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Biofuel policies and the impact of developing countries' policy responses to the 2007–2008 food price boom

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ABSTRACT

Economists have been unanimous that developing countries' policy responses to high food grain prices in 2007–2008 in restricting exports and promoting imports increased both world food grain price levels and volatility. Furthermore, the literature emphasizes the self-defeating aspects of policy responses: world prices increase even further, thereby raising domestic prices in countries imposing policies to protect domestic consumers. We show that because of the crop-biofuel price linkages that took hold in 2007 caused by biofuel policies, developing countries' policy responses had little impact on world prices in 2008 and maximum impact in reducing domestic price in developing countries. There is little empirical evidence of a policy responses increasing world prices. Instead, the incidence of those developing countries with policy responses were mostly in reducing domestic prices while those countries that did not respond (including all developed countries) faced high world prices locked onto crude oil prices and unaffected by policy responses. Given that most studies on developing countries' policy response analyze the impacts on poverty in developing countries, this paper has important policy implications, especially food security analysis which now requires understanding how biofuel policies impact food commodity prices.

1. Introduction

World grain and oilseed prices have been in turmoil since 2006. Unlike previous food commodity booms, there has been no bust but instead a boom in 2007–2008, again in 2010–2011 and again in 2012–2013 where corn prices reached even higher peaks (Figs. 1 and 2). These food "crises" were on top of the G-20 agenda in 2008 and again in 2011. This all happened with ever increasing world grain/oilseed production and stocks. Why is it different this time? This paper shows it is all about the price link biofuel policies created between grain/oilseed and ethanol/biodiesel prices.

The Economist (2008a,b) argued the 2007–2008 price boom was a silent tsunami – it came unexpectedly and the world was ill-prepared for it and had no policies in place to deal with it. Instead, many developing countries individually responded in different ways beginning in 2007, mostly restricting exports and reducing import barriers (e.g., Baltzer, 2015; Bryan, 2015; Anderson et al., 2014a,b; Ivanic and Martin 2014a; Jones and Kwiecinski 2010; Martin and Anderson 2012; Anderson and Nelgen, 2012). Economists were quick to point out that these policy responses were self-defeating and exacerbating the food crisis by causing world prices to increase even further (e.g., Anderson et al., 2014a,b).

We argue the reason why this price boom was unexpected is because economists along with the Economist were looking at the wrong things to explain the price boom – things they always looked at in the past – quantities, namely supply/demand shocks and inventory adjustments. Instead of looking at quantities, this paper follows the theory of biofuel policy summarized in de Gorter et al. (2015) that focuses on the crop-biofuel *price links* that were formed by high crude oil prices and biofuel policies, more specifically the corn-ethanol price link in September 2006. Corn prices rose 88% in five months, leading to the Mexican tortilla crisis in January 2007 and India's ban on wheat exports in February 2007, the first of many developing country responses to come.[1] de Gorter et al. (2015) call this critical five month time period in 2006–2007 as the "earthquake NOT heard round the world" because that is

[1] These included export bans, export taxes, value-added tax rebates and actions by state trading enterprises and government to government sales, and promoting imports by lowering import barriers and manipulating domestic prices to be below world prices. Even peasants hoarded rice (Timmer, 2008) which can have the same effects as a developing country's policy response.

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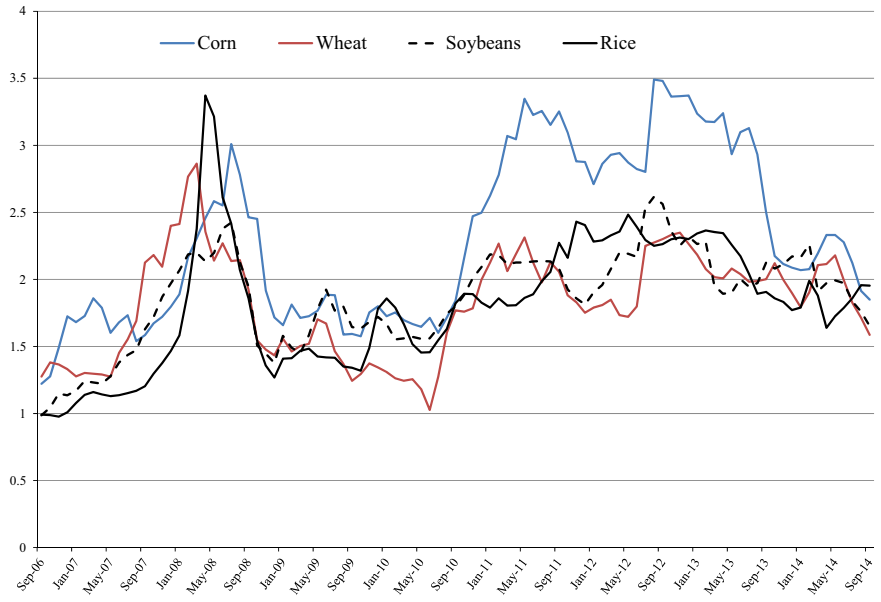

Fig. 1. Cereal and oilseed price indices (January 2005 = 1).

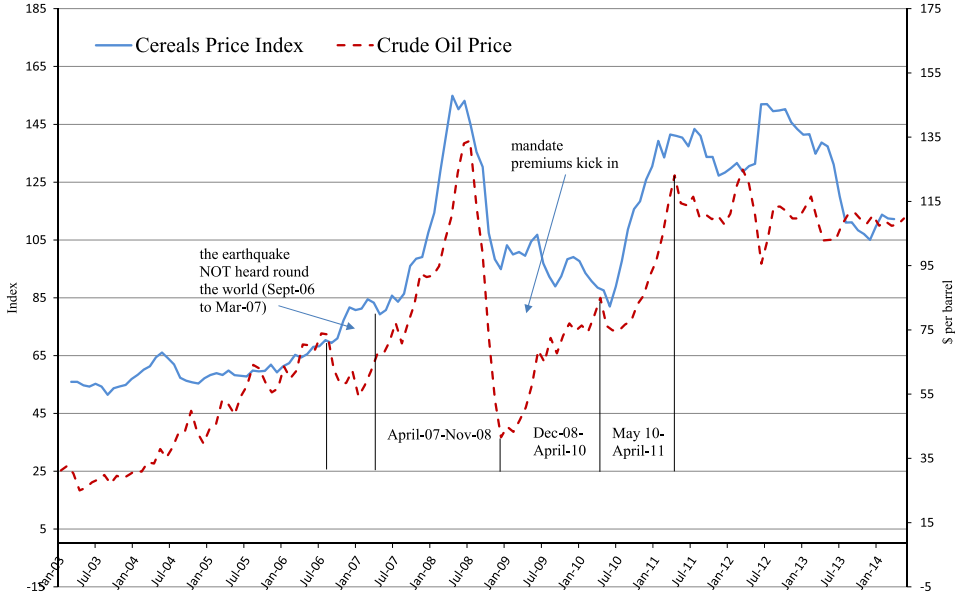

Fig. 2. Four key time periods and how biofuel policies affected cereal prices.

when corn-ethanol price links were established.[2] The price turmoil since 2006 has been due to biofuel policies,[3] it was a structural shift in the market and nobody anticipated it.

The framework we advance provides an alternative explanation for the 2007–2008 price boom (and for the 2010–2011 and 2012–2013 booms)[4] and carries with it very different policy implications when analyzing the impact of any kind of government policy, be it farm, environmental, energy, or trade policy (see de Gorter et al., 2015 for an overall overview of the issues). In this paper, we specifically focus on the impacts biofuel policies had on the economic effects of developing country policy responses, and we summarize the policy implications in the future should similar situations arise where crude oil prices rise as crop prices are now locked onto biofuel prices for the foreseeable future.

Large swings in grain and oilseed prices have continued unabated to this day. This price instability has had large and differing effects on farmers and consumers (e.g., FAO, 2011; Bellemare et al., 2013). Moreover, significant price risk and uncertainty were introduced to the detriment of all market participants (Chavas et al., 2014). The causes of such high prices and volatility have generated much interest around the world. Economists have mostly fixated on the "perfect storm" where some cosmic roll of the dice caused factors cited as causes for this price upheaval, including low stocks, a speculative bubble, flooding and droughts, exchange rates, and

[2] As shown in Figs. 1 and 2, there were three major tsunamis would have been *anti*cipated if our model was understood. It should be noted that all tsunamis are silent; the issue is whether or not the economics profession felt or heard the earthquake preceding it and heeded its implications.

[3] Biofuel policies are a strange mix of policies sourced in environmental, energy, agricultural, and trade legislation. For example, environmental regulation of MTBE ban spiked ethanol prices in 2006 and 1978 and energy policy of a US ethanol tax credit that had been essentially dormant until activated by high crude oil prices were the two key policies in the short run that led to the crop-biofuel price link.

[4] And there has been no bust, not even in 2009 amidst the Great Recession when the lowest monthly average price of corn was more than twice that of their low in 2005. Cereal prices eight years later in 2014 are 50% higher in real terms than in 2005.

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