



Policy responses to high food prices in Latin America and the Caribbean

Country case studies

Edited by:

Ekaterina Krivonos
and
David Dawe



CONTENTS

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

E-ISBN 978-92-5-108458-8 (PDF)

© FAO, 2014

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

	Page
Contributors	v
Foreword	vii
Acronyms	xi
INTRODUCTION	1
CHAPTER 1: THE EVOLUTION OF FOOD PRICES IN LATIN AMERICA: COUNTRY EXPERIENCES	5
CHAPTER 2: ARGENTINA	13
CHAPTER 3: BOLIVIA	35
CHAPTER 4: BRAZIL	55
CHAPTER 5: DOMINICAN REPUBLIC	75
CHAPTER 6: ECUADOR	87
CHAPTER 7: MEXICO	121
CHAPTER 8: NICARAGUA	141
CHAPTER 9: PERU	173
CHAPTER 10: CONCLUSIONS	189

Photo credits:

Front cover: © FAO/Joan Manuel Baliellas

Back cover: © FAO Saul Palma

CHAPTER 7

MEXICO

ISIDRO SOLOAGA *

Introduction

Mexico is considered an upper middle income country with a per capita GNI of USD 9 420 in 2011¹. However, poverty levels remain high, particularly in rural, with 61 percent of the headcount ratio in 2010 in rural areas versus 51 percent at the national level². Migration flows from rural to urban areas and from rural areas to the United States continue to be high.

Despite the substantial agricultural reforms undertaken in the 1980s and 1990s, the Mexican agricultural sector is largely unchanged. Production remains polarized with a large share of subsistence farmers (primarily in the production of beans and maize) and a smaller share of market-oriented producers. There is also a strong regional disparity, with the South characterized by subsistence agriculture and low levels of

technology adoption, and the North with a greater share of commercial agriculture and more technologically advanced producers.

Nevertheless, there have been some important changes, including marked growth in trade with the United States and an increase in maize productivity, despite concerns over rising imports from the United States under the North American Free Trade Agreement (NAFTA). An increase in the production of fruits and vegetables has also been noted.

Although agriculture receives substantial amounts of government support, which in turn has contributed to increases in productivity and growth in agricultural production, in general these programmes do not target poverty reduction among agricultural producers. There is a substantial body of evidence that indicates that support to agriculture in Mexico has been regressive (Scott, 2010). By 2008, 10 percent of the biggest agricultural producers in Mexico were receiving between 50 percent and 80 percent of the country's agricultural subsidies. Ingreso Objetivo, a programme run by the Agricultural Commerce Support and Services (Apoyo y Servicios a la Comercialización Agropecuaria – ASERCA) is even more regressive: 10 percent of the top producers received 80 percent of total subsidies (Scott, 2010).

* Professor, Department of Economics, Universidad Iberoamericana Ciudad de México isidro.soloaga@ibero.mx

The author thanks the participants at a FAO-Chile seminar in November 2011 and at the IAEA Meetings in Foz do Iguazu in August 2013. Joana Mayorga provided superb assistance in preparing information for charts and figures used in this paper.

¹ World Development Indicators, The World Bank: <http://databank.worldbank.org/ddp/home.do>

² World Development Indicators, The World Bank: <http://databank.worldbank.org/ddp/home.do>

Production, consumption and trade of basic food products

Figures 1a, 1b, 1c and 1d present consumption, production and trade figures for the four main crops produced and consumed in Mexico: maize, wheat, rice and beans. It is worth mentioning that despite

initial fears that NAFTA membership would result in the virtual disappearance of maize production in Mexico, maize production has actually increased.

The relative importance of imports in total grain consumption is shown in Figure 2. Of these four grains, rice, and to a lesser extent wheat, show a relatively high share of imports

FIGURE 1A: MAIZE: PRODUCTION, TRADE AND CONSUMPTION

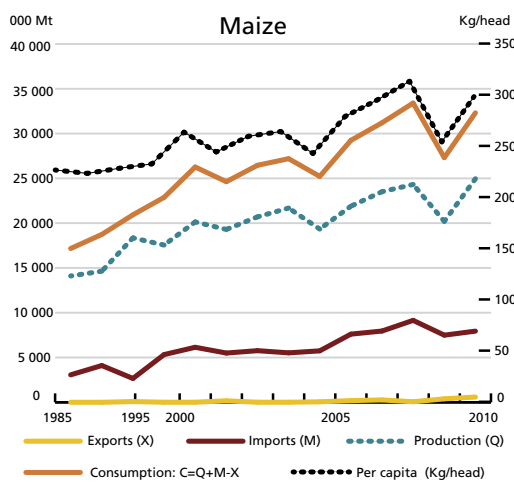


FIGURE 1B: WHEAT: PRODUCTION, TRADE AND CONSUMPTION

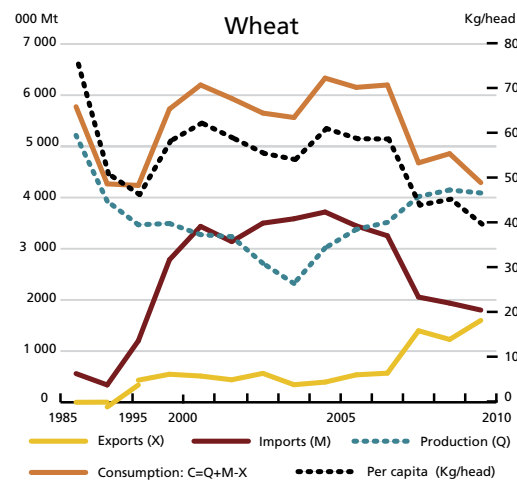


FIGURE 1C: RICE: PRODUCTION, TRADE AND CONSUMPTION

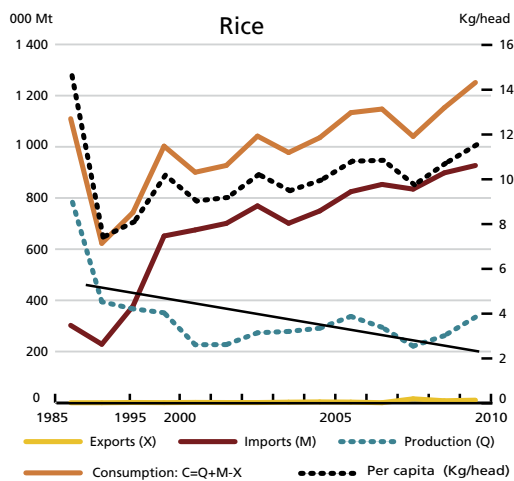
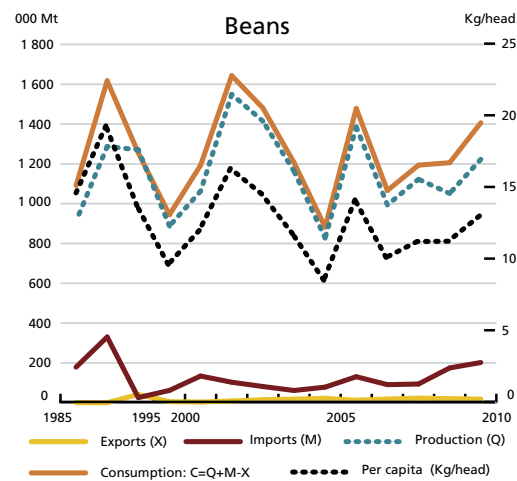
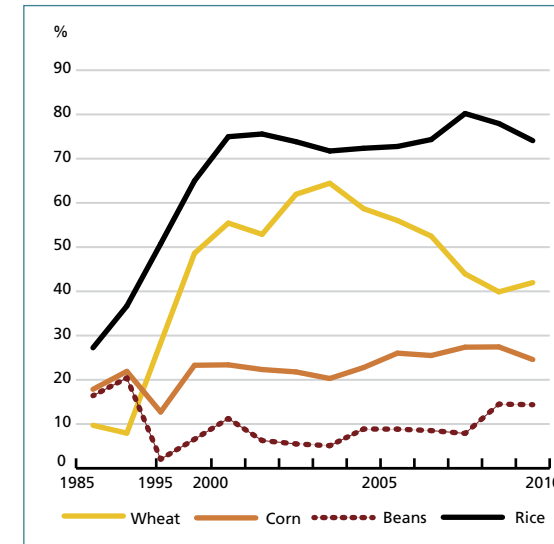


FIGURE 1D: BEANS: PRODUCTION, TRADE AND CONSUMPTION



Source: Own, based on Informe Presidencial, 2010.

FIGURE 2: IMPORTANCE OF IMPORTS IN GRAIN CONSUMPTION (IMPORTS/TOTAL CONSUMPTION)



Source: Own, based on Informe Presidencial, 2010.

in total consumption. The share of imported maize in domestic consumption fluctuated between 22 and 27 percent in the period from 2005 until 2010. In the case of wheat, the share of imports in total consumption decreased from 59 percent in 2005 to 42 percent in 2010. For rice, the percentage increased initially from 72 percent in 2005 to 80 percent in 2008, but then reverted to 74 percent in 2010. Finally, in the case of beans the share increased from 8-9 percent during 2005-2008 to 14 percent in 2009 and 2010.

Poverty and food security in Mexico

Recent developments in poverty levels

Poverty remains high in Mexico. Although poverty rates showed marked improvement from the peak recorded in 1996 (after Mexico's 1995 financial crisis) until 2006, poor economic developments from 2007 onwards

have had negative effects on the various poverty rates. In 2008 about 18.4 percent of the population was below the so-called food poverty line³ (Table 1), rising to 18.8 percent in 2010. Other national poverty indicators show a similar pattern.

Since 1992, rural poverty has been considerably higher than urban poverty (on average, about three times higher). Since the 1995 macroeconomic crisis, urban and rural poverty rates have followed similar trends, decreasing until 2006 and then increasing from 2008. The first spike in food poverty occurred in 1996 when it jumped to 37.4 percent from 21.2 percent in 1994. After decreasing from 1996 until 2006, the overall food poverty rate increased again, from 13.8 percent in 2006 to 18.8 percent in 2010.

Poverty levels are not evenly distributed and vary across the different regions of Mexico. Poverty levels are relatively low in the North and Pacific regions and in Mexico City, but are much higher in the South, particularly in the States of Chiapas, Guerrero, Oaxaca, Puebla and Veracruz.

Two main events have driven the recent rise in poverty levels in Mexico. The 2008-2009 economic downturn—that resulted in a GDP decrease of about 7 percent—negatively impacted wages and the ongoing global food crisis that began in 2006 (with a pause in 2010) has increased the cost of the basic food basket. While nominal incomes have been relatively steady since 2008, in real terms incomes have dropped considerably, especially when nominal incomes are deflated by the cost of the basic consumption basket that determines the poverty line.

Food security

A recent study by the National Council to Evaluate Social Development Policies (Consejo Nacional de Evaluación de la Política de

³ See Annex I for the definition of the different poverty measurements in Mexico.

TABLE 1: RICE, 2003-2009

Year	Food poverty Total	Food poverty Urban	Food poverty Rural	Capabilities poverty Total	Capacity poverty Urban	Capacity poverty Rural	Patrimonial poverty Total	Patrimonial poverty Total	Patrimonial poverty Total
1992	21.4	13.0	34.0	29.7	20.1	44.1	53.1	44.3	66.5
1994	21.2	10.7	37.0	30.0	18.3	47.5	52.4	41.2	69.3
1996	37.4	27.0	53.5	46.9	36.8	62.6	69.0	61.5	80.7
1998	33.3	21.4	51.7	41.7	30.6	59.0	63.7	55.9	75.9
2000	24.1	12.5	42.4	31.8	20.2	49.9	53.6	43.7	69.2
2002	20.0	11.3	34.0	26.9	17.2	42.6	50.0	41.1	64.3
2004	17.4	11.0	28.0	24.7	17.8	36.2	47.2	41.1	57.4
2005	18.2	9.9	32.3	24.7	15.8	39.8	47.0	38.3	61.8
2006	13.8	7.5	24.1	20.7	13.6	32.2	42.7	35.6	54.1
2008	18.4	10.8	31.3	25.3	17.4	38.5	47.7	40.1	60.3
2010	18.8	12.6	29.3	26.7	20.0	37.8	51.3	45.5	60.8

Notes: Food poverty is defined as the inability to acquire a basic food basket. Capabilities poverty: Insufficiency of the disposable income to acquire the basic food basket and make the necessary expenses for health and education. Patrimony poverty: Insufficiency of the disposable income to acquire the food basket, as well as to make the necessary expenses in health, education, clothing, housing and transportation. See Annex I for more details on these poverty definitions. Source: CONEVAL (2009).

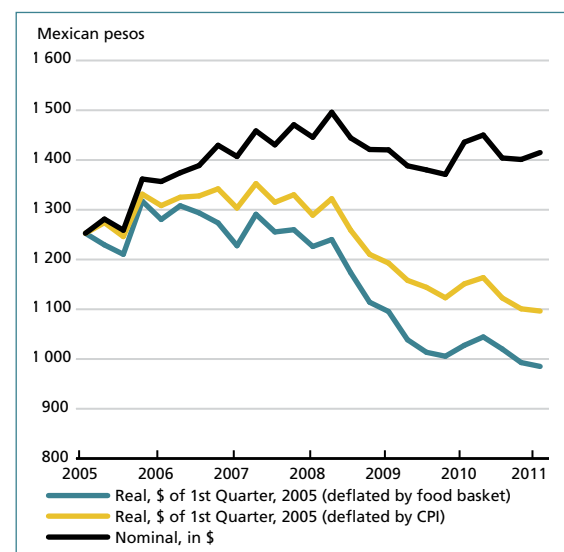
Desarrollo Social – CONEVAL, 2010) measures the number of people with insufficient access to food in Mexico. The concept of deprivation in access to food used by CONEVAL is based on what is set forth in FAO (2006) and considers access by individuals to adequate resources for acquiring appropriate foods for a nutritious diet.

The study shows that in 2008, 23.1 million people (21.6 percent of the total population), had insufficient access to food. Tabasco (34.5 percent), Guerrero (33.8 percent) and Michoacán (31.3 percent) registered the highest percentages.

Economic reforms and social protection programmes preceding the 2006-2008 food crisis

Since the mid 1980s, the Mexican economy in general and the agricultural sector in particular, has experienced important market-oriented reforms. A summary is provided in Table 2.

FIGURE 3: PER CAPITA LABOUR INCOME (NOMINAL AND REAL TERMS)



Source: CONEVAL, 2011.

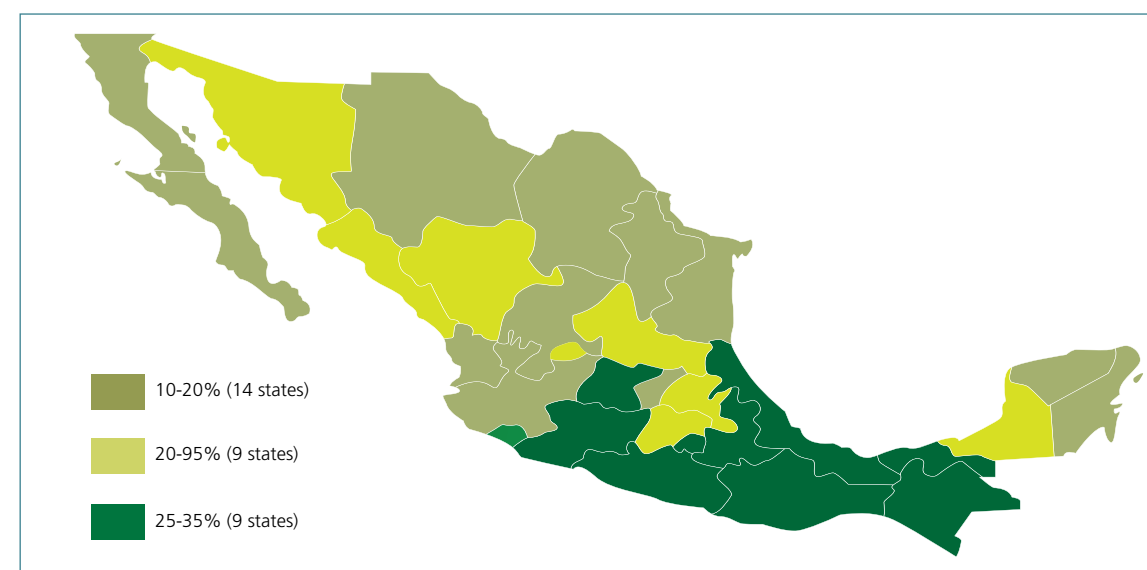
The market reforms were accompanied by an increase in social expenditures to combat poverty. However, as a share in the total budget, the expenditures for anti-

TABLE 2: MARKET-ORIENTED REFORMS IN MEXICO'S AGRICULTURAL SECTOR

Policy	Main policy changes	Year(s)
Mexico joins GATT and food import restrictions began to be reduced	• Substitution of import licensing by tariffs on agricultural goods (tariffs ranging from 0% to 20%)	1986-1994
Sale of State Food Enterprises	• Privatization of State Food Storage Facilities and State enterprises selling seeds and fertilizers at subsidized prices • Abolition of State enterprises selling coffee, sugar and tobacco	1988-1989
"Ejidal" Reform (property rights reform)	• End of agricultural land distribution to peasants • Liberalization of agricultural property rights	1992
Elimination of price supports to farmers producing food staples (in 1990 the State Trading Enterprise providing this subsidy was abolished)	• Domestic prices of staples determined taking into account international prices • Creation of ASERCA in 1991, a marketing support agency granting subsidies to commercial staple crop producers and buyers • Creation of PROCAMPO in 1994, a direct income transfer programme to all food staple producers	1989 to date
North American Free Trade Agreement (NAFTA)	• Prohibits the use of import licenses and applies tariff principles • "Free" trade in 15 years. Sensitive agricultural products were subject to Tariff Rate Quotas for a transitional period of up to 15 years • Interventions are allowed in the three countries for Ag. Subsidies, import restrictions on phyto-sanitary grounds and rules of origin and for packing	Jan 1994- Jan 2008

Source: Yunez-Naude, 2010.

FIGURE 4: FOOD INSECURITY IN MEXICO, % OF POPULATION



Source: CONEVAL 2010b.

TABLE 3A: ACCESS TO OPORTUNIDADES BY THE BOTTOM 1ST AND 2ND INCOME QUINTILES

	1st income quintile	2nd income quintile
	%	
Share of population with access to Oportunidades	63	80
Share of population without access to Oportunidades	37	20

Source: Yunez-Naude, 2010.

poverty programmes are still rather low at 12.5 percent of GDP in 2008-2009, compared to the average of 18.4 percent in Latin America and the Caribbean in 2008-09⁴.

Mexico has only recently applied targeted anti-poverty programmes with broad coverage and documented positive impact (Skoufias, 2005). The main programme, *Oportunidades* (previously known as Progresas), was developed in 1997 and is a conditional cash transfer (CCT) programme. It reaches about 5.8 million households (plus an additional 0.7 million from the Food Support Programme, Programa de Apoyo Alimentario – PAL) and has a presence in all Mexican municipalities. In 2011, its budget was about Mex\$7 billion,, some 0.5 percent of GDP.

A study by Scott (2008) analyses public spending on education, health and social security, energy and agricultural subsidies⁵. According to this study, of the nine programmes analysed, only four effectively target the poor, and only two (*Oportunidades* and the Temporary Work Programme – Programa de Empleo Temporal) allocate more than 50 percent of their transfers to the lowest income quintile. The rest are either neutral (Microregiones), or regressive, favouring middle-income groups over the poor (Liconsa, Vivienda, Crédito a la Palabra and Habitat, Scott, 2009). Targeted programmes account for less than 20 percent of what the government spends on all subsidies. Table 3a shows the

coverage of the *Oportunidades* programme within the two lowest income quintiles.

As shown, the government has the capacity to reach 63 percent of the population in the first income quintile and 80 percent of the population in the second income quintile. This has been critical to the government's response to the food crisis, as it enabled a monthly transfer of an additional Mex\$120 to each household in the *Oportunidades* and PAL programmes when food prices increased (see next section).

Unlike *Oportunidades* and PAL, agricultural sector programmes are not specifically designed to reach the poor. In fact, several studies have argued that Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación – SAGARPA)⁶ programmes are characterized by their regressive nature. For example, according to Scott (2008), the richest 10 percent of producers (in terms of land endowment) receive 45 percent of all the transfers in the Procampo programme, 55 percent of the Rural Development Programme (Programa de Desarrollo Rural–Alianza para el Campo), 60 percent of energy and hydrological subsidies (proxy through the distribution of irrigated land), and 80 percent of Ingreso Objetivo⁷.

⁶ SAGARPA stands for Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación, which is the Ministry for Agriculture, Livestock, Rural Development, Fisheries and Food <http://www.sagarpa.gob.mx/English/Pages/Introduction.aspx>

⁷ See also Fox and Haight (2010) and Yunez-Naude (2010).

⁴ Source: "Panorama social de America Latina" (ECLAC, 2010).

⁵ The total of these expenditures represented 60 percent of public spending, 10 percent of GDP and 15 percent of disposable household income in 2006.

The study also shows that the poorest 50 percent of the rural population are excluded from non-targeted, input- or output-linked support programmes, because they are landless or have plots which are too small to be eligible for such programmes (except for a decoupled programme like Procampo).

maize sector^{8,9}. The main instruments utilized were cash transfers to poor households and state support for agriculture, agreements with producers and food industry on prices to consumers and the elimination of tariffs on a number of basic food products.

Expansion in cash transfers to compensate the vulnerable population

To enhance the incomes of poor consumers, *Oportunidades* was expanded to include

Policy reactions to the 2006–2008 food price crisis

In 2008, the government of Mexico announced a series of measures in response to rising food prices. Three main goals were set: to facilitate supply and access to food at international prices; to encourage domestic food production and increase farm productivity; and to provide support to poor households' incomes. To achieve these goals, Mexico relied on both existing policies and programmes and new measures designed specifically to influence price formation in domestic value chains, in particular in the

⁸ http://www.opportunidades.gob.mx/Portal/wb/Web/did162008_26052008

⁹ On 7 January 2009 the government launched a framework to deal with the impact of the international economic crisis. This new set of policies known as the National Agreement in Favour of Household Economies and Employment for Better Living (Acuerdo Nacional en Favor de la Economía Familiar y el Empleo para Vivir Mejor – ANFEFE) had five pillars (employment, household economics, competition in SME, infrastructure and transparency). Despite an announced 10 percent increment in supply credits for the rural sector, the plan did not contain any other measures for the agricultural sector (Presidencia de la República, 2009).

TABLE 3B: CASH TRANSFERS FROM OPORTUNIDADES (NON-RELATED TO SCHOOLING) IN MEXICAN PESOS PER MONTH

Period	Component of the Oportunidades programme				
	Food support (Apoyo Alimentario)	Support to the elderly (Adultos Mayores)	Support for energy expenses (Componente Energético)	Support "Vivir Mejor" (by household)	Support "Vivir Mejor" (by child)
Jan - Jun 2011	225	315	60	120	105
Jul - Dec 2010	220	305	60	120	100
Jan - Jun 2010	215	305	60	120	100
Jul - Dec 2009	210	295	55	120	0
Jan - Jun 2009	210	295	55	120	0
Jul - Dec 2008	195	275	55	120	0
Jan - Jun 2008	195	270	50	120	0
Jul - Dec 2007	185	260	50	0	0
Jan - Jun 2007	185	260	50	0	0
Jul - Dec 2006	180	250	0	0	0
Jan - Jun 2006	180	250	0	0	0
Figures for Jan-Jun 2011 as % of the monthly minimum wage	12.5	17.6	3.3	6.7	5.9

Source: SEDESOL, 2011.

an additional subsidy to compensate for rising prices. Those households already enrolled in the programme were given an extra Mex\$120 per month through a new programme known as Live Better (Vivir Mejor), bringing the average transfer up to Mex\$655 from Mex\$535 per month for a family of five (SEDESOL, 2008). The Live Better programme was expected to reach about 5.3 million households, equivalent to almost 26 million individuals. Beneficiaries of two food assistance programmes, Nutrition Programme for Marginalized Zones (Programa Alimentario para Zonas Marginadas – PAZM) and Nutrition Programme (Programa Alimentario – PAL) also distributed an additional Mex\$120 per household to compensate for rising prices, bringing the PAZM average to Mex\$365 per month from Mex\$245 and the PAL average to Mex\$302 per month from Mex\$182.

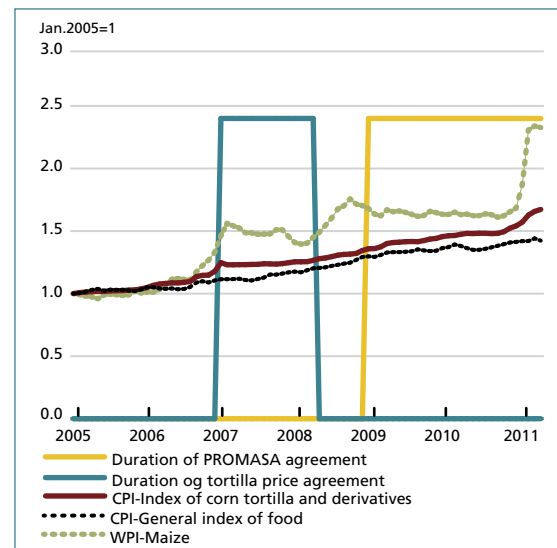
Price agreements and state retail

Following the trend in international markets, domestic maize prices began rising quickly in mid-2006, this in turn impacted tortilla prices. In January 2007, the government established an agreement with the main flour producers and about 5 000 tortilla producers (which is a relatively small number given that there are more than 100 000 small-scale tortilla producers in the country). The agreement set a maximum retail price of Mex\$8.5 per kg of tortilla. The agreement was renewed twice (in April and August 2007), although in August consumer prices in the agreement were increased to Mex\$9.5 per kg. The agreement also established a maximum wholesale price for maize flour at Mex\$5 per kg. The price paid for maize by the maize mills was set at Mex\$3.5 per kg. Thus, all prices along the value chain were controlled by the agreement. The last agreement ended in April 2008.

Figure 5a shows maize and tortilla price index levels for the Consumer Price Index (CPI) and the Wholesale Price Index (WPI) (base January 2005=1). The graph also shows

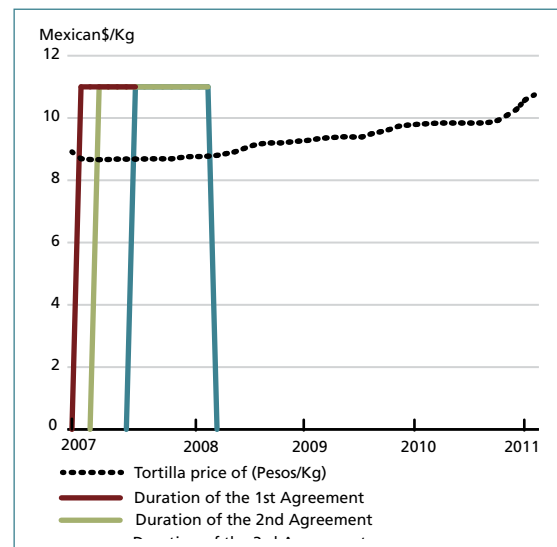
the duration of the two main government interventions in these markets: the tortilla price agreement lasted from January 2007 to April 2008, and the support program to

FIGURE 5A: CPI AND WPI INDEXES FOR TORTILLA AND MAIZE



Source: Own, based on Banco de Mexico.

FIGURE 5B: TORTILLA PRICES (IN TORTILLERIAS)



Note: Tortillería is a store (or a station within another store or supermarket) that sells freshly made tortillas and corn-dough to make tortillas.

Source: Own, based on Informe Presidencial, 2010.

the maize-tortilla value chain (El Programa de Apoyo a la Industria Molinera y del Nixtamal – Promasa), in effect from January 2009 onwards.

From January 2007 until September 2011 the prices to consumers in Diconsa, the state-run network of retail shops in rural areas, were fixed at Mex\$3.5 per kg of maize and Mex\$5 per kg of maize flour. Diconsa is an important instrument that helps to even out basic food prices for the rural poor. Although market prices increased, Diconsa maintained the prices of corn flour and milk, for example, at the same level as in 2006. Diconsa also increased its strategic reserves of white maize produced domestically from 100 000 tonnes on average prior to 2007 to over 350 000 tonnes in 2008, maintaining the same level in 2009, in order to guarantee sufficient supply to marginalized areas.

Furthermore, in 2008 the government signed an agreement with food producers to freeze the retail price of 150 processed foods. The list includes beans, canned chilies, cooking oil, flour, preserves, sauces and some beverages. The agreement was implemented in June 2008 and kept until the end that year.

Government support to the agricultural sector

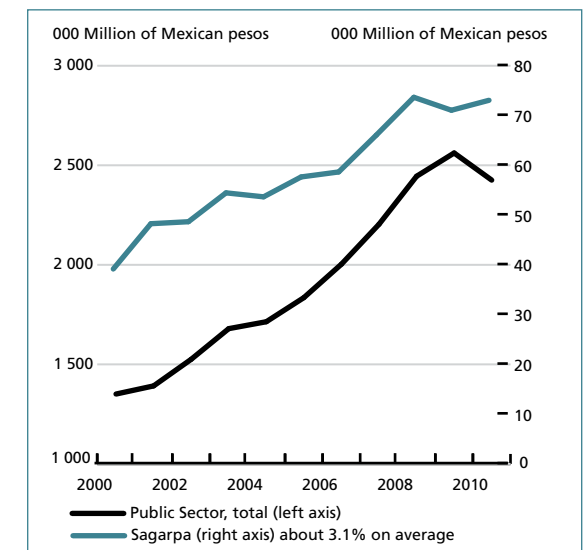
The tortilla and maize flour price agreements were complemented by a new government programme called Mi Tortilla¹⁰ established in August 2007. By the end of 2008 the programme reached about 4 000 tortilla producers, providing funds for the acquisition of new machinery as well as technical assistance and training to introduce cost-saving practices. The total programme budget was Mex\$350 million in 2007. By 2011 its annual budget had increased to Mex\$500 million. In addition, a new programme

(PROMASA) was established in 2009 to provide direct subsidies to corn dough producers: Mex\$500 per tonne of dough for small firms and Mex\$600 per tonne of dough for bigger producers, equivalent to approximately 10 percent of the sale price. The programme budget amounted to Mex\$65 million between January and August 2009 and Mex\$135 million September 2009 and June 2010). In the first half of 2011 the programme disbursed approximately Mex\$227 million in subsidies.

The dual challenges of rising food prices and the global financial and economic crisis that started in the second half of 2008 had profound effects on the Mexican economy, causing the government to expand public expenditures, including subsidies to the agricultural sector managed by SAGARPA (Figure 6).

Table 4 analyses public expenditures in the agricultural sector by programme. It shows that the budget managed by the Ministry of Agriculture (SAGARPA) expanded from Mex\$48.8 billion in 2006 to Mex\$57.1 billion in 2007 and Mex\$67.1 billion in

FIGURE 6: ANNUAL EXPENDITURES: PUBLIC SECTOR TOTAL AND SAGARPA, 2000-2010



Source: Own, based on Presidential Report, 2010 and Banco de México, 2010.

¹⁰ The programme was named the National Programme to Modernize the Corn-Dough and Tortilla Industry (Programa Nacional de Modernización de la Industria de la Masa y la Tortilla).

TABLE 4: ANNUAL BUDGET IN MILLIONS OF MEXICAN PESOS. PUBLIC SECTOR (TOTAL) AND SAGARPA FROM 1995 TO 2010

Year	Annual budget in millions of Mexican pesos									
	Public Sector total	Agric. Sector total (SAGARPA)	Pro-campo	Alianza Contigo	Support to marketing (ASERCA)	Fishing sector	Incentive to rural finance (INFIDER)	Strategic Program for Food Security (PESA)	Credi-Fertiliz	Other
1995	290 424	15 128	5 864		807					
1996	403 450	19 653	6 800	1 203	642					
1997	528 124	21 262	7 533	1 575	2 163					
1998	600 583	22 286	8 492	1 914	1 991					
1999	711 228	21 062	9 372	2 497	1 699					
2000	855 286	24 714	10 379	2 656	3 050					8 629
2001	937 214	32 405	11 005	4 046	5 235	199				11 920
2002	1 078 861	34 299	11 851	6 438	4 440	411				11 159
2003	1 241 853	40 170	13 111	6 555	5 699	784				14 020
2004	1 326 952	41 456	13 812	7 059	5 549	313				14 722
2005	1 477 368	46 279	14 168	7 234	6 331	233				18 314
2006	1 671 175	48 779	15 025	6 270	7 119	235				20 130
2007	1 911 321	57 118	15 520	8 729	7 446	229		561		24 634
2008	2 229 155	67 061	14 198	14 405	9 143	573	2 571	1 100	82	24 988
2009	2 459 610	68 053	16 643	15 775	9 350	226	2 946	1 560	125	21 429
2010 *	2 425 553	72 924	14 929	12 416	10 499	191	4 858	1 750	N/A	28 281

Source: Author's calculations based on Presidential Report 2010 and Banco de México 2010.

2008, corresponding to an annual increase of 17 percent in both 2007 and 2008. Public expenditure for agriculture included support for irrigation expansion and improvement.

ASERCA¹¹ is the government agency responsible for supporting farmers' marketing activities. It is one of SAGARPA's main programmes and its budget has been increasing steadily since 2000. In 2008, the ASERCA budget rose by 22 percent relative to 2007. Recent changes to the programme include the switch from income support to subsidies to farmers to help them participate in the options market, reducing their exposure to price risks. Table 5 analyses the change in the composition

of ASERCA's expenditures. It shows that the share allocated to providing incentives for participation in the options market doubled between 2007 and 2008.

As the table shows, there are different lines of support provided by ASERCA. The first one targets income (*Ingreso Objetivo*), which functions as a price support with an administered price that takes into account production and transportation costs as well as the international reference price. As international prices increased, this subsidy effectively disappeared.

Currently, the main share of ASERCA subsidies are incentives to farmers to participate in options markets. ASERCA underwrites the entire cost of the derivatives position seeking to protect sellers and buyers of agricultural goods at the moment that

¹¹ ASERCA stands for Apoyo y Servicios a la Comercialización Agropecuaria (Support and Services for Agricultural Trading) <http://www.aserca.gob.mx>

TABLE 5: ASERCA'S BUDGET FOR STRUCTURAL PROBLEMS AND SUPPORT TO TARGETED INCOME AND TRADING, IN MILLIONS OF MEXICAN PESOS IN JANUARY 2007

Item/year	2006	2007	2008	2009	2010
Targeted income (Ingreso Objetivo)	4 620.8	961.7	258.0	610.9	0.9
Market functioning (Ordenamiento de mercados)	1 606.5	3 857.7	2 794.0	2 031.7	3 249.9
Contract agriculture (Agricultura por contrato)	88.7	878.1	724.7	527.8	1 166.3
Subsidies for access to options markets (Cobertura)	936.0	2 253.5	5 536.0	5 712.4	6 576.0
TOTAL	7 163.3	7 073.0	8 587.9	8 355.0	9 826.8
Item, as % of total budget					
Targeted income (Ingreso Objetivo)	65	14	3	%	0
Market functioning (Ordenamiento de mercados)	22	55	33	24	33
Contract agriculture (Agricultura por contrato)	1	12	8	6	12
Subsidies for access to options markets (Cobertura)	13	32	64	68	67
TOTAL	100	100	100	100	100

Source: Author's calculations based on Presidential Report 2010 and Banco de México 2010.

a transaction is made from future changes in prices. The programme also aims to counteract the short-term market power of buyers as opposed to farmers. The main products supported through this mechanism are maize, sorghum and wheat.

There has also been an expansion in lending to agriculture through the development banking entity Banca de Desarrollo: Credit to the rural sector increased by 4 percent in 2007 and by 21 percent in 2008, decreasing markedly thereafter. On the other hand, the share of lending to the rural sector in total decreased from 18 percent in 2006 to 12 percent in 2009 (see Table 6).

A special credit programme (*Credi-Fertiliza*) for smallholder farmers to purchase fertilizers was also created. The programme provides a loan of up to Mex\$500 per hectare to finance the acquisition of fertilizers at discount prices. The budget was Mex\$82 million in 2008 and Mex\$125 million in 2009, reaching 63,000 smallholder producers. The programme was administered by FIRCO¹², which in addition to *Credi-Fertiliza* operates a large fertilizer

¹² A parastatal enterprise that operates within SAGARPA to support agribusiness projects and provide technical assistance to farmers <http://www.firco.gob.mx/firco/Paginas/Quienes-Somos.aspx>

programme with an annual budget of about Mex\$1 billion. Moreover, a special credit line to purchase tractors and other machinery was expanded in May 2008.

Trade measures

On the trade policy side, the government sought to lower domestic prices and increase supplies by relaxing import restrictions. A set of provisions reducing or eliminating tariffs was introduced in May 2008. The provision eliminated import tariffs on basic food products such as white and yellow maize rice, sorghum, soy paste and wheat. A tariff-free quota of 100 000 tonnes was introduced for beans for imports from 1 July until 31 October of each year. The out-of-quota tariff for imports from outside NAFTA was 125 percent. At the same time the tariff for powdered milk was reduced from 125.1 percent to 63 percent and tariffs on some chemical inputs and fertilizers were eliminated.

In summary, starting in early 2007 the government implemented a number of measures to counteract the impact of rising food prices on the poor—at a time when the government was already heavily involved in the agricultural sector. The prices

TABLE 6: DIRECT CREDIT OF BANCA DE DESARROLLO (MILLIONS OF MEXICAN PESOS AT MARCH 2011 (BY SECTOR 2006–2011))

Sector	2006	2007	2008	2009	March-2010	March-2011
Firms	98 220	115 401	163 175	200 064	184 894	213 835
**Nafin	63 447	84 317	112 902	152 630	141 649	166 393
**Bancomext	34 773	31 084	50 274	47 434	43 245	47 441
Infrastructure 1/	73 651	79 207	108 809	130 676	127 221	135 725
Housing 2/	156 611	150 507	174 031	263 919	259 313	230 681
Rural	71 733	74 304	89 916	84 282	79 691	78 853
**FIRA	56 636	56 480	70 201	65 918	62 034	62 545
**Financiera Rural	15 097	17 824	19 715	18 364	17 657	16 308
Other 3/	4 536	6 701	8 568	11 481	11 831	13 305
Total	404 750	426 119	544 500	690 423	662 950	672 397
Total w/out housing	248 140	275 612	370 469	426 504	403 637	441 716
**Memo items:						
Rural/total, in %	18	17	17	12	12	12
Rural/Total w/out housing, in %	29	27	24	20	20	18
Rural, 2006 =100	100	104	125	117	111	110

Source: Author's calculations based on Presidential Report 2010 and Banco de México 2010.

of tortillas and maize flour, very important for food security in Mexico and at the same time most affected by rising international prices, received the most attention with the government signing price agreements with tortilla producers and marketers. The price agreements with producers and agro-industry and the outreach of the Diconsa network among poor consumers in rural areas also helped to soften the effects of the rising international prices of basic commodities on domestic markets.

Policy outcomes

Possible poverty effects

As indicated above, through the *Oportunidades* programme the government was able to reach at least 63 percent of the population in the bottom income quintile and 80 percent of the second to last income

quintile. The additional Mex\$120 per month allocated to these families was equivalent to 32.1 percent of the increment in the cost of the basic basket for a family of five between 2007 and 2006 in rural areas and to 23.1 percent of the increment that occurred in urban areas (see Table 7). This implies that at least for 2007, the transfer offset between a quarter and one third of the increase in the cost of the basic consumption basket for about 31.7 million people in poverty¹³.

Although the importance of these measures for overall poverty reduction has probably been low¹⁴, they almost certainly

¹³ Considering that there are about 21.2 million in each population quintile, and that *Oportunidades* covers about 63 percent and 80 percent of the first two quintiles respectively, in addition to about 1.5 million people covered by PAL.

¹⁴ A study by Valero-Gil and Valero (2008) finds that the increase in cash transfers to the extremely poor combined with the reduction of tariffs on milk and maize produced less than a two percentage point reduction in poverty rates.

TABLE 7: SHARE OF THE ADDITIONAL CASH TRANSFER OF MEX\$120 AS % OF THE MINIMUM WELL-BEING LINE FOR A FAMILY OF FIVE

Year	Rural			Urban		
	The cost of minimum consumption basket, in \$ per month (*)	Increase in the total cost relative to 2006	Share of the additional cash transfer in the total increase, %	The cost of minimum consumption basket, in \$ per month (*)	Increase in the total cost relative to 2006	Share of the additional cash transfer in the total increase, %
2006	2 679			3 831		
2007	2 863	184		4 075	244	
2008	3 053	373	32.1	4 349	519	23.1
2009	3 368	689	17.4	4 761	930	12.9
2010	3 490	810	14.8	4 954	1 123	10.7

Source: Own, based on CONEVAL, 2011.

helped to contain the effect of high food prices on the budgets of the poor, especially when taking into account lower prices for basic food products (beans, maize flour and oil, among others) in the Diconsa retail chain. The Diconsa distribution network is important to maintaining food security because some poor households that do not receive cash transfers are still able to obtain food products at lower prices. The tortilla price agreement and the agreement on retail prices for processed food products have also benefited poor consumers independent of whether or not they received income support. The agreement with retail chains probably had a limited impact on food security, however, because the prices were fixed at June 2008 levels, when international prices were peaking, and also because the products covered by this agreement accounted for only 2 percent of the total food consumption basket.

Although the budget allocated to agricultural programmes has increased, not all of them have benefitted poor producers. A study by the Wilson Center (Fox and Haight, 2010) reports that many programmes have benefitted relatively well-off producers. Since the subsidies are tied to either area or level of production, large farms received a greater share of the funds. Thus, these programmes

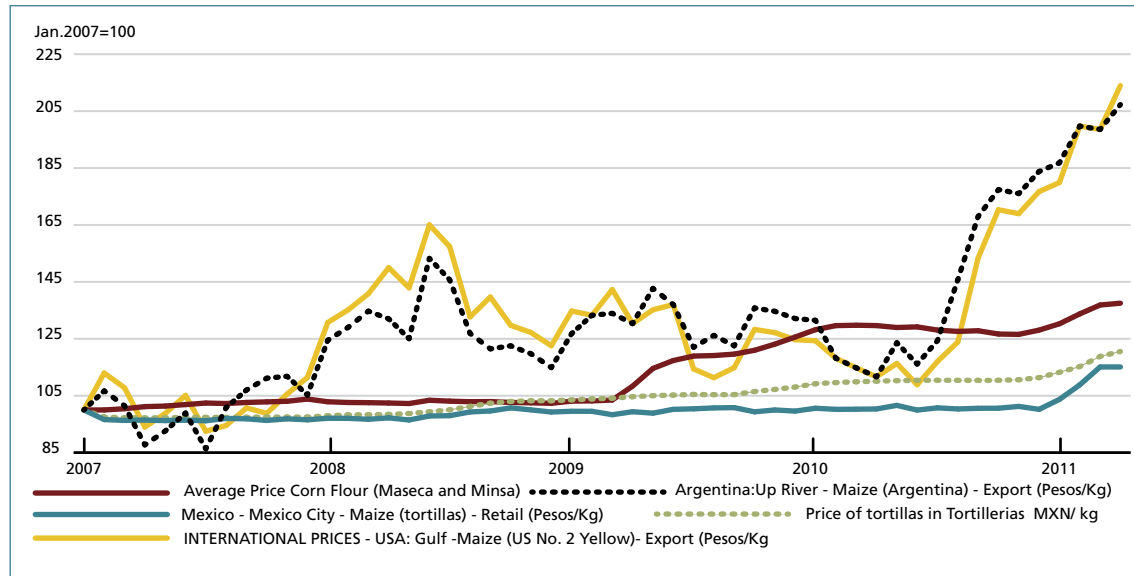
do not target the rural poor. For example, the poorest producer decile receives only 0.1 percent of the total budget of *Ingreso Objetivo*, a similarly insignificant fraction of energy and irrigation subsidies, and only 2–3 percent of the total *Procampo* budget. On the other hand, producers in the top decile receive 42 percent of all *Procampo* funds, 55 percent of *Alianza PDR*, 60 percent of energy and irrigation subsidies, and 85 percent of *Ingreso Objetivo* (Scott, 2010).

The evolution of domestic prices

This section describes the evolution of the domestic and international prices of the main food products consumed in Mexico. Figure 7 shows the evolution of international prices (those of Argentina and the United States) for yellow maize and domestic retail prices for maize dough, maize flour and tortillas, all based on white maize¹⁵. The graph shows that the domestic prices of these products did not increase as much as international maize

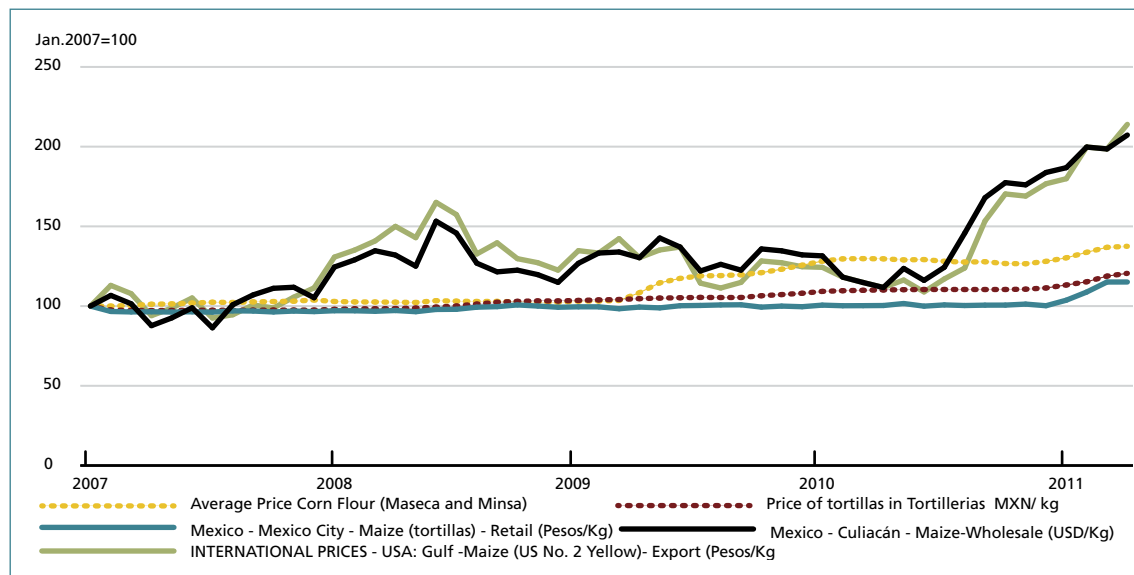
¹⁵ Studies show that only about half of an increase in maize prices is transmitted to tortilla prices (INFP, 2010), indicating that part of the shock is absorbed by the production chain. Moreover, Barceinas and Yunez (2005) show that changes in the international price of agricultural commodities are transmitted to the Mexican market after about two years.

FIGURE 7: MAIZE FLOUR, MAIZE DOUGH AND TORTILLA PRICES FROM 2007-2011 IN MEXICAN PESOS



Source: FAOSTAT (FAO), and SNIIM Sistema Nacional de Información e Integración de Mercados (Secretaría de Economía), and Banxico.

FIGURE 8: WHOLESALE PRICES OF WHITE MAIZE RELATIVE TO INTERNATIONAL PRICES OF YELLOW MAIZE FROM 2000-2011 (NOMINAL PRICES) IN US DOLLARS



Source: Author's calculations, based on Sistema Nacional de Información e Integración de Mercados and FAOSTAT (FAO).

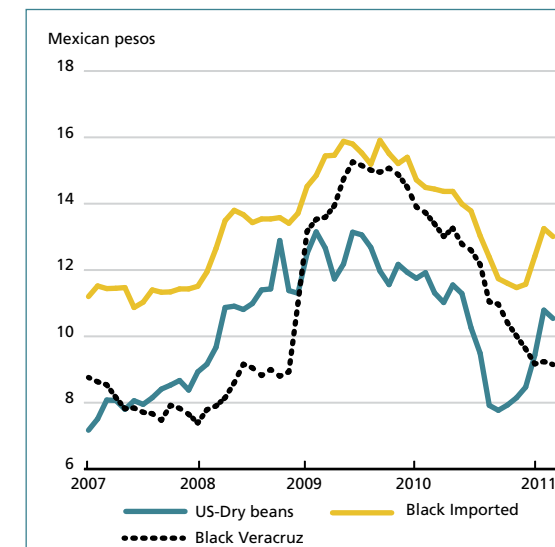
prices during 2007 and 2008. In addition, the retail price of maize started to increase substantially after April 2009, whereas the price of tortillas increased steadily over the whole period, but by a lot less.

Figure 8 shows that the situation has been similar for the domestic prices of white maize.

The evolution of the domestic prices of beans and rice followed a similar pattern. As the international price of beans experienced steady growth during 2007 and 2008, the prices of domestically produced beans increased only slightly. The largest increases in Mexico were registered in the beginning of 2009 when international prices stabilized.

In the case of rice, domestic wholesale prices were actually declining from 2005 until the beginning of 2008; a price spike in the domestic market occurred in the second half of 2008, when international prices started to fall. Domestic prices continued to rise during 2009, implying that there is a substantial lag in the transmission of international price changes to domestic markets.

FIGURE 9: BEANS, LOCAL VS. INTERNATIONAL MARKETS JANUARY 2007



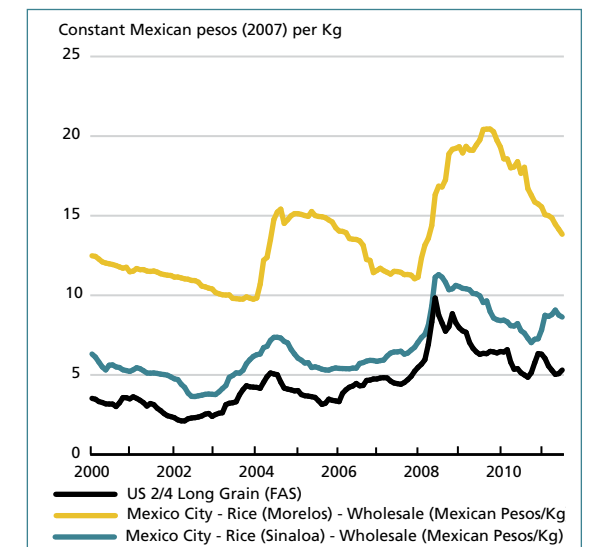
Source: Banxico, SIIM and Bean Markets News.

Conclusions and policy recommendations

The government response to the food-price crisis that started in 2006 had three goals: first, to facilitate supply and access to food at international prices which was achieved by eliminating tariffs on basic food products; second, to boost domestic food production and increase farm productivity; and third, to improve the purchasing power of the poor by providing support to poor households' incomes through cash transfers.

The direct impact of the government measures to improve the food security situation are difficult to assess given that in September 2008 additional measures were implemented to offset the negative effects of the international financial crisis. Following sluggish growth in the early 2000s, Mexico's GDP dropped by almost 7 percent in 2009, real wages declined and unemployment increased, contributing to the increase in poverty rates. As a consequence of rising food prices and poor economic performance, food poverty levels increased markedly in Mexico

FIGURE 10: RICE, INTERNATIONAL AND DOMESTIC WHOLESALE PRICES



Source: Author's calculations based on GIEWS (FAO), Infoarroz and Banco de Mexico data.

from 13.4 percent in 2006 to 18.4 percent in 2008, increasing slightly to 18.8 percent by 2010. It is difficult to assess how much of this deterioration is attributable to the rise in international food prices.

One of the main lessons that can be drawn from the policy reaction to the food crisis in Mexico is that a well functioning social protection system is needed to reach the poor population quickly when the economy is bearing the consequences of external shocks. In the case of Mexico, although the *Oportunidades* programme was not designed to respond to the needs of the poor associated with rising food prices, the existence of such a programme and the institutional arrangements in place helped address the problem, almost instantaneously reaching about three quarters of the most vulnerable population.

Additional policies targeting the main actors in the maize flour-dough-tortilla value chain were successful in maintaining relatively low tortilla prices, the main staple of the Mexican diet, for more than a year. Again, the implementation of this policy was facilitated by the strong presence of the state in the agricultural sector prior to the crisis, providing support through a number of agricultural programmes.

Measures to secure enough public reserves of maize for domestic consumption, in particular for the poor areas serviced by the Diconsa chain of stores were also instrumental in preventing a deterioration of the food security situation given high world prices and poor crop yields due to bad weather conditions.

References

- ASERCA.** 2010. *Informe Trimestral*. September 2010.
- Barceinas, F. & Yúnez-Naude, A.** 2005. *TLCAN y cambio estructural en la agricultura mexicana*. Mimeo. El Colegio de México. Available at <http://www.alde.es/encuentros/antiores/viiiieea/trabajos/b/pdf/barceinas.pdf>
- CONEVAL.** 2009. Comunicado de prensa No. 006/09. July 2009.
- CONEVAL.** 2010. *Information Note released for the World Food Day*. October 2010. Available at http://www.coneval.gob.mx/rw/resource/coneval/home/Dia_mundial_de_la_alimentacionin.pdf
- CONEVAL.** 2011. *Tendencias Económicas y Sociales de Corto Plazo Resultados nacionales*. May 2011.
- ECLAC.** 2010. *Panorama Social de América Latina*. Santiago de Chile, 2010.
- FAO.** 2006. *Food security. Policy Brief. Issue 2*. June 2006.
- Fox, J. & Haight, L.** 2010 *Subsidizing inequality: Mexican Corn Policy since NAFTA*, Eds. Woodrow Wilson International Center for Scholars & CIDE. www.wilsoncenter.org/MexicanRuralDevelopment
- Presidencia de la República.** 2009. *Acuerdo Nacional en Favor de la Economía Familiar y el Empleo para Vivir Mejor*. 7 de enero de 2009. Available at http://www.presidencia.gob.mx/infografias/2009/enero/070109_economia_empleo/index.html

Presidencia de la República. 2009. *III Informe de Gobierno*.

Presidencia de la República. 2010. *IV Informe de Gobierno*. Available at <http://www.informe.gob.mx/informe-de-gobierno/>

Scott, J. 2008. Redistributive constraints under high inequality: The case of Mexico. *Volume 441 of CIDE. Documento de trabajo*. División de Economía. Centro de Investigación y Docencia Económicas (CIDE).

Scott, J. 2009. *10 puntos para entender el gasto en equidad en México: Consideraciones sobre la desigualdad y la exclusión*. Mexico Evalúa. Centro de análisis de políticas públicas.

Scott, J. 2010 *Agricultural Subsidies in Mexico: Who Gets What?* In J. Fox, and L. Haight, eds. *Subsidizing inequality: Mexican Corn Policy since NAFTA*. Woodrow Wilson International Center for Scholars & CIDE. Available at www.wilsoncenter.org/MexicanRuralDevelopment

SEDESOL. 2008. *Discurso del Presidente Calderon*.

SEDESOL. 2008. *Apoyo Alimentario para Vivir Mejor*. Available at <http://www.cefp.gob.mx/foro/alimentos/foroalimentos2.pdf>

SEDESOL. 2011. *Oportunidades, Histórico*. Available at <http://www.oportunidades.gob.mx/Portal/wb/Web/historico>

Secretaría de Economía. 2008. Decreto por el que se modifica la Tarifa de la Ley de los Impuestos Generales de Importación y de Exportación y el Decreto por el que se establecen diversos Programas de Promoción Sectorial. *Diario Oficial de la Federación*. 27 May, 2008. Available at http://dof.gob.mx/nota_detalle.php?codigo=5035565&fecha=27/05/2008

SECRETARIA DE ECONOMIA. 2009. Acuerdo por el que se dan a conocer los criterios de operación del Programa de Apoyo a la Industria Molinera de Nixtamal (PROMASA), en el marco de los lineamientos del Programa para Impulsar la Competitividad de los Sectores Industriales (PROIND). *Diario Oficial de la Federación*, May 11, 2009. Available at http://dof.gob.mx/nota_detalle.php?codigo=5089892&fecha=11/05/2009

Skoufias, E. 2005. *PROGRESA and its impacts on the welfare of rural households in Mexico. Research Report 139*. International Food Policy Research Institute. Washington DC. Available at <http://www.ifpri.org/sites/default/files/publications/rr139.pdf>

USDA. 2011. *Bean Markets News*. Available at <http://usda.mannlib.cornell.edu/usda/ams/LSWBEAN.pdf>

Valero-Gil, J. & Valero, M. 2008. *The effects of rising food prices on poverty in Mexico* *Agricultural Economics* 39: 485-496.

Yunez-Naude, A. 2010. *Recent Developments in Mexico's Agricultural Policy*. Mimeo. Centro de Estudios Económicos de El Colegio de México.

World Bank. 2011. *World Development Indicators*.

ANNEX 1:

WHAT IS INCOME POVERTY?

A person is considered to be in an income poverty situation whenever his/her income is below the minimum amount necessary to satisfy his/her essential needs. This threshold is called the poverty line and is expressed based on the monetary value of a basic goods and services basket. According to the Poverty Measurement Methodology elaborated by the Technical Committee for Poverty Measurement, the income employed for this measurement is the Total Current Net Income Per Capita (INTPC) and the poverty thresholds are defined in three levels:

- 1. Food poverty:** Incapability to acquire a basic food basket, even if the entire income available to the household were used just to buy said basket of goods.
- 2. Capabilities poverty:** Insufficiency of the available income to acquire the food basket value and make the necessary expenses in education and health, even if the total household income were devoted solely to these purposes.

- 3. Patrimony poverty:** Insufficiency of the available income to acquire the food basket, as well as to make the necessary expenses in clothing, education, health, housing and transportation, even if the entire household income were used exclusively for the acquisition of these goods and services.