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Are Remittances and Foreign Aid a Hedge Against Food Price Shocks in Developing Countries?

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Summary. — This paper explores the role of remittances and foreign aid inflows during food price shocks. The results yield four findings. First, low income countries and the Sub-Saharan African region are the most vulnerable to food price shocks. Second, remittance and aid inflows dampen the effect of positive food price shock and food price instability on household consumption in vulnerable countries. Third, negative food price shock episodes are associated with a significant increase in household consumption in vulnerable countries. Fourth, a lower remittance-to-GDP ratio is required in order to fully absorb the effects of food price shocks.

Key words — household consumption, food price shocks, vulnerability, aid, remittances

1. INTRODUCTION

The recent increase in food prices over previous years has raised concerns about the risk of the resurgence of undernourishment and hunger around the world, mainly in poor countries. According to the World Bank (2011), global food prices remain high, partly due to increasing fuel prices as well as speculative behaviors in the commodity markets. [1] Moreover, the World Bank study stressed that, since June 2010, an additional 44 million people had fallen below the $1.25 poverty line as a result of higher food prices. Simulations showed that a further 10% increase in the food price index could lead to an additional 10 million people falling into poverty, and a 30% increase could plunge 34 million people into poverty.

Notwithstanding the recognized damaging effects of food price shocks on poverty and welfare in developing food-importing countries, little is known about the role that international remittances and foreign aid flows can play in dampening the effects of food price shocks. There are several reasons behind the interest in the effect of these flows. [2]

First, developing countries are among the top recipients of official development assistance (ODA) and remittances (World Bank, 2011) and there are existing studies on the countercyclical responsiveness of aid and remittances when countries are facing various types of shock, such as exchange rate shocks, natural disasters, conflict, oil shocks, and financial crises (Dabla-Norris, Minoiu, & Zanna, 2010; David, 2010; Lueth & Ruiz-Arranz, 2007; Mohapatra, Joseph, & Ratha, 2009; Yang, 2008).

Second, there are only very few papers which examine the role of external flows as shock absorbers in developing countries (Chami, Hakura, & Montiel, 2009; Chami, Fullenkamp, & Gapen, 2009; Collier & Dehn, 2001; Combes & Ebeke, 2011; Craigwell, Jackman, & Moore, 2010). Collier and Dehn (2001) found that the adverse effects of negative export price shocks can be mitigated by broadly contemporaneous increases in foreign aid. Combes and Ebeke (2011) showed that remittance inflows help to reduce the destabilizing effects of natural disasters, agricultural shocks, financial and banking crises, discretionary fiscal policies, and exchange rate volatility on household consumption per capita.

Third, the literature on the consequences of food price shocks and the role of existing risk coping mechanisms in developing countries is relatively thin and very few papers have used a cross-country approach. Horton, Kerr, and Diakosavvas (1988) investigated the social costs of the surge in cereal prices using cross-country data for 34 developing

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countries. Their results suggested that higher cereal prices across countries are associated with higher infant mortality.

Kumar and Quisumbing (2013) focused on the gendered impacts of the 2007–08 food price crisis in rural Ethiopia. They found that female-headed households are more vulnerable to food price changes and cope by cutting back on the number of meals they provide their households during good months and eating less preferred foods in general.

Similarly, Ivanic, Martin, and Zaman (2012) investigated the poverty impacts of the 2010–11 surge in food prices. The authors extended the methodology proposed by Ivanic and Martin (2008) to assess the impact of food price shocks on poverty in 28 countries. Their study concludes that the sudden food price surge in the second half of 2010 has led to an increase in the number of poor though with significant differences across countries. The authors noted that these differences are partly related to the wide variations in international food prices pass-through to domestic prices.

Anríquez, Daidone, and Mane (2013) analyzed the short-time effects of a staple food price increase on nutritional attainments, as a measure of welfare. The authors found that food price spikes not only reduce the mean consumption of dietary energy, but also worsen the distribution of food calories, further deteriorating the nutritional status of populations. An interesting additional result is that access to agricultural land played a significant role in ensuring adequate nutritional attainments in both rural and urban areas.

Alem and Söderbom (2012) used micro-level data to investigate how urban households in Ethiopia coped with the 2008 food price shock. Their econometric investigations showed that households with low asset levels, and casual workers, were particularly adversely affected by high food prices compared to others. The authors also reported that among the leading coping mechanisms, domestic and international remittances from relatives and friends played an important role in smoothing consumption during the shock.

De Brauw (2011) used survey data from El Salvador to demonstrate that children in households with access to remittances and international migrants had much lower declines in their anthropometric indicators than households without access to migration income.

Our paper measures the effects of food price shocks on the level and the volatility of household consumption per capita in developing countries. It separates the effects of positive food price shocks from those of negative food price shocks and examines to what extent the volatility of food price translates into household consumption instability in developing countries. To shed light on potential risk coping mechanisms, the paper explores the role of foreign aid and migrant remittance inflows while differentiating across the ranges of countries' vulnerability to food price shocks.

Using a large sample of developing countries observed over the period 1980–2009, the econometric results yield four important findings. First, low income countries and the Sub-Saharan African region are the most vulnerable to food price shocks. Second, the marginal effect of food prices increases with the level of vulnerability to food price shocks. In relatively high vulnerable economies, food price instability episodes also led to the instability of the real household consumption growth. Based on the previous work of de Janvry and Sadoulet (2008), the vulnerability of countries to food price shocks was assessed by computing a continuous index which aggregates four main dimensions: the lower per capita income compared to other developing countries; the share of food imports in household total consumption; the share of food imports in total imports of goods and services; and the ratio of net food imports as a percentage of GDP. Third, remittance and aid inflows dampen the effect of food price shocks in the most vulnerable countries. Fourth, a lower remittance-to-GDP ratio is required in order to fully absorb the effects of food price shocks compared to the corresponding aid-to-GDP ratio.

The remainder of the paper is as follows. Section 2 computes the vulnerability index, the food price shocks, and provides some stylized facts about the vulnerable countries and the response of household consumption, international remittances, and aid flows during food price increases. Section 3 presents the econometric models and Section 4 discusses the main results. Section 5 presents some robustness checks while Section 6 concludes.

2. SOME STYLIZED FACTS

(a) *Identifying vulnerable countries*

Based on the previous work de Janvry and Sadoulet (2008), we define vulnerable countries if they meet the following four criteria: (1) high food dependency; (2) a high food import burden; (3) high net food imports as a percentage of GDP, and (4) low per capita income compared to other developing countries. [3]

The first criterion highlights the importance of food items in the consumer basket in each country. Hence, the larger the share of food items in the basket, the harder the household will be hit by an increase in food prices. We approximate food dependency by the share of total food imports in the total household consumption. The second criterion stresses the strong dependency of a country on the goods produced by the rest of the world, including for food items. It measures the weight of food imports in the balance of payments along with the implications for foreign exchange reserves management. The third dimension is the size of the net food imports in the GDP. The variable takes into account food exports (or production) as well, since it is measured on a net basis. It measures the extent to which a given country is a "net" food importer after factoring in its own food supply capacity. This complements other indicators as it assesses the size of net food imports in total GDP. The fourth criterion underlines the capacity of a country to constitute food safety nets for domestic consumers, should price shocks be prejudicial to them. We measure this capacity by the income per capita gap between the country with the highest income and the observed country in question. The bigger the income gap, the more vulnerable is the given country relative to others. [4]

Using the criteria discussed above, we resorted to principal component analysis (PCA) in order to build our vulnerability index. Thus, the vulnerability index is a combination of the four variables discussed above. The vulnerability index is rescaled so that it ranges between 0 and 10, with higher values corresponding to high levels of vulnerability. [5] The calculation of the vulnerability index is performed using annual data covering the period 1980–2009. Overall, the first two principal components explain more than 66% of the total variance and are correlated with the four main variables used to build the vulnerability index. More details regarding the results of the PCA are shown in Appendix A (Tables 7 and 8). The ranking of countries according to the value of the vulnerability index is shown in Appendix B. (Table 12).

Figure 1 presents the distribution of vulnerability to price shocks among developing regions. The figure shows that the vulnerability index is higher for Sub-Saharan African countries. Most of these countries are highly dependent on food imports and do not have enough income to build safety nets to cope with food price shocks.