

Thought for Food: the Challenges of Coping with Soaring Food Prices

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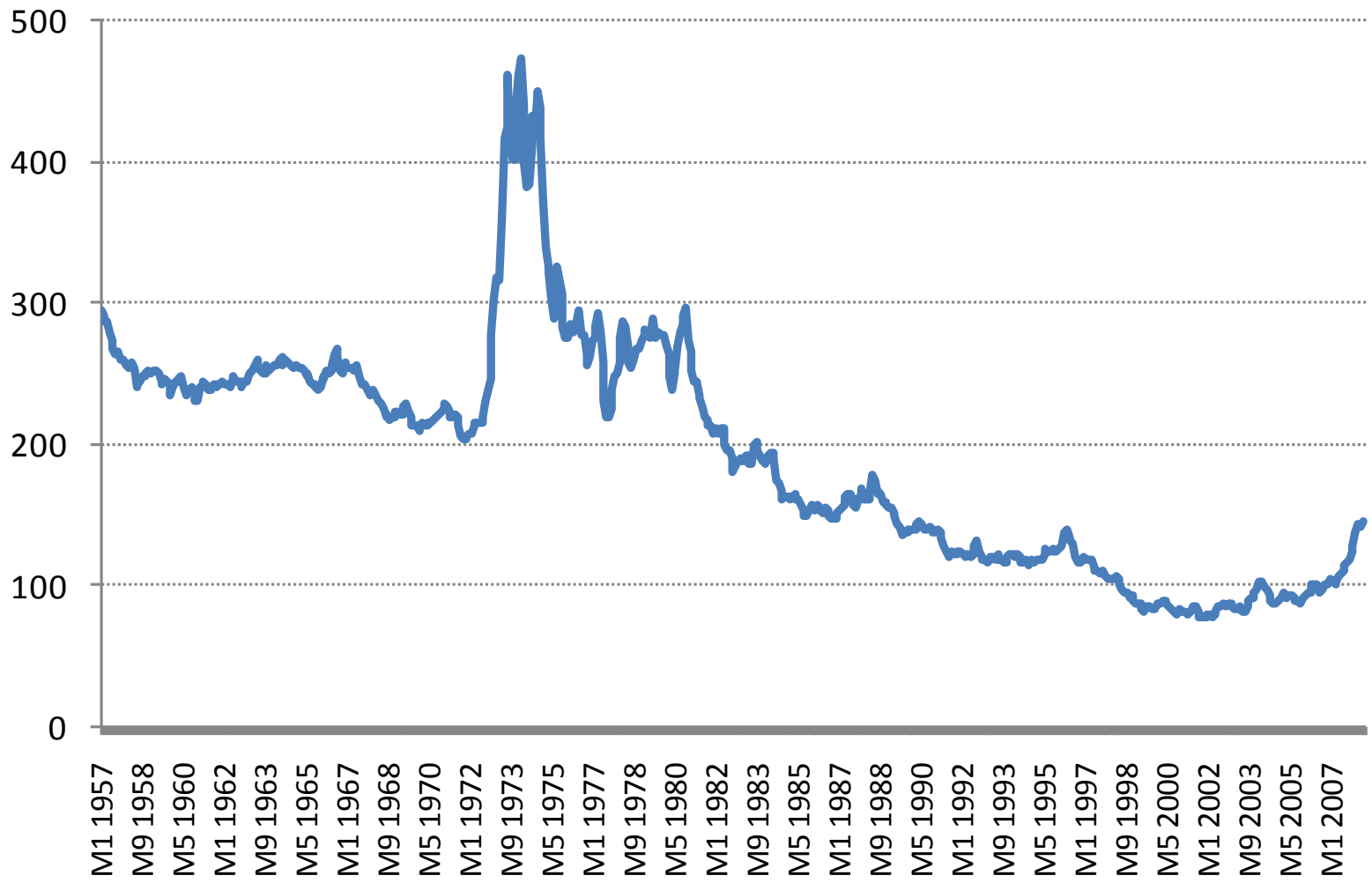
George Washington University

Preparing for the Next Food Crisis

Center for Global Development

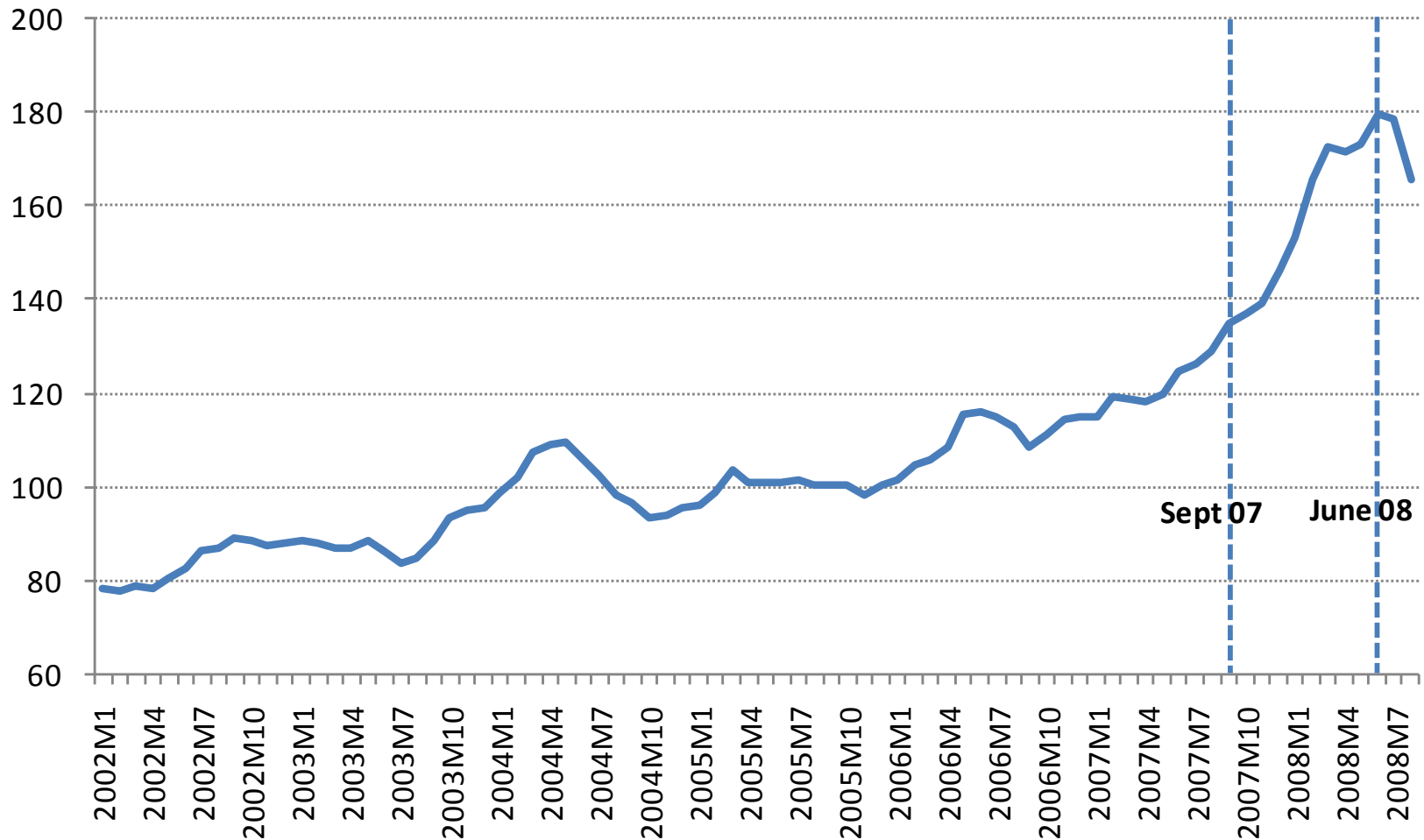
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Evolution of Real Food Commodity Prices (2007=100), January 1957-June 2008



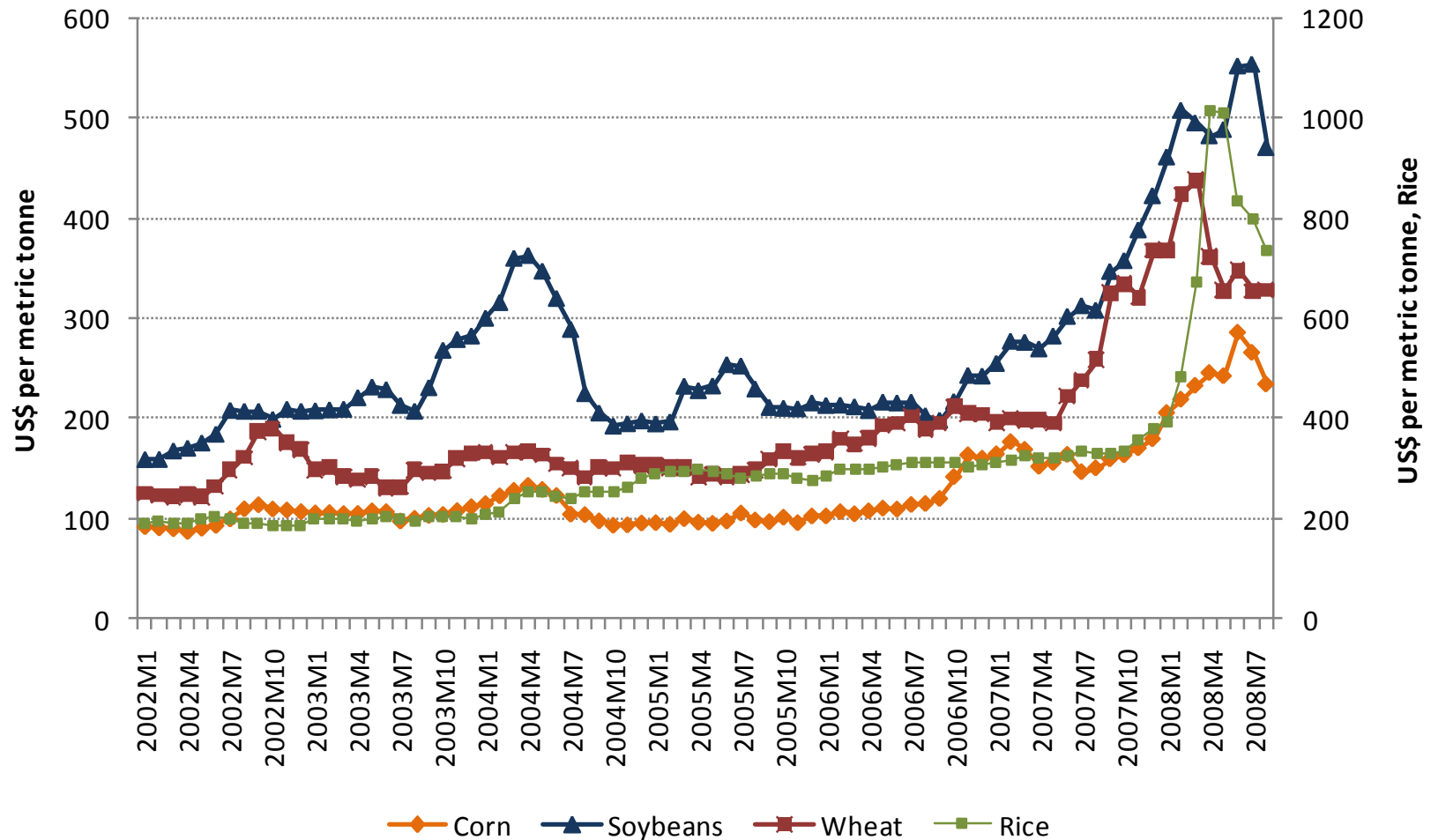
Source: International Financial Statistics, IMF. Notes: It refers to a Food Commodity Price Index including bananas, cereals, meat, vegetable oils, seafood, oranges and sugar. Deflated by the US CPI.

Food Commodity Price Index (2005=100), January 2002-August 2008



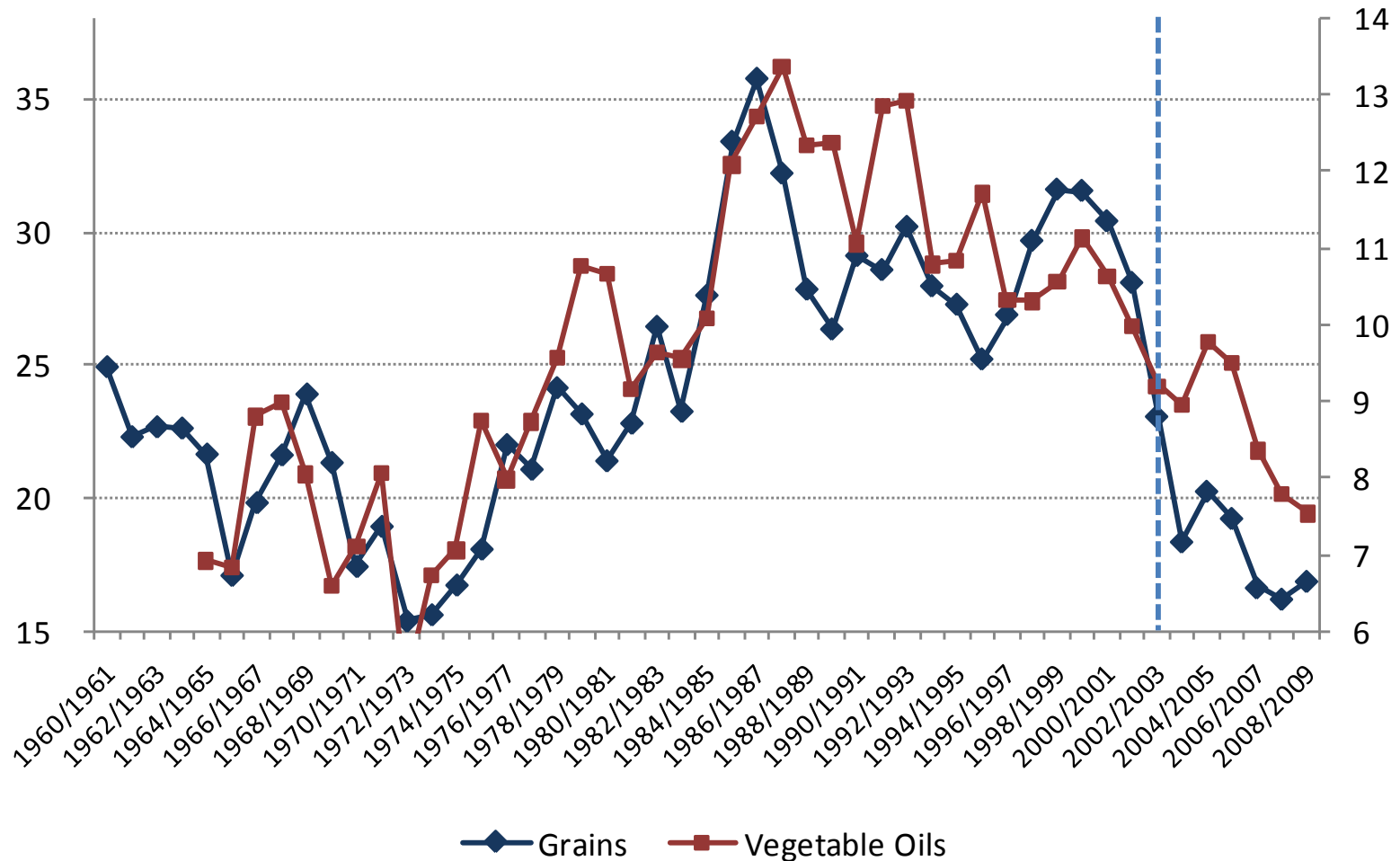
Source: IMF Primary Commodity Prices Database.

Food Commodities Prices, January 2002-August 2008



Source: IMF Primary Commodity Prices Database. Commodity prices refer to: Maize (corn), U.S. No.2 Yellow, FOB Gulf of Mexico, U.S. price, US\$ per metric tonne; Rice, 5 percent broken milled white rice, Thailand nominal price quote, US\$ per metric tonne; Soybeans, U.S. soybeans, Chicago Soybean futures contract (first contract forward) No. 2 yellow and par, US\$ per metric tonne; Wheat, No.1 Hard Red Winter, ordinary protein, FOB Gulf of Mexico, US\$ per metric tonne.

World Stocks-to-Use Ratio for Grains and Vegetable Oils (in percent), 1960/61-2008/09



Source: Author's construction based on data from the PSD Database, USDA. Notes: Ratio is calculated using total domestic consumption and ending stocks. In top figure, right axis is for vegetable oils. For grains, it includes barley, corn, millet, mixed grain, oats, rice, rye, sorghum and wheat. For vegetable oils it includes coconut, cottonseed, olive, palm, palm kernel, peanut, rapeseed, soybean and sunflowerseed oils. The vertical line indicates the date after which the stocks-to-use ratio undergoes a relatively sharp drop: from a yearly average equal to 27 percent between 2000/01—2002/03 to 18 percent between 2003/04-2007/08.

World Demand and Supply Summary: Corn, Wheat, Rice and Soybeans

	CORN	RICE	WHEAT	OILSEEDS
HARVESTED AREA (For all grains grew at 0.4% per year between 2000-07*)	Increased 15% from 2002/03 to 2007/08		Declined by 10.4% between 1980/81 to 2006/07 but recovering	Declined after 2005/06; land used for corn (biofuels) in US
YIELD (For all grains grew at 1.3% per year between 2000-07*)	On trend	Below trend 2002/03, 2003/04, 2004/05 but on trend for rest	Below trend in 2006/07 and 2007/08 but on trend for rest	Below trend in 2007/08
FOOD CONSUMPTION (For all grains grew at 1.7% per year between 2000-07*)	On trend (feed consumption) Grew at 2.1% per year in 2000-07 and 2.6% per year in 1995-00*	On trend Grew at 1% per year in 2000-07 and 1.4% per year in 1995-00*	On trend Grew at 0.8% per year in 2000-07 and 1.4% per year in 1995-00*	Above trend due to increased demand in China for animal feed purposes and rise in human consumption of fats

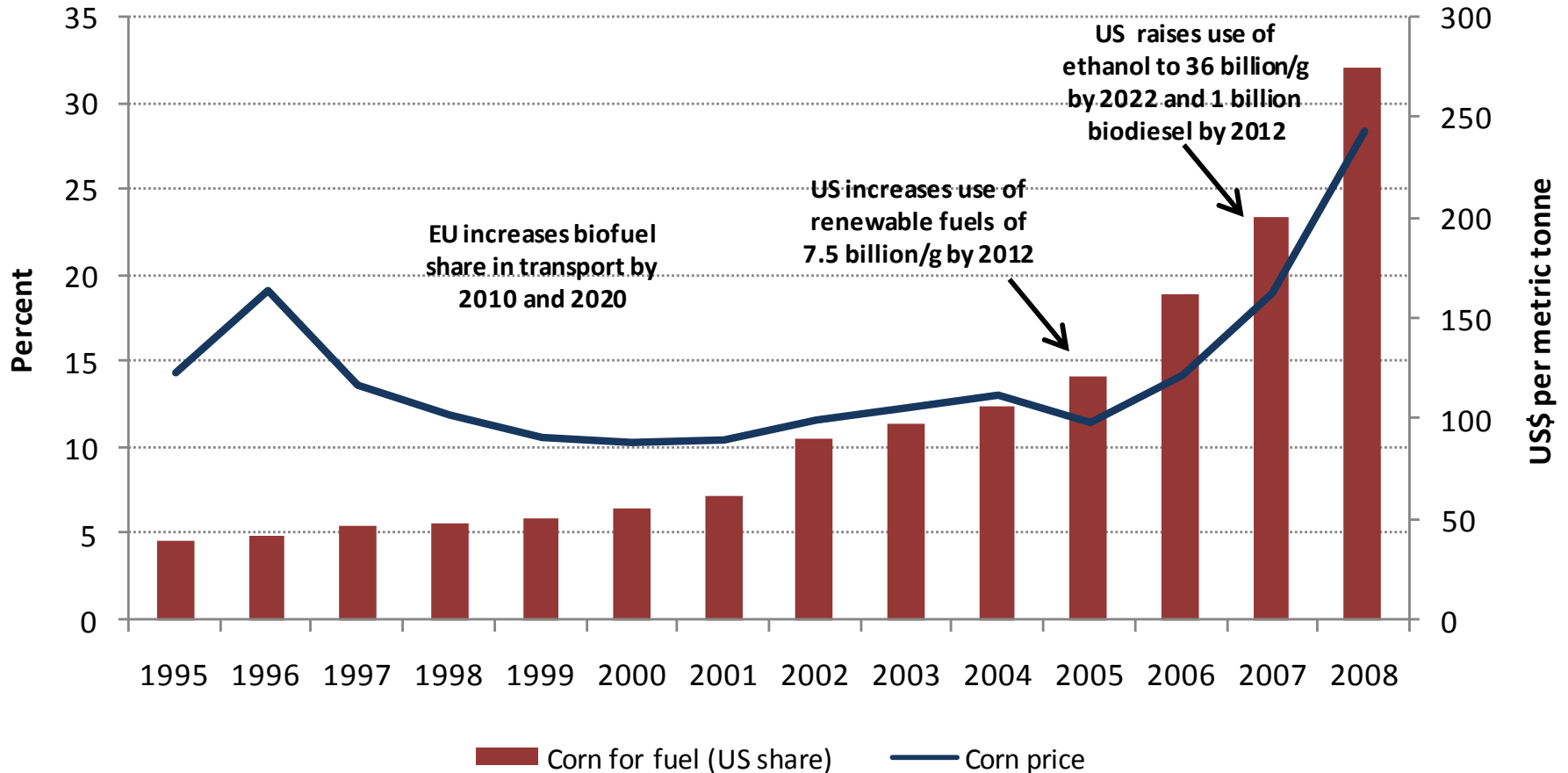
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World Demand and Supply Summary: Corn, Wheat, Rice and Soybeans

	CORN	RICE	WHEAT	OILSEEDS
INDUSTRIAL USE (biofuels) ^a	<p>Above trend and increasingly so since 04/05^b</p> <p>Use of maize for ethanol from 2004 to 2007 was 70% of the increase in global maize production*</p> <p>Feed use of maize grew by 1.5% per year from 2004 to 2007 while ethanol use grew by 36% per year*</p>	Not used for biofuels	Not used for biofuels	<p>Above trend for rapeseed and palm since 00/01 and soybeans since 04/05.</p> <p>7% of global vegetable oil supplies were used for biodiesel production in 2007 and about one-third of the increase in consumption from 2004 to 2007 was due to biodiesel*.</p> <p>Industrial uses of vegetable oils grew by 15% per annum from 2004 to 2007, compared with 4.2% per annum for food use*</p> <p>The share of industrial use of total use rose from 14.4% in 2004 to 18.7% in 2007*</p>
CHINA AND INDIA	No consumption surge and no significant role in international markets	No consumption surge; China trades very little. India was 14% of world exports but fell to 7-9% in 07/08 and 08/09. India's ban of rice exports (Oct 2007) probably had an effect on world prices	No consumption surge (in China, consumption actually fell) and no significant role in international markets	China's imports of palm oil and soybean oil rose more sharply since 02/03
STOCKS-TO-USE RATIO IN %	Lowest in 08/09 since 73/74	Declined to levels similar to 1970s in 04/05 and subsequently leveled off	Lowest in 07/08 since 60/61	Lowest in 04/05 since 1970s

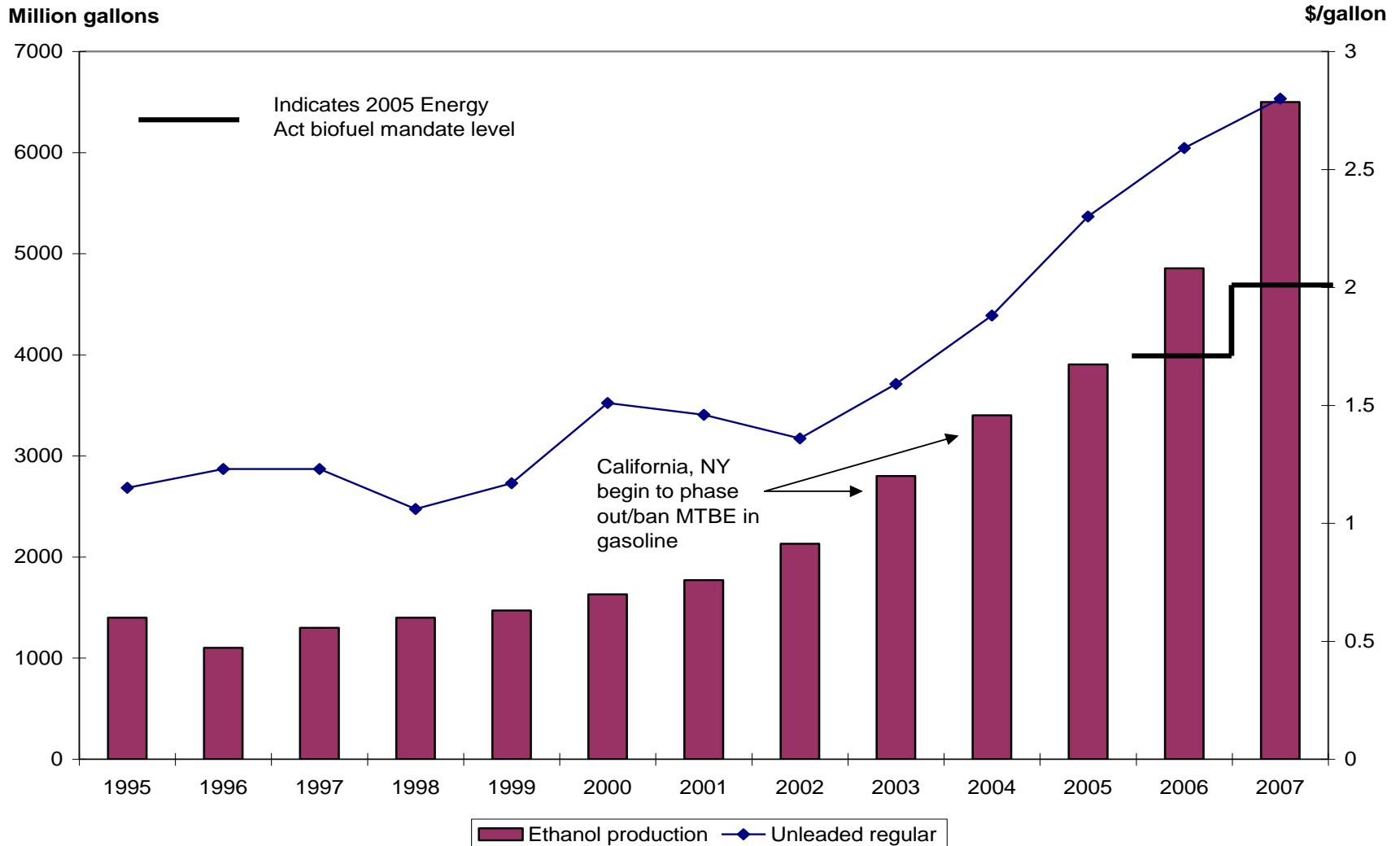
Source: Author's elaboration based on "*" Mitchell (2008), Abbott et al. and own calculations based on USDA data. a. Ethanol is produced from sugar crops, such as sugar cane or beets, or starchy crops such as maize. Biodiesel is produced from vegetable oils or animal fats. b. The United States is the largest producer of ethanol from maize and is expected to use about 81 million tons for ethanol in the 2007/08 crop year. Canada, China and the European Union used roughly an additional 5 million tons of maize for ethanol in 2007 (USDA 2008a), bringing the total use of maize for ethanol to 86 million tons, about 11% of global maize production. The U.S. accounts for about one-third of global maize production and two-thirds of global exports and used 25 percent of its production for ethanol in 2007/08. The largest biodiesel producers were the European Union, the United States, Argentina, Australia, and Brazil, with a combined use of vegetable oils for biodiesel of about 8.6 million tons in 2007 compared with global vegetable oils production of 132 million tons. (Mitchell, 2008)

Demand of Corn for Fuel in the United States and Evolution of Corn prices, 1995-2008

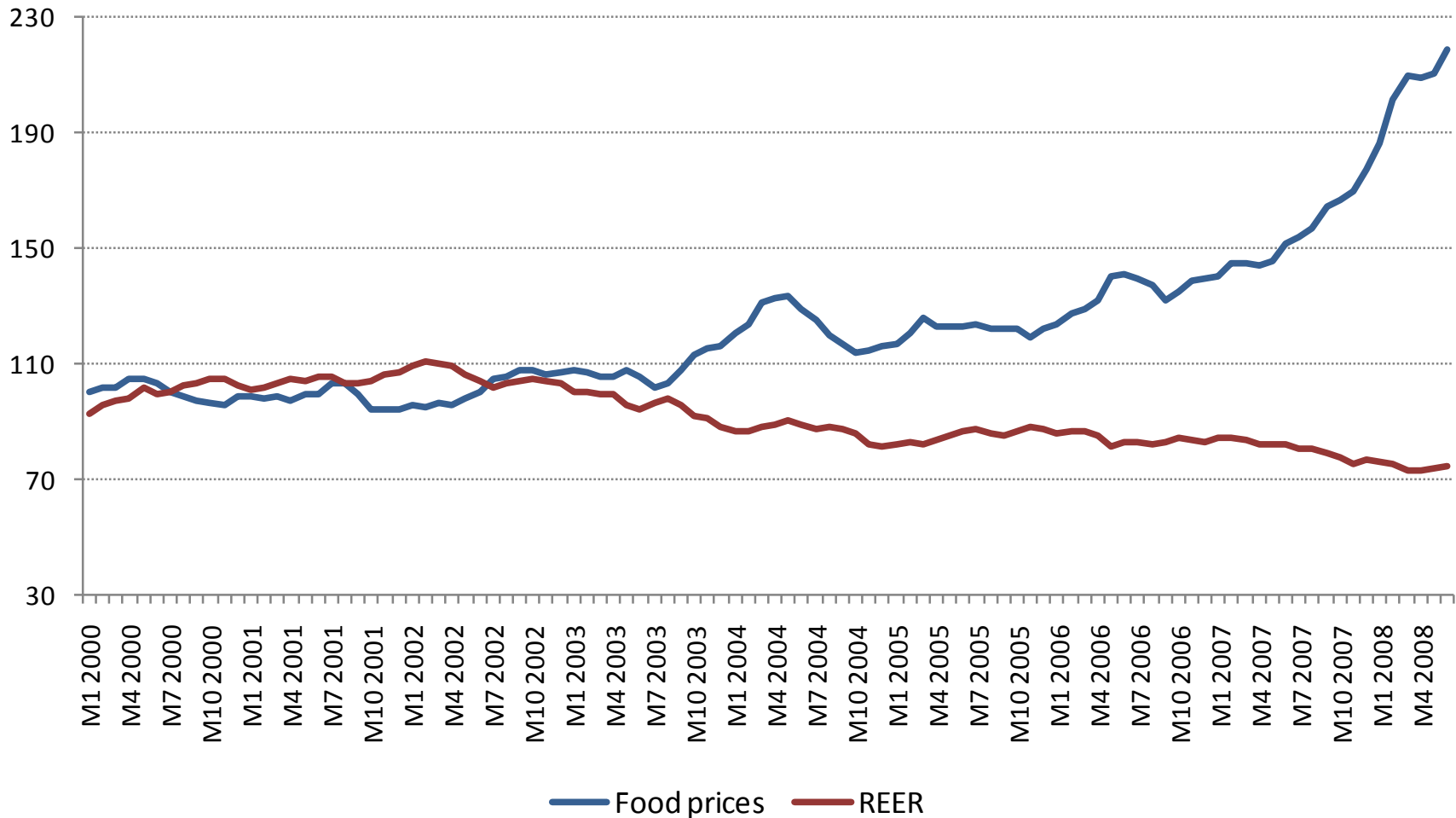


Source: Author's construction based on the IMF Primary Commodities Database and USDA Feedgrains Database. Notes: Prices refer to Maize (corn), U.S. No.2 Yellow, FOB Gulf of Mexico, U.S. price (average of daily quotations). Calculations of corn for fuel are for the United States. Corn prices for 2008 are averages from January 2008 to July 2008.

Gasoline prices and U.S. ethanol production, 1995-2007

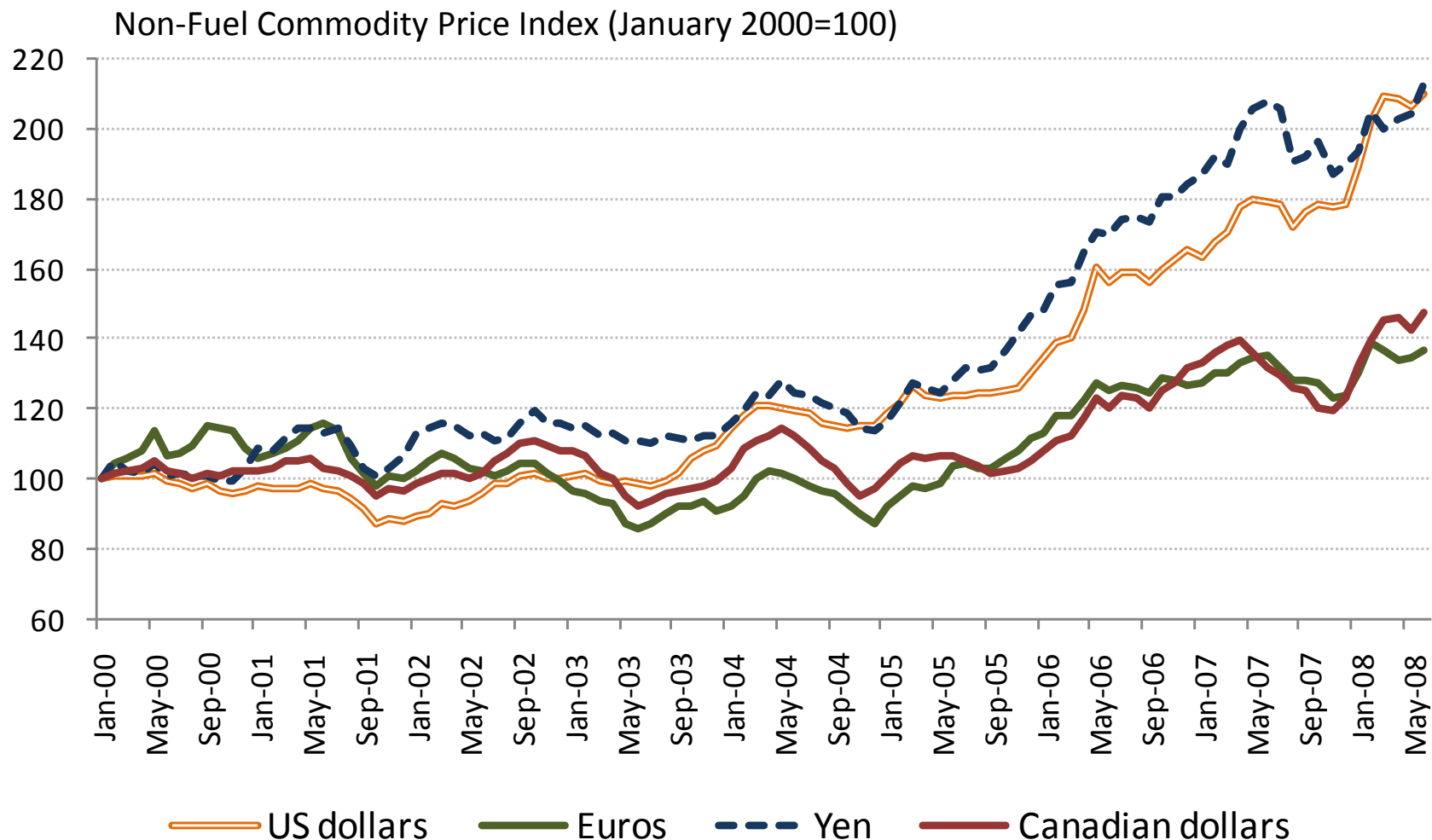


The Dollar and Food Commodities Prices, January 2000-June 2008



Source: Author's construction based on data from the International Financial Statistics, IMF. Notes: The real effective exchange rate (RER) refers to the US real exchange rate (2000=100) based on RNULC (Relative Normalised Unit Labour Cost). Food prices refer to a food commodities price index (2000=100).

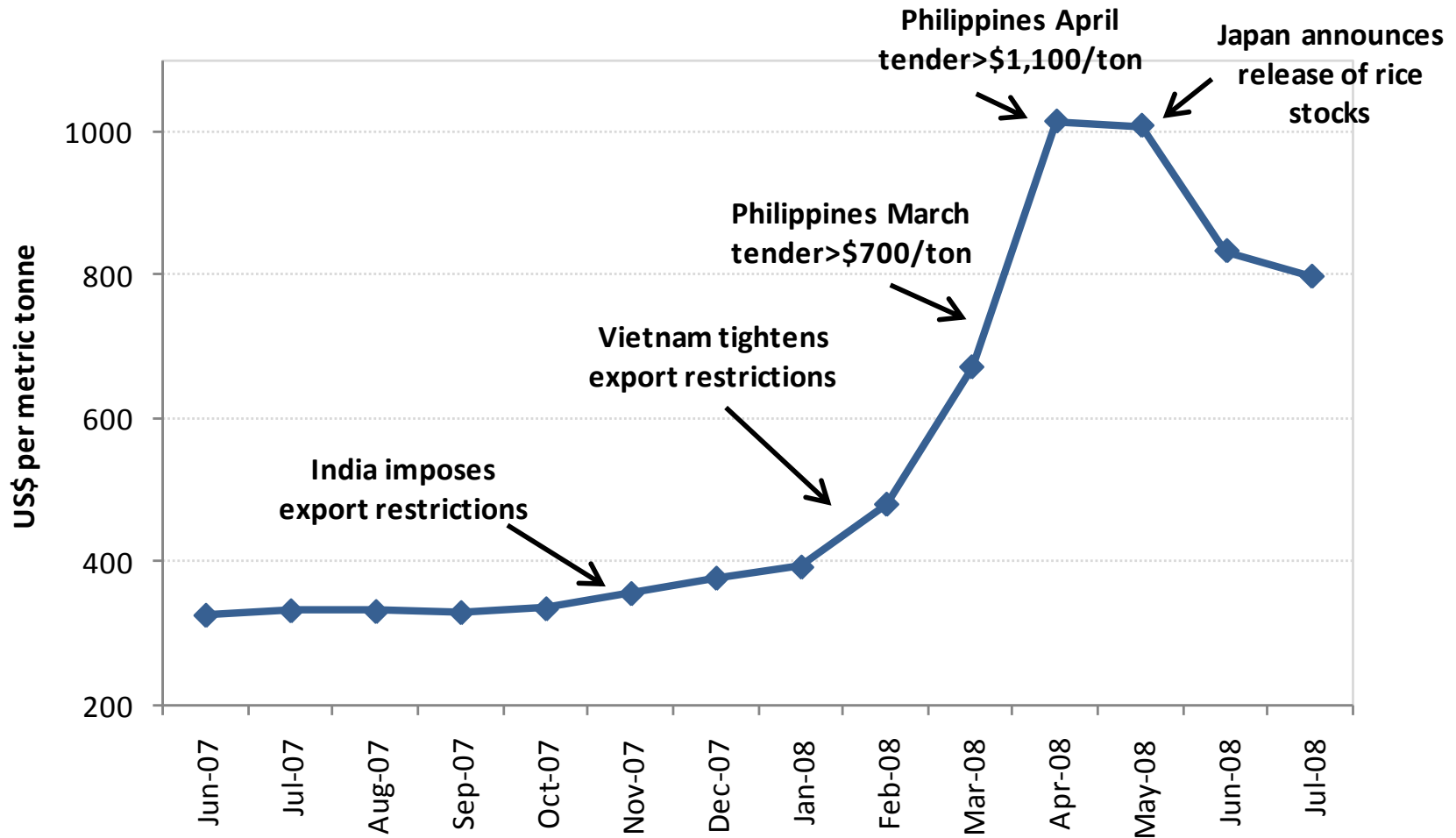
Commodity Prices in Major Currencies, January 2000-June 2008 (cont.)



Source: Author's construction with data from IFS, IMF for prices and OECD Stat for exchange rates.

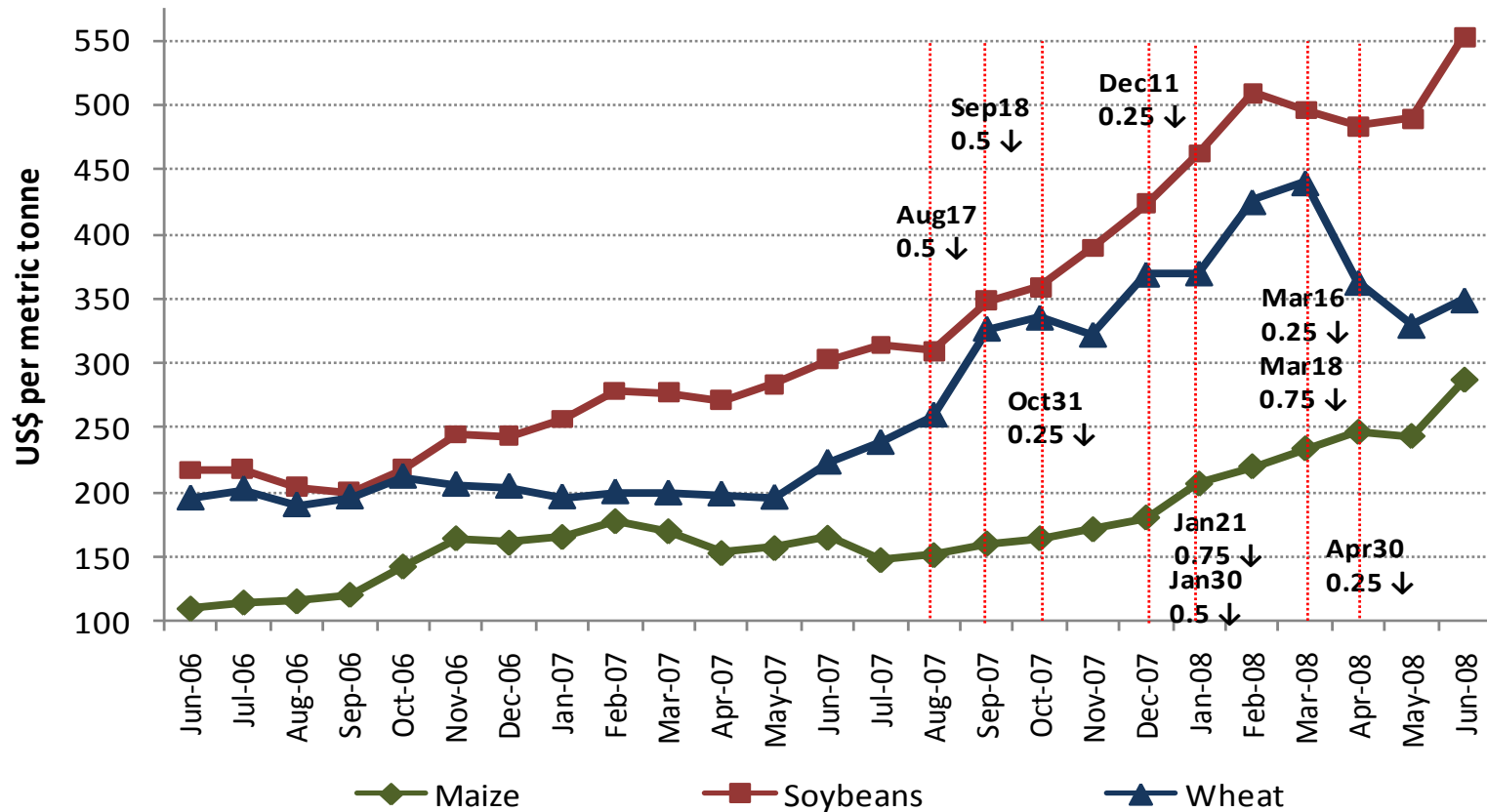
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Export Restrictions and the Price of Rice, June 2007-July 2008



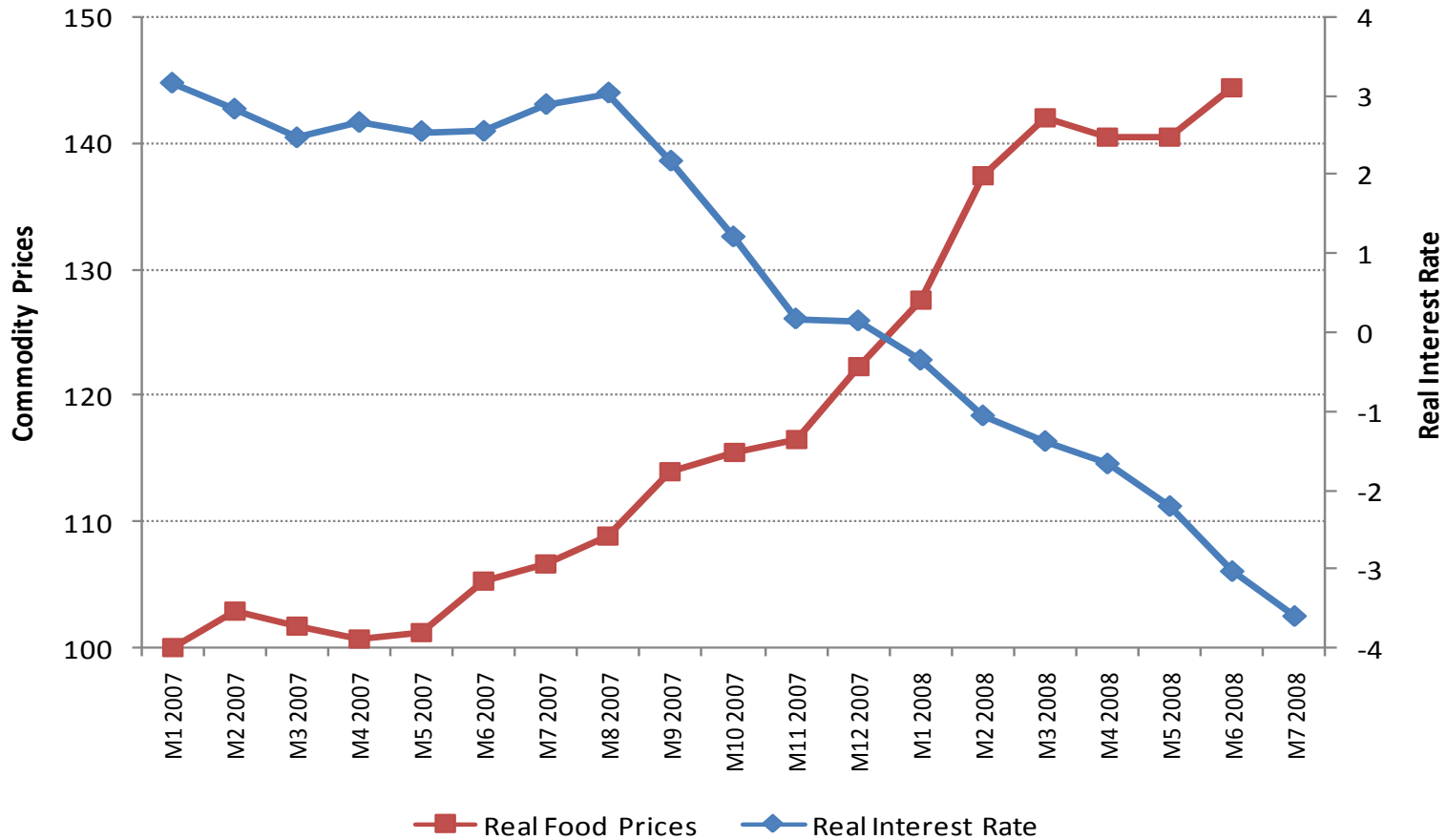
Source: IMF Primary Commodity Prices Database. Export policies from Slayton and Timmer (2008) and Timmer (2008). Based on a graph by Slayton and Timmer (2008).

Monetary Policy in the U.S. and Food Commodities Prices, June 2006-June 2008

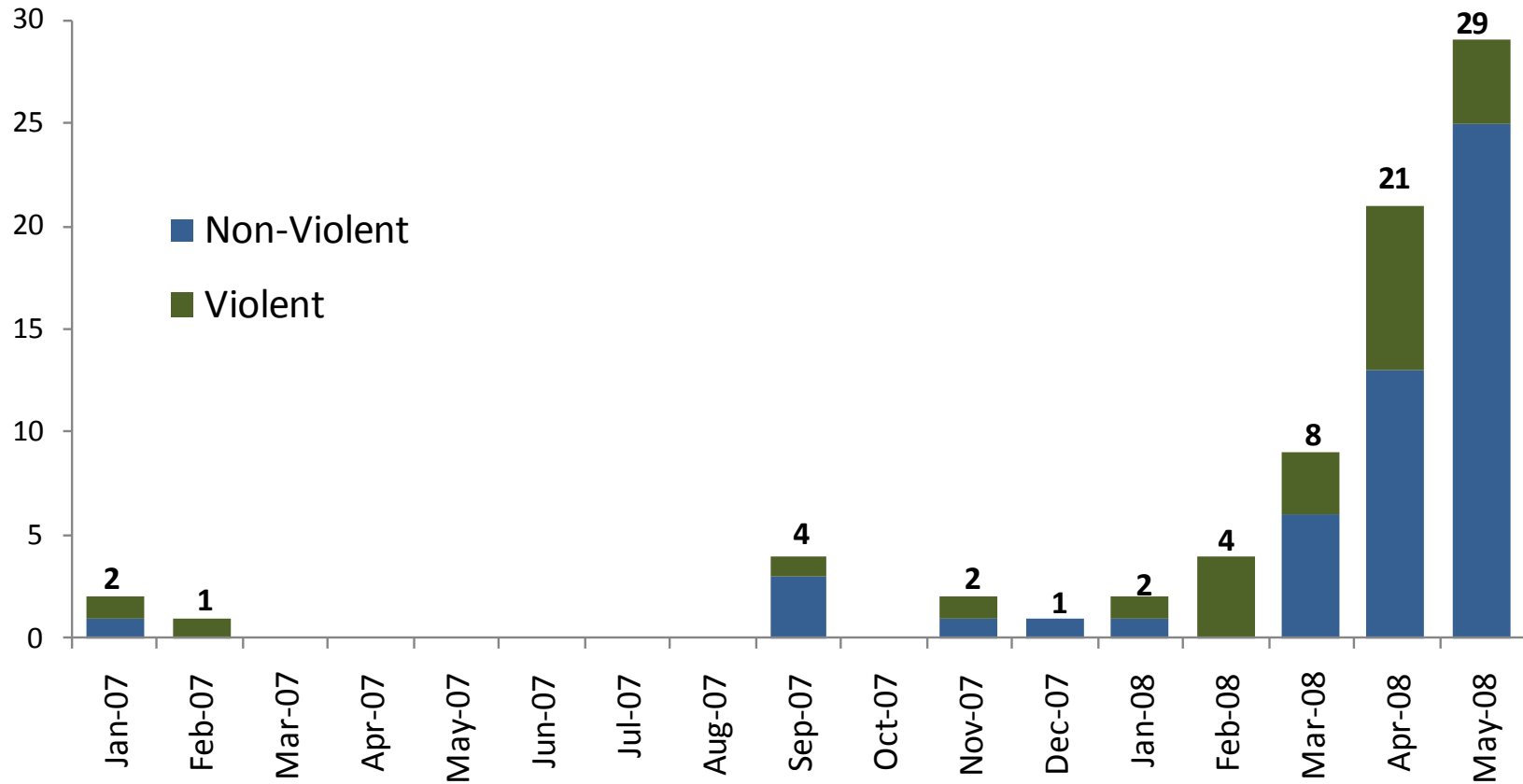


Source: Author's construction based on data from the IMF Primary Commodity Prices Database and Federal Reserve. Notes: Vertical lines shows periods in which the Fed's primary credit rate was lowered as specified in the graph's text. The primary credit rate fell from 6.25 in June 2007 to 2.25 in June 2008 (the discount rate is the interest rate charged by the Fed to commercial banks and other depository institutions on short-term loans (overnight)). The federal funds rate started to fall in August 2007 (after stability since mid-2006) from 5.02 to 2.01 by July 2008 ("the federal funds rate is the interest rate at which depository institutions lend balances at the Federal Reserve to other depository institutions overnight"; for more information visit www.federalreserve.gov). IMF prices for each product refer to: (i) Maize (corn), U.S. No.2 Yellow, FOB Gulf of Mexico, U.S. price (average of daily quotations); (ii) Soybeans, U.S. soybeans, Chicago Soybean futures contract (first contract forward) No. 2 yellow and par (average of daily quotations); (iii) Wheat, No.1 Hard Red Winter, ordinary protein, FOB Gulf of Mexico (average of daily quotations).

Real Interest Rate and Commodity Prices, January 2007-August 2008



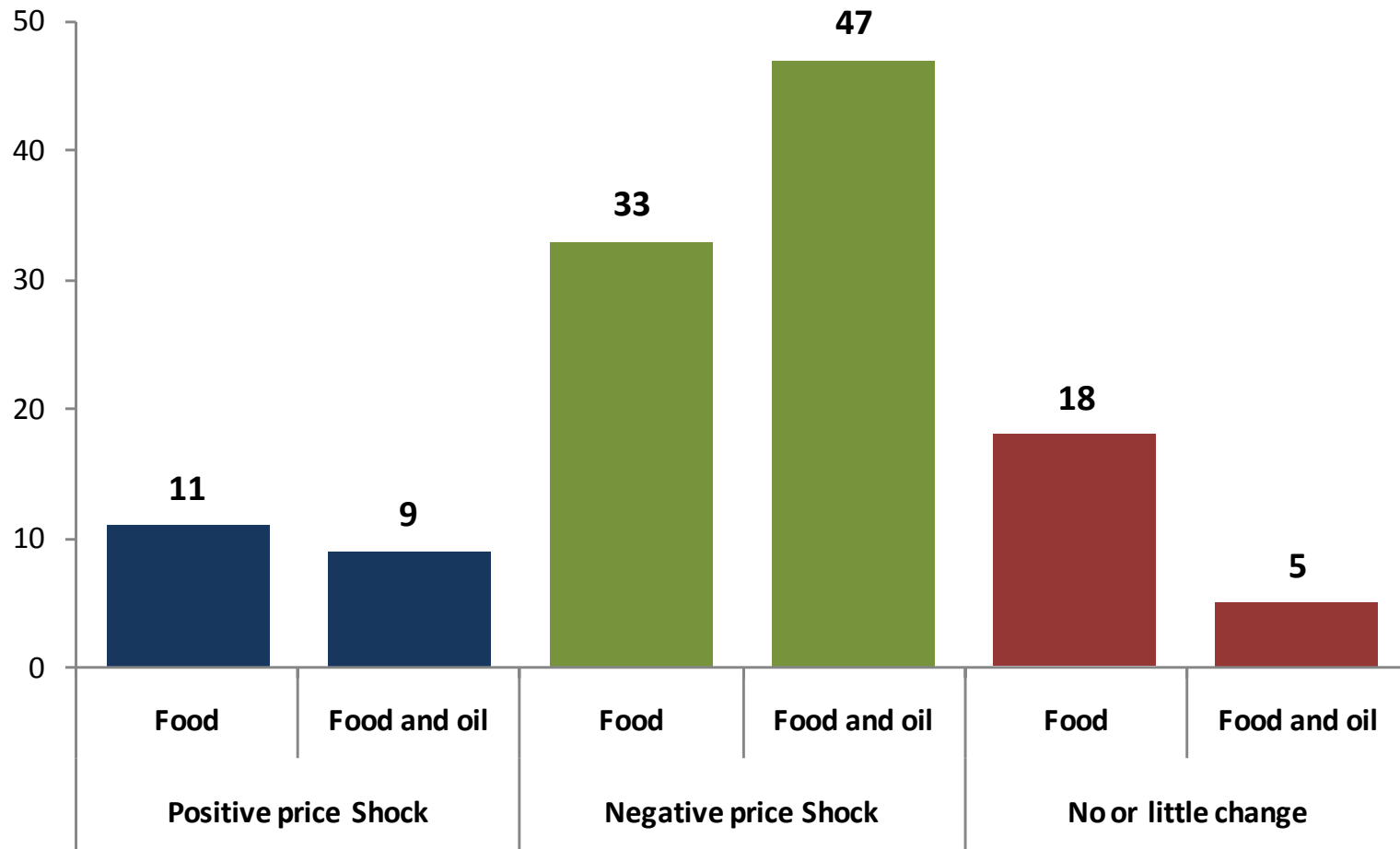
Food Protests, January 2007-May 2008



Source: From Von Braun (2008d). Notes: Von Braun (2008) considers as non-violent food protests the strikes, protests, riots on food or agriculture related issues (since Jan. 2007) and as violent food protest those involving the use of physical force and/or resulting in casualties.

Number of Countries with Positive and Negative Impact on Current Account from World Food and Oil Price Increases

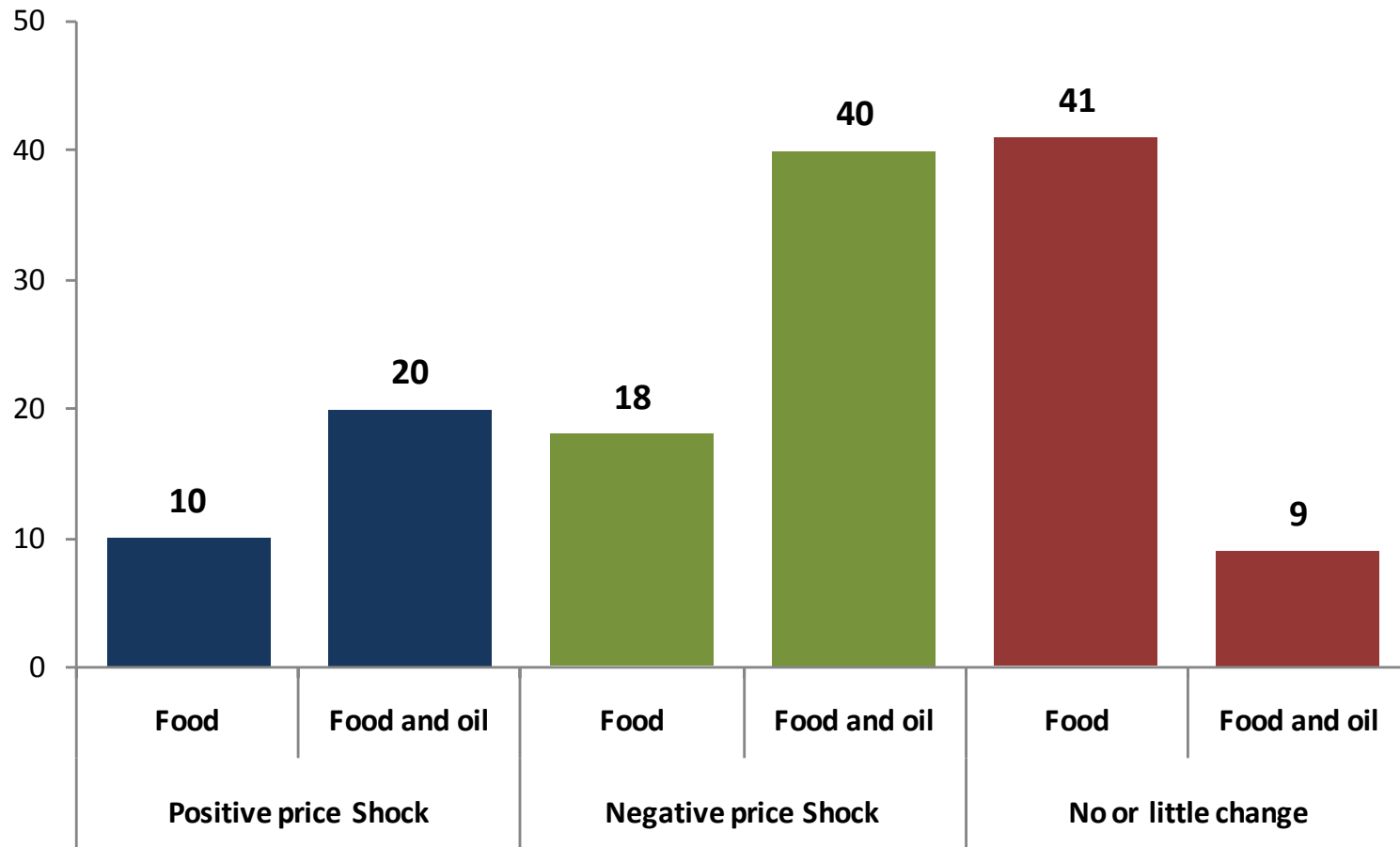
PRGF-Eligible Countries



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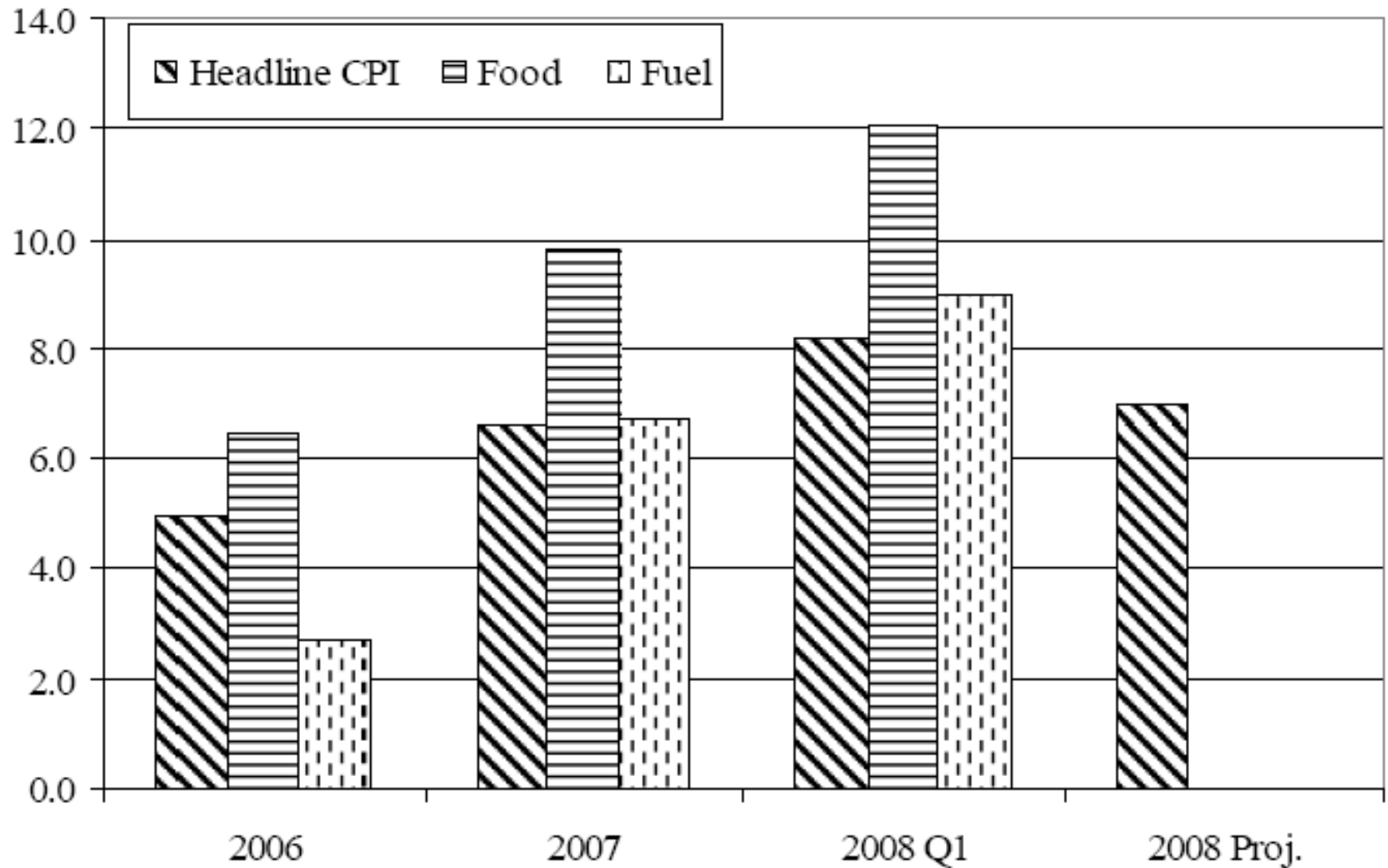
Number of Countries with Positive and Negative Impact on Current Account from World Food and Oil Price Increases (cont.)

Middle-Income Countries



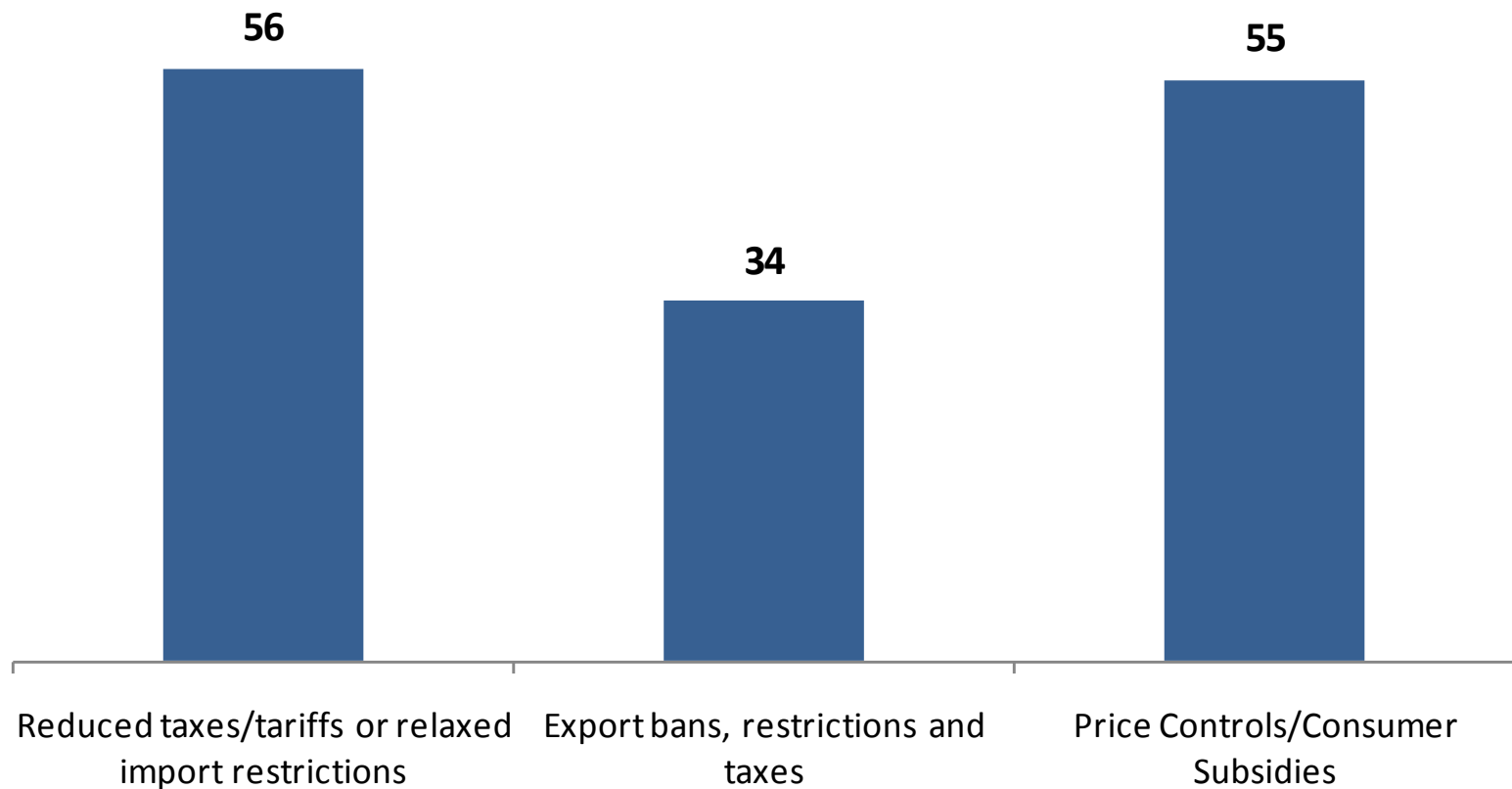
Source: Author's construction based on data from IMF (2008)- Tables 1a and 1b. Notes: Positive and negative price shock refers to changes in the current account (as % of GDP) equal to or larger than 0.5 in each direction. The total number of countries considered is 62 for food shocks and 61 for combined shocks for the IMF's Poverty Reduction and Growth Facility (PRGF) eligible countries and 69 middle-income countries. Countries with missing information are not included. PRGF-eligible countries are those eligible for the IMF's Poverty Reduction and Growth Facility (a low-interest lending facility for low-income countries).

Median Inflation in 120 non-OECD countries (y-o-y, in percent)



Source: From IMF (2008).

Targeted Measures to Contain Price Increases



Source: Author's construction with information from the World Bank (2008d) and expanded with Trostle (2008), ADB (2008) and World Bank (2008e).

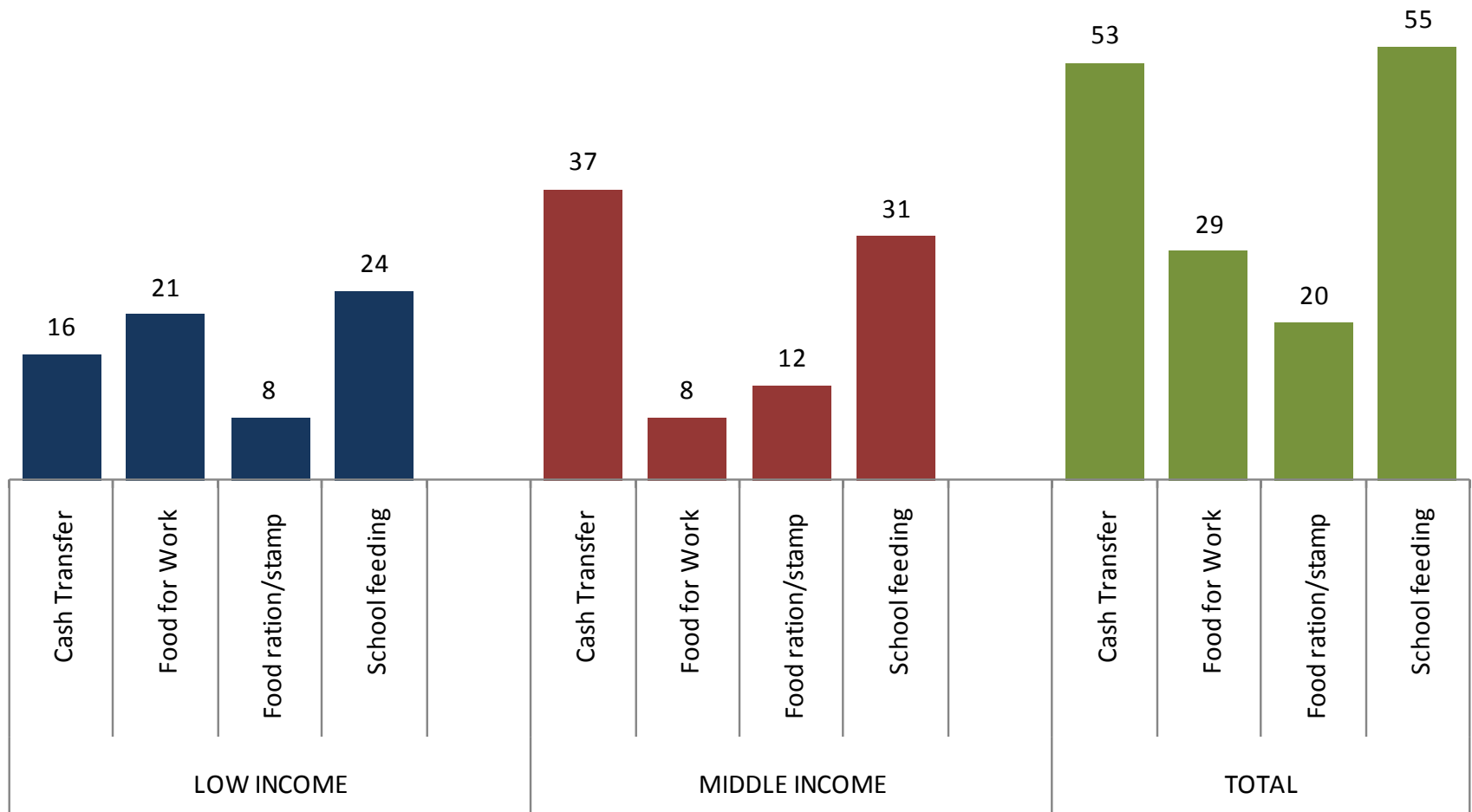
Poverty Impacts of Recent Increases in Food Prices: A Summary of Available Studies

	Ivanic and Martin (2008)	Wodon et al. (2008)	ADB (2008)	IADB (2008)	CEPAL (2008)
RESULTS	Poverty increases in all countries with the exception of Peru. The 2005-2008Q1 price increase scenario increases national poverty rates by 4.5 percentage points on average (calculating estimates for all low income countries: additional 105 million people in poverty).	Poverty increases. A 50% increase in prices leads to an average increase of the headcount poverty of 4.4 percentage points (or 2.5 with producer impacts). An average increase of 3.5 percentage points at the national level in SSA would lead to around 30 million people in poverty	Poverty and inequality increase in the short-term. In the medium-term it depends. A 20% food price increase in Philippines and Pakistan increases the number of poor by 5.65 and 14.67 million, respectively.	Poverty increases by 4.3 percentage points or 21 million additional poor individuals (net effect)*. For example, total income poverty increases by 8 percentage points in Guatemala (net effect of intl. price increase), 6.9 in Mexico and 6.5 in El Salvador	Indigence increases from 12.7 (68.5 million people) to 14.7 (79.1 million people) with income effects. Poverty increases from 35.1 (189.5 million people) to 37 (199.6 million) with income effects
COUNTRIES	Bolivia, Cambodia, Madagascar, Malawi, Nicaragua, Pakistan, Peru, Vietnam and Zambia	Burkina Faso, DRC, Ghana, Gabon, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo	Short-term Pakistan and Philippines; medium-term China and Indonesia	Nineteen countries in LAC	Estimates are for Latin America and the Caribbean as a whole
METHOD	Short-term impact; Deaton's framework and GTAP for wage effects	Short-term impact; Deaton's framework	Short-term/partial application of Deaton's framework with budget shares only and no income shares; medium term impacts with CGE model which incorporates supply response	Upper bound increase poverty line by 30% (multiplication of increase in world prices of commodities (.68) times average share of six food commodities (.435) while rest of prices are assumed unchanged). Lower bound assumes an increase in agricultural workers' income equal to world price increases	Not described in note (will be published shortly)

Poverty Impacts of Recent Increases in Food Prices: A Summary of Available Studies (cont.)

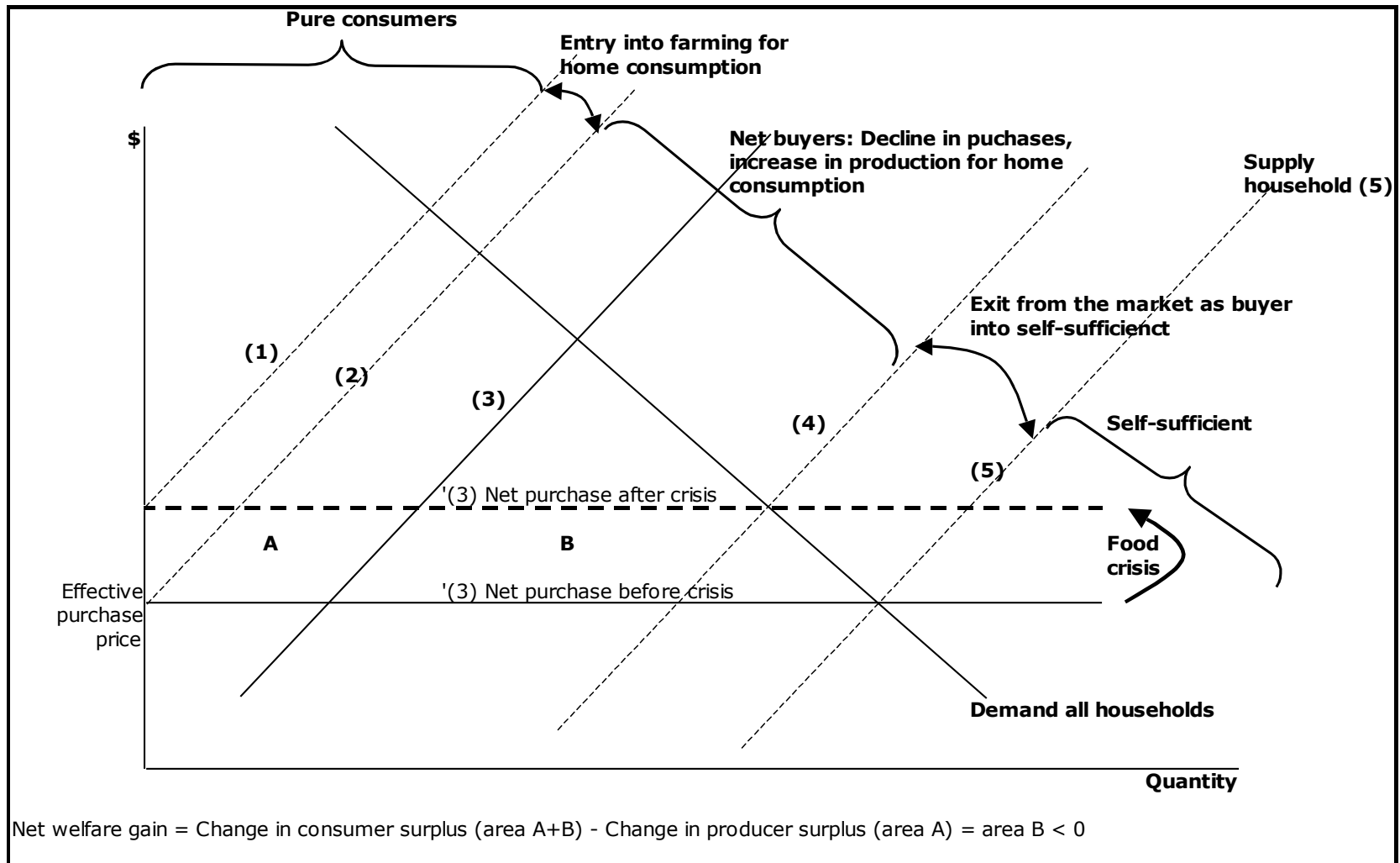
	Ivanic and Martin (2008)	Wodon et al. (2008)	ADB (2008)	IADB (2008)	CEPAL (2008)
INCLUDES NET SELLERS	Yes	Upper bound estimates include net-buyers only; lower bound estimates assume net-sellers receive price increase in full	Short-term estimates includes buyers only; medium-term CGE should include effects on net sellers	No	No
WAGE EFFECTS	Yes	No	Medium-term CGE yes	Assumes agricultural workers' incomes rise	Assumes everybody's income rose 5%
SUBSTITUTION EFFECT	No	No	Medium-term CGE yes	No	No
PRICE INCREASE	Three simulations: 1. 10% uniform increase/pass through equal to 1; 2. 2005-07 actual FAO/pass through .66; 3. 2005-2008Q1**	Simulate price increases of 25% and 50%; price increases are the same for all countries and all food items	Simulate food price increases of 10%, 20% and 30%	Simulates the impact of the IFS estimate of price increases for six commodities from Jan 06 to March 08 (68.1%); full pass through to domestic prices. Also, simulates price increases estimated by central banks	Assumes a 15% increase in food prices
POVERTY LINE	1 dollar a day in PPP	1 dollar a day	Country-specific poverty lines	Country-specific poverty lines	Country-specific poverty lines for moderate and extreme poverty
POVERTY MEASURE	Headcount ratio and poverty gap ratio	Headcount ratio	Change in absolute number of poor; Gini coefficient	Headcount ratio and poverty gap ratio	Headcount ratio and number of poor individuals
ROBUSTNESS CHECKS	Poverty line; price increases; labor market segmentation	Simulation of two levels of price increases and upper and lower bounds	Simulation of three levels of price increases	None that are mentioned	None that are mentioned

The Food Crisis: Social Protection Policies in Low and Middle-Income Countries



Source: Author's construction with information from the World Bank (2008d) and expanded with ADB (2008) and World Bank (2008e). Income classification data from the World Bank. The World Bank classifies 49 countries as low-income and 95 as middle-income; in the graph are those countries that implemented one or more programs (30 low income and 46 middle income countries).

Responses to the Food Crisis Among Landed Rural Households without a Marketed Surplus



Thank you.

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