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Author: Ryota Nakatani

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Adjustment to Negative Price Shocks by a Commodity Exporting Economy: Does Exchange Rate Flexibility Resolve a Balance of Payments Crisis?

Ryota Nakatani

International Monetary Fund

700 19th Street, NW, Washington, D.C. 20431 U.S.A.

Email: nakatani.ryouta@gmail.com

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Abstract

Negative commodity price shocks can induce balance of payments crises in resource dependent economies. Governments often react by intervening against currency depreciation as, for example, in the case of Papua New Guinea in response to the commodity price shocks of 2014. We develop an original theoretical model to analyze the balance of payments impact of a commodity price shock under alternative exchange rate regimes: a flexible rate regime and a fixed rate regime with foreign exchange rationing. The balance of payments consequences are shown to depend on the elasticity of exports and imports with respect to the exchange rate. For the Papua New Guinea case, we estimate export elasticities for a variety of commodities (gold, silver, copper, oil, coffee, cocoa, copra, copra oil, palm oil, rubber, tea, logs, and marine products) as well as for imports. The results indicate that the Marshall-Lerner condition is satisfied for this resource-rich economy, implying that exchange rate flexibility may be practicable. We implement our calibrated model to conduct a counter-factual simulation and find that with a flexible exchange rate, foreign reserves would have been 20 percent higher three years after the shock than they were under the actual policy of exchange rate stabilization. In light of this, we argue the merits of greater exchange rate flexibility.

Keywords: Commodity Exporters, Foreign Exchange Rationing, Papua New Guinea, Marshall-Lerner Condition, Agriculture, Mining.

JEL Classification Numbers: F31, F32, F41, O13, Q17, Q37

1. Introduction

The sharp decline in oil prices beginning in mid-2014 had a major impact on commodity exporting countries. Low commodity prices have created numerous challenges in resource-rich economies,