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The macroeconomic and food security implications of price interventions in the Philippine rice market

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ABSTRACT

The Philippine government has a number of policy interventions in the domestic rice market aimed at promoting national food security. This paper examines the economy-wide and food security implications of three of the main policies: a ceiling on prices paid by rice consumers; a floor on prices received by paddy producers; and a subsidy on prices paid for seeds by paddy farmers. These programmes have been subject to domestic criticism on allocative efficiency and distributional grounds. We examine the effects of removing the programmes using an economy-wide model with detailed treatment of agricultural activity, land use, and food security measures. We find that the programmes make a small contribution to food security, for a modest budgetary outlay. The allocative efficiency gains available from ending the programmes are small, and may be outweighed by the potential for adverse short-run macroeconomic consequences.

1. Introduction

The Philippines has been a rice importer since the 1990s. Against a background of rapid population growth and a high dependence by the country's rural poor on paddy production, recent price volatility in global rice markets has made food security a significant policy issue. The main focus of the government's food security agenda is the rice market, with self-sufficiency and price stabilisation being key goals (Department of Agriculture, 2012). The centrality of rice in the government's food security policy is understandable given the commodity's dietary and economic importance. Rice is the most important commodity in the Filipino diet, accounting for 45% of caloric intake and 24% of protein consumption (Bordey, 2010; Department of Agriculture, 2012). Spending on rice represents a fifth of the budget of the poorest third of households (NSO, 2009). Rice is cultivated in about 30% of the country's total agricultural harvested area, and it is the major source of income for two million paddy farmers (Dawe, 2003). A substantial fraction of the agricultural labour force is comprised of landless farm workers and merchants who indirectly depend on rice for a living (Bordey, 2010).

Food security and poverty alleviation are the primary goals of the government's agricultural policy stance (NEDA, 2011). To achieve its food security aims, the government intervenes in the domestic rice market in a number of ways. These include price incentives to paddy farmers, price subsidies to rice consumers, trade restrictions on rice imports, support to rice R&D, development of irrigation infrastructure, subsidies for farm mechanization, production support and extension services (Balisacan and Ravago, 2003). These interventions are implemented through a number of agencies and corporations attached to the Department of Agriculture (DA). In particular, the first three interventions are implemented through the paddy procurement, rice distribution and rice importation programmes of the National Food Authority (NFA). Rice R&D is conducted by the Philippine Rice Research Institute (PhilRice), while irrigation development projects are conducted by the National Irrigation Administration (NIA). The Philippine Center for Postharvest Development and Mechanization (PhilMech) oversees programmes to develop postharvest and mechanization technologies. In addition to these agencies and government owned corporations, DA also runs the National Rice Program (NRP). The NRP provides production support and extension services for the adoption of rice technologies (Bordey, 2010). The programme finances seed and fertiliser subsidies, farmer training programmes, rice information campaigns, and technology demonstration forums.

The two largest agricultural programmes in the DA budget are the NRP and the NFA, with 2012 budgets of 6.2 billion pesos and 4.0 billion pesos (DBM, 2012). The NIA is the next largest DA programme, at 2.1 billion pesos. Smaller programmes, like PhilRice and PhilMech have budgets of 341 million pesos and 136 million pesos, respectively. Cataquiz et al. (2006) and David (2006) note that a large share of the NRP budget is spent on hybrid and certified seed subsidies. Being the largest of the

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DA's programmes, in this paper we focus on NRP and NFA. In particular, we use an economy-wide model to analyse the macroeconomic, industrial and food security effects of three policies: (1) the NFA's paddy price floor programme, (2) the NFA's rice price ceiling programme, and (3) the NRP's seed subsidy programme. Together, these three policies represent approximately 70% of the combined NFA and NRP budgetary programmes.

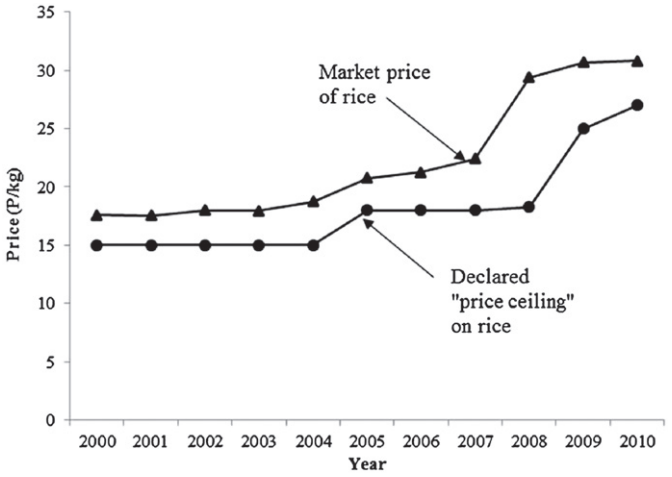
Programmes of this type are common in developing economies. For example, China, India, Bangladesh, Madagascar and Pakistan implement food price stabilisation schemes (Dorosh, 2008; Dorosh and Salam, 2008). Farmers in Sri Lanka, Malawi and Zimbabwe receive publicly-financed subsidies on fertiliser and seed inputs (Bandara and Jayasuriya, 2009; Dorward and Chirwa, 2011; Munro, 2003). Hence we expect that the methods and findings outlined in this paper are likely to have wider applicability beyond just the Philippines.

A wide range of food security issues have been examined within the literature. A comprehensive review is provided by IOB (2011).[1] CGE models, with their potential for disaggregated modelling of agricultural commodities, have been a natural methodological framework for a number of studies. A particular focus of many of these papers has been the assessment of the food security implications of agricultural trade policy.[2] Less common are studies of domestic rice market interventions. Government food aid, such as cash and in-kind transfers to households, has also been the subject of a number of CGE papers.[3] Liu et al. (1996) used a CGE model of the Philippines to investigate the paddy price floor programme, but focussed on macroeconomic impacts, not on food security. In this paper, we examine not only the paddy price floor programme, but also the price ceiling and seed subsidy programmes. We consider not only the macroeconomic effects of these policies, but also their food security implications. We also extend on previous studies by examining the effects of rice market interventions within a dynamic, rather than a comparative static, model. This allows us to elucidate the potential macroeconomic adjustment costs, together with the allocative efficiency benefits, that may arise from removing the programmes. As we shall see, our results indicate that the former may dwarf the latter, suggesting that policy makers might be advised to proceed cautiously with deliberations over the future of such programmes.

2. Price interventions in the Philippine rice market

The Philippine government regularly intervenes in the domestic rice market through the provision of price subsidies to consumers and producers. In the retail rice market, the government: (i) declares a price ceiling; and (ii) distributes subsidised rice. In the paddy market, the government: (i) declares a price floor; and (ii) purchases paddy. Until very recently, the government has provided paddy production support in the form of seed subsidies. We expand on these activities below.

Fig. 1 reports the declared retail price ceiling, and the retail market price for rice. An interesting feature of Fig. 1 is that in no year since 2000 has the price ceiling been achieved. In reality, the price ceiling is not a mandated price, and no legal enforcement mechanism exists to require all private retailers to sell at this price. Rather, the government influences the retail rice price through the activities of the NFA. Under Section 6 of Presidential Decree No. 4, the NFA is mandated to distribute rice in the domestic market at a subsidised price. The annual average volume of rice distributed to Philippine consumers in this way has been in the vicinity of 1.8 million tonnes over the period 2000 to 2010 (Table 1, Column 2). Rice distributed by the NFA represents about 13%



Sources: Bureau of Agricultural Statistics (BAS) and National Food Authority (NFA), Philippines

Fig. 1. Retail market for rice: declared price ceiling and actual market price. Sources: Bureau of Agricultural Statistics (BAS) and National Food Authority (NFA), Philippines.

of total domestic rice production (Table 1, Column 3). As we shall find, this exerts only a small downward influence on the consumer price of rice. This is consistent with Sombilla et al. (2006: 231–232), who note that the small distribution volumes under the programme are not sufficient to have a marked impact on retail prices.

Fig. 2 reports the paddy price floor and the market price for paddy over the period 2000 to 2010. Like the retail price ceiling described in Fig. 1, no legal enforcement mechanisms are in place to mandate paddy trades at the declared price floor. Policy influence on the market price for paddy is through the on-market activities of the NFA, which is mandated to procure paddy from farmers during harvest season. However, the annual average of the NFA's paddy purchases between 2000 and 2010 was only 830 thousand metric tonnes (Table 1, Column 5). This represented approximately 6% of total domestic production (Table 1, Column 6). Particularly since the spike in world rice prices in 2008, the volume of the NFA's activity in the paddy market has not been sufficient to drive a convergence of the market price and the

Table 1
Paddy procurement and rice distribution by the government.

Year	(1) Rice supply (M MT)[a]	(2) NFA rice distribution (M MT)[a]	(3) Share of gov't injections to rice supply (%)	(4) Paddy production (M MT)[b]	(5) NFA procurement (M MT)[b]	(6) Share of gov't purchases to paddy prod'n (%)
2000	11.107	1.395	12.56	12.389	1.164	9.40
2001	11.446	1.337	11.68	12.955	0.813	6.28
2002	12.146	2.002	16.48	13.271	1.239	9.34
2003	12.163	1.631	13.41	13.500	1.142	8.46
2004	12.844	1.873	14.59	14.497	1.342	9.26
2005	13.423	1.259	9.38	14.603	1.666	11.41
2006	13.834	1.615	11.67	15.327	0.074	0.48
2007	14.679	1.868	12.72	16.240	0.033	0.20
2008	15.601	2.876	18.43	16.816	0.683	4.06
2009	15.027	1.808	12.03	16.266	0.463	2.85
2010	15.322	1.747	11.40	15.772	0.487	3.09
Avg.	13.417	1.765	13.12	14.694	0.828	5.89

Sources: Bureau of Agricultural Statistics (BAS) and National Food Authority (NFA).
[a] Columns (1) and (2) include both imported and domestic rice.
[b] Columns (4) and (5) include domestic paddy only.

[1] IOB (2011) provides a comprehensive survey of case studies on food security interventions across countries.
[2] See for example Tanaka and Hosoe (2011), Cororaton and Cockburn (2007), and Rae and Josling (2003).
[3] See for example Gelan (2006), Lips (2005), and Arndt and Tarp (2001).