7	5.6
As much as possible, a sick household member need not be brought to the hospital unless he/she is in a very critical condition	1.4	5.3	22.2
Using herbal plants as alternatives for pharmaceuticals	39.5	9.7	16.7
Shifted from buying branded drugs to generic drugs	26.5	36.8	16.7

Source: 2008 CBMS Survey

reported reduced usage as the reason behind the drop in expenses. In Barangay 51, the average cell phone expenses per month decreased from P194.54 to P188.01 (by 3.4%). In Barangay 85, the average cell phone expenses per month significantly dropped from P603.71 to P374.64 (37.9% decrease). Thirty-three percent said that the slash in cell phone expenses was meant to save money. Poor households had to cut down on non-basic needs, including expenses on short text messages or calls. For Barangay Santa Rita, there were no significant changes in communication-related expenses although there was a slight decrease in the average weekly cell phone expenses (1.3%).

Changes in the Pattern of Transportation-Related Expenses

Rural Community

In Barangay Santa Rita, there were no changes in the main mode of transportation used to go to work. Annex J shows the main mode of transportation. For those households that used their own vehicles to go to work, results show that their average price of fuel per liter increased by about 12.8 percent (from P51.69 to P58.33). Given this, their average weekly expenditures decreased by about 11.5 percent (from P737.72 to P652.51). Households who usually go to work using public utilities (e.g., jeepney, bus) experienced an increase in the average fare expenses. In fact, their average weekly fare expenses six months ago was only about P147.31 for a round trip. Now, it is about P165.84. This means that due to the increase in transportation fare, households should have at least an additional P18.53 to finance their weekly transportation expenses, holding other factors constant. Note that a fare hike is a result of the continuous rise in the fuel prices in the country.

Urban Community

Similar to Barangay Santa Rita's case, Barangay 51 saw no changes in the main mode of transportation used to go to work, except in the case two households who have shifted from public utilities to private vehicle and another two households who do not take public utilities anymore and instead, walk to their workplaces. For those households with their own vehicles, results show that the average price of fuel per liter increased from P48.17 to P50.43 (about 4.5% hike). Their average weekly expenditures increased from P718.25 to P754.30 (about 4.8%).

In Barangay 85, there are no changes in the main mode of transportation used to go to work, except in the case of a single household that shifted from public utility vehicle to private vehicle. The average price of fuel per liter of households who use their own vehicles rose from P50 to P51.33 (2.6%). Average weekly expenditures climbed from P1,095 to P1,225 (10.6%). Households who

usually go to work by riding a public utility vehicle (e.g., jeepney, bus) also experienced an increase in the average expenses for fare. In fact, it increased from P34.26 to P45.45 (by as much as 24.6%). Likewise, those whose eldest member attends school experienced a hike in the average fare expenses by about P7.80.

Savings and Loans

Rural Community

For the past six months, about 57 households representing 16.8 percent of Barangay Santa Rita, were able to save some money. To cope with the increasing prices, 49 households (14.4%) in the barangay in the last six months made use of their savings to purchase commodities that they normally purchase using their cash on hand. Another way of coping is by borrowing money. In fact, about 72.6 percent borrowed money during the last six months. Majority sourced their loan from their relatives (70.7%). The rest came from friends (36.6%) and neighbors (26.4%). Among the rice farm households in Barangay Santa Rita, about 57 households (50.4% of rice farm households) were able to save in the last six months. However, about 43.4 percent also used their savings to purchase commodities that they normally buy with their cash on hand. Furthermore, about 75.2 percent of rice farm households borrowed money from various sources so as to support their household expenses.

Urban Community

During the past six months, 131 households (31.3%) in Barangay 51 reported that they were able to save money. Due to rising prices of basic goods, 78 households (18.7%) used part of their savings to buy commodities that they normally purchase with their cash on hand.

In Barangay 85, about 32.6 percent of households reported that they were able to save money and 30.2 percent spent part of their savings to purchase goods normally bought with cash. High prices reduce the purchasing power of money; ergo, more cash is needed to buy the same amount of the same good. This creates a situation where households have a higher propensity to spend, leaving them cash strapped. To cope with these eventualities, households borrow cash. The past six months, in fact, saw 129 households (30.9%) in Barangay 51 borrowing money. Sources for these borrowings were relatives (55%), neighbors (43.4%), and friends (25.6%).

In Barangay 85, 78 households (45.4%) loaned money during the past six months, most of which were sourced from loan sharks (25.6%), friends (25.6%), and relatives (23%).

Results show that Barangay 51 has a high proportion of savers—almost equal to the proportion of savers in Barangay 85. Meanwhile, Barangay Santa Rita has a lower proportion of savers. This disparity may be explained by the income gap between the rural barangay and the two urban barangays.

Selling and Pawning of Assets

Rural Community

In the last six months, at least one out of the 50 households (14.8%) in Barangay Santa Rita sold their properties or assets so as to have additional money to finance their household expenses. A majority sold jewelry (34%), agricultural land (24%) and cell phones (20%). Two households even sold their ATM cards. In addition, 82 households (24.2%) pawned some of their properties or assets for cash. About 48.8 percent of these same households pawned their jewelry while 40.2 percent pawned their agricultural land.

About 8.9 percent and 29.2 percent of rice farmers also sold or pawned, respectively, some of their properties in the last six months. Selling or pawning agricultural land, farm animal, or farm implements for that matter greatly reduces the future income of farming households. Productive assets are supposed to remain in the hands of the households and should be used to increase their income. Unfortunately, in extraordinary times, farmers are forced to sell or pawn such properties, leaving them more vulnerable to poverty unless they are able to recover these assets soonest.

Urban Community

During the past six months, six households (1.4%) in Barangay 51 reported that at least one of its members sold properties or asset to augment their income. In comparison, the figure for Barangay 85 is slightly higher (4.6%).

Majority in Barangay 51 sold properties like jewelry, cell phones, and appliances. The same kinds of assets except cell phone were also sold by households in Barangay 85, along with houses, residential lots, jeepneys, and motorcycles. Two households also sold other items such as a photocopying machine and *bakulong* (equipment for fishing). Moreover, 1.9 percent and 11.2 percent of households in Barangay 51 and Barangay 85, respectively, had one of their household members pawning properties or assets. In Barangay 51, one household pawned an agricultural land while three pawned jewelry, and another five pawned cell phones. Households in Barangay 85 also pawned the jewelry and cell phone and other assets such as houses, residential lots, and cars.

It is evident that households in Barangay 85 have more productive assets than do Barangay 51. Results clearly show that Barangay 51 has very small proportions of households that sold or pawned properties in the past six months. These findings support the fact that very poor households, who own very few assets and capital, have a restricted coping strategies to draw upon in times of crisis. Meanwhile, some assets—mostly sold or pawned by households in Barangay 85—are considered productive in the sense that such can generate income for the household. Letting go of these therefore means fast cash for the households but in the long-run, the foregone income from the assets would outweigh the short-run benefit. Middle-income households usually resort of these actions so as to sustain current consumption patterns rather than cut back on expenses.

Employment

Rural Community

During the last six months, about 4.4 percent of households in Barangay Santa Rita have at least one member who lost a job due to the closure of the company. Given the continuous increase in prices, a majority of households has at least one member who tried to explore employment opportunities to augment the existing income. In fact, 10 percent of households in Barangay Santa Rita have a member who sought additional work aside from the primary occupation. Such was resorted to just so the household could meet its daily needs. About 9.4 percent of households in the barangay have a member who performed other work aside from their main occupation. Others (11.2%) also tried to seek employment in another area or country.

Urban Community

During the past six months, 6.9 percent and 7.8 percent of households in Barangay 51 and Barangay 85, respectively, have at least one member who lost a job. In Barangay 51, the job loss is mainly because the members' job contract had ended (91.4%). This is also the main reason of respondents in Barangay 85 (42.9%). In times of unusually high inflation, a job loss means almost all (if not all) of the household's income will cease to flow in, particularly for households that rely on only one member working. This is highly detrimental to every aspect of the household's welfare and even gets more precarious if no household member could find a job in the short run.

This year is not the best time to lose a job. The recent job losses, however, are not directly linked to rising food and fuel prices but are rather due to the financial problem in the United States and other developed countries.

Unemployment is expected to rise due to lower demand for consumer goods from industrialized countries in the first half of 2009. Inflation rates are still not within the pre-crisis levels. The economy is expected to slow down to 4 percent from a 30-year high of 7 percent of last year. The only respite at the moment is the rollback in petroleum prices, which is dropping to almost 50 percent from its peak.

Given the situation, 2.7 percent of households in Barangay 51 and 7.8 percent of households in Barangay 85 have at least one member seeking additional work. In addition, 0.4 percent and 6.2 percent of households in Barangay 51 and Barangay 85, respectively, performed an extra job other than their primary occupation. Four households (0.8%) in Barangay 51 and 12 households (6.7%) in Barangay 85 are exploring employment opportunities outside the area or country.

Recreational Patterns

Rural Community

Among the households in BarangaySanta Rita, 59.3 percent are engaged in a recreation or leisure activity. Majority (42.3%) engage in gambling and betting games. In addition, a large proportion of the households spend money for travel and tourism (32.3%). During the last six months, 7.9 percent of these households reported that there were changes in the way they carried out their recreational activities. In particular, majority (87.5%) reported that their recreational or leisure activities have become less frequent due to the hikes in prices. Moreover, about 31.3 percent of the households engaged in recreational activities substituted their original activities with less expensive ones.

Urban Community

Only 63 households (12%) in Barangay 51 said that they engaged in any recreational activity. Most (36.5%) usually dine out, bar hop, or hang out in coffee shops. Twenty households (31.8%) watch movies, concerts, and live performances. For the past six months, 64.8 percent responded that there were changes in their leisure patterns. Almost all households (95.7%) reported that they engaged in recreational activities less frequently as a way to cope with climbing commodity prices.

In Barangay 85, majority of households (40.8%) surveyed engaged in a recreational or leisure activity. A large proportion of these households (46.6%) identified shopping and going to malls as their leisure activities. Thirty-seven percent of the same set of households reported that their recreational activities also included watching movies, concerts, and live performances. During the past six months, 34.8 percent said changes took place in the way they carried

out their leisure activities. Specifically, 78.3 percent of these households reported that the conduct of recreational activities became less frequent in the past six months.

Changes in Recreational Activities

Results show that the three barangays have less in common in terms of recreational and leisure activity but do share the same coping strategy. The differences may be attributed to local customs, absence or presence of recreational facilities, and income. In the case of Barangay Santa Rita, this rural community is relatively farther from recreational facilities such as malls, coffee shops, and entertainment centers. Thus, one should expect that its households rarely see a movie or shop at malls. Field observations in Barangay Santa Rita clarified that gambling is done only for leisure purposes since it does not involve bets or money. This is simply the community's way of strengthening kinship among families and relatives and encouraging camaraderie among neighbors. Community members usually play cards or *mahjong* with family and relatives.

It should also be noted that the barangay's geographic location makes traveling favorable. Capas, Tarlac is at the heart of major road networks leading to tourist destinations in the north, particularly Baguio City and the Cordilleras, and the Hundred Islands in Pangasinan. These explain the recreational pattern of the barangay—something it does not share with the two urban barangays in this study.

Between the two urban barangays, there too are differences in their leisure patterns. The top recreational activity for Barangay 51 is dining out, bar hopping, and hanging out in coffee shops. On the other hand, households in Barangay 85 opt to shop and go to the malls. Recreational facilities are accessible to both barangays but since Barangay 85 is the more affluent community, households here naturally have more disposable income to spend for shopping as compared to less costly leisure activities preferred by households in Barangay 51. The proximity to recreational facilities such as movie houses, entertainment centers (i.e., Cuneta Astrodome), and malls explain why a significant proportion of households in both barangays reported watching movies and live acts as their leisure activity.

Although the variations in recreational patterns between the three barangays are striking, unexpectedly, they share the same coping strategy. Recreational activities for most households in the three barangays have become less frequent within the context of soaring prices. It appears that the price hikes compelled poor households and—to a lesser extent—middle-income households, to forego recreational activities and prioritize basic necessities instead.

A Closer Look at a Rice-Producing Barangay

Rice and Non-rice farmers

A summary of the coping mechanisms adopted by rice farming households and non-rice farming households in Barangay Santa Rita in response to the recent increases in prices is presented in Table 44. This is to illustrate more clearly the differences in responses between the two groups of households.

There are significant differences in the two groups' coping mechanisms. Rice farmers tend to adopt coping strategies such as shifting to low-cost fuel, borrowing money, pawning assets, and altering the conduct of recreational activities more than the non-rice farmers. On the other hand, nonfarming households tend to change food and electricity consumption patterns, gravitate more toward government-run stores as their preferred food market, save money, use savings, sell assets, and seek additional work to mitigate the adverse effects of increasing food and fuel prices.

The households were also asked to assess their current situation against their condition six months earlier. The 17.3 percent and 16.8 percent of non-rice farmers and rice farmers, respectively, said their condition improved in the past six months. Meanwhile, 23.5 percent of non-rice farmers said their situation deteriorated in the past six months while 19.5 percent of farming households reported that their welfare declined. Being net consumers (because of the absence of production), more non-rice farming households see their situation worsen.

Rice Farmers' Response to Rising Prices

Among the income groups, the poorest quintile has the highest proportion of households shifting to NFA rice. In contrast, the richest tercile saw a significantly lower proportion of households taking the same coping strategy. Another interesting finding is that most of the children who stopped going to school are coming from the higher income groups.

There are also significant differences within income groups when it comes to borrowing patterns. The proportion of borrowers is highest in the lower quintiles (i.e., farmers with lower income). On the other hand, the proportion of pawners is biggest among farmers with higher income. Furthermore, the highest proportion of sellers can be found in the lower income group.

As expected, high-income farmers have the highest proportion of savers and, consequently, the highest proportion of households who used their savings for daily expenses. Lastly, the highest proportions of households that sought another job or performed additional work are found in lower income groups, while the highest proportion of households who seek jobs outside the area or country can be found in the higher income group.

Table 44. Patterns of Coping Mechanisms (rice vs. nonrice farmers)

Coping Strategies	Santa Rita	
	Rice farmers	Nonfarmers
Shifted to NFA Rice	22.1	23.5
Food market preference changed to NFA rolling store/TNG	13.3	15.9
Changed food consumption pattern	12.4	18.6
Shifted to low-cost cooking fuel	6.2	1.3
Decreased electricity usage	26.9	27.9
Changed electricity consumption pattern	25.7	30.1
Transferred children from private to public schools	0.9	0.9
Children stopped attending school	7.1	7.1
Changed health-seeking behavior	44.3	42.9
Decreased usage of cell phone	0	0
Shifted to cheaper means of transportation	0	0
Saved money	14.2	18.1
Used savings	12.4	15.5
Borrowed money	75.2	71.2
Sold properties	8.9	17.7
Pawned properties	29.2	21.7
Sought additional work	6.2	12
Doing work besides main occupation	8	10.2
Sought work outside of area/country	10.6	11.5
Changed conduct of recreational/leisure activities	11.8	5.9

Source: CBMS Survey 2008

Table 45. Self-Rated Status by Sector (rice farmers vs. nonrice farmers), Santa Rita (%)

	Rice farmers	Nonrice farmers
Better off	16.8	17.3
The same	63.7	59.3
Worse off	19.5	23.5

Source: CBMS Survey 2008

The respondents were asked how they perceived their current condition compared to six months ago. Results reveal that a significant proportion (36.8%) of farmers with low production (subsistence farmers) reported that their condition deteriorated, while a similarly significant proportion (21.3%) of farmers with relatively higher production said that their condition improved. Although farmers in general benefited from the upsurge in food prices, particularly of rice, it does not necessarily mean that all farmers equally saw improvements in welfare.

Household Coping Strategies among Poor and Non-Poor Households

In times of economic shocks, do poor and non-poor households differ in household coping mechanisms adopted? Based on the results, the answer is yes. By looking at Table 48, a general pattern can be observed. As a general remark, poor households tend to adopt coping strategies that are damaging and counter-productive in the medium- and long-run. On the contrary, non-poor households commonly employ coping mechanisms to maintain current consumption level (smoothing consumption). Another finding is that more coping strategies are doable for non-poor households compared to poor households.

In the rural site, 42.3 percent of poor households said they shifted to NFA rice, while a smaller proportion of non-poor households (17.8%) reported the same coping mechanism. Meanwhile, in the two urban barangays in Pasay City, more non-poor households shifted to NFA rice than poor households. One probable reason for the results is that poor households have already been patronizing the cheaper rice from NFA even before the crisis struck as shown by figures of rice consumption in the two urban barangays. Based on the survey, six months ago (March 2008), 42.4 percent of the urban respondents said that they were consuming NFA rice while only 19.5 percent of the rural respondents said that they were patronizing NFA rice (see Table 49).

Table 46. Proportion of Household Coping Strategies of Rice Farmers by Income, Santa Rita

Coping strategies	Tercile		
	1	2	3
Shifted to NFA rice	34.4	33.3	6.3
Shifted to government-run stores	21.9	18.2	4.2
Food consumption pattern	9.4	12.1	14.6
Shifted to low cost cooking fuel	15.6	3	2.1
Decreased electricity usage	50	16.7	16.7
Electric consumption	37.5	18.2	22.9
Private to public	0	0	2.1
Stopped attending school	3.1	6.1	10.4
Health-seeking behavior	53.1	48.5	35.4
Borrowed money	84.4	81.8	64.6
Sold properties	15.6	6.1	6.3
Pawned Properties	21.9	24.2	37.5
Sought additional work	12.5	9.1	0
Doing work besides main occupation	12.5	6.1	6.3
Sought work outside of area/country	6.3	9.1	14.6
Changed conduct of recreational activities	11.8	12.5	11.4

Source: CBMS Survey 2008

With regard to changing preference to government-run stores, 21 percent of rural poor households surveyed reported such coping strategy; on the other hand, 6.9 percent of the poor urban households surveyed did the same coping strategy.

Table 47. Self-Rated Status by Group of Farmers (based on volume of production)

Status	Tercile		
	1	2	3
Better off	7.9	26.3	16.2
The same	55.3	57.9	78.4
Worse off	36.8	15.8	5.4

Source: CBMS Survey 2008

Across the three sites, results show that poor households are more predisposed to change food consumption pattern such as skipping meals and shifting to less quality foods. Based on national figures, more or less 60% of a poor household's budget goes to food expenditure and this may be the reason why poor households are very sensitive to price changes in food commodities.

As expected, the transfer of children from private to public school as a coping mechanism is only found among non-poor households. But withdrawing children from school is more prevalent among poor households across the samples.

Likewise in the case of withdrawing children from school, changes in health-seeking behavior are more common among poor households among the respondents surveyed. Examples of such coping strategies are going to faith healers instead of a doctor for health concerns, and resorting to self-medication. Many studies on social impacts of aggregate shocks on household welfare suggest that poor households have higher propensity to cut back on medical expenses compared to non-poor households.

Based on the results from the three sites surveyed, non-poor households are more likely to rely on their savings to purchase things they normally buy with their cash-in-hand. This may be partly attributed to the fact that it is among the non-poor households that we see more people reporting that they saved money. Savings and the use of it turned out be an important coping mechanism for non-poor households in smoothing their consumption in times of high and rising prices.

Higher proportions of borrowers are found among poor households across the samples.

The case is different when it comes to sale of assets. Results imply that in the rural setting, non-poor households are more inclined to sell properties than

Table 48. Summary of Coping Strategies Adopted by Households (poor vs. non-poor)

Coping Strategies	Rural		Urban	
	Santa Rita		Pasay	
	Poor	Non-poor	Poor	Non-poor
Shifted to NFA Rice	42.3	17.8	4.8	6.8
Food market preference changed to NFA rolling store/TNG	21.4	13.3	6.9	7.1
Changed food consumption pattern	22.5	14.9	34.9	22.9
Shifted to low-cost cooking fuel	5.6	3.3	2.4	0.8
Decreased electricity usage	45.5	22.2	6.1	12.3
Changed electricity consumption pattern	36.6	26.5	36.5	43.5
Transferred children from private to public schools	0.0	1.1	0.0	0.8
Children stopped attending school	8.5	6.7	4.8	0.8
Changed health-seeking behavior	60.6	38.8	24.1	18.5
Decreased usage of cell phone	0.0	0.0	33.3	36.8
Shifted to cheaper means of transportation	0.0	0.4	0.0	0.4
Saved money	8.5	19.0	15.6	34.1
Used savings	7.0	16.4	10.4	23.8
Borrowed money	76.1	71.6	41.6	34.1
Sold properties	12.7	15.3	5.2	2.0
Pawned properties	14.1	26.9	3.5	4.4
Sought additional work	12.7	9.3	2.4	4.2
Doing work besides main occupation	9.9	9.3	0.0	2.1
Sought work outside of area/country	5.6	12.7	0.0	2.6
Changed conduct of recreational/leisure activities	6.8	8.2	66.7	45.4

Source: 2008 CBMS Survey

poor households apparently because the former have more belongings to put up for sale. But in the urban setting, non-poor households do not rely much on sale of properties to cope with rising prices of food and fuel. But by closely looking at disaggregated figures of the rural sample [see Table 50], data show that among

Table 49. Type of Rice Consumed

	Type of Rice	6 months ago	At Present
Rural	Commercial	51.6	32.2
	NFA rice	19.5	41.9
	Own harvest	28.9	26.0
Urban	Commercial	56.9	56.2
	NFA rice	42.4	42.8
	Own harvest	0.6	0.7

Source: CBMS Survey 2008

the farming households, the proportion of poor households that responded they sold properties is higher compared to non-poor households. However, the results are opposite among non-farming households. One possible explanation for this is that rural poor households (especially rice farming households) are trying to expand their production by selling assets in order to take advantage of higher rice prices, while non-farming non-poor households are selling belongings to compensate for their lack of food production and rising food prices (very much like urban households who are net buyers).

Table 50. Sale of Assets Among Rural Households (in %), Santa Rita

	Rural (Sta. Rita)			
	Farming		Non-Farming	
	Poor	Non-poor	Poor	Non-poor
Sold Properties	15.0	11.8	7.5	19.4

Source: 2008 CBMS Survey

In general, higher proportions of pawners are found among non-poor households across the samples.

As to seeking additional jobs as a coping strategy, the results from the rural and urban sites are different. In the rural site, a higher proportion of poor households said that they have additional job seekers compared to non-poor households. Unlike the rural sample, a higher proportion of non-poor urban households responded that they seek additional jobs as a coping strategy. It

appears that seeking additional work as a coping mechanism is not that common among urban poor households. The same goes with performing additional work.

Seeking work outside the area or country as a coping strategy is more widespread among non-poor households across the samples surveyed.

Lastly, among the urban households asked it is apparent that poor households are more likely to alter the way they carry out their recreational or leisure activities compared to non-poor households while among the rural households it is the converse.

Summary of Results

A summary of the three barangays' coping mechanisms in response to the recent price increases is presented in Table 48.

Based on previous discussions of survey results from the three barangays, the household coping strategies of urban and rural households, and rice and non-rice farmers were identified. Some of the results are as follows.

- 23 percent of rural households surveyed said they shifted to NFA rice, while a smaller proportion of urban households (6.1%) reported the same coping strategy. Of those that changed preference toward government-run stores, rural households reported a higher proportion compared to urban households.
- The proportion of households that altered the way they eat, purchase, and prepare food is higher in urban than in rural sites.
- More households in rural areas (7.1%) than in urban areas (1.7%) reported that at least one of their children stopped going to school.
- A significant proportion of rural households (43.4%) shared that they changed their health-seeking behavior to cope with high prices. On the other hand, only 16.3 percent of urban households needed to adopt the same strategy.
- A higher proportion of savers are found in the urban households surveyed than in rural households.
- Rural households have higher proportions of borrowers, pawners, and sellers than do the urban households.
- The proportion of rural barangay respondents who said they looked for local jobs, performed additional work, and sought jobs outside the area or country in the past six months is higher as compared to the results from urban barangays.
- Lastly, more urban households altered the way they carried out their recreational or leisure activities to mitigate the effects of rising prices as compared to the rural households.

Table 51. Summary of Coping Strategies Adopted by Households

Coping Strategies	Rural	Urban	
	Santa Rita	Brgy. 51	Brgy. 85
Shifted to NFA Rice	23.0	7.0	5.2
Food market preference changed to NFA rolling store/TNG	15.0	1.7	1.1
Changed food consumption pattern	16.5	25.7	20.1
Shifted to low-cost cooking fuel	3.3	0.6	1.7
Decreased electricity usage	27.7	7.7	27.5
Changed electricity consumption pattern	28.6	48.0	26.8
Transferred children from private to public schools	1.0	0.0	2.8
Children stopped attending school	7.1	1.0	2.3
Changed health-seeking behavior	43.4	22.4	10.1
Decreased usage of cell phone	0.0	39.7	9.5
Shifted to cheaper means of transportation	0.0	0.7	0.0
Saved money	16.8	31.3	32.6
Used savings	14.5	18.7	30.2
Borrowed money	72.6	30.9	45.4
Sold properties	14.8	1.4	4.7
Pawned properties	24.2	1.9	11.2
Sought additional work	10.0	2.7	7.8
Doing work besides main occupation	9.4	0.4	6.2
Sought work outside of area/country	11.2	0.8	6.7
Changed conduct of recreational/leisure activities	7.9	64.8	34.8

Source: 2008 CBMS Survey

GOVERNMENT RESPONSES

Because of the recent spikes in prices of rice, the Philippines government has responded through some policy decisions that have short- and long-term impact. One specific intervention is the direct sale of rice at subsidized prices. The NFA

increased its visibility in the market so as to reduce the long queues of people wanting to buy subsidized rice. More NFA outlets were established around the country. Emergency food imports (e.g., allowing private sectors to import rice) to augment domestic rice supply was sought. The government also announced that anti-hoarding measures would be introduced. In addition, cash transfers to certain groups, called "*Katas ng VAT"*, were implemented to mitigate the impact of higher inflation. Finally, the government encouraged fast food restaurants to reduce the portion of rice sold in set meals.

Katas ng VAT program

The government started recognizing the enormity of the food and fuel price crisis last summer. It launched ad-hoc responses to the issue. Its umbrella program was named Katas ng VAT (literally, fruits of VAT). Due to the unprecedented jump in oil prices, the government collected windfall taxes on oil products. The 12 percent value-added tax had been tagged even by the president as the possible source of funds needed to cushion poor families from the impact of rising prices. At present, the program is divided into four tranches, but for assessment purposes only the first and second phases of the project will be discussed in this study.

The first phase of the Katas ng VAT program includes power subsidy for lifeline users, scholarship fund for poor but deserving students, microcredit for the conversion of public utility vehicles' engines for so that they can run on cheaper and more efficient fuel, and funds for phasing out incandescent bulbs and replacing them with fluorescent lamps.

The second phase is composed of assistance funds for the rehabilitation of infrastructure damaged by typhoons, microfinance loans for wives and immediate relatives of transport workers, upgrade of provincial hospitals, and one-time cash dole-out to senior citizens without pension.

The two phases of the program are worth P9 billion (P4.5 billion per phase). However, the nature of the program is the source of its weakness. The aid is usually in the form of one-time cash assistance to loosely targeted households. In the case of lifeline users (households that consume 100kW or less of electricity a month), the records of the electric firms or cooperatives served as the basis for the assistance. In the urban areas, the procedure is for the household to go to the nearest Landbank (government-owned bank that releases the fund) branch and present their electric bill for the month of May 2008. If the electric bill is deemed authentic then the person is given P500 via cash transfer. In rural areas, the power subsidy is automatically deducted from the next electric bill as ordered by the National Electrification Administration to provincial electric cooperatives and companies. The government aims to assist 4 million lifeline users nationwide.

Such programs' impact is fleeting. The benefit ends once the beneficiary spends the money (P500). Its sustainability is very much questionable. Spending the funds on short-term projects could only mitigate the situation but not target the underlying problem head on. Such large amount of money should rather be invested by the government on medium- and long-term development programs.

NFA Family Access Cards

The plan to sell NFA subsidized rice exclusively to food poor households was first floated in April 2008 and only fully implemented on December 1, 2008. Theoretically, only the "poorest of the poor" should receive cheap rice from the government. This may very well be in response to reports and studies suggesting that only one-third of the subsidized rice went to the poor. Up to this day, the targeting strategy of the Department of Social Welfare and Development (the department implementing the program) is not fool-proof.

Haphazard targeting increases the risk of the nonpoor getting the benefit from these programs and the poor being left out. Leakage is the main reason the cheap NFA rice is readily available to the general public. The DSWD currently gives the responsibility of identifying beneficiaries to the local government units, but this is exactly where the problem lies. If the local government unit (LGU) does not have any household-level data to work with in identifying poor households, it will encounter difficulties in coming up with a list. This is where the CBMS can fill the gap. Through CBMS, the LGU can generate a list of income poor or food poor households, depending on its target beneficiaries. Using CBMS or other monitoring systems for that matter will greatly reduce the leakage rate.

Table 49 shows some of the programs implemented by the government in response to rising prices.

CONCLUSION

This study aims to determine the impact of rising prices of rice and fuel on poverty. To help decisionmakers design specific policy interventions, the losers and winners of the price increases in rice and fuel are identified. Results of this study confirm that the impact of the hike in rice and fuel prices would vary across different groups of households based on level of urbanity, income group, and geographical location.

Results reveal that most of the households in the Philippines are net consumers, rather than net producers, of rice. One important observation is that urban households would be the more adversely affected as compared to those living in the rural areas. In addition, the poorest households are the most vulnerable to price changes. In fact, they would be the most adversely affected by

Table 52. Some Programs/Projects Implemented by the Government in Response to Rising Prices

Program/Project	Program Components/Services	Coverage	Resource Allocation
Increase in farmgate palay (unhusked rice) price	To match the commercial buying price of palay, the President ordered the National Food Authority (NFA) in April 2008 to increase the farmgate price of palay from P12 to P17 per kilo (42% hike in palay rice). This is in response to reports that farmers are not really enjoying the benefits of higher palay buying prices.The NFA buys clean and dry palay at P17/kilo. For this year's main harvest. Farmers can get an additional cash incentive of P1,800 for every 50 bags of produce they will sell to the agency.	Rice farmers nationwide	Increased the budget to P17 billion in November 2008;On the top of this, P8.5 billion had been disbursed to NFA earlier; Recently, Landbank transferred another P5 billion to NFA
NFA rice subsidy	The program's objective is to make available cheaper rice to poor households.At the current NFA price of P18.25/kg, the government subsidy is almost 50%. The actual price of this NFA rice (regular-milled) is P34/kg.Subsidized NFA rice is distributed to the public through Targeted Rice Distribution Program (TRDP) stores, Tindahan ni Gloria, Bigasan ni Gloria, accreditation of individual retailers, rolling stores, KALAHI store outlets.	Untargeted transfer to households nationwide	NFA estimates P19.1 billion in losses for 2008 alone;The government would spend some P20 billion this year in subsidies (DA);P26.3 billion in 2008 (WB estimate)

Table 52. (continued)

Program / Project	Program Components / Services	Coverage	Resource Allocation
Anti-hoarding task force	The government, with the Department of Justice, created a task force to go after hoarders.The Anti-Rice Hoarding Task Force would handle cases about actions that endanger the country's rice supply, which is tantamount to jeopardizing the economy.The five-member body is also authorized to coordinate law enforcement and administrative agencies to facilitate the prosecution of illegal acts related to the country's rice supply.	Rice hoarders	
Katas ng VAT - Pantawid Kuryente (Power Subsidy)	The program aims to give back to the poor the benefits reaped from the implementation of the expanded value added tax (EVAT), specifically from the 12% VAT on petroleum products.The said provision of targeted cash payments to the poorest of the poor or to the "lifeline users" would help them cope with their electric bills	4 million families that consume a maximum of 100 kilowatt hour a month of electricity	P1 billion

rice price increases. Given this, policy interventions should focus on providing safety nets for poor households.

Another important result is that although a large proportion of rice farmers (73.7%) would benefit from rice price increases, a significant proportion (26.3%) is still expected to lose. It is also important to highlight that the poorest farmers tend to be the most adversely affected by rice price increase.

Meanwhile, other results confirm that households in the Philippines, in general, spend a relatively small proportion of their budget on fuel than on rice. In fact, only about 1.5 percent of their total expenditure is allotted to fuel (including petroleum and LPG). The amount of fuel expenditures increases as household move from one income decile to a higher level. However, in general, the overall fuel budget share of the poorest households (i.e., those at the 1st income decile) is higher compared to the richest households (i.e., 10th income decile).

Results of the CBMS survey further confirm that households adopted different coping mechanisms in response to increasing prices. In particular, some households reported that they changed their consumption patterns during the period covered by the study. For instance, some households modified their expenses on food, health, and education. The reduction in the amount spent on these necessities may have long-term effects on the poverty situation of households.

The Philippine government has designed and implemented policies and programs that would mitigate the negative impact of soaring prices. One of the most popular interventions (through the NFA) is the direct sale of rice at subsidized prices. Although the efforts of the government to provide cheaper rice to the population is laudable, one important concern pertains to how it targets the right beneficiaries. In particular, of all NFA rice consumers, only 46.6 percent are considered poor. Furthermore, although the poor households are supposed to be the target beneficiaries of the highly subsidized rice, only 24 percent of these were able to access NFA rice. Note that for households in the lowest income decile, NFA rice accounted for only about 12.7 percent of their total spending on rice. This implies serious leakage and undercoverage problems with the current targeting system.

While the problem on leakages has been partly addressed when the government issued the Family Access Cards, success remains elusive due to the lack of household-level data that would identify the eligible beneficiaries. Consequently, considerable leakages and exclusions still prevail. Thus, it is recommended that household-level data in the community, such as that being generated by the CBMS in certain local government units, be used to identify eligible beneficiaries through some proxy means test model. This would help

reduce the leakage of program benefits and ensure that it is truly the poor who benefits from these subsidies.

REFERENCES

Ackah, C. and Appleton, S. (2003). "Food Price Changes and Consumer Welfare in Ghana in the 1990s." Centre for Research in Economic Development and International Trade Research Paper No. 07-03. University of Nottingham. Nottingham.

Asian Development Bank (2008a). "Soaring Food Prices: Response to the Crisis." Paper prepared by an interdepartmental task force chaired by S. Hafeez Rahaman, (Deputy Deirector), South Asia Department.

_____ (2008b). "Food Prices and Inflation in Developing Asia: Is Poverty Reduction Coming to an End?" . Paper prepared by a team led by William E. James. Economics and Research Department, ADB. April 2008

Barrett, C.B. and Dorosh, P.A. (1996). "Farmers' Welfare and Changing Food Prices: Nonparametric Evidence from Rice in Madagascar." *American Journal of Agricultural Economics*. Vol. 78, no.3, pp, 656-669.

Budd, J.W. (1993). "Changing Food Prices and Rural Welfare: A Nonparametric Examination of Cote d' Ivore." *Economic Development and Cultural Change*. Vol. 41, no. 3, pp 587-603.

Deaton, A. (1989). "Rice Prices and Income Distribution in Thailand: A Nonparametric Analysis." *Economic Journal* 99 (395) (Supplement): 1–37.

Dessus, S., Herrera S. and de Hoyos, R. (2008). "The Impact of Food Inflation on Urban Poverty and Its Monetary Cost: Some Back-of-the-Envelope Calculations." Policy Research Working Paper No. 4666. The World Bank. Washington D.C.

Energy Information Administration (2008). Short Term Energy Outlook. July 2008. http://www.eia.doe.gov/steo#Global_Petroleum_Markets

Food and Agriculture Organization (2008). "Soaring Food Prices: Facts, Perspectives, Impact and Actions Required." Paper prepared for the High-Level Conference on World Food Security: The Challenges of Climate Change and Bioenergy. Rome. 3-5 June 2008.

Intal, P. S. and M. C. Garcia. (2005). "Rice and Philippine Politics." Discussion Paper Series No. 2005-13. Philippine Institute for Development Studies. Makati City, Philippines.

Loening, J., and Oseni, G. (2007), "Approximating Urban and Rural Welfare Effects of Food Price Inflation in Ethiopia", mimeo, The World Bank, Washington, DC.

Minot N. and Goletti, F. (2000). "Rice Market Liberalization and Poverty in Vietnam." IFPRI Research Report No. 114. International Food Policy Research Institute, Washington D.C.

Ordinario, Cai. "Farmers Urge NFA to Buy More Palay At P17/Kilo." *Business Mirror*. Available at: www.businessmirror.com.ph/09232008/economy05.html, downloaded: 30 September 2008.

Sabangan, AR. "Poor Filipinos Are 'Addicted' to Rice." GMANews. TV. available: www.gmanews.tv/print/88473. Downloaded 30 September 2008

Sharma, R. (2002). "The Transmission of World Price Signals: Concepts, Issues and Some Evidence from Asian cereal markets." OECD Global Forum on Agriculture.

Son, H.H. (2008). "Has Inflation Hurt the Poor?." Economics and Research Paper Working Paper No. 112. Asian Development Bank, Manila.

ANNEX A

Average Annual Income of Different Group of Households Across Regions and Poverty Incidence, 2006

	Average Per Capita Income (Pesos)	Poverty Incidence(%)
Philippines	42,823	26.4
NCR	80,950	5.2
CAR	47,515	29.8
I – Ilocos	35,379	22.9
II - Cagayan Valley	36,084	18.2
III - Central Luzon	47,022	14.5
IVA – CALABARZON	51,699	14.7
IVB – MIMAROPA	28,353	38.6
V – Bicol	32,121	40.2
VI - Western Visayas	32,710	28.1
VII - Central Visayas	34,146	24.9
VIII - Eastern Visayas	30,803	36.0
IX - Zamboanga Peninsula	29,016	42.0
X - Northern Mindanao	33,570	35.5
XI – Davao	33,566	29.7
XII – SOCCSKSARGEN	27,828	31.6
XIII – Caraga	28,056	42.8
Autonomous Region of Muslim Mindanao (ARMM)	18,083	48.5

Source of basic data: 2006 FIES, NSO

ANNEX B

Average HH Expenditures, Rice Expenditures and Rice Budget Share Across Different Group of Households, by Region, 2006

	Average HH Expenditures	Ave. HH Rice Expenditures	Ave. Rice Budget Share
Philippines	42,823	26.4	11.9
NCR	80,950	5.2	5.1
CAR	47,515	29.8	13.8
I – Ilocos	35,379	22.9	12.8
II - Cagayan Valley	36,084	18.2	12.3
III - Central Luzon	47,022	14.5	9.4
IVA – CALABARZON	51,699	14.7	8.6
IVB – MIMAROPA	28,353	38.6	18.5
V – Bicol	32,121	40.2	15.0
VI - Western Visayas	32,710	28.1	15.5
VII - Central Visayas	34,146	24.9	10.6
VIII - Eastern Visayas	30,803	36.0	18.8
IX - Zamboanga Peninsula	29,016	42.0	12.4
X - Northern Mindanao	33,570	35.5	11.6
XI – Davao	33,566	29.7	12.0
XII – SOCCSKSARGEN	27,828	31.6	16.9
XIII – Caraga	28,056	42.8	17.6
Autonomous Region of Muslim Mindanao (ARMM)	18,083	48.5	19.4

Source of basic data: 2006 FIES, NSO

ANNEX C

Patterns in NFA Rice Consumption, by Region, 2006

	Share to Total Rice Expenditures (%)	Proportion of NFA rice consumers (%)
Philippines	5.5	13.9
NCR	2.5	5.6
CAR	12.5	20.1
I – Ilocos	5.3	9.9
II - Cagayan Valley	4.3	7.6
III - Central Luzon	2.1	4.4
IVA – CALABARZON	2.1	4.2
IVB – MIMAROPA	7.9	22.9
V – Bicol	8.5	46.7
VI - Western Visayas	1.0	2.9
VII - Central Visayas	7.3	11.9
VIII - Eastern Visayas	11.2	21.5
IX - Zamboanga Peninsula	9.4	15.6
X - Northern Mindanao	10.8	17.7
XI – Davao	11.2	18.3
XII – SOCCSKSARGEN	5.0	13.7
XIII – Caraga	9.0	19.3
Autonomous Region of Muslim Mindanao (ARMM)	10.0	21.5

Source of basic data: 2006 FIES, NSO

ANNEX D

Proportion of Rice Producers and Palay Income Share, by Region, 2006

	Proportion of Rice Producers (%)	Ave. Palay Income Share Among Rice Producers (%)
Philippines	14.4	41.8
NCR	0.2	36.4
CAR	38	29.6
I – Ilocos	32.4	29.2
II - Cagayan Valley	35.6	52.5
III - Central Luzon	14.9	55.8
IVA – CALABARZON	3.4	29
IVB – MIMAROPA	30.5	49.4
V – Bicol	22.5	32.3
VI - Western Visayas	22.9	35.4
VII - Central Visayas	10.1	35.3
VIII - Eastern Visayas	20.9	30.6
IX - Zamboanga Peninsula	14.4	38.8
X - Northern Mindanao	7.8	37.8
XI – Davao	5.5	53.2
XII – SOCCSKSARGEN	18.4	55.2
XIII – Caraga	16.6	49.8
Autonomous Region of Muslim Mindanao (ARMM)	16.7	77

Source of basic data: 2006 FIES, NSO

ANNEX E

Proportion of Net Consumers and Net Producers, by Region, 2006

	Net Consumers (%)	Net Producers (%)	Zero Net Consumption (%)
Philippines	**84.7**	**12.8**	**2.4**
NCR	98.6	-	1.4
CAR	74.5	25.4	0.1
I – Ilocos	70.5	29.1	0.4
II - Cagayan Valley	62	36.8	1.2
III - Central Luzon	84.3	15.4	0.3
IVA – CALABARZON	96.2	3.1	0.7
IVB – MIMAROPA	75.2	24.6	0.1
V – Bicol	80.8	18.6	0.6
VI - Western Visayas	81.3	18	0.7
VII - Central Visayas	79.6	9.2	11.1
VIII - Eastern Visayas	85.3	14.4	0.3
IX - Zamboanga Peninsula	73.8	13.1	13
X - Northern Mindanao	84.2	7.8	8
XI – Davao	89.3	6.5	4.2
XII – SOCCSKSARGEN	81.4	17.4	1.1
XIII – Caraga	83.5	15.1	1.4
Autonomous Region of Muslim Mindanao (ARMM)	83.9	16	0.1

Source of basic data: 2006 FIES, NSO

ANNEX F

Share of Each Group of Households to the Total Number of Net Consumers and Net Sellers in the Philippines, by Region, 2006

	Net Consumers (%)	Net Producers (%)	Zero Net Consumption (%)
Philippines	**100**	**100**	**100**
NCR	15.8	-	7.9
CAR	1.5	3.5	0.1
I – Ilocos	4.5	12.4	1
II - Cagayan Valley	2.6	10.2	1.7
III - Central Luzon	10.9	13.2	1.3
IVA – CALABARZON	14.7	3.2	3.8
IVB – MIMAROPA	2.8	6	0.2
V – Bicol	5.5	8.4	1.3
VI - Western Visayas	7.6	11.1	2.3
VII - Central Visayas	7	5.4	33.9
VIII - Eastern Visayas	4.7	5.2	0.6
IX - Zamboanga Peninsula	3.1	3.7	19.1
X - Northern Mindanao	4.5	2.8	14.9
XI – Davao	5.1	2.5	8.4
XII – SOCCSKSARGEN	4.1	5.9	2
XIII – Caraga	2.5	3	1.5
Autonomous Region of Muslim Mindanao (ARMM)	3	3.8	0.1

Source of basic data: 2006 FIES, NSO

ANNEX G

Self-Rated Status of Households in 3 Barangays by Income Group

Income Group	Santa Rita			Brgy. 51			Brgy. 85		
	Better off	The same	Worse off	Better off	The same	Worse off	Better off	The same	Worse off
1	8.8	57.4	33.8	1.9	72.6	25.5	11.4	60.0	28.6
2	23.5	57.4	19.1	2.8	75.5	21.7	13.9	69.4	16.7
3	14.7	61.8	23.5	1.9	66.0	32.1	8.3	72.2	19.4
4	17.6	63.2	19.1	11.5	70.2	18.3	13.9	55.6	30.6
5	20.9	64.2	14.9	9.7	69.9	20.4	19.4	63.9	16.7

Source: 2008 CBMS Survey

ANNEX H

Staple Food Consumption Patterns of Households in 3 Barangays, 2008

Barangay	Households		Findings
	Number	Proportion	
Sta. Rita	339	100.0	No change (rice)
51	502	96.0	No change (rice)
	1	0.2	From rice to corn
	17	3.2	From corn to rice
	3	0.6	No change (corn)
85	174	97.2	No change (rice)
	1	0.6	From rice to corn
	4	2.2	From corn to rice

ANNEX I

Breakdown of Rice Production Cost

Items	Cost Share	Percent Price Increase (January 2006-May 2008)	Contribution to Cost Increase
Fertilizer	0.16	27.68	4.32
Seeds	0.07	53	3.86
Pesticides	0.05	5.3	0.28
Other Costs	0.03	10	0.31
Labor	0.56	14.2	7.99
Machinery	0.13	21.4	2.68
Total cost per ton of paddy	1.00		19.44

Source: World Bank

ANNEX J

Mode of Transportation Among Households, by Barangay

Barangay	Mode of Transportation	Proportion of HHs
Santa Rita	Private vehicle	3.32
	PUV	67.92
	Mass transit	2.43
	Work/school service	0.22
	Walking	19.25
	Bicycle	1.11
Brgy. 51	Private vehicle	4.49
	PUV	48.72
	Mass transit	10.26
	Work/school service	1.28
	Walking	19.23
	Bicycle	5.77
Brgy. 85	Private vehicle	11.5
	PUV	20.06
	Work/school service	2.36
	Walking	36.87
	Bicycle	6.78

Source: CBMS Survey