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Old Foods and New Consumers in Mexico, Under Economic Reforms

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Antonio Yunez-Naude

ABSTRACT

The main objective of this paper is to evaluate the performance of agricultural and food production in Mexico during the reforms and NAFTA and the consequences of this performance and of food trade liberalization on food security, consumption patterns and food poverty.

The paper is divided into 6 parts. Part 2 assesses major agricultural reforms, trade liberalization under NAFTA and their expected impacts, as well as new policies that accompanied the reforms. In Part 3 major trends in agricultural production and trade, farm size and yields during the last decades are discussed. Part 4 evaluates the performance of Mexico in terms of food consumption, food security, obesity and poverty. Part 5 utilizes these analyses to reflect on the lessons the Mexican experience can offer to other countries at earlier stages of developing. Part 6 provides several concluding remarks.

Keywords: Foods, New Consumers, Economic Reforms, Mexico, Poverty, Food Security.

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1. INTRODUCTION

In the 1980s, the Mexican government instituted wide-ranging market-oriented policies. With respect to the food, agriculture and rural sectors, the reforms ranged from constitutional changes to enhance private property rights in rural “communal” lands to the elimination of price supports granted to farmers producing staple crops. Policy changes included agricultural trade liberalization: in 1985 Mexico joined the General Agreement on Trade and Tariffs (GATT), and in January 1994 the implementation of the North American Free Trade Agreement (NAFTA) began. At the same time to these economic reforms, transitional agricultural policies were being implemented and a comprehensive social program to alleviate rural poverty was initiated.

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The paper is divided into 6 parts. Part 2 assesses major agricultural reforms, trade liberalization under NAFTA and their expected impacts, as well as new policies that accompanied the reforms. In Part 3 major trends in agricultural production and trade, farm size and yields during the last decades are discussed. Part 4 evaluates the performance of Mexico in terms of food consumption, food security, obesity and poverty. Part 5 utilizes these analyses to reflect on the lessons the Mexican experience can offer to other countries at earlier stages of developing. Part 6 provides several concluding remarks.

2. ECONOMIC REFORMS

In Mexico, economic policy reforms began in the early 1980s. Its agricultural sector was included in the policy reforms in the late 1980s. Agricultural reforms deepened during the first half of the 1990s in order to prepare the sector for the North American Free Trade Agreement (NAFTA) with Canada and the United States of America (USA). This agreement began to be implemented in January 1991. In the mid-1980s, government support prices to farmers producing what we call basic crops (barley, beans, maize, rice, sorghum, wheat, and oilseeds) were abolished, as well as subsidies for agricultural inputs and for credit. In addition, the banking system was re-privatised, public infrastructure to support the marketing of basic crops was sold or abolished and the Constitutional Article related to land property rights was reformed (Table 1; see also Yunez-Naude, 2003). In addition to these economic reforms, a land or ejidal reform was initiated to promote individual property rights to ejidatarios (those peasants who benefited from the process of rural land distribution and re-distribution implemented after the Mexican Revolution of 1910 from the 1930s to 1991).

Table 1. Liberalization Process of Mexico's Agriculture

POLICY	MAIN POLICY CHANGES	YEAR(S)
Mexico joins GATT and food imports restrictions began to be reduced	Substitution of import controls for tariffication of agricultural goods (tariffs ranging from 0% to 20%)	1986-1994
Sale of Food State Enterprises	Privatization of State Food Storage Facilities and State enterprises selling seeds and fertilizers at subsidized prices	1988/89
	Abolition of State enterprises selling coffee, sugar and tobacco	
"Ejidal" Reform (land property rights reform)	Ending of agricultural land distribution to peasants	1992
	Liberalization of agricultural land property rights	
Elimination of price supports to farmers producing food staples (in 1999 the State Trading Enterprise providing this subsidy was abolished)	Domestic prices of staples determined taking into account international prices	1989 to date
	Creation of ASERCA in 1991, a marketing support agency granting subsidies (deficiency payments) to commercial staple crops' producers and buyers	
	Creation of PROCAMPO in 1994, a direct income transfers program to all producers of staples	
North American Free Trade Agreement (NAFTA)	Prohibits the use of import controls and applies tariffication principles	Jan. 1994- Jan. 2008
	"Free" trade in 15 yerars. Sensitive agricultural products were subject to Tariff Rate Quotas for a transitional period of up to 15 years	
	Interventions are allowed in the 3 countries for agricultural subsidies , import restrictions on phyto-sanitary grounds and rules of origin and for packing.	
Alliance for the Countryside	Group of programs to promote agricultural and rural productivity, including small farmers	1995-2007

Source: Antonio Yunez-Naude

The expectation was that NAFTA would lead to price convergence in agricultural products, and hence, Mexico's imports of these crops from its northern partner would rise. These expectations were based on the abolition of price supports to Mexican agricultural producers and the fact that the USA is Mexico's major trade partner, producing and exporting agricultural goods in which Mexico was considered to be non-competitive (basic crops, especially maize, the major staple in Mexico).

Neither the increase of food dependency (decrease of self-sufficiency) caused by raising imports of grains and oilseeds, nor agricultural subsidies to USA farmers worried Mexico's government officials; their expectation was that lower basic crop prices and economic growth would enhance food security in Mexico. With respect to agricultural products in which Mexico is competitive (fruits and vegetables), USA (and Canadian) liberalization of import restrictions under NAFTA would increase Mexico's exports of these goods. Added to the Ejidal Reform, trade liberalization would hence improve resource allocation, efficiency and agricultural productivity in Mexico.

The general official expectation was, hence, that with economic liberalization and reforms in the rural sector, the average size of agricultural plots would increase, as well as agricultural productivity, access to private credit, and investment. Food security would be ensured from cheap imports and from income growth of Mexicans.

Along with economic liberalization, domestic ‘transitional’ policies were implemented with the creation of Support Services for Agricultural Marketing (ASERCA is its Spanish acronym), a government institution that provides subsidies to commercial producers and buyers of basic crops, and through Procampo’s direct income transfers to practically all farmers producing these crops before NAFTA began to be implemented (Procampo is hence a decoupled program of pure income transfers). “Alliance for the Countryside” was the third major program the Mexican government implemented from 1995 to 2007. It consisted of government supports to enhance rural productivity (Table 1).

In addition, the State created specific public policies and institutions aimed at reducing rural poverty—and, implicitly, increasing food access to the poor. In the early 1990 the Ministry for Social Development was created and in 1997 a program for Rural Education, Health and Nutrition (now called Oportunidades) began to be implemented. Oportunidades is a worldwide known conditional cash-transfer program aimed at reducing extreme income poverty, raising health standards of the poor and promoting human capital formation.

In 2002 the Law for the Sustainable Development for the Rural Sector (LDRS, Spanish acronym) was created. Amongst other purposes, this Law includes the promotion of food security in Mexico, translated in practice by increasing public expenditure in the rural sector. However, it was not until 2005/6 that food security purposes began its implementation in a more concrete manner by the strategy called Special Program for Food Security (PESA, Spanish acronym).

3. TRENDS IN AGRICULTURAL PRODUCTION, TRADE, AND FARM SIZE

This section evaluates Mexico's performance during the reforms and NAFTA by reviewing the trends in agricultural production, food trade, food consumption and expenditure and poverty.

Production and Trade

Since the 1980s, the performance of agriculture production has been modest. Processed food and beverage production has performed better, mainly due to the rise of beer production during this period (Table 2).

Field crop production has remained the major component of agricultural Gross Domestic Product (GDP) since the 1980s, followed by livestock, fisheries and forestry: in late 2000 field crop production accounted for 62% of agricultural GDP, livestock for 30% and fisheries and hunting for the remaining 8%. Maize continues to be the major single crop produced in Mexico. Taking into account the expected impacts of reforms and NAFTA, it is surprising that the production of maize has continuously increased. In addition to maize –but to a lower extent–, other grains remain as major crops produced in Mexico (the exception is rice), whereas the oilseed share of fieldcrop's production has decreased sharply. Fresh fruits and vegetables have experienced ups and downs during the studied periods; however their share of fieldcrop production has remained between 20 percent and 17 percent for fruits and between 12 percent and 14 percent for vegetables. The volumes of production of major meats and live animals have experienced positive rates of growth during the reforms and NAFTA. However, poultry is the only component that experienced noticeably high rates of growth during the period (details in Yunez-Naude(2013)).

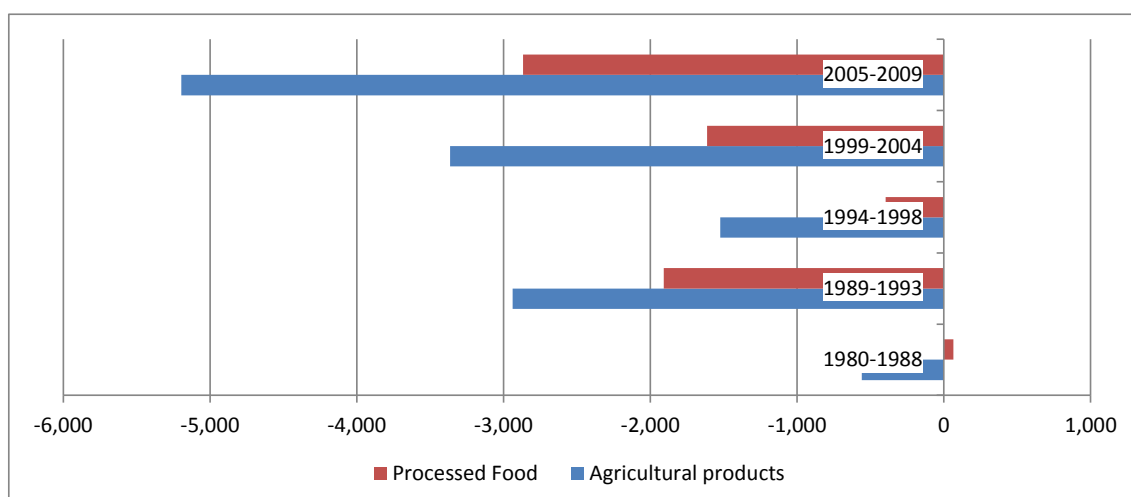
Period	GDP	Agriculture, Fisheries and Hunting	Field Crops and Pastures	Livestock	Processed Foods and Beverages
1980-1988	-0.41%	-0.10%	0.92%	-2.77%	1.97%
1989-1993	4.06%	1.27%	2.28%	-1.40%	5.41%
1994-1998	1.60%	-1.67%	-2.48%	0.53%	1.59%
1999-2004	4.60%	0.39%	-0.66%	2.86%	4.02%
2005-2008	4.38%	5.08%	8.11%	0.78%	3.21%
2009-2011	1.55%	-1.71%	-5.06%	2.72%	2.48%

* Field Crops and Pastures and Livestock are part of Agriculture, Fisheries and Hunting.

Sources: National Institute of Statistics, Geography and Informatics (Instituto Nacional de Estadística Geografía e Informática or INEGI), Banco de Información Económica (BIE)

Agricultural and food trade in Mexico have doubled since the signing of NAFTA but the value of imports has increased much more than exports, resulting in increasing agricultural and food trade deficits (Figure 1).

Figure 1. Agricultural and Processed Food Trade Balances of Mexico: 1980-2009
(Thousands of USAD at constant 2005 prices)



Source: World Trade Organization website. Conversion to constant 2005 USA prices using the International Monetary Fund (IMF) website data on U.S. consumer prices.

Table 3 shows the significant increase of imports by Mexico of major food staples and meats from 1994 onwards, and Table 4 contains the evolution of the volume of production of major crops produced in Mexico. For most major crops, rising imports coincide with decreasing or stable domestic production:

e.g. imports of oilseeds increased whereas their domestic production almost collapsed (that of soybeans in particular). Maize is the exception since maize imports have grown despite the continuous rise in domestic production (we discuss this phenomenon below).

Table 3. Imports of Major Basic Crops. Average Simple Rates of Growth in Constant 2005 USA\$ (%)*

Period	Maize	Wheat	Sorghum	Rice	Beans	Oleaginous Seeds	Meats**
1980-1988	716,184	182,431	526,048	n.a.	213,057	520,788	76,239
1989-1993	391,133	165,834	552,762	79,933	105,339	589,486	692,736
1994-1998	661,553	374,367	399,786	102,350	71,083	1,039,822	864,566
1999-2004	846,208	505,568	508,796	155,042	45,965	1,112,487	2,094,156
2005-2010	1,537,948	773,454	351,789	274,807	82,743	1,754,693	2,333,138

* Estimated using USA Consumer Price Index data from IMF website

** Beef, pork, poultry and sheep

n.a. = Nota available

Sources: 1980-2008, FAO website; 2009-2010 United Nations website on trade

Table 4. Production of major field crops: 1980-2011

(Thousand of metric tons)

	Crop	1983-1993	1994-2000	2001-2008	2009-2011
Grains and legumes	Rice	478	391.5	269.1	217.7
	Beans	1,033.10	1165.3	1,188.50	921.8
	Maize	13,553.10	17,998.40	21,371.80	20,360.0
	Wheat	4,145.60	3,485.70	3,208.90	3,806.8
	Barley	528.3	489.7	821.9	559.6
	Sorghum	5,161.00	5,490.00	6,171.90	6,492.5
Oilseeds	Soy beans	677.1	191.1	122.1	164.6
	Other *	636.5	711.2	474.1	405.7

* Sesame, Sunflower and Cotton

Source: SIACON/SIAP, web site of SAGARPA <http://sagarpa.gob.mx>

Livestock production growth was insufficient to satisfy domestic demand and so, livestock trade balance deficits have increased continuously, especially so for beef (Table 5). Mexico also imports meat parts of meats and offal not demanded by USA consumers (hence at very low prices). An example is poultry. Despite a large increase in production in Mexico, trade deficits in poultry increased, in part because of increasing cheap imports of chicken feet and legs.

Table 5. Mexico. Meats Trade Balances (Thousands of USD, base 2005)

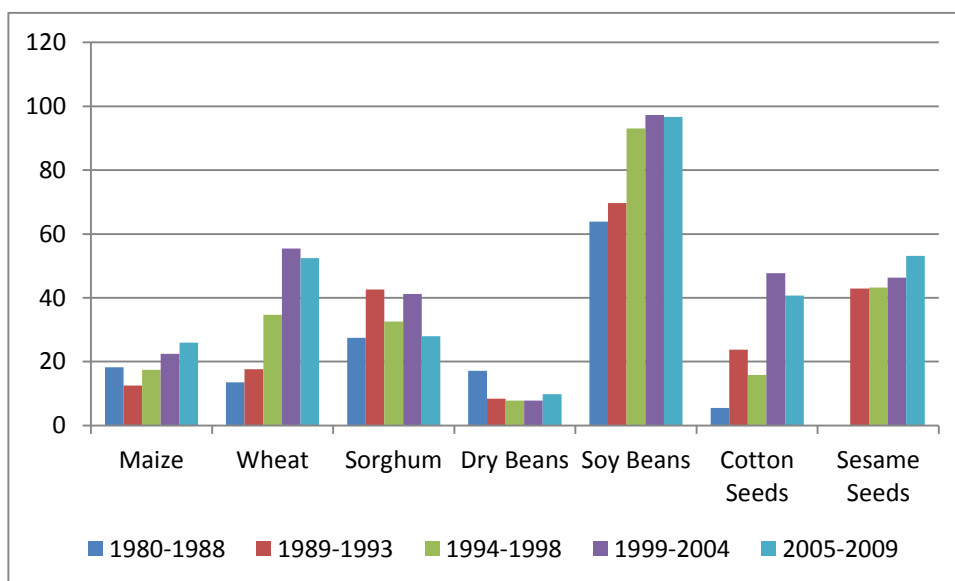
	Poultry	Beef	Pork	Mutton and Goat
1980-1988	-25.87	-15.34	-13.58	-4.92
1989-1993	-137.93	-321.37	-165.45	-23.35
1994-1998	-288.54	-361.55	-61.78	-34.15
1999-2004	-398.08	-1,026.87	-300.99	-76.01
2005-2008	-634.69	-844.92	-408.03	-63.32

Source: FAO website, constant 2005 US dollars, calculated using U.S. Consumer Price Index data from the IMF website.

A way to evaluate the changes on agricultural trade is to estimate “import dependency” (i.e. the ratio of imports with respect to production, plus imports plus exports). The results show that in terms of volume, import dependency for major basic crops and for meats has increased since the beginning of NAFTA (Figures 2 and 3)¹. However, import dependency for maize –as well as for sorghum and beans–has remained relatively low with NAFTA, whereas import dependency in the major oilseeds has sharply increased and since 1989. Finally, import dependency in major meats has increased.

¹ In line with the increase in food dependency, self-sufficiency decreased for major staples, i.e. the ratio between domestic production and domestic production plus imports.

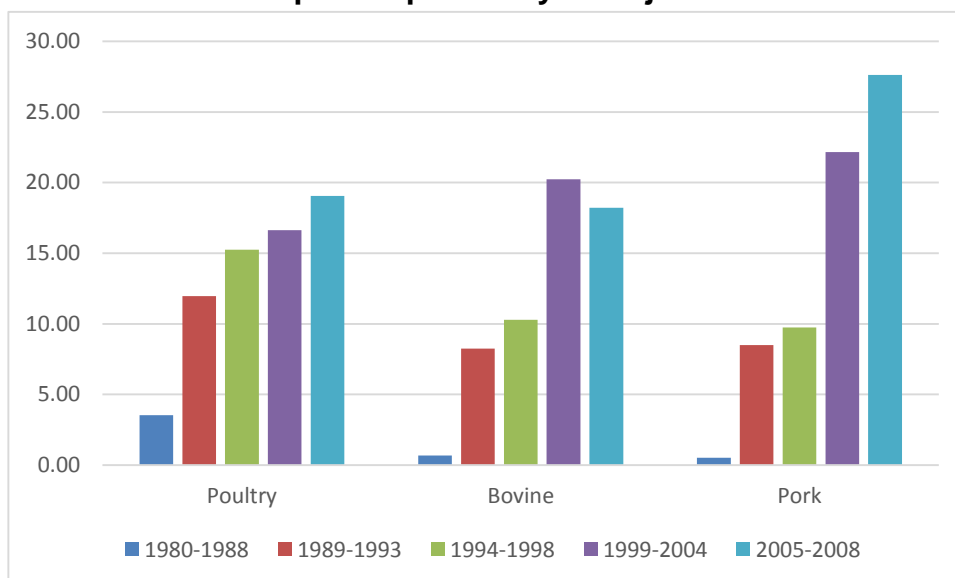
Figure 2. Evolution of Import Dependency in Major Basic Crops: 1980-2009 (%)*



* Import dependency ratio in volume (IDR) = ((Imports)/(Production+Imports-exports))*100

Sources: Production SAGARPA website; Imports and Exports for 1980-2008, FAO website and for 2009 President Calderon annual address 2010

Figure 3. Evolution of Import Dependency in Major Meats: 1980-2008 (%)



Source: same as figure 2

Farm size production and yields

Data from the Agricultural Censuses of 1991 and 2007 (AGC) provide information to describe the structure and evolution of agriculture by the sizes of “farms” (“agricultural production units” in INEGI’s terms).²

From 1991 to 2007 the number of agricultural units of production (AUP) decreased by 1.2 percent. Given that the area covered by these AUP experienced a greater reduction (-3.9%), the average size of Mexico’s AUP declined from 8.18 to 7.96 hectares during the period. Average farm size decreased slightly for plots of less than 2 hectares, remained practically unchanged for plots between 2 and 5 hectares, and increased for the remaining plots (first two columns of Table 6).

Table 6 also indicates the level of heterogeneity in Mexico’s agrarian structure. For example, the number of small AUP (up to 5 hectares of land) accounted for almost 60 percent of total AUP in 1991 and for 68 percent of total AUP in 2007, but represent less than 16 percent of total area in both years. By contrast, large AUP (more than 50 hectares) constitute just over 3 percent of total AUP, but cover around 40 percent of total hectares.

To the above findings, there is evidence that the average size of ejidal plots decreased from 8.5 to 7.5 from 1991 to 2007 (Robles, 2010). Thus, contrary to expectations about the effects of economic liberalization and the Land/Ejidal Reform, fragmentation has increased: the number of minifundia (small landholdings) has not decreased and private property rights of former ejidal lands for agricultural production have not increased. (Garfias, 2010).

² Agricultural Units of Production are the set of land holdings with or without agricultural or forestry production in rural areas or with agricultural and forestry production in urban areas, which are located in the same county or municipality, and under the same administration.

Table 6. Quantity, Area and Size of Agricultural Units of Production (AUP): 1990 and 2007

Census Strata	Average size of AUP (ha)		Distribution in total number of AUP (%)		Distribution in total area of AUP (%)	
	1991	2007	1991	2007	1991	2007
Up to 2 ha	1.12	1.09	34.56	44.47	4.71	6.10
From 2 to 5 ha	3.41	3.46	25.35	24.21	10.55	10.51
From 5 to 20 ha	8.78	9.23	31.25	23.16	33.52	26.84
From 20 to 50 ha	20.51	25.26	5.27	5.10	13.22	16.16
From 50 to 100 ha	42.64	51.68	1.77	1.74	9.24	11.32
From 100 to 1000 ha	104.11	130.58	1.67	1.25	21.22	20.45
From 1000 to 2500 ha	351.45	517.82	0.09	0.05	3.70	3.06
More than 2500 ha	710.86	1724.79	0.04	0.03	3.84	5.55
Total or average	8.18	7.96	100.00	100.00	100.00	100.00

Sources: Agricultural Censuses: 1990 and 2007.

Consistent with figures presented in Table 4, AGC data shows that maize volume of production sharply increased during the last years: it tripled from 1991 to 2007 according to AGC data. Most of AUP producing maize in both years were of a very small size. However, as for Mexico as a whole, medium sized farms (from 5 to 20 has) were, during 1991, the AUP with the highest participation in harvested area and production of maize, and in 2007 the biggest farms occupied this place. In terms of regions, the north-western state of Sinaloa stands out as the major State producing maize during the period of reforms and NAFTA. This is partially explained by the high marketing subsidies granted to their farmers (hypotheses about the reasons of this are discussed below).³

According to AGC, the volume of production of beans declined from 1991 to 2007 by 11.5%, and this reduction is mainly due by the drop in production of small and medium sized farms (AUPs up to 20 has of land), since bigger farms increased their beans production. However, the weight of AUPs with less than 5 has of land on total AUPs participation has remained high and increased from 52% to 61% from 1991 to 2007, indicating that, as in the case of maize, small farmers all over Mexico still grow beans for their own consumption.

Physical production of sorghum has increased from 1991 to 2007, and in all farm sizes. However, most of this cash crop is grown by medium sized and big

³ The characteristics and coverage of AGC data limits the study of the structure of production by farm size and its changes to maize, beans, barley, sorghum and wheat, plus some important plantations: coffee, sugar cane and oranges (details of the evolution of production of these crops and plantations are in Yunez-Naude(2013)

farmers, and the weight of the latter on total sorghum production sharply increased during the period (we suspect that part of this change is explained by commercialization subsidies granted to big farmers, especially in the northeastern state of Tamaulipas, see below).

From 1991 to 2007 the volume of production of barley almost doubled, and this increase is explained by the rise of its production amongst all farm sizes. The dynamics of barley production in Mexico during the last decades could be largely explained by the boom in Mexico's production (and exports) of beer.

According to AGC data, the volume of production of wheat slightly increased from 1991 to 2007 (4%). Almost all of its production comes from medium and bigger farmers. However, the weight on total volume of wheat production of medium sized farms (from 5 to 20 has) declined during the period (from 33% to 19%), whereas the contribution of bigger farms increased from 55% to 75%. These changes are based on the decline of wheat production in medium-size farms (-46%) and the rise of production in bigger ones (41%); most of the later located in the northern state of Sonora. As for maize and sorghum, the increase in the production of wheat by bigger farmers in the north could be partially explained by government subsidies granted to them, particularly so for those located in northern Mexico (Sumner and Balagtas, 2007).

Notwithstanding the prevailing high heterogeneity in the structure of land distribution by UAP per size and differentiation on inputs used (small farmers do not use traction and relays on family labor, Table 6), yields (metric tons per ha) have not been quite different in major basic grains and beans production, nor their changes from 1991 to 2007. Yields have grown from 1991 to 2007 in all farm sizes (Table 7).⁴

Table 7. Yields of selected basic grains per UAP size, 1991.2007

	Barley		Beans		Maize		Sorghum		Wheat	
	1991	2007	1991	2007	1991	2007	1991	2007	1991	2007
Up to 2 Has.	1.05	2.37	0.31	0.45	1.04	2.09	3.32	6.91	2.24	4.53
From 2 to 5 Has.	1.08	2.59	0.34	0.48	0.96	2.39	3.21	5.73	3.27	5.44
From 5 to 20 Has.	1.24	2.72	0.44	0.56	1.11	3.21	2.36	5.84	3.47	5.63
From 20 to 50 Has.	1.41	2.86	0.48	0.60	1.31	3.86	2.29	5.32	3.73	5.56
From 50 to 100 Has.	1.44	2.87	0.52	0.70	1.57	4.81	2.29	5.22	3.51	5.73
From 100 to 1000 Has.	1.36	2.76	0.62	0.74	1.82	5.07	1.89	8.99	3.52	5.94
More than 1000 Has.	1.63	2.52	1.10	0.38	1.87	4.10	1.60	2.32	3.59	4.30

Sources: Agricultural Censuses: 1990 and 2007

⁴ We suspect an error in the 2007 AGC data base for sorghum production in the biggest farms. So the figures for yields in sorghum for farms with more than 1000 has may be underestimated, and hence, average yields for total sorghum production.

Like beans and basic grains, coffee, sugar cane and oranges are produced in all farm sizes and for the market in some specific regions of Mexico.⁵ The study of the evolution of these three plantations from 1991 to 2007 shows that production and yields in small and medium-sized plots have increased from 1991 to 2007 (Ibid.).

To understand the evolution of agricultural production in Mexico during the last 30 years one must consider the heterogeneity of agricultural production in combination with the structure of markets and policy interventions.

Based on this framework, and on the character of the evolution of the agriculture of Mexico and agricultural policies I propose two general hypotheses. 1) Domestic reforms and NAFTA directly affected commercial farmers producing non-competitive crops, but some of them were protected from USA competition by governmental supports; and 2) small-sized producers have maintained or even increased their production of food staples (maize in particular) because of the nature of their decision-making, which is explained by the transaction costs they face.

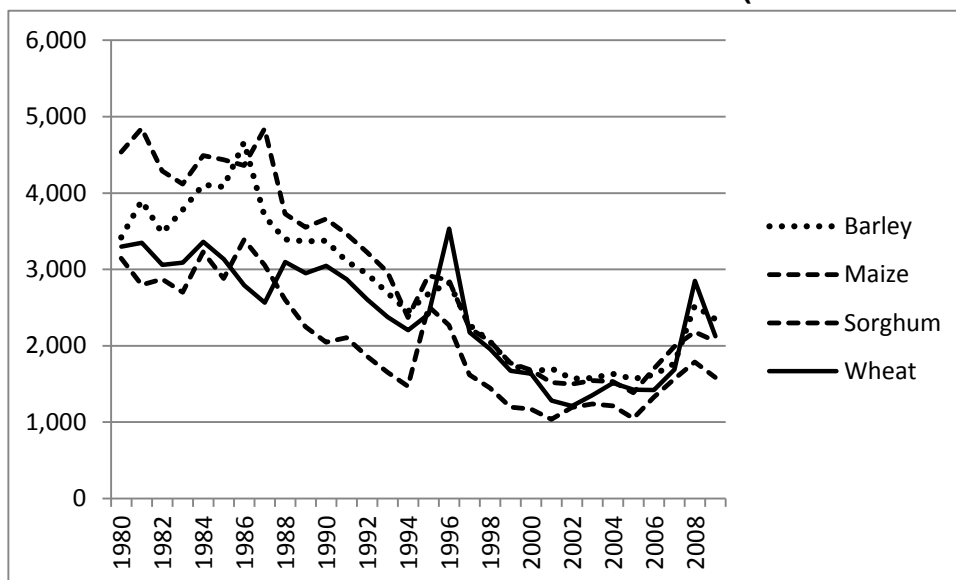
Commercial farmers producing non-competitive crops were directly affected by price reductions in basic crops during the mid-nineties and the first half of the current century (Figure 4), and have reacted by increasing productivity or by switching land use. Others have been protected from foreign competition through government supports (Sumner and Balagtas, 2007 provide evidence for this). The responses of small farmers (i.e. rural households) to external shocks, such as the reduction of maize prices, are complex, because they are both units of production and units of consumption facing transaction costs in several markets and having a diversity of income sources. (Singh, Squire and Strauss, 1986 offer the foundations of these proposals, based on agricultural household models; from Mexico see YúnezNaude 2010)

We have extended the household model to a microeconomic general equilibrium model applied to rural Mexico, with transaction costs in product and labor markets for subsistence maize farmers. In this way I have shown that a reduction in the market price of maize is indirectly transmitted to these producers through interactions in factor markets. The market price shock directly affects commercial rural households that produce maize, reducing local wages and land rents, and stimulates maize production by subsistence

⁵ The importance of these three plantations is illustrated by their area coverage in Mexico. Together, coffee, sugar cane and oranges accounted for more than 5% of total area used for agricultural production in 1991 and 2007: coffee and sugar cane with around 2% each, and oranges with around 1% in both years. Together, this coverage is similar to that of sorghum.

households. We propose that this reaction by subsistence farmers to the observed reduction of maize market prices explains why small-scale maize production in Mexico has not declined (see, for example, Dyer, Taylor and Yunez-Naude (2005), Dyer, Boucher and Taylor (2006), and below).

Figure 4. Mexico. Producers' Price of Selected Grains (base 2002=100).



Source: SAGARPA-SIACON website, deflated using Bank of Mexico consumer price index.

The results of Sumner and Balagtas and of Taylor and associates, together with the tendencies described above on production and yields by small farmers, allow us to propose the following assertions: Notwithstanding economic reforms and trade liberalization, production of maize by small farmers has prevailed in Mexico. Furthermore, small farms production of competitive cash agricultural goods –such as sugar cane and oranges—is viable. Finally, these indications show that medium sized farmers have been capable to face the challenges of reforms and trade liberalization.

4. FOOD CONSUMPTION, FOODS SECURITY AND POVERTY

The United Nations' Food and Agriculture Organization (FAO) considers that food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life. Food security has four dimensions: availability, access, utilization and stability. No data exist to evaluate the trends of these four dimensions in Mexico. However, there is data on consumption and expenditure on foods.

Trends in per capita consumption of food staples in Mexico indicate that, in general, food security has not worsened during NAFTA. In particular, available official data indicate that per capita consumption of maize, soy beans, and of all major meats has increased during NAFTA (per capita consumption of wheat experienced no major change, Table 8). In terms of domestic production and trade, these figures suggest the following: The rise of per capita consumption of maize was sustained by domestic production and imports; consumption of wheat is based on domestic production and import, whereas increases in consumption of soy beans is based on imports. The rise of meat per capita consumption is based on both, domestic production and imports, although the share of these two sources differs: domestic production and trade balances in meats indicate that the increase in beef consumption is more dependent on imports.

Table 8. Per Capita Consumption of Selected Basic Crops and Major Meats: 1980-2009 (Kg.)

	Maize	Wheat	Sorghum	Beans	Soy Beans	Poultry	Bovine	Pork
1980-1985	224.2	64.7	109.9	17.4	22.2	7.0	14.4	17.8
1990-1995	225.8	48.6	86.7	16.3	22.0	12.9	14.9	10.0
2000-2005	236.7	59.6	96.9	9.2	39.5	25.6	18.0	12.9
2006-2007	287.3	59.3	77.0	12.2	35.8	29.6	18.5	13.6
2008-2009 *	283.7	50.7	78.3	11.1	33.6	30.3	18.8	14.3

* Figures for meats are for 2008

Sources: Population, 1985-2009 Banco de México and 2010 INEGI 2010 Population Census; production SAGARPA website; Imports and Exports FAO website

It is worth noticing that per capita consumption of wheat decreased considerably during 2008-2009, as well as consumption of maize and soy beans. These decreases coincide with the rise in international food prices in 2006-2007.

To extend the study on the trends of food security in Mexico during the reforms and NAFTA we used the National Income and Expenditure Household Surveys (ENIGH, Spanish acronym).⁶ According to the ENIGH, the period of reforms has witnessed no change in the proportion of Mexican household per capita expenditure on foods, including maize and wheat, the major food staples in Mexico. However, the share of expenditures on “other grains” increased, while that of fruits and vegetables and meats decreased in 2010 with respect to 1992. (Table 9).

Table 9. Per Capita Expenditure on Foods (percentages)

Year	Participation of food in total expenditure	Participation in total food expenditure *					
		Maize	Wheat	Other Grains	Beans	Fruits and Vegetables	Meats
1992	25.14	7.20	5.70	0.93	2.94	12.00	19.22
1994	23.98	6.35	5.44	1.06	2.53	11.05	17.65
1996	25.73	7.69	7.01	1.25	3.92	10.35	16.76
1998	24.80	7.38	6.01	1.23	3.14	10.88	16.60
2000	24.38	7.23	5.41	1.05	1.95	10.54	14.90
2002	23.75	7.61	5.49	1.24	2.10	11.67	14.61
2004	21.67	6.13	5.26	1.38	1.40	9.45	12.90
2006	21.66	6.08	5.15	1.41	1.34	9.66	12.20
2008	24.54	6.65	5.84	1.56	1.52	9.50	12.24
2010	25.29	6.69	5.49	1.50	1.49	9.82	12.35

* Includes processed foods

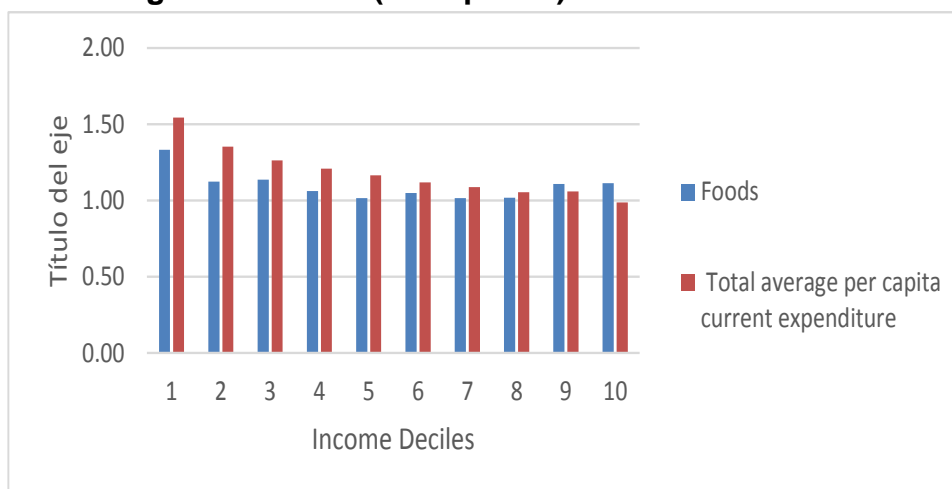
Sources: INEGI. National Income and Expenditure Household Surveys (ENIGH, Spanish acronym) for the reported years

If we consider per capita expenditure on food by income decile, data indicate that expenditure in foods increased from 1992 to 2010, specially so for the poorest first three deciles: by 1.33 times, 1.12 and 1.14 times for deciles 1, 2 and 3, respectively (Figure 5)⁷. In terms of absolute changes in expenditure by decile and major foods (Table 10), the foods that show the highest increase are, as shown in previous table, “other cereals”, independently of the income decile. This is especially significant in poor households (e.g. in 2002 pesos expenditure in this group of foods increased 18 and 20 times for decile 2 and 3).

⁶ Since 1992, the ENIGH have been carried out every two years by Mexico’s National Institute of Statistics, Geography and Informatics (*Instituto Nacional de Estadística Geografía e Informática* or INEGI).

⁷ During the period, total expenditure increased more for all deciles, but for the richest one.

Figure 5. Per capita expenditure: Total and Foods by Income Decile: Absolute Changes 1992-2010 (2002 pesos)



* Deciles of per capita current income

Sources: same as table 9

Table 10. Per capita Expenditure on Major Foods by Income Decile: Absolute Changes 1992-2010

Per capita Expenditure on Major Foods by Income Decile: Absolute Changes 1992-2010 (2002 pesos) *										
Major foods	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 7	Decile 9	Decile 10
Maize	0.78	0.88	1.02	0.99	1.04	1.07	1.07	1.17	1.13	0.96
Wheat	1.88	1.03	1.15	1.10	1.08	1.06	1.04	0.94	1.01	0.90
Rice	1.20	1.00	0.97	0.88	0.89	0.82	0.70	0.77	0.69	0.59
Other cereals	9.26	17.80	19.90	13.48	14.33	11.49	7.37	8.13	13.22	6.77
Beans	0.66	0.57	0.54	0.51	0.56	0.54	0.56	0.48	0.49	0.50
Vegetables	1.18	1.08	1.13	0.92	0.90	0.90	0.85	0.81	0.82	0.79
Fruits	1.59	1.10	1.08	1.05	0.88	0.78	0.87	0.75	0.76	0.87
Beef	1.77	1.18	0.92	0.82	0.68	0.64	0.59	0.59	0.57	0.41
Pork	1.27	0.82	0.91	0.79	0.72	0.63	0.63	0.60	0.52	0.43
Poultry	1.21	1.08	1.02	0.90	0.85	0.92	0.77	0.75	0.83	0.78
Other foods	1.80	1.38	1.32	1.25	1.18	1.26	1.22	1.23	1.36	1.34

* Deciles of per capita current income

Sources: same as Table 9

Table 10 also shows that expenditures on maize experienced no major changes for all deciles during the period, whereas expenditures on beans –the other major staple in the diet of Mexicans—decreased for all deciles. It is worth noticing that expenditures on fruits and vegetables and meats increased for the poorest deciles (1 and 2), and decreased for middle income and richer households (deciles 5 to 10). Finally, all households increased their consumption of “other foods”, in particular the poorest households.

To complete our account of changes in consumption, I estimated the modifications in 1992 and 2010 in the proportion of households' total budget spent on foods by decile and group of foods, distinguishing major single staples. Table 11 indicates that in 1992 and 2010 maize was the major staple for poor households (deciles 1 to 3), whereas beef increased with household income. However, the weight of maize decreased in 2010 for the poorest households (deciles 1 and 2) and remained practically unchanged for the remaining household groups. During this period, expenditures on wheat remained practically the same for all households with the exception of the poorest (decile 1), whereas expenditure on rice and beans declined in all households.

Expenditures on "other cereals" grew for all households, although they remained proportionally low in 2010. Expenditures in vegetables and fruits slightly declined in all household groups, the exception being households in decile 1.

As for household's share of expenditures on meat, beef expenditures for the poorest household (1 and 2) and declined for the remaining households, whereas expenditure on pork and poultry declined for all households. Finally, the share of "other foods" in the food budget of all households grew considerably, between 6.8 points (decile 3) and 12.89 points (decile 10). The poorest households increased their expenditure in other foods by 12.45 points). The above trends indicate that Oportunidades (the program for poverty alleviation that includes income transfers for food support to poor mothers), has contributed to rising food expenditure of these households. In addition, since the 1990s middle and upper income households have satisfied their food consumption needs. Consumption of "non-traditional" foods increased in all households, including processed and junk food.

Table 11. Distribution of Foods Expenditure on Total Expenditure by Income Decile: 1992-2010

Year	Maize	Wheat	Rice	Other Cereals	Beans	Vegetables	Fruits	Beef	Pork	Chicken	Other foods
DECIL 1											
1992	21.90%	5.16%	1.89%	0.08%	10.25%	11.37%	1.98%	3.30%	1.96%	6.44%	35.68%
2010	12.75%	7.28%	1.71%	0.54%	5.06%	10.06%	2.36%	4.38%	1.87%	5.86%	48.13%
DECIL 2											
1992	16.51%	7.37%	1.47%	0.04%	7.63%	9.99%	2.58%	5.53%	3.07%	7.14%	38.68%
2010	12.93%	6.77%	1.31%	0.62%	3.89%	9.57%	2.54%	5.82%	2.24%	6.86%	47.46%
DECIL 3											
1992	12.92%	6.74%	1.27%	0.04%	6.06%	9.15%	2.88%	7.67%	2.84%	7.24%	43.18%
2010	11.63%	6.84%	1.09%	0.74%	2.89%	9.07%	2.74%	6.24%	2.28%	6.49%	49.98%
DECIL 4											
1992	11.48%	6.37%	1.15%	0.06%	5.00%	9.58%	2.87%	9.02%	3.22%	7.26%	43.98%
2010	10.66%	6.62%	0.95%	0.82%	2.41%	8.31%	2.85%	6.95%	2.40%	6.16%	51.87%
DECIL 5											
1992	9.45%	6.45%	0.95%	0.06%	3.95%	8.94%	3.49%	10.65%	3.28%	7.21%	45.56%
2010	9.67%	6.89%	0.84%	0.90%	2.20%	7.94%	3.01%	7.14%	2.31%	6.06%	53.03%
DECIL 6											
1992	8.16%	6.24%	0.90%	0.07%	3.00%	8.94%	4.26%	11.29%	3.47%	6.51%	47.16%
2010	8.31%	6.29%	0.71%	0.77%	1.55%	7.63%	3.18%	6.94%	2.09%	5.73%	56.80%
DECIL 7											
1992	6.75%	6.06%	0.84%	0.11%	2.51%	8.08%	3.99%	12.37%	3.07%	6.78%	49.44%
2010	7.12%	6.23%	0.57%	0.82%	1.38%	6.80%	3.41%	7.18%	1.90%	5.13%	59.45%
DECIL 8											
1992	5.40%	5.90%	0.71%	0.10%	2.13%	8.15%	4.84%	11.51%	2.86%	6.47%	51.93%
2010	6.19%	5.48%	0.54%	0.83%	1.01%	6.49%	3.57%	6.69%	1.69%	4.76%	62.76%
DECIL 9											
1992	4.10%	5.49%	0.64%	0.08%	1.44%	6.90%	4.86%	11.85%	2.77%	5.48%	56.40%
2010	4.18%	4.99%	0.39%	0.95%	0.64%	5.12%	3.32%	6.04%	1.30%	4.10%	68.96%
DECIL 10											
1992	2.20%	4.32%	0.43%	0.17%	0.62%	5.33%	5.17%	10.94%	1.99%	4.18%	64.65%
2010	1.90%	3.49%	0.23%	1.01%	0.28%	3.79%	4.03%	4.01%	0.77%	2.94%	77.54%

* Deciles of per capita current income

Sources: same as Table 9

The evolution of expenditure on foods during the period of reforms, together with the rising trends in wheat and beef import dependency (Figures 2 and 3), show that an increasing portion of households' consumption of these goods come from abroad (from the USA in particular). To this, we must add the increasing expenditure and imports of processed foods (i.e. other cereals and other foods, Figure 1).

Data on households' expenditure on other cereals and other foods include non-nutritional foods such as snacks and soups (potato chips, sweets, instant soups, etc). USA data on food exports to Mexico of this group of foods show that they have grown continuously during NAFTA (<http://www.fas.usda.gov/gats/ExpressQuery1.aspx>). This tendency, together with the increase of Mexican households' expenditure on other cereals and foods, suggests that changing food consumption patterns of Mexicans under the reforms and NAFTA explains part of the increasing problem of obesity. According to the Organization for Economic Cooperation and Development (OCDE) figures and within its country members, Mexico is placed 2nd, just after

the USA, in terms of adult obesity and 4th with respect to child obesity (<http://www.oecd.org/>). The question of obesity urgently requires study in the context of economic liberalization and industrial organization.

Our study of the evolution of consumption patterns of the Mexican population during the last three decades also distinguishes food consumption in urban and rural populations (i.e. people living in localities with more than 2,500 people and in localities with less than this figure, respectively).

Table 12 shows that the share of per capita expenditure on non-processed foods declined in both sectors. However, the weight of expenditure in non-nutritional foods more than doubled for the urban population (it also increased for the rural population but to a much lower extent). The proportion of expenditure in nutritional processed food increased for the rural population and decreased for the urban population. These tendencies, especially for the urban population, indicate that changing food consumption patterns explains in part the increasing rates of obesity in Mexico.

Food Groups	1992		2012	
	Urban	Rural	Urban	Rural
Maize	7.42%	12.27%	11.19%	13.01%
Wheat	7.49%	8.22%	8.56%	8.10%
Rice	0.98%	1.77%	0.78%	1.30%
Other cereals	0.13%	0.12%	1.65%	0.96%
Beef	14.65%	8.28%	9.38%	5.68%
Pork	3.91%	3.30%	3.24%	2.65%
Poultry	8.00%	7.04%	7.21%	6.56%
Vegetables	11.01%	12.37%	8.89%	9.07%
Fruits	5.65%	3.33%	4.82%	3.14%
Beans	3.24%	6.64%	2.96%	4.72%
Subtotal "fresh food"	62%	63%	59%	55%
Oils	1.42%	2.77%		2.91%
Fats	0.48%	1.41%	0.22%	0.52%
Sauces	1.09%	1.38%	1.18%	1.16%
Varied prepared food	0.00%	0.01%	0.07%	0.04%
Soups, pasta, etc.	2.13%	1.12%	10.69%	4.17%
Sweets	0.77%	0.56%	0.67%	0.38%
Non-alcoholic Drinks	5.83%	5.97%	10.72%	8.39%
Subtotal expenditure in processed "non-nutritional"	11.73%	13.21%	24.99%	17.57%
Subtotal other processed foods	25.81%	23.44%	16.34%	27.24%
Total	100%	100%	100%	100%

* Excludes: processed meats, fish and seafood, milk and cheese, eggs, tubers, seeds, honey, coffee, tea, chocolate, baby food, and alcoholic drinks

Sources: same as Table 9

The determinants of obesity in Mexico require empirical research. Some suggested hypotheses are the following: 1) Increased access to non-nutritional food under economic liberalization and trade (e.g. according to Foreign Agricultural Service (FAS) from the US Department of Agriculture (USDA), from 1992 to 2012 the value of imports of instant soups and snacks grew almost 11 times (FAS/USD quoted website); 2) until recently, no state regulations were implemented on food nutritional value and quality standards; and 3) in Mexico, no Value Added Tax is applied to any type of food yet.

My findings on the structure and evolution of food expenditure are synthesized in Table 13. It shows that the proportion of total expenditure on foods has declined in almost all household groups according to income deciles. The Table also indicates that this proportion increased in 1996 compared to 1994 for several household groups and in 2008 and/or 2010 compared to 2006 for all Households. These changes coincide with the macro-economic crisis Mexico suffered during 1995-1996, when the Mexican peso suffered a deep devaluation against the USA dollar and with the beginning of the period of higher international prices of foods and higher price volatility (Figure 4 and Yunez-Naude and Aguilar (2012). Mexico also witnessed a rise in the incidence of poverty during these years.

Table 13. Distribution of Foods Expenditure on Total Expenditure by Income Decile: 1992-2010

Per capita Income by decile	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010
1	47.6%	44.2%	49.4%	47.2%	44.7%	47.4%	43.3%	43.2%	40.5%	41.0%
2	45.5%	39.6%	42.7%	42.1%	40.6%	38.6%	37.4%	37.1%	37.9%	37.7%
3	40.0%	38.2%	40.8%	39.9%	37.7%	36.8%	33.7%	34.7%	35.4%	36.1%
4	39.1%	35.6%	38.6%	37.2%	35.5%	34.2%	31.9%	32.4%	33.0%	34.4%
5	36.8%	32.7%	35.4%	35.3%	33.4%	31.1%	31.0%	30.3%	31.4%	32.0%
6	32.0%	30.8%	33.3%	32.6%	31.4%	29.2%	28.4%	27.3%	30.2%	30.0%
7	31.0%	28.7%	30.9%	29.8%	28.7%	27.1%	26.5%	25.3%	28.0%	28.9%
8	27.2%	26.0%	28.3%	28.0%	25.9%	24.9%	23.5%	23.1%	26.2%	26.2%
9	22.8%	23.2%	24.1%	23.8%	21.5%	21.9%	20.1%	19.5%	22.2%	23.8%
10	15.5%	15.6%	15.7%	14.3%	15.7%	16.0%	13.8%	13.9%	16.5%	17.5%

Sources: same as Table 9

Leaving out the troubling rise of obesity in Mexico, the observed increase in food import dependency and self-sufficiency should not be in itself be worrisome, as long as Mexicans have enough income to buy food in order to satisfy their basic needs; i.e. as long as the economy grows and provides jobs and sufficient income to Mexicans ensuring food security. Unfortunately, this has not been the case as shown by the recent trends of the evolution of poverty in Mexico, including extreme or food poverty.

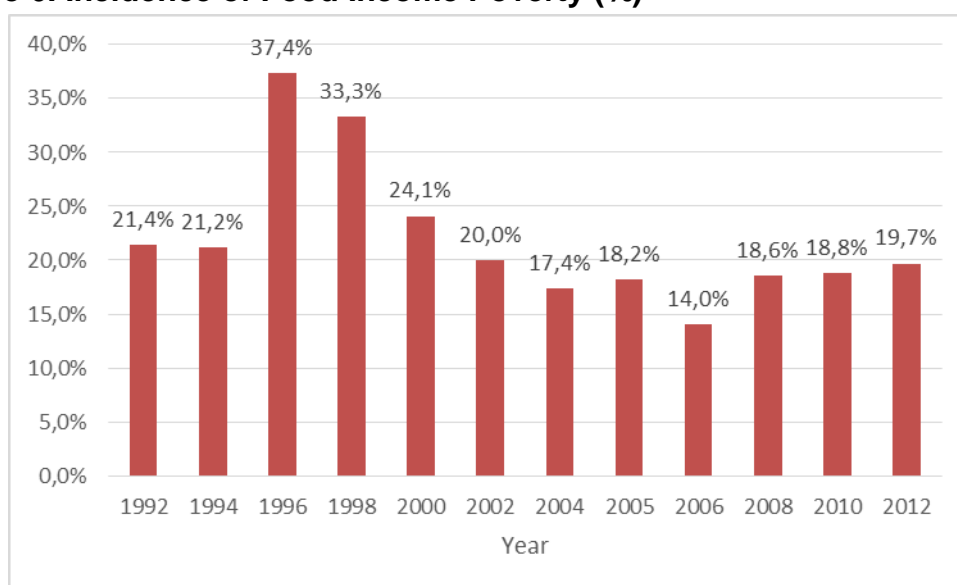
Indeed, according to Mexico's National Council for the Evaluation of Social Development Policies (Consejo Nacional de Evaluación de la Política de

Desarrollo Social or CONEVAL), extreme poverty increased in 2008 and has remained high during the last years. This comes after a period of more than 10 years of income poverty reduction while the Mexican economy recovered from the 1995-1996 macro crisis. As Figure 6 shows, in 2008 food poverty (as well as income poverty in abilities and in assets) affected a share of Mexicans similar to the figure for 1992: 18.6% and 21.4% respectively, and the former percentage increased to 19.7 in 2012. In overall numbers, the number of people in extreme/food poverty increased from 18.579 million in 1992 to 20.790 million in 2008 and to 23.089 million in 2012. The number of households in extreme poverty also increased during these years: from 3.04 million to 4.08 and to 4.917 respectively (<http://www.coneval.gob.mx/>).

During the period of reforms the incidence of poverty in rural areas (localities with up to 2499 inhabitants) has remained higher than urban poverty: e.g. in 1992 there were 11.779 million of rural people suffering food poverty and 6.801 million of poor urban inhabitants, and in 2012 the figures were 13.630 million and 9.459 million, respectively (CONEVAL website).

According to CONEVAL, one phenomenon explaining the increase of poverty in Mexico during the last years is the poor growth performance of its economy – caused in part by the international economic crisis–, which has meant low growth of formal jobs creation and hence waged income stagnation (Ibid.). With respect to extreme/food poverty, we add that its increase in recent years comes in part from the rise and higher volatility of international food prices (there is evidence of staple foods price convergence between Mexico and the USA, Jaramillo, et.al. 2012).

Figure 6. Incidence of Food Income Poverty (%)



It is important to note that according to CONEVAL estimations, rural food poverty decreased from 2008 to 2012, whereas urban extreme poverty increased: by -0.9 and by 2.2 respectively. While the drop in extreme rural poverty was not statistically significant, in urban poverty it was significant. This suggests that rural population is relatively less vulnerable to food price shocks than urban population.

5. LESSONS FROM MEXICO

After more than 20 years of market-oriented reforms and trade liberalization, Mexico's economic and social performance has been disappointing (the exception is the attainment, since the end of the nineties, of macroeconomic stability, Lustig(2010)). In addition to poor growth performance and lack of sustained poverty alleviation, the economy of Mexico continues to be a highly unequal. For example, the income Gini coefficient in Mexico was 0.53 in 1992 and decreased to just 0.50 in 2008 and to 0.47 in 2010 (CONEVAL's website). Mexico is increasingly dependent on the USA economy and its economic cycles: the USA share in Mexico's total and agricultural trade has increased, up to more than 80 percent in staples and processed foods. In principle, food dependency may not be a threat to food security; however, the experience of Mexico of low income growth and high inequality is troubling especially in the context of climate change, and increasing international food prices and/or their volatility,

As discussed in Part 2, the Mexican government recognized the situation in the beginning of last decade, but the agricultural and rural policy changes implemented to enhance food production and security failed, as demonstrated by the figures on the increasing extreme or food poverty incidences during the last years, coupled by the rise in food expenditures for all income groups. To the above we must add the inefficacy and inefficiency of public interventions in agriculture since the increase in public spending during the first twelve years of the XXI Century did not translate into increasing food production.

Three features of contemporary agricultural and rural policies of Mexico stand out: the high public budget directed to these two sectors, the unequal distribution of benefits, and the emphasis on the provision of private, rather than public, goods, including the lack of sufficient public investment in research, development and technology transfer to agriculture (R&D). However, and notwithstanding the last two features, production in small farms survives.

According to FAO estimates, Mexico stands out as the Latin American country with the strongest agricultural orientation in public spending (this measure is based on the ratio of agricultural GDP to agricultural public expenditures and dividing it by the ratio of total GDP to total public expenditure, Scott, 2006). The high public expenditure on Mexican agriculture contrasts with the overall poor performance of the sector, explained in part by the multiplicity of agricultural

programs, their inefficiency, inequity, and bias in favor of private goods (Taylor, Yunez and Gonzalez 2007, and Berdegueet. al. 2013).

Mexico's agricultural policies have been highly regressive. Even the Rural Development Program of Alliance (Table 1), directed towards marginalized rural regions where poor and small farmers are located, is regressive. Inequity in government agricultural programs negatively affects farmers not receiving subsidies, especially medium size and small producers (Scott, 2010 and see Sumner and Balagtas' (2007) study of the effects of ASERCA deficiency payment program IngresoObjetivo).

Contemporary public spending in rural Mexico has an emphasis on the provision of private benefits and not public goods. Taylor, Yunez and Gonzalez (2007) estimate that in 2005, around 30% of the total public budget to agriculture and the rural sector was channeled into providing private goods. In addition, productive public subsidies to agriculture benefit commercial big farmers. This public policy bias potentially jeopardizes the survival of small-scale farms producing staples and other foods.

The continuation of agricultural production on small farms during Mexico's economic liberalization process, as well as small rural farmers' relatively high productivity and efficiency in producing basic crops (Taylor and Yunez (2010), suggest a potential for small farms to increase their contribution to food production in Mexico. For this to happen, the Mexican state needs to overcome major challenges in reforming agricultural and rural policies so as to include small farms, and to adopt a long-run view by investing in the provision of public goods and encouraging decentralization in public policies for agriculture and rural development.

An example of the Mexican government failure to provide public goods is the modest effect of Fundaciones Produce (part of Alliance for the Countryside) a public scheme to improve, amongst others, agricultural productivity of small rain-fed farmers through the transfer of modern technologies. Figures in Table 14 illustrates this: it shows the meager impacts of Fundaciones Produce on yields in basic staples produced under rain-fed conditions (a summary of the findings of Eduardo Trigo's evaluation of R&D policies in the agriculture of Mexico is in Taylor, et. al. (2007).

	1983-1993	1994-2000	2001-2008
Beans	0.5	0.5	0.6
Maize	1.7	1.8	2.1
Wheat	1.6	1.7	2.0
Barley	1.5	1.6	2.0
Sorghum	2.6	2.4	2.7

Sources: Mexico Ministry of Agriculture's website: 1980-2005, SIACON;
2006 onwards SIAP

Another failure is PESA, since the effects of this strategy on food security have been unsatisfactory, as food poverty and insecurity in Mexico have increased during the last years. This means that PESA has not reduced rural households' vulnerability on shocks such as the rise in international food prices.

A current effort to promote maize production in Mexico is the strategy called MASAGRO, conducted by CIMMYT (Center of Research to Improve Maize and Wheat) with the participation of the Agricultural Ministry (SAGARPA). MASAGRO began in 2010, with the purpose enhancing food security for maize and wheat through R&D, capacity building and technology transfer. This effort endeavors to permit small and medium size ("traditional" and/or rain-fed) farmers to obtain high yields in these two crops, to increase these farmers' income and to contribute to mitigate the effects of climate change in Mexico (<http://masagro.mx/index.php/en/>).

There is not yet an external evaluation of the effects of MASAGRO; however, according to the former Secretary of SAGARPA, up to 2012 the impact of the strategy was low in terms of the concrete application of MASAGRO: out of 30 states (Mexico's equivalent to Provinces), only 10 states have signed agreements with MASAGRO (<http://www.informador.com.mx/5197/sector-agropecuario>). This low coverage of MASAGRO indicates the challenges faced to enhance a sustainable increase in food production by small farmers.

However, the present federal government (that of President Peña Nieto) National Development plan 2013-2018 (NDP) –and in particular its strategy called Cruzada Nacional Contra el Hambre (Crusade against Hunger)—is an opportunity to promote, together with MASAGRO, food security in Mexico, amongst other goals.

Similar to MASAGRO, one of the basic objectives of the CNCH is to increase food production and incomes of small farmers (and rural households) as part of the goal of the NDP to democratize productivity. Based on the trends of food security in Mexico and policy failures to sustain it, in order for the CNCH and

NPD to accomplish these objectives it is imperative to transform public policies in the agriculture and the rural sectors. In particular, the Mexican government must link social policies to productive policies in the rural economy within a framework of coordination between ministries in charge of them and between the three levels of government (federal, state and municipal/county). These actions must include the participation of small producers and/or rural food producing households in specific policy design and implementation.. The rural households must be included in order to articulate policies with the specific requirements and demands of these actors (details in Berdegue, J. et. al, 2013). This approach, i.e. from top to bottom, will resolve, at least partially, the question of which producers have a productive potential.

Food security policies must emphasize the provision of public goods, and must not, as before, rely almost exclusively on income transfers to individuals. In particular the investment in infrastructure and communications and R&D must be emphasized, as well as the promotion of rural organizations at the production, storage, marketing and financial levels. All of the above must be undertaken with a territorial perspective in order to connect the economy of rural localities with nearby urban centers (see RIMISP publications on “functional territories”).<http://www.rimisp.org/publicaciones-documentos/>

There is another lesson that can be learned from the experience of Mexico. The evaluations of public social and agricultural policies carried out by CONEVAL during the last years are now a major reference for understanding the evolution of poverty in Mexico. It has been possible to do these estimations thanks to the data of ENHIIGH and other official surveys. CONEVAL, together with the Ministry of Finance, are also responsible to seek external and independent experts to evaluate the design and results of social and agricultural government programs. Unfortunately, rigorous empirical impact analyses such as those based in quasi-experimental approaches are scarce. For agricultural programs, lack of impact evaluation is mainly due to the insufficient official data on their potential and actual beneficiaries. This requirement will be fulfilled by a survey representative of rural producers that CONEVAL plans to implement before the end of this year.

6. CONCLUSIONS

In Mexico, government interventions in agriculture radically changed during the beginning of the 1990s in the process of economic reforms and free trade negotiations under NAFTA: from direct interventions through a State Food Enterprise, price supports and food import controls to “transition” policies and freer agricultural trade. The Ministry for Social Development was created in conjunction with the reforms and with it a tacit separation between social and productive policies in the rural sector. With the exception of PROCAMPO –the direct income transfers to farmers producing food staples—agricultural subsidies focused on commercial farmers, most of them big ones located in the northern arid regions of the country.

Agricultural policies during the nineties were intended to be transitory, to help farmers to prepare for the competition of their USA counterparts (the process of full agricultural liberalization under NAFTA ended in December 2007). However and up to the present (i.e. the first year of Peña Nieto as President of Mexico and Congress), these policies remain. There are, however, reasons to expect that some policy changes will be adopted, at least in relation to the current administration Crusade against Poverty.

The apparent perpetuation of agricultural policies of the past is associated with the maintenance and/or creation of powerful interest groups which are beneficiaries of government subsidies; this is other lesson the Mexican experience can offer.

NAFTA is not necessarily to blame for the present condition of the agricultural sector and the continuation of poverty in this sector. I propose that the unsatisfactory performance of agriculture is a consequence of the extreme view adopted by the Mexican State that to recur to the markets is the best policy option to attain economic development. For agriculture, this view was present in the expectation that freer markets and trade would assure a more efficient use of resources, as well as food security. In industry, this viewpoint explains the disappearance of an industrial policy, and hence, it is not surprising that in Mexico there is no policy regarding dietary phenomena. Instead, we have witnessed the rise in the consumption of non-nutritional foods produced in Mexico and abroad.

In addition to this, there was no serious state effort to invest in and promote R&D, and in particular to promote, adapt and transfer it to small and medium

size farmers (large farmers in the North have the option to adapt new technologies developed abroad, and more specifically, in the USA).

As discussed in this paper, there are signs that the current administration is aware of the challenges Mexico faces to create effective and efficient agricultural and rural policies to attain food security. Diagnoses of public policy failures are available, as well as concrete proposals “to reform the reforms”; what is required is the political will of powerful groups to put them into practice. We hope that the current administration implements the required policy changes, and with this Mexico could offer positive lessons to other countries in earlier stages of development.

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