Working Paper: Implications of a price support scheme for agricultural products in Myanmar

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1. **Executive summary**

The parliament of Myanmar has presented a draft bill intended to improve the economic welfare of farmers by establishing a price support scheme for their products as well as improving access to credit, inputs and technical assistance. The following paper focuses on discussing the risks and implications of the first component of this law, the price support schemes. Special attention is placed into the effects over the rice sector, given that it is Myanmar’s main crop. Two types of costs are identified: first, the increase in government expenditure that could be triggered if price support incentivizes increased production or the adoption of arbitrage mechanisms, which is estimated to be a minimum of $225 USD million; second, costs related to market distortions introduced to the rice crop’s market. Such distortions could have several environmental, social and nutritional negative effects. Given the key importance of agriculture for Myanmar’s economic development and poverty decrease, policies that increase competitiveness and productivity are of utmost most importance. A price support scheme achieves neither. Fiscal resources would be better used in improving farmer’s access to credit and inputs as well as investing in public goods such as irrigation, roads, electricity access, agricultural research and extension services.

2. **Myanmar’s agriculture and rice sector overview**

Myanmar’s agriculture sector is key to the country’s economy and plays a critical role in ensuring the country’s development and the reduction of poverty. According to the government, agriculture—including crops, livestock, fishery, and forestry—accounted for 36.3% of GDP, 61.2% of employment and 13.7% of total export earnings in 2010-2011. Myanmar’s largest crops by value and land use are paddy (un-husked rice), beans, pulses, and oil seeds.

Table 1: Key agricultural indicators, 2011.

<table>
<thead>
<tr>
<th></th>
<th>% GDP</th>
<th>Agriculture value added per worker</th>
<th>Employment in Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>22</td>
<td>454.4</td>
<td>48.4</td>
</tr>
<tr>
<td>Thailand</td>
<td>12.4</td>
<td>1081.7</td>
<td>38.7</td>
</tr>
<tr>
<td>Myanmar</td>
<td>36.3</td>
<td>194</td>
<td>61.2</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>17.5</td>
<td>489.1</td>
<td>n/a</td>
</tr>
</tbody>
</table>

1 Myanmar Agriculture in Brief, Ministry of Agriculture and Irrigation. 2012
Rice production and trade is embedded in Myanmar’s economic history. During the first half of the twentieth century the country was known as “the rice bowl of Asia” as it exported 2 to 3 million metric tons (MT) annually, which represented up to 70% of national production. In the early 1960s, exports dropped to 1.5 million MT and have currently dropped to approximately 650,000 MT per year, as population growth has outpaced productivity improvement.\(^3\)

Myanmar’s lost competitiveness in rice exports can mostly be attributed to the adoption of inappropriate policies. In 1962 rice was declared a national crop and farmers were required to sell to the government-run Agriculture Marketing Board at a price below costs of production. This centrally-planned system lasted for four decades. In 2003, compulsory government procurement and distribution were cancelled. By 2011, the government had sold its rice mills and removed restrictions on private sector domestic trade and export.\(^4\)

Production of rice has grown very modestly in the last two decades. According to official figures, output has grown at about 3% annually. Reasons for this low productivity vary but stem in large part from long-term chronic underinvestment in agricultural research, the engine of agricultural productivity growth, coupled with weak extension support and limited access to input credit.\(^5\) Crop yields, though highly variable, remain generally below those of neighboring countries. As a result, most output gains have come from area expansion rather than increased yields.\(^6\)

Myanmar’s agriculture is characterized by small-scale subsistence farming, with a large proportion of landless rural households. Paddy farmers cultivate an average of five acres per holding, with pulses and oilseed crops closer to four acres.\(^7\) Research from international organizations and universities, such as LIFT and Michigan State University argue that the main problems faced by farmers are deep indebtedness, low productivity, inadequate credit, high price volatility, limited access to pure quality seed, and limited access to modern inputs.\(^8\)

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\(^4\) Denning, G., Baroang, K., Tun Min Sandar, et al. 2013


\(^6\) MSU and MDRI, 2013.


\(^8\) MSU and MDRI, 2013.
certified fertilizers, water control management system, tractors and tillers, better infrastructure, risk of climate change and the lack of information\textsuperscript{9}.

The difficulties faced by farmers impact quality and consequently prices. The most common rice in Myanmar, the Emata rice, has a significantly lower export price than similar rice varieties from Thailand or Vietnam. Graph 1 illustrates this point for a quality level of 25% broken.


\begin{center}
\includegraphics[width=\textwidth]{rice_prices.png}
\end{center}


Rice also plays a very important role for nutrition and food security in Myanmar. Households across the country consider rice the heart of their diet. Consumers mostly eat plain white rice for almost every meal accompanied by various curries and side dishes such as fish, meat, and soup. Families also consume fried rice, noodle, and other rice-flour-based dishes\textsuperscript{10}. Per capita rice consumption in Myanmar was 239 kg per year in 2011/12, the highest in the region, as indicated in Table 2 below. According to the Household Income and Expenditure Survey conducted in 2006, total household expenditure on rice accounted for 16.0\% of urban household expenditure on food (which, in turn, accounted for 68.3\% of total household expenditure) and 19.6\% of rural household expenditure on food (which, in turn, accounted for 72.1\% of total household expenditure).\textsuperscript{11}

\begin{table}[h]
\begin{tabular}{|c|c|}
\hline
Year & Urban Household Expenditure on Rice as a Percentage of Total Household Expenditure on Food \\hline
2001 & 10.0 \% \\hline
2002 & 11.0 \% \\hline
2003 & 12.0 \% \\hline
2004 & 13.0 \% \\hline
2005 & 14.0 \% \\hline
2006 & 16.0 \% \\hline
\end{tabular}
\end{table}

\textsuperscript{9} MSU and MDRI, 2013.
Table 2: Per capita food use based on FAO rice statistics

<table>
<thead>
<tr>
<th>Countries</th>
<th>07/08-09/10 Average</th>
<th>2010/11 (estimate)</th>
<th>2011/12 (forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>149.0</td>
<td>153.0</td>
<td>154.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>128.7</td>
<td>133.5</td>
<td>136.8</td>
</tr>
<tr>
<td>Vietnam</td>
<td>186.2</td>
<td>186.9</td>
<td>187.4</td>
</tr>
<tr>
<td>Myanmar</td>
<td>237.9</td>
<td>240.0</td>
<td>239.0</td>
</tr>
</tbody>
</table>

Source: FAO Food Outlook, May 2012

3. Fiscal costs of a rice support scheme

Adopting a price support scheme policy for farmers such as the one that the Farmer’s Protection Bill intends to introduce in Myanmar can imply a significant increase in government expenditures for several reasons, as outlined below. Moreover, these costs can rise significantly over time. Similar experiences in other countries show that it is politically very complicated to keep these costs under control.

An analysis of how the market works in the absence of such a price support scheme is necessary for comparison. Myanmar is a small country open to international trade; the country cannot make changes in prices in the international markets. Most of Myanmar’s agricultural production is consumed internally, though small surpluses are exported. For example, 97% of rice production in FY 2010-11 was consumed domestically\(^\text{12}\). However since all rice can be sold in the international market, the relevant price for all transactions regardless of whether they are local or not is the international price.

Governments can operate a price support scheme through an active compromise of buying a quantity at the target price. If this price is higher than the international price (measured in local currency), then this becomes the relevant price for all internal transactions. The logic behind this is that now all producers have the government as their best buyer, so if any potential purchaser offers a lower price than the one established by the authorities, the producer will instead sell to the government. Of course, some internal consumers will buy at the new higher price so the government will not need to buy all national production. However, since at higher prices producers want to produce more but consumers want to buy less, there will be a surplus in

\(^\text{12}\) Source: CSO
production which the government will have to buy.\textsuperscript{13} A graphic, more formal, explanation of this mechanism and its associated losses can be found in Appendix 1.

In addition to the direct cost of buying the rice from farmers at the subsidized price, the government also has to face the costs of collecting this rice across Myanmar territory, transporting it and storing it. The government has also the option of selling this rice, but for this it also requires resources to coordinate the market operations necessary for finding buyers, agreeing on a price and getting the rice transported. Moreover, the selling price in the international market would be lower than the supported local price, so government sales would occur at a loss. Currently, exporters from Myanmar face difficulties with the rejection of shipments of rice because of pests and heavy metal contamination\textsuperscript{14}. These issues must also be taken into account in calculating potential exports to the international market.

Continuing with the rice example, in 2010-11 the international price for Myanmar’s Emata 25% rice was USD 365 per metric ton (MT) and exports were 536,400 MT. If the government had adopted a price support scheme that year establishing a minimum price of, for example, USD 420/MT (and assuming that neither producers nor consumers changed their decisions to buy and sell) and then resold in the international market, the cost of this sale (without accounting for all the costs related to transportation, storage and marketing) would have been USD 30 million. If the government had chosen to simply buy rice and store it, the cost would have been of USD 225 million, plus logistics and storage costs.

Regardless of whether the government sells the rice or not, it will need the USD 225 million (in kyats) to pay the farmers on time. It is very likely that the government will not have this degree of liquidity, especially considering that most sales happen immediately post-harvest. Given that 66\% of rice farmers sell during this time\textsuperscript{15}, what is more likely to happen is that middlemen will buy the rice from farmers at lower prices and sell it to the government on credit. Small-scale farmers cannot afford to wait to be paid so they must accept the lower price. Middlemen, who typically have more assets and resources, can afford to wait, especially if it gives them a profitable margin.

The preceding estimations are modest and conservative, as they do not account for three relevant considerations that can significantly increase the quantity of rice the government buys and stores and therefore the total costs of this scheme:

\textsuperscript{13} Important to note that if the government does not comply and there is a production surplus it does not buy, those producers will to try to sell their products to local consumers (or internationally) at a lower price. If this happens continually, local consumers will not be willing to pay the government price because they know there will be lower prices later (or somewhere else in the market).

\textsuperscript{14} http://www.businessincameroon.com/agrobusiness/2205-4081-authorities-order-destruction-of-7-000-rice-tons-imported-from-burma

\textsuperscript{15} LIFT 2012
The first consideration is the degree to which consumers will decrease their consumption of the good (in the example, rice) as the price increases. This will depend on the availability of substitutes as well as the total income of consumers. This dynamic will be discussed in greater detail in the following section. However, it is important to note that any decrease in consumption will also have to be purchased by the government.

The second consideration is how much farmers will increase their production if the prices rise. If it becomes more profitable to increase efforts to have higher yields, farmers might invest more time and resources in production. However, given Myanmar’s particular circumstances in which farmers have very limited access to credit and inputs, it is more likely that farmers will not be able to increase the quantity produced, at least in the short term.

The third effect could have the largest impact on the total quantity bought by the government. Traders and middlemen might find it profitable to buy cheap rice abroad, smuggle it into Myanmar, and sell it to the local government as if it were locally produced. Since it is very complicated for the government to identify where rice was cultivated and to control border trade, this effect could significantly increase the total quantity bought by the government. Currently, the situation is happening in reverse: Myanmar rice is traded at the Thai and Chinese borders given the price support schemes in both countries. It must be noted that because of Thailand’s price support scheme (described in the next section) there are 108 million MT of rice stock in that country\(^\text{16}\), which increases the probability of an inflow of rice from Thailand into Myanmar.

4. **International comparisons:**

Asian countries including Japan, Thailand and Vietnam have historically attempted to adopt price support schemes and all three have born significant fiscal costs as a result. In the three experiences described below, supporting prices generally leads to large increases in public expenditures.

**4.1 The Staple Food Control Law in Japan:** The Government of Japan controlled its rice market for a long time. In 1942, the Staple Food Control Law was enacted for managing food distribution during World War II. Under this system, the Food Agency in the Ministry of Agriculture, Forestry, and Fisheries of Japan bought all rice from farmers. After the war, this policy continued and was transformed into a price support system: the government bought all rice produced at a high price and sold it at a lower price. Although this system stabilized food prices and supplied cheap food to urban workers, the government became unable to maintain the scheme due to the huge expenditures required, specifically due to compensations for the gap between buying and selling prices and discarding the excess rice produced. This

\(^{16}\) http://www.bangkokpost.com/breakingnews/358926/rice-stocks-reach-12-year-high-as-food-costs-drop
expense for foodstuff control ballooned to US$ 330 million in 1965 and US$ 2.6 billion in 1975. Through several reforms such as the abandonment of the Staple Food Control Law in 1994 and the amendment of the Act on Stabilization of Supply, Demand and Prices of Staple Food in 2004, the Food Agency stopped purchasing rice altogether. Today, private merchants trade most rice in Japan.

4.2 Rice-mortgage scheme in Thailand: This policy (also known as a price-pledging policy) introduced in October 2011 allows farmers to borrow money with a mortgage on rice. The farmers’ debt will subsequently be exempted if rice harvests are handed over to the government, the Thai rice-mortgage scheme functions as a price support policy. While the introduction of this policy gained strong support from farmers, it has created a huge deficit. According to the latest news the Finance Ministry announced a 136-billion-baht loss for the 2011-2012 main harvest (monsoon) and the 2012 second harvest (summer), which is equivalent to around 4.3 billion USD and 1.2% of Thailand’s GDP. Given that the policy has stimulated production and the government has been unable to sell the rice stocks it has acquired, currently rice stockpiles are at their highest level in 12 years, with more than 108 million MT accumulated.

4.3 Buffer stockpile scheme with floor price in Vietnam: In order to improve food security, Vietnam implemented a buffer stockpile scheme in January 2011, in which the government is supposed to buy one million tons of rice if the market price falls below the minimum price, which is set by the state in cooperation with the Vietnam Food Association (VNF). To date, the VNF has bought 65% of planned stockpiles, which has contributed to a sharp rise in prices. The total cost of the scheme has not yet been determined.

5. Additional considerations regarding a Price Support Policy

Additional elements and risks of a price support policy must be taken into account when assessing its implications. Specifically, a price support policy imposes artificial incentives and market distortions that can lead to inefficient decision-making by farmers, traders, and consumers, which in the long run can have detrimental effects on welfare and broader sustainable development in Myanmar.

In the absence of any government guarantee of prices, producers compete among themselves and therefore constantly look for techniques that could allow them either to achieve better prices (through increases in quality or product diversification) or to reduce production costs with the aim of increasing their profits. By guaranteeing a minimum price for agricultural products in Myanmar, the government reduces this competition and hampers innovation. On average, Myanmar spends only $0.06 of every

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17 World Bank, GDP (current US$) in Thailand is 365.6 billion (2012)
$100 in agricultural output on agricultural research compared to $0.41 by Asian countries, a price support scheme would decrease this amount further.

Given that a price support scheme usually establishes a single price, which does not differentiate for quality or variety, farmers have the incentive of producing the maximum quantity with the land and other resources they have available. This usually translates into a sacrifice of quality for quantity. Since Myanmar already faces serious obstacles to having its rice accepted overseas, because of contamination and low quality issues, the introduction of an additional incentive for lower quality could have a significant negative effect on Myanmar’s exports possibilities.

Incentives for maximizing quantities of crop production can have negative environmental and social consequences. Farmers will try to extend their crops to every possible piece of land, which will lead to competition for new land and possible conflict between neighboring farmers. Additionally, increased pressure on land leads to decreased soil quality and denuded lands; not only do such effects reduce the value of the land, they also decrease agricultural productivity. Moreover, decreasing yields may prompt the overuse of fertilizer and/or pesticides to try to boost production, further degrading the soil quality and trapping farmers in an unsustainable cycle of production. Therefore, such unsustainable farming practices have significant cost implications for both the farmers and the environment.

Since a price support scheme introduces a distortion in the relative price of crops, farmers are incentivized into cultivating the crop that offers the higher return. This can lead to crop homogenization, which can make farmers more vulnerable to crop failure, as well as deter them from growing other high-value crops, such as beans and pulses, which could significantly increase household income. Crop diversification is an important form of insurance, allowing farmers to protect against pest epidemics, disaster risk and international price fluctuation. For example, Cyclone Nargis in 2008 caused a 1.2–million-ton drop (6%) in rice production. In addition, in the Dry Zone, droughts are becoming more frequent, threatening the livelihoods of some of the poorest farmers in Myanmar. Moreover, climate change will likely continue to threaten the stability of the Dry Zone in particular, making the cost of crop homogenization increasingly risky.

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20 MSU and MDRI, ibid. 2013.
21 In late 2012, rice exported by the Myanmar Trade Federation to Indonesia was rejected. The same happened in January 2013 with a shipment to Russia and in May 2013 with Cameroon (http://www.businessincameroon.com/agrobusiness/2205-4081-authorities-order-destruction-of-7-000-rice-tons-imported-from-burma).
22 MSU and MDRI, 2013.
In addition, an artificial price increase and subsequent swell in production will have substantial effects for consumers, and therefore implications for nutrition and food security. Given that supported crop prices will increase domestically, food will be more expensive for everyone who buys it. Rice consumption constitutes 55% of caloric intake for the population of Myanmar\textsuperscript{25}. Setting a minimum price for this crop will have a very large impact on the non-farming poor (e.g. the landless, the urban poor, the elderly), which will be forced either to sacrifice consumption of other goods to spend a higher proportion of their income on food (rice) or alternately to buy less rice, with accompanying consequences for their nutrition intake and wellbeing. In rural households, rice constitutes up to 73-80% of caloric intake.\textsuperscript{26} Crop homogenization of rice may reinforce this dietary pattern, leading to increased micro and macronutrient deficiencies. Myanmar’s current malnutrition rates are very high; the stunting rate in children under five is estimated at 35.9\%\textsuperscript{27}. Adopting policies that threaten Myanmar’s delicate food security and nutrition situation could have serious effects for the country’s development potential.

Overall, a price support policy will have many impacts on incentives for farmers. The production, environmental, nutrition, and food security concerns identified above must be taken into consideration before implementing such a costly policy.

6. Conclusions and next steps

Agriculture is a key sector for Myanmar’s economic development and poverty alleviation. Therefore the need for policies that increase competitiveness and productivity in that sector are urgent. A price support scheme would not accomplish either of these objectives, but instead create a guaranteed system for farmers which would foster dependence and disincentivize innovation. Moreover, such a scheme would introduce significant distortions into the market, which can have significant social and environmental consequences in the medium term.

Given the high costs and reduced benefits a price support scheme would entail for the government, it is key to consider the question of how could those fiscal resources be better used. As several international organizations and others have pointed out, the State should focus on improving farmers’ access to credit and input markets as well as investing in public goods such as irrigation, roads, electricity access, agricultural research and extension services, which will benefit farmers more than price support.

\textsuperscript{25} Wilson, S. et al, 2013.
\textsuperscript{26} Denning, G., Baroang, K., Tun Min Sandar, et al. 2013
\textsuperscript{27} WHO and UNICEF, 2013
APPENDIX 1: Formal model of a price support scheme in a small, open economy.

The market of the good which will be analyzed can be described by having a demand for it in which consumers decrease the quantities their purchase as the price rises (demand has negative slope) and suppliers increase the quantities they which to sell as the price rises (supply has positive slope). In the image, demand is represented by the D curve and supply by the S curve.

Given that the country is a small, open economy, the market decisions are made in function of international prices. For the analyzed case, it will be supposed that the international price is higher than the autarchy price (the price if the country were a closed economy). Given the international price the country faces in its national currency, the production levels are higher than the consumption levels and the surplus is exported at the international price. This situation can be seen in the image, at P1, the quantity produced is QS(1) and the quantity consumed is QD(1). Exports are then QS1-QD1.

Lets assume now that the government adopts now a price support scheme, and wishes to set the price at P2. At this higher price, producers will increase their production to QS(2) and consumers will decrease their consumption to QD(2). The surplus will now be bigger.