RECONSIDERING FOOD SECURITY POLICY UNDER TRADE LIBERALIZATION

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ABSTRACT

"Food security" has been an important issue for most countries since the early stage of human history. It becomes even more important when there are signs of food crisis or food price instability.

As many other net importing countries of agricultural products, food security is also one of the most important agricultural policy issues in Taiwan. It is even more important due to the special political relationship between Taiwan and China. Food self-sufficiency ratio has therefore been a key indicator for food security and has been a key factor in influencing domestic agricultural policies.

However, under the trend of agricultural trade liberalization, the domestic markets of individual countries have been connected gradually with the international markets; it becomes more difficult for individual nations to increase its food self-sufficiency ratio by trade barriers or domestic supports. In other words, food security becomes a more complicated issue under trade liberalization, and it is necessary to reconsider and adjust the food security policies as well as the measures adopted to secure the food security policies.

The objectives of this paper are to discuss the contents of food security, the measures and their costs and effectiveness to ensure food security, the distinction of food security from food self-sufficiency, as well as the proper measures to be adopted under trade liberalization to meet the goals of food security. The concept of "food self-reliance" is also raised as the minimum-cost strategy for ensuring food security under the whole agricultural trade liberalization scheme.

Key words: food security, food self-sufficiency, food self-reliance, trade liberalization, agricultural policy

INTRODUCTION

"Food security" is an issue as old as human history; however, it is still an important issue nowadays, especially when there are signs of food crisis or food price instability in the international food crop markets.

In 1798, Malthus suggested that the increase in world food supply would not be able to meet the increase in world food demand due to rapid population growth; it is therefore very likely to cause starvation and war. Since then, people have been living under the shadow of food crisis. The food shortage situation soon after World War II, the high prices of food crops in the early 1970s, mid 1980s, and 2007-2008 have made people even more nervous about food crisis, and the food security issue has been concerned and discussed repeatedly.

In fact, food security is not only an important issue faced by every nation in the world; it is also a major factor influencing the agricultural policy in many countries. Especially after the energy and food crises that happened in the early '70s, many nations were worried that food crises would occur repeatedly, and support policies for domestic agriculture were adopted commonly for encouraging domestic agricultural supply. Moreover, trade barriers were also adopted to protect the domestic agricultural sector. One of the major policy objectives was to raise domestic food self-sufficiency ratio which was believed to be an important measure to ensure food security and to prevent the impacts of global food crisis.

Under policy support and protection, agricultural outputs in many countries did increase significantly. Effective policies allayed the threat of food crisis, while it also meant paying considerable costs: heavy government budget burden; greater pressure on storage costs; lower crop prices and...
farm income; and increasing trade disputes.

Agricultural trade liberalization, therefore, became an important issue for both exporting or importing nations. In fact, it was one of the most important issues discussed in the Uruguay Round trade negotiations of GATT. During the negotiations, “food security” was one of the most important reasons that net food importing nations insisted not to rapidly liberalize domestic agricultural markets. Exporting nations, on the other hand, suggested that “food security” was not “food self-sufficiency” or “national security”, and should not be used as shield for trade liberalization.

In spite of contrary opinions, the Uruguay Round reached the Agreement on Agriculture (URAA) in the end of 1993, and agricultural trade liberalization became the irreversible trend of the world in the new era. Whether they like it or not, members of WTO have to follow the rules, and the domestic agricultural policies have to be adjusted to meet the requirement of the regulations.

As a WTO member, Taiwan is striving to uphold the WTO rules. On the other hand, as a net food importing nation, Taiwan is concerned about food security like many other importing nations. How can Taiwan protect its food security under the trend of agricultural trade liberalization? Is improving self-sufficiency ratio of domestic food supply a proper policy? Are there other alternatives to ensure food security?

The objectives of this paper are to discuss proper policy measures for ensuring food security under agricultural trade liberalization and unstable international crop market situations. It is expected that the policy suggestions raised might help in adjusting agricultural policies in Taiwan or other importing nations with small-scale agricultural sector.

**SCOPE OF FOOD SECURITY**

Although “food security” is a term used in development and food aid commonly, it does not have one agreed definition. It is often used broadly to mean a situation in which people have continuity of food supply or the methods by which this is achieved.

According to the FAO definition (World Food Summit, 1996), “Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Therefore, to be food secured means that: food is available, affordable, utilized, and safe.

The amount and quality of food available globally, nationally, locally, and individually can be affected by many factors including climate, disasters, war, population, agricultural production, post harvest technologies, environment, social status and trade. When there is a shortage of food, prices increase and poorer people may have difficulty obtaining sufficient safe and nutritious food while richer people will likely still be able to feed them. At the household level, food needs to be prepared safely so that people can grow and live healthily. Therefore, having food available is necessary but not sufficient to assure people that they have access to a life sustaining diet. Following production, there must be storage, distribution and processing system that assures food safety.

In other words, food security can be achieved only when the sufficiency, universality, stability and sustainability of food supply are met. It is not only quantity but also the quality of food that should be addressed. The levels of concern can be global, national, regional, household, or individual, and are closely related.

Although the definition of food security is clear, the major concerns of individual nations for food security are different due to the differences in terms of economic development, as well as in the political, social and cultural situations. For instance, availability and affordability might be the major concerns of food security in low-income developing countries, while safety and sustainability could be the major concerns in rich developed nations.

As a net food importing nation, Taiwan has low food self-sufficiency ratio (only about 30% in calorie basis), however the availability and affordability of food are not ordinarily the major concerns. Stability, safety and sustainability, on the other hand, are still the important food security goals to be achieved.

Nevertheless, Blanch field et al. (2008) pointed out that: More than half of the world’s population still lives in low-income, food-deficit countries that are unable to produce or import enough food to feed their people. More than one-third of all children are malnourished and 6 million children die yearly due to causes related to malnutrition. The number of hungry people is estimated to be above 800 million, most of the world’s hungry people are found in the developing world, but 34 million live in the developed world.

Soil degradation, chronic weather changes and water shortages, inappropriate agricultural policies and population growth threaten food
production in many nations. Growing export crops (such as coffee, cocoa and sugar cane) can lead to a decrease in basic food production and can cause hardship among poor people. Although there is enough food in the world for everyone to have enough to eat, it is unevenly distributed. Moreover, food security is not only a question of quantity but of quality, including micronutrients.

Biotechnology has the potential to significantly increase the availability and quality of food crops while reducing economic cost, energy and fuel usage, pesticide usage, soil erosion and carbon emissions. Demand for bio products, on the other hand, will result in a competition for land between biofuels and food. The “second generation” GM crops have the potential to provide much needed nutritional benefits, to utilize fertilizer more effectively, to grow under drought and other adverse climate conditions, and to grow on previously inhospitable land. However, the effects upon human health, ecology and environment are ambiguous.

Poverty, health, water and the environment, gender equity, disasters and conflicts, population and urbanization, food habit, capital cost, trade and food safety are major reasons for food insecurity. Poor people do not have sufficient resources to buy or produce sufficient food. Without sufficient nutrients, it would be difficult for people to undertake the work needed to get their food or to make use of available food. Producing sufficient food is directly related to having sufficient water. Global warming has negative impact on water availability and food production.

In many parts of the world, women’s lower social and economic status limit their access to education, decision making and consequently, their ability to improve their access to and use of food for their families. Droughts, floods typhoons, pests and conflicts can reduce or destroy food in production or storage. Population growth increases the demand for food. With most productive land already in use, there is pressure for this land to become more productive or virgin lands to become available. As a result, people migrate to urban areas in search of a better life, and more people depend on food which is commonly not produced by them.

Socio-economic, culture, religion and lifestyle are factors that influence food habit, which in turn influence food demand and food security. Absence of capital investment on infrastructure, research, education and training, etc. are causes for shortfall in food supply. Barriers to trade make it more difficult for poor countries to compete in export markets against highly subsidized farmers in rich countries. Furthermore, systems are not uniformly in place to deliver to the consumers food that is as safe as possible.

**PERSPECTIVE OF THE FOOD MARKETS**

Food security has been an ongoing concern of governments and international organizations. The food price hike in 2008 rendered the situation suddenly more acute and helped many nations to focus on the question why previous efforts to reduce food insecurity had limited success. Moreover, many governments are reconsidering their food security policies.

According to “OECD-FAO Agricultural Outlook 2009-2018” published in June 2009, the agriculture sector is more resilient to the global economic crisis than other industries because food is a basic necessity. The drop in agricultural prices and in the production and consumption of farm products are likely to be moderate as long as the economic recovery begins within two to three years. As the downturn lowers food prices, pressure is eased on recession-hit consumers who have less money to spend.

Food prices have come down from the record peaks of early 2008 but still remain high in many poor countries. Over the next decade, prices for all farm commodities, except beef and pork, are unlikely to fall back to their average levels before the 2007-08 peaks. Average crop prices in real terms are projected to be 10-20% higher for the next ten years compared with the average for the period 1997-2006. Prices for vegetable oils are expected to be more than 30% higher. An expected economic recovery, renewed food demand growth from developing countries, and the emerging biofuel markets are the key drivers underpinning agricultural commodity prices and markets over the medium term, says the OECD-FAO Agricultural Outlook 2009-2018.

The report also warns that extreme price volatility similar to the hike in 2008 cannot be ruled out in the coming years, particularly as commodity prices have become increasingly linked to oil and energy costs and environmental experts warn of more erratic weather conditions. The report argues that food insecurity and hunger is a growing problem for the poor, and the longer term problem is access to food rather than food availability. Agricultural growth is the key to sustainable development and poverty reduction since 75% of the poor in developing countries live in rural areas.
The report also suggests that, in addition to more effective international aid, governments can best support domestic agricultural development through targeted policies such as infrastructure investment, establishing effective research and development systems and providing incentives for sustainable use of water. It also emphasizes the need for greater opening of agricultural markets and broadening of economic development beyond farming in poor rural regions.

**FOOD SECURITY POLICY FOR NATIONS WITH SMALL-SCALE FARMING SECTOR**

At the national level, countries with small-scale farming sector could take the following long-term policy actions to build a stronger food system that can respond to future challenges of food crisis:

- ensure food self-reliance but not food self-sufficiency;
- scale up investments for sustained agricultural growth;
- respect market mechanism;
- invest in social protection programs;
- improve food safety system.

**Ensure for food self-reliance but not for food self-sufficiency**

Actions undertaken in responding to the recent world food crisis are various, but some have short-term effects, whereas others are designed to have impact in the medium and longer terms. Emergency relief and humanitarian assistance to food-insecure people, fast-track food production programs to stimulate greater production, ban exports of staple foods or adopt regulatory restrictions on agricultural exports, release public grain stocks, consumer price controls, lower taxes on staple foods, and the sale of staples and fertilizer at subsidized prices are the most widespread responses to the recent food crisis. These general measures have short-term effects but are not targeted at the most vulnerable.

It is also a widespread response in many food importing nations, urging upon the government the necessity of improving the domestic food self-sufficiency. However, to stimulate domestic food production during the emergency of food crisis is one thing; to increase food self-sufficiency in the longer run is another. Under the WTO regulations of agricultural trade liberalization, non-tariff trade barriers are to be eliminated, and the domestic agricultural markets will be gradually connected with the international markets. Moreover, the domestic supports for agriculture are required to be diminished and will be restricted to only the “green-box policies.” It might be easier to encourage domestic agricultural production when the domestic markets are closed; once the markets are opened and are connected with the international markets, to stimulate domestic production by price supports or production subsidies will no longer be an easy task. In other words, it becomes very costly and ineffective to raise domestic food self-sufficiency ratio through supporting policies under the agricultural trade liberalization situation.

Therefore, it is necessary to make sure that domestic food self-sufficiency will increase at all cost. It is also important to take budgetary constraints and international regulations into consideration when pursuing the goal of increasing food self-sufficiency.

“Food self-reliance” might be a better policy strategy to adopt for ensuring food security under trade liberalization. Food security could be fulfilled not only by food self-sufficiency. “Food self-reliance” emphasizes that besides domestic production, international trade, stocks, futures, forward contracts, and most important, the potential and ability to boost domestic production under emergency situations are measures combined to secure for food supply. The costs and the risks of enhancing “food self-reliance” to avoid food crisis could be smaller than those of trying to raise “food self-sufficiency” ratio. Furthermore, “food self-reliance” is more feasible and realistic under trade liberalization than “food self-sufficiency”.

**Scale up investments for sustained agricultural growth**

In the long run, much more investments for sustained domestic agricultural growth are needed to create a viable and healthy agricultural sector in each nation. “Multifunctionality of agriculture” is a commonly recognized concept nowadays. Food production is only one of the basic functions provided during agricultural practices. Food security could be reached by not producing the food needed domestically, but many other functions besides food production provided by agriculture could not be obtained from abroad. It is therefore very important to maintain a sustainable domestic agricultural sector. In other words, the main objectives for countries with small-scale farming sector (which are not competitive in the
international commodity markets) to develop their own sustainable agricultural sector are to provide multifunction which cannot be obtained through trade instead of providing enough food for domestic consumption.

Substantial public investments in rural infrastructure, services, research, science and technology, education, training and extension marketing system, and farmers’ organizations are needed. Such investments would not only add to domestic and global food supply, thereby helping to control prices and prevent food crisis, but also improve livelihood in rural areas, help in environmental protection and resource conservation. If the productivity and competitiveness of domestic agricultural production could thus be improved, the food self-sufficient ratio could also be increased.

The global food crisis propelled food security and agricultural development back on top of the agenda of policy markets in many nations. While food commodity prices in world markets are gradually falling, and in the face of the global financial and economic crisis, we should not forget the commitments to the poor people suffering from hunger and the importance of sustainable development in agriculture.

Respect for market mechanism

It has been said that the best cure for high prices is high prices. Normal price variability is essential to encourage resource reallocation and market adjustment. Therefore, we should be careful in actions that would hinder the essential mechanism from performing.

When agricultural prices were low, many countries focused their trade policies on boosting agricultural exports and discouraging imports. While food prices are soaring and supplies are tight, many countries ban or restrict exports. It is natural that national governments wish to care for their own citizens first, but restrictions on exports are narrowing the food supplies available in the world market while import policies are putting further pressure on these dwindling supplies. These policies thus, drive prices up even higher.

We need appropriate systems of emergency response to ensure food security for the poor in times of food crisis. But in these emergent cases the need is for temporary urgent measures, such as humanitarian assistance and cash transfers, rather than measures that would try to eliminate price variability. There is ample evidence of price stabilization methods that have failed or have come at the expense of massive distortion of markets and of heavy budget expenditure of the government.

According to trade theory, open markets will help stabilize food prices in the international markets, since trade liberalization and elimination of trade barriers will cause the import demand and the export supply schedules to be more price elastic, and shocks in supply or demand won’t cause the prices to fluctuate as wide as when there were policy interventions (Fig. 1). OECD analysis suggest that the recent episode of commodity price volatility would have been more extreme and would have lasted longer if domestic agricultural markets had been insulated from international market realities as so many were in the past.

There is one more fact to be emphasized again: it is one thing to interfere with market mechanism when the domestic markets is insulated from the international market, while it is quite a different thing when the domestic market is open and is connected with the international market.

Fig. 2 shows that when the domestic market (Panel A) for an agricultural product is closed and is isolated from the international market (Panel B), it is easy to maintain the domestic price (Pd) at a higher level than the world price (Pw), and the domestic production is qd. The budgetary expenditure of the government is zero, since the domestic consumers subsidize the domestic producers. When the domestic market is open...
under free trade, the domestic production will drop to $Q_w$, and the domestic price will be the same as the world price $P_w$. Should the government try to stimulate domestic production up to $q_d$ with price support policy, it will cost the government as much as area $P_dP_wE_d'Ed$ to subsidize the producers. In addition, the price support policy is not welcome by the WTO regulations and should be diminished gradually.

Alternatively, the government could invest more in the agricultural sector to improve the productivity of domestic production, and shift the domestic supply function rightward ($S'$) to maintain the domestic production level at $q_d$ (or even higher) under trade liberalization. Of course, the costs of such investments might be tremendous, and the process and time it takes to improve productivity and shift the supply function might be long and difficult. Nevertheless, this is the fundamental measure for importing nations to increase their domestic supply without distorting the market mechanism under trade liberalization.

**Invest in social protection program**

Beyond emergency relief, countries should invest in comprehensive social protection measures which will reduce the risks of high food prices to poor people, and will help prevent long-term negative consequences. Such measures include: cash transfer programs, pension systems, employment programs, microfinance programs and preventive health and nutrition programs (Braun, 2008).

The food and fuel crisis of 2006-2008, followed by the current financial and economic downturn have had a particular damaging effect on poor people at risk of food insecurity. However, the number of undernourished people had been increasing even before this crisis, especially in developing countries. It is revealing the fragility of the present global food system that is in urgent need of structural changes.

Safety nets and social protection programs are difficult to be created in the short term but must be created or improved as soon as possible to reach those people who are most in need. Simultaneously, small-scale farmers must be given access to indispensable means of production and technologies, such as high-quality seeds, fertilizers, feeds and farming tools and equipment, which will allow them to boost production.

In the longer term, the structural solution to the problem of hunger lies in increasing production particularly in low-income food deficit countries (LIFDs). We should assist these countries with the necessary technical and financial solutions and policy tools to enhance their agricultural sector in terms of productivity, and resilience in times of food crises. Stable and effective policies, regulatory and institutional mechanisms, and functional market infrastructures that promote investment in the agricultural sector are paramount. Investments in food and agricultural science and technology also need to be stepped up (OECD, 2009).

Only a healthy agricultural sector, combined with a growing economy and effective safety nets and social-protection programs, will sustainably eradicate food insecurity and poverty.
Improve food safety system

Having food available is necessary but is not sufficient to assure people that they have access to a life sustaining diet, and to fulfill the goal of food security. Following production, there must be storage, processing and distribution system that assures that microbial, physical and chemical deterioration of the food are minimized.

The production and consumption of food is central to any society, and has economic, social, political and environmental influences. The importance of food in our life suggests that there must be a prime interest in food safety in society as a whole. Food safety is based on the vision of sustainable development and focuses not only on the interests involved in consumer protection and ecology, but also encompasses the fields of economics, social and political needs.

Every step in the complex food chain must be sound so that the health of consumers could adequately be protected. This principle applies not only to food produced domestically but also those which are imported. An effective food safety policy requires assessment and monitoring of the risk to consumer health, effective regulations to guide the risk management, and the establishment and operation of control systems to enforce the operation of the regulations. Therefore, a comprehensive and integrated approach to food safety is required.

Food scandals in many nations over the past years have shaken the confidence of the public and have also brought back the food safety issues up for discussion and for reformation of the entire system. In recent years, a few food scandals in Taiwan have also shaken the public confidence in the food supply, the food law and the food controls.

Food safety is one of the most important topics of agricultural development in Taiwan and other industrialized nations, because agricultural trade liberalization increases the public concern on safety of imported agricultural products; new technologies and producing methods of food increases the public concern about the public health effects; various nations and groups of agricultural producers utilize the increased importance of food safety as a weapon of protection for their domestic markets; certain foodstuffs and technologies (e.g. GMOs, hormone treated beef etc.) are of great concerns and more information is required; food scandals/crieses (e.g. BSE, FMD, dioxin etc.) underline the importance of food safety.

There are several principles/guidelines we could follow to reorganize and improve its food safety systems:

- An integrated set of food safety law should be established first as the guideline for improving food safety;
- An authority pooling all responsibilities is required to integrate and administrate the food safety affairs;
- Transparent and independent risk analysis system is to be established;
- Three interconnected components of risk analysis are: risk assessment, risk management and risk communication;
- The separation of risk assessment and risk management is essential to ensure that action is effective, appropriate and rapid;
- Risk assessment should be based on scientific processes; risk management should be enforced consistently; and risk communication system is required to be established;
- Education on safety practices should be provided.

CONCLUSION

Food security has been an ongoing concern of governments and international organizations. The food price hike in 2008 exacerbated the situation helped many nations to reconsider their food policies.

While the prices of food crops have gone down, they are still relatively high compared to levels earlier this decade or during the late 1990s. It is also expected that food prices will be more volatile and the price hikes which happened last year might become more frequent in the future. Therefore, there should be no reason for reduced attention to food security.

To be food secure means that food is available, affordable, and is utilized safely. Food security can be achieved only when the sufficiency, the universality, the stability and the sustainability of food supply are met at the individual, household, regional, national, or global levels. It is not only quantity but also quality of food that people have to be concerned about.

Food security policies for nations with smallscale farming sector under agricultural trade liberalization are suggested as follows:

1. Ensure for food self-reliance but not for food self-sufficiency, since it is very costly and ineffective in trying to raise domestic food self-sufficiency ratio
through supporting policies under the trend of agricultural trade liberalization. Food self-reliance emphasizes that besides domestic production, trade, stock, and most importantly, the potential and ability to increase domestic production under emergency are combined measures to ensure food supply.

2. Scale up investments for sustained agricultural development. Substantial public investments in rural infrastructure, research, services, science and technology, education and training, extension, marketing system, and producers, organizations will add to food production, improve livelihood in rural areas, and enhance environmental protection and resource conservation. If the productivity and competitiveness of small-scale agriculture could thus be improved, the domestic food production could then be increased.

3. Respect for market mechanism, since the best cure for high prices is high prices. Normal price variability is essential to encourage resource allocation and market adjustment. In times of food crisis, we use temporary urgent measures to ensure food security, rather than measures that would eliminate price variability. It is one thing to interfere with market mechanism when the domestic market is insulated from the international market, while it is quite a different thing when the domestic market is open and is connected with the international market.

4. Beyond emergency relief, countries should invest in comprehensive social measures such as: cash transfer programs; pension systems; employment programs; microfinance programs; and preventive health and nutrition programs to reduce the risks of food crises to poor people. Only a healthy agricultural sector, combined with a growing economy and effective safety nets and social-protection programs, will sustainably eradicate food insecurity and poverty.

5. Food safety system should be enhanced to improve the quality of food and diet. After all, having food available is necessary but not sufficient to fulfill the goal of food security. An effective food safety policy requires assessment and monitoring of the risk to consumer health, effective regulations to guide the risk management, and the establishment and operation of the regulations.

Millions of poor people would benefit from a global food system that would allow policymakers and others to respond calmly and rationally to eventualities. Building such a system will require collective action on an international scale, and the efforts need to be made now.

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