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Agricultural Policy and Rural Poverty in Mexico

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Abstract

Agriculture and rural development policies in Mexico have experienced a profound reform process over the last two decades, including the ejido reform of 1992, the liberalisation of agricultural markets under the North American Free Trade Agreement (Nafta, between 1994 to 2008), and the introduction of new instruments of agricultural support (Procampo, Aserca, Alianza para el Campo) and rural poverty alleviation (Progresa/Oportunidades, FAIS, PET). The study presents an assessment of these reforms, focusing on the allocation and distribution of public resources, and their impact on rural poverty. First, though average public expenditure in agricultural support and rural development in Mexico is modest by OECD standards, it is among the highest in the LAC region, relative to both agricultural GDP and other public spending demands. Second, a strong urban bias in the allocation of public social spending in education, health and food programs prevalent up to the mid-nineties has been reversed, largely through the effect of Progresa/Oportunidades. Third, in contrast, the principal output and input agricultural support programs, like the older price support mechanisms, have proved to be both ineffective in transforming Mexican agriculture and highly inequitable. The benefits of these programs are overwhelmingly concentrated on a small fraction of agricultural producers in the rich northern agricultural states, at the top extreme of the rural and national income distributions, failing to reach the poorer and vulnerable producers. Even in the case of Procampo, the one program reaching subsistence farmers, 23% of transfers are concentrated in only 2.6% of producers in the top national income decile. With the latter exception, agricultural subsidies are more regressive even than the rural income distribution, thus aggravating, rather than reducing original, asset-based inequality in Mexico.

Resumen

Las políticas agrícolas y el desarrollo rural en México han experimentado un profundo proceso de reforma en las últimas dos décadas, incluyendo la reforma del ejido de 1992, la liberalización de los mercados agrícolas bajo el Tratado de Libre Comercio de América del Norte (TLCAN, entre 1994 y 2008), y la introducción de nuevos instrumentos de apoyo agrícola (Procampo, Aserca, Alianza para el Campo) y alivio de la pobreza rural (Progresa/Oportunidades, FAIS, PET). Este estudio presenta una evaluación de estas reformas, enfocada a la asignación y distribución del gasto público y su impacto en la pobreza rural. Primero, aunque el gasto público en subsidios agrícolas y el desarrollo rural en México es modesto en el contexto
de la OCDE, resulta que es de los más altos dentro de la región de LAC en relación al PIB agrícola y a otras demandas del gasto público. Segundo, se ha revertido un fuerte sesgo urbano en el gasto social en educación, salud y apoyos alimentarios, prevaleciente hasta mediados de los noventa, principalmente por el efecto de Progresa/Oportunidades. Tercero, en contraste, los principales subsidios a la producción e insumos agrícolas como los mecanismos de apoyos vía precios del pasado, han demostrado ser ineffectivos para la transformación de la agricultura en México y extremadamente inequitativos. Los beneficios de estos programas se concentran en una fracción pequeña de productores agrícolas en los estados más ricos del norte del país, en el extremo superior de la distribución del ingreso rural y nacional, sin alcanzar a los productores más pobres y vulnerables. Aun en el caso de Procampo, el único programa que logra llegar a los campesinos de subsistencia, 23% de las transferencias se concentran en sólo 2.6% de los productores, en el decil más rico de la distribución nacional. Con la excepción anterior, los subsidios agrícolas son más regresivos que la distribución del ingreso rural, por lo que agravan, en vez de reducir, la desigualdad original basada en activos en México.
Introduction

The “Second Agrarian Reform” and Rural Development in Mexico: Ten Years Later

Agriculture in Mexico experienced a profound reform effort over the last decade, with the intention of increasing its efficiency and productivity, and bringing about the transition from a highly dualistic and lagging sector, to a competitive and dynamic one. The two principal components of Mexico’s “second agrarian reform” (Gordillo et al., 1999) have been the constitutional reform of the ejido land tenure system in 1992, designed to extend individual property rights and relax constraints in the land market, and the liberalisation of agricultural markets under the North American Free Trade Agreement (Nafta), initiated in 1994, with full liberalisation of most agricultural products in 2003, and maize, beans, sugar and milk powder by 2008.

These structural reforms have been accompanied by reforms in the principal agricultural support, rural development and anti-poverty programs, originating partly as compensatory and transitional mechanisms, but evolving into a broader effort to generate effective and equitable policy instruments in these areas, as established more recently in the Ley de Desarrollo Social Sustentable (2001). The principal agricultural support programs introduced in this period are the Programa de Apoyos Directos al Campo (Procampo, in 1994), a producer compensation mechanism decoupled from commercial sales, and thus less distortionary as well as accessible to subsistence farmers, the Programa de Apoyos a la Comercialización (in 1991), a more traditional subsidy program for surplus farmers, and Alianza para el Campo (in 1996), an investment support program (or family of programs) offering matching grants and support services.

The principal reforms in social rural development and anti-poverty policy involved the introduction of innovative and effectively targeted programs, a reallocation of social spending towards the rural sector to eliminate the urban bias, most notably in the case of food programs, basic education and health services for the uninsured, and a reallocation of public rural spending from “productive” (agricultural support) to “social” (targeted human development and anti-poverty) programs. One of the principal instruments introduced to implement these reforms is the Programa de Educación, Salud y Alimentación (Progres, in 1997), offering direct cash transfers to poor rural households conditional on human capital investment (attending basic education and using health services). Two other rural anti-poverty instruments introduced in this

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1 The Programa de Apoyos a la Comercialización and Procampo are both managed by Apoyos y Servicios a la Comercialización Agraria (Aserca).
2 In 2001 the program was extended to urban areas and upper-secondary education and renamed Oportunidades.
period are the *Fondo de Aportaciones para Infraestructura Social (FAIS, in 1996)*, a large decentralized fund for basic infrastructural investment largely replacing the *Programa Nacional de Solidaridad (Pronasol)* of the Salinas administration (1988-1994), and the *Programa de Empleo Temporal (PET, in 1995)*, a multi-agency, self-targeted temporary employment program.

Though very different in objectives and design, *Procampo* and *Progresa* represent, as we shall see, a significant reallocation of production and consumption subsidies, respectively, in favour of the rural poor, replacing the expensive, inefficient and inequitable system of price subsidies on basic food staples introduced by Cardenas to complement the “first agrarian reform”, and sustained for most of the post-revolutionary history of Mexico.

More than a decade after the initiation of this broad reform effort, it should be possible to make a preliminary assessment of its success in bringing about the expected transformation of Mexican agriculture, to generate a dynamic, sustainable and equitable path of rural development. This is the principal objective of the present review. Looking ahead, we find that, despite the depth and scope of the reforms, and some promising, if incipient, trends in the rural economy, these goals are still distant, especially for the rural poor. The principal agricultural output and input support programs in Mexico, with the notable exception of Procampo, share two of the limitations of the older (pre-Nafta) market price support system: they mostly fail to provide adequate opportunities and incentives to induce the desired transformation of agriculture in Mexico, and they are remarkably inequitable. Though the broad inequity of agricultural support programs in Mexico is well-known, precise comparative estimates of the distributive incidence of these instruments are scarce [except for the case of Procampo —the only agricultural support program reported in the *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH) survey, the principal source for benefit incidence estimates of public transfers in Mexico]. A contribution of the present review is to use available data to estimate just how inequitable these instruments are. We find that they are concentrated on a small fraction of agricultural producers in the rich Northern agricultural states, in the extreme top of the rural income distribution, and the richest decile of the *national* income distribution, failing to reach the poorer and most vulnerable producers who would need them most. They are certainly more regressively distributed than the highly unequal distribution of rural income, thus contributing to aggravate rather than compensate original, asset-based inequality in Mexico.

The second agrarian reform, like the first one, has been further constrained by structural challenges and policy failures which must be addressed before the full growth and poverty-reduction potential of the rural economy in Mexico can be realized. The “third agrarian reform” will have to be broader in scope, addressing not only agricultural programs and institutions (output and input support programs and market reforms), but also constraints
in human capital, (transport) infrastructure and access to social security, limiting the mobility of traditional agricultural producers towards more productive opportunities, farm or off-farm, within the rural sector or beyond.

The paper is structured as follows. Section 1 reviews the evolution of rural poverty and human development in Mexico over this period. Section 2 considers the evolution of public expenditure on agricultural support and rural development. Section 3 documents the impact of the 1992 ejido reform and associated institutional developments. Section 4 reviews the shift from long-standing price support policies to the agricultural support programs introduced in the last decade (Procampo, Aserca, Alianza para el Campo) in the context of trade liberalization under Nafta. Section 5 considers the evolution of social policy and anti-poverty programs in the rural sector over this period. Section 6 reviews the principal input subsidies operating in Mexico, on water and energy use. Last section concludes and derives some policy implications.

1. Rural Poverty and Human Development: 1992-2004

Almost a century after the Mexican Revolution, a profound agrarian reform and land redistribution process prolonged over most of the past century, half a century of expensive price and input support programs, and ten years after the “second agrarian reform”, the poorest of the poor in Mexico are still landless agricultural workers and subsistence farmers. Rural income poverty fell by a half between 1998 and 2004, but most of this gain represents a recovery from the sharp increase in poverty following the 1995 Tequila Crisis. The 1992-2002 decade was fully “lost” in terms of rural poverty-reduction. Out of the extreme poor in Mexico, 60% still live in rural areas. Extreme poverty rates vary significantly by region as well as degree of “rurality”: the per cent of regional population living in extreme poverty is 12% in the rural areas of Northern states, but 42% in the rural South, and the rate doubles as we pass from urban (>15000) to semi-urban (2500-15000) localities, and doubles again from the latter to small rural localities (<2500).

In addition to these differences in income poverty, large gaps persist between rural and urban areas even in the most basic human development indicators. Illiteracy in rural areas is 21%, twice the national average and seven times the average for Mexico City, and average schooling is less than 5 years, half the average for Mexico City. Almost three-quarters of the

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3 The poverty estimates reported below correspond to the official poverty lines and measurement methodology used by the Federal Government in Mexico, following the recommendations of the Comité Técnico para la Medición de la Pobreza en México (CTMP, 2002). Consistently with these measures, unless otherwise noted, we use “rural poverty” here to refer to poverty in localities with a population less than 15000, although this includes “semi-urban” localities with population between 2500 and 15000. We use “extreme poverty” to denote what is officially called “pobreza alimentaria” (food poverty), which measures households whose total income is less than the estimated cost of a basic food basket.
population in Mexico City and half of the national population have completed post-primary education, but only a quarter of the population in the rural sector. In the case of health, municipal infant mortality rates (IMR) vary widely as a function of municipal marginality measured by a multi-dimensional poverty indicator (Conapo marginality index), which is highly correlated with degree of “rurality”. Comparing the extremes of this distribution, the highly rural (dispersed) municipality at one end show an IMR of up to 67 (infant deaths per 1000 live births), and the metropolitan municipalities at the other end had an IMR of 17 in 2000. The distance between the municipalities with the highest and lowest IMR in Mexico has been reported to be as high as 103-9 in 1999 (Secretaría de Salud, 2001), a gap comparable to the difference between the national average IMRs of Bangladesh and the USA.

There has been some debate on the causes of the recent reduction in rural poverty in Mexico, in particular the role of public (chiefly Oportunidades and Procampo, but also pensions) and private (international) transfers. The most notable transformation of the rural economy in this period is the increasing importance of non-agricultural production. Only 17% of rural incomes in 2004 come from agriculture (55% non-agricultural), following a sharp contraction of independent (non-wage) farming income, from 28.7% to 9.1% between 1992 and 2004.

Transfers have grown significantly and now account for a similar share of rural income as agriculture. The share of public transfers in rural incomes increased from 1.7% to 7.9% in the last decade, though there appears to be some crowding out of private domestic transfers, whose share has fallen by a half. While international transfers have grown, they still only represent 4% of household incomes in the rural sector. Transfers represent a larger share of income for the poor, and the expansion of Oportunidades probably played an important role in the fall in poverty in 2000-2002 (Székely and Rascón, 2004). On the other hand, the fall in 2002-2004 is mostly explained by the increase in rural labour incomes —by 30% for those at the food poverty line.

Independently of the causes, between 2002 and 2004 average income of the poor in the rural sector actually declined to their 2000 levels, which indicates that the fall in the rural poverty rate in this period reflects income gains for households close to the poverty line rather than deeper down the income distribution. Poverty measures sensitive to the depth of poverty and the distribution of the poor (poverty gap and squared poverty gap) show no statistically significant change (Cortés et al. 2005). This suggests that there is still an important challenge to be met for the market opportunities opened up by the reforms and the public programs to reach the poorest, largely indigenous, segments in the rural sector.

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4 This evidence must be interpreted with some care as the ENIGH survey is designed to be representative for income as a whole, but not necessarily for small income sources.
EXTREME POVERTY IN RURAL SECTOR, 1992-2004

<table>
<thead>
<tr>
<th></th>
<th>POVERTY RATE</th>
<th>SHARE OF NATIONAL POVERTY</th>
</tr>
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<tbody>
<tr>
<td>1992</td>
<td>35.6</td>
<td>66.2</td>
</tr>
<tr>
<td>1994</td>
<td>36.8</td>
<td>72.8</td>
</tr>
<tr>
<td>1996</td>
<td>52.4</td>
<td>57.0</td>
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<tr>
<td>1998</td>
<td>52.1</td>
<td>61.6</td>
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<tr>
<td>2000</td>
<td>42.4</td>
<td>68.4</td>
</tr>
<tr>
<td>2002</td>
<td>34.8</td>
<td>65.7</td>
</tr>
<tr>
<td>2004</td>
<td>27.6</td>
<td>59.9</td>
</tr>
</tbody>
</table>

Source: Cortés et al. 2002; Comité Técnico para la Medición de la Pobreza (2005).

VARIATIONS IN EXTREME POVERTY BY REGION AND SIZE OF LOCALITIES (2002)

EDUCATIONAL GAPS (POPULATION 15 YEARS AND OLDER)

<table>
<thead>
<tr>
<th></th>
<th>RURAL (&lt;2500)</th>
<th>NATIONAL</th>
<th>MEXICO CITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiteracy (%)</td>
<td>21.0</td>
<td>9.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Schooling (years)</td>
<td>4.8</td>
<td>7.6</td>
<td>9.7</td>
</tr>
<tr>
<td>Post-primary education (%)</td>
<td>24.2</td>
<td>51.6</td>
<td>71.6</td>
</tr>
<tr>
<td>In school (15-19 year olds)</td>
<td>28.9</td>
<td>46.7</td>
<td>64.8</td>
</tr>
</tbody>
</table>

INFANT MORTALITY RATE BY MUNICIPALITY ORDERED BY LEVEL OF MARGINALITY (2000)

Source: author’s calculations based on municipal infant mortality data reported by Conapo.

PRINCIPAL SOURCES OF RURAL MONETARY INCOME: 1992-2004
(% OF TOTAL INCOME)

**PRINCIPAL SOURCES OF RURAL INCOME PER CAPITA AT THE FOOD POVERTY LINE (35TH HOUSEHOLD CENTILE)**

Source: Cortés (2005). Property income and non-monetary income are excluded.

**AVERAGE MONTHLY PER CAPITA INCOME OF THE POOR IN THE RURAL SECTOR (MXP, AUGUST 2004)**

Source: Cortés et al. (2005)
2. Public Expenditure on Agriculture Support and Rural Development

Despite multiple international and national standardization efforts, accounting for public expenditure in agriculture and rural development across countries and time is plagued by difficulties. This has been made especially challenging in the present case by frequent changes in programs and classifications. Nevertheless, there are data covering the last two decades from four different sources: the OECD agricultural support series, the FAO RLC public expenditure series, a series presented in World Bank (2005) and the federal budgets for the Programa Especial Concurrente para el Desarrollo Rural Sustentable (PEC), a recent official classification of all rural programs (defined in the Law of Sustainable Rural Development).

The evolution of public expenditure in agriculture and rural development has been strongly cyclical over the last two decades. It was drastically reduced in the context of the general adjustment to fiscally sustainable levels of public spending following the 1982 crisis, began to climb back in the first half of the 1990s, but dipped again with the 1995 crisis and has only regained the pre-crisis level (1994) in the last few years.

On average, over the last decade, about half of these resources have been allocated to social programs, while the other half has gone mostly to productive activities, infrastructure, land tenure and environmental program. The “social” share of these resources appears to have expanded significantly in the last few years.\(^5\)

The weight of social expenditure is in fact grossly underestimated, as it only includes those programs which are explicitly targeted to the rural sector, but not “universal” social expenditures—mainly on education and health services—whose allocation has become increasingly pro-rural in the last decade (see below, section 5). The rural share in these resources has been estimated at 27.5% in 2002 (World Bank, 2004), representing 175 billion MXP of 2005. If included as part of public expenditure in rural areas, as it strictly should be, this would triple the resources currently classified as public social expenditure in rural areas.

Even ignoring the latter resources, however, public expenditure in agriculture and rural development represents a third of agricultural GDP in Mexico, among the highest in the LAC region. Though agricultural support spending in Mexico is modest by OECD standards, the “agricultural orientation” of public expenditure (the share of total public expenditure

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\(^5\) The exact proportions are sensitive to differences in classifications that sometimes seem unrelated to the programs’ mechanisms or objectives. For example, FAIS, used to finance productive as well as local public infrastructure, is fully classified as “social” spending in the PEC classification used in the Federal Budget, and accounts for 25% of this spending.
allocated to agriculture and rural development with respect to the share of agriculture GDP in total GDP) is by far the highest in the region.


![Graph showing public expenditure in agriculture support and rural development from 1985 to 2002.](image)

Source: FAORLC, OECD, World Bank (2005), Centro de Estudios de las Finanzas Públicas, 2005; PEF 2006. Allocation between productive and social programs in 2006 based on Federal Budgetary Project, not the budget approved by the Legislature, though the total corresponds to the approved project. OECD series refers to tax-financed support instruments (excludes market price support financed by consumers).

**SHARE OF AGRICULTURE IN TOTAL GDP AND AGRICULTURAL ORIENTATION OF PUBLIC EXPENDITURE* IN MEXICO**

![Graph showing the share of agriculture in total GDP and agricultural orientation index from 1985 to 2001.](image)

Source: FAO. *(Expenditure in rural direct incentives / total governmental expenditures) / (Agricultural GDP / Total GDP).*
PUBLIC AGRICULTURAL AND RURAL EXPENDITURE:
% OF AGRICULTURAL GDP

Source: FAO.

"AGRICULTURAL ORIENTATION" OF PUBLIC EXPENDITURE:*
INTERNATIONAL COMPARISON

Source: FAO. * (Expenditure in rural direct incentives / total governmental expenditures) / (Agricultural GDP / Total GDP).
Agricultural Policy and Rural Poverty in Mexico

3. Land: The Ejido Reform and Agrarian Institutions

For 75 years following the Mexican Revolution, the Agrarian Reform (1917-1992) redistributed more than 100 million hectares—half of the country’s present agricultural land—to 3.8 million producers, in the unique “social” ejido (and comunidades) property system. The antecedent concentration of land is difficult to imagine today. In 1905, when Mexico was 70% rural, of the total population engaged in agriculture, 0.2% owned 87% of the land (8,431 haciendados), while 91% were landless (3.2 million peones). Today, Mexico has the lowest land concentration (Gini) coefficient (0.6) in the LAC region, comparable to the land concentration coefficients reported for East and Southeast Asia (Deininger and Olinto 2002). This distribution was achieved by 1940 and sustained through half a century of continued agrarian reform in a context of rapid rural population growth.

![Land Concentration Curves: The Mexican Revolution and Agrarian Reform](image.png)

Sources: author’s calculations based on tabular results from the 1905, 1940, and 1991 Agricultural Censuses and Procampo’s Beneficiary Register (the latter as reported in Székely 2003, table 5).

While the (much later) land reforms in countries like Korea and China opened up paths of equitable economic development, this did not happen in Mexico. Several factors may explain this. First, considering the crop conditions of Mexico relating to geology and climate, land equity was achieved at the cost of an excessive atomization of plots relative to efficient

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6 According to the 2001 Ejido Census, there are today 2.9 million ejidatarios (ejido communities) and 1 million comuneros.
scales of production, with much of the land distributed of limited agricultural quality. In addition to 1.9 million landless agricultural workers, the 1991 Agricultural Census reports 2.2 million farmers with less than 5 hectares, and 1.3 million with less than 2 hectares. Only 32.8% of ejido land today is for individual use (parcelas), of the rest, allocated to “common use”, only 1.6% was cultivated in 2001. The average size of individual farming plots in the ejido sector is only 5 hectares.

Secondly, the limited individual property rights of the ejido system (usufruct rather than full property rights, conditional on sustained use, neither transferable, nor applicable as collateral to access credit), severely restricted agricultural land markets (as it was indeed designed to do), and thus the efficient allocation of both land resources and complementary non-labour inputs. Compared to similar private lands, ejidos were thus hampered by low investment rates and high levels of poverty.

Thirdly, the generous agricultural support commitments of post-revolutionary governments, sustained from Cardenas to the 1982 crisis, through expensive price support and input subsidies (credit, irrigation, energy, fertilizers, technical assistance), were highly distortionary and inequitable. Most of the benefits were concentrated in the larger (northern) commercial farmers, fully by-passing subsistence farmers.

The Constitutional (Art. 27) ejido reform of 1992 was designed to strengthen property rights, generating a functional land market and efficient allocation of land resources. It aimed to achieve this through three principal means. First, the Agrarian Reform process finally terminated, thus reducing uncertainty on land tenure associated with discretionary expropriating powers. Second, restrictions on ejido property rights were relaxed, completely freeing land rentals, and freeing sales within the ejido, though sales to outsiders require permission of the ejido assembly and inherited parcels cannot be divided between multiple beneficiaries. The possibility of full privatisation of ejidos (dominio pleno) was also introduced, though this requires a 2/3 majority vote of its members. Third, a set of independent land titling and judiciary institutions (PROCEDE, Registro Nacional Agrario, Procuraduría Agraria, Tribunales Agrarios) was established to implement the constitutional reforms to land property rights.

Contrary to both expectations and fears, the ejido reform led neither to a significant rise in agricultural productivity through a more efficient allocation of land resources and complementary inputs (World Bank, 2005), nor to massive outflows of the newly landless into the cities. There is little evidence of a significant impact on the access of ejidatarios to complementary agricultural inputs through better functioning rural factor markets. There are no signs of even a gradual transformation of the social sector into private

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7 For example, Levy (2004), chapters V-VII.
lands: a decade after the reform, less than 1% of ejidos had chosen to self-privatise, and this has mostly involved peri-urban land intended for housing development.

On the other hand, by allowing the rental of land and freeing up the labour of *ejidatarios* seeking non-agricultural opportunities, the reform appears to have contributed to the noted expansion of non-agricultural activities. There is some evidence of increasing integration of *ejido* households to non-agricultural activities performed within the *ejido* and non-*ejido* agricultural and non-agricultural activities, which “will ultimately erode differential returns to land, labour and capital across the sectors and reduce rural poverty in Mexico”.

There are several explanations for the limited impact of the reform on agricultural land and input markets and productivity. First, as noted, the reform left some important restrictions of ejido property in place, still limiting in particular the use of ejido land as collateral to access credit, and the allocation of land to the most productive producers.

Second, many of the market transactions which the ejido reform did sanction and formalized (like rentals), were widely practiced informally before the reform. Third, to the extent that the reform was not accompanied by changes in the tax treatment and support programs benefiting the ejido sector, these incentives to improve performance of ejidos represent disincentives to privatisation. More generally, the ejido organization represents a valuable asset not only for the internal organization of producer units, but also for the political representation of producer interests.

Fourth, as we will review below, the design and allocation of most agricultural output and input subsidies does not provide adequate incentives to increase productivity and shift from traditional to more profitable crops. On the one hand, these resources fail to reach those who would most depend on them to be able to risk venturing out of traditional crops, the smaller, poorer and most vulnerable producers. On the other, most of these instruments fail to give their beneficiaries (poor or non-poor) incentives to reconvert to alternative crops, and they often actually support traditional crops. For example, more than 40% of Aserca resources have been allocated to maize producers on average over the last decade (1997-2005). More indirectly, this is also the case of the one main program reaching poorer farmers, Procampo, which not only is not designed to induce these farmers to reconvert, but by transferring a valuable rent on land, signifcantly reduces incentives for these farmers to sell to better equipped and more competitive producers who would be better able to achieve this conversion.

Finally, there is a sixth factor which is often noted in passing, but rarely analyzed at any depth in terms of its policy implications. This is the role of

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8 World Bank (2000).
subsistence agriculture as a safety net for poor households in the absence of formal social security. Less than 5% of the elderly (65 and older) in the rural sector are currently covered by any of the public social security institutions in Mexico. The country compares unfavourably to others in Latin American and the Caribbean in this respect, just below Bolivia and Ecuador. It is not perhaps surprising in these circumstances that ejidatarios cling to their land as they grow old instead of passing it on to the younger, more productive generations: the average age of right holders in regularized ejidos is 54 years, with 60% over 50 years, and 29% over 65 years (2001 Ejido Survey) —in a country where the latter age group still represents only 5% of the population.9

As informal support networks erode, partly endogenously, due to the migration of the young responding to limited opportunities to access ejido land, this function of subsistence farming will if anything become more important in the absence of credible public social protection mechanisms for the rural poor.

![Social Security Coverage in Old-Aged Population](source: Rofman (2005))

But minifundio subsistence farming is not only functional as a safety net. Perhaps surprisingly, it also still appears to have an important poverty-escaping potential. Finan, Sadoulet and de Janvry (2002) find that for households with little land (less than one hectare of rain fed corn equivalence), “an additional hectare of land increases welfare on average by 1.3 times the earnings of an agricultural worker” (p. 1). The realisation of this potential is, however, strongly sensitive to access to complementary assets

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9 The historical persistence of subsistence agriculture in Mexico, even in the face of better economic opportunities, has also been explained by cultural factors and limits to the scale of production feasible in rain-fed land worked by a single farmer using traditional methods, conditions typical of the Southeast.
like education and roads, in addition to household ethnic characteristics: “For non-indigenous small farmers with at least primary education and access to a road, the welfare benefit of additional land is on average seven times higher than for those without these attributes” (ibid.). These high returns to marginal increases in land at low levels of land ownership are partly explained by associated gains in the returns to other assets in the multi-sectoral economy of subsistence farming family units.10

4. Agricultural Support After Trade Liberalization

The oldest and principal form of agricultural support implemented in post-revolutionary Mexico, from Cardenas to the mid-1990s, was an expensive combination of market price support and general consumption subsidies. The principal instrument for this policy was the Compañía Nacional de Subsistencias Populares (Conasupo), which operated between 1965 and 1999, protecting producers through a price floor on basic crops (especially corn and beans), while protecting the purchasing power of urban consumers through expensive subsidies (especially on tortillas). Federal transfers to Conasupo absorbed close to half a percentage point of GDP annually, on average, over a quarter of a century.

The net incidence of these policies was in the benefit of (urban) consumers up to the 1980s, implying a net tax on agriculture in the context of an overvalued exchange rate.11 This situation was reversed by the early 1990s, when the internal price of corn was 70% above international prices,12 and the tortilla subsidy—which had been cut after the 1983 crisis—was insufficient to compensate urban consumers for this differential. The broad consumer subsidy was gradually replaced by tortilla and milk subsidies intended to go to the poorest consumers, but these were costly to operate and not well targeted in actual practice. The general tortilla subsidy (and Conasupo) was finally eliminated in 1998, and food subsidies have since then been reallocated to rural areas with the creation and expansion of Progresa (section 5).

10 For a broader analysis of transport infrastructure as a critical bottleneck for the development of Southern rural regions, see Dávila et al. (2004).
12 Levy (2004), chapters V-VII.
The big losers of these policies were subsistence farmers and landless rural workers, first by being net buyers of corn and thus paying higher food costs due to the pricing policies even in the latter period, and secondly by missing out on the consumption subsidies that did not extend to rural areas. Corn and coffee pricing policies in the 1980s and early 1990s have been estimated to have imposed implicit taxes on small agricultural producers in the poorest regions of 15-30%, redistributing the proceeds to large farmers in richer regions.\(^\text{13}\)

Against this historical background, the rural poor had little to lose and potentially much to gain from the opening up of agricultural markets in the early 1990s. The liberalisation of basic crop markets (corn and beans) will obviously affect commercial producers of these crops in the transitional phase, but it will benefit subsistence producers —two thirds of all corn producers in Mexico— as (net) consumers of these products. On the other hand, it could also have regressive effects through agricultural wages and land prices,\(^\text{14}\) though these have been limited by seasonal migration and the noted restrictions on land markets. To facilitate the transition from traditional, low productivity rural activities, to more productive farm or off-farm economic opportunities, in the context of the ejido reform, the implementation of adequate compensation and support programs is of critical importance.

In addition to the noted general decline in agricultural support, there have been some notable changes in its composition. The principal forms of support

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\(^{13}\) Deininger and Heinegg (1995).

\(^{14}\) Levy (2004), chapters V to VII.
in the early 1990s were market price support (MPS), consumer subsidies, public stockholding, and input supports. A decade later, MPS has declined significantly (following the 2003 liberalization under Nafta), consumer subsidies linked to basic food products (mainly tortilla) have all but disappeared,\textsuperscript{15} and the principal kind of budgetary support is payments based on historical entitlement (Procampo), though supports based on inputs—which had fallen significantly from 1986 to the late 1990s—and production, have expanded in the last few years reflecting in part concessions to organized farming interests in the context of the Acuerdo Nacional para el Campo (2003).

The principal agricultural support programs introduced in the 1990s are the Programa de Apoyos Directos al Campo (Procampo) from 1994, the Programa de Apoyos a la Comercialización from 1991 and Alianza para el Campo from 1996, which jointly absorb some 30 billion MXP today.

\textbf{AGRICULTURAL SUPPORT: 1986-2004 (MXP, 2004)}

\textsuperscript{15} As noted before, and documented below (section 5), the resources allocated to traditional consumer subsidies were redirected to the targeted Oportunidades transfers (not conditional on specific food consumption, but used largely for food consumption given the income level of its beneficiaries), so the fall in food subsidies is not as drastic as the OECD data presented in the graph below suggest.
Procampo is a producer compensation mechanism decoupled from commercial surpluses. It offers fixed monetary payments per (cultivated) hectare, with eligibility determined by total hectares producing any of nine traditional crops in the three years prior to the program’s initiation (in 1994). The program emerged as a transitional mechanism to be phased out with full liberalization under Nafta, by 2008. Its budget declined gradually in real terms until 2001, but has been increasing slightly since then. In 2005, the program covered around 2.7 million agricultural producers and 13.3 million hectares.

By paying a uniform amount per hectare per season (between MXP 963 and 1160 in 2005) independently of production or marketed output, in contrast to earlier price support policies, as well as to other current support instruments, it is both less distortionary and accessible to subsistence farmers. Almost half of all beneficiary producers have less than 2 hectares, though they obtain only 13% of transfers, while 3.8% of producers, with more than 18 hectares, obtain 33% of benefits. In terms of population deciles ordered by income per capita, large producers in the top rural decile obtain a disproportionate share of the program’s resources (35%), but the distribution is flat for the other 90%. This might not look especially progressive, but as will become clear below it is by far the least regressive among the principal agricultural support program operating in Mexico: it may in fact be the first time in the post-

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16 The number of eligible hectares per producer is only capped by the constitutional limit on land holdings, which is 100 hectare of irrigated land equivalent.
revolutionary agrarian history of the country that subsistence farmers have obtained a relevant share in agricultural support resources.\textsuperscript{17}

Despite its comparative pro-poor incidence among agricultural support programs, Procampo has large exclusion (landless agricultural workers) and inclusion errors (large commercial producers). Considering the distribution nationally (rather than within the rural sector), not only do a third of Procampo payments go to the richest rural decile, but in fact 23\% of Procampo transfers are concentrated in only 2.6\% of producers in that top national income decile, revealing that the largest producers are among the richest households in the country. We will see shortly that this small group at the top of the national income distribution actually absorbs the bulk of all agricultural support transfers in Mexico.

Although Procampo works reasonably well as a compensatory program and represents a significant addition to the finances of poor farmers, it does not provide specific incentives for shifting from traditional crops into more productive activities, as payments are not conditioned on (current) cultivation of specific crops. Strikingly, the most recent evaluation of Procampo finds that more than a decade after the initiation of the program almost half of all beneficiaries—small and large alike—ignore that they can plant any crop without losing the benefits, and only 5.8\% report having switched crops (GEA 2005).

**PROCAMPO COVERAGE: DISTRIBUTION OF BENEFICIARIES AND LAND**

\begin{figure}
\centering
\includegraphics[width=\textwidth]{procampoo_coverage.png}
\caption{Comparison of Procampo beneficiaries and land holdings.}
\end{figure}

\textsuperscript{17} Cord and Wodon (1999), using the 1994 and 1997 Ejido Surveys, have estimated Procampo transfers to represent up to 40\% of the income of ejidatarios in the poorest decile.
DISTRIBUTION OF PROCAMPO TRANSFERS, INCOME AND AGRICULTURAL LAND BY RURAL POPULATION DECILES (2002)


DISTRIBUTION OF PROCAMPO TRANSFERS AND BENEFICIARIES BY NATIONAL POPULATION DECILES (2002)


As Procampo’s budget contracted, Alianza para el Campo and Apoyos a la Comercialización (Aserca) have gained in importance, and since 2001 absorb a joint budget equivalent to Procampo’s (15 billion MXP in 2005). Alianza groups a large set of farm investment programs, financed through matching grants by both federal and state governments. These are classified into three principal groups, the Programa de Desarrollo Rural (PDR), the Programa de Fomento Agrícola, and the Programa de Fomento Ganadero.
In contrast to the latter two, which have no equity objectives, the sub-programs grouped under the PDR are formally intended to benefit low-income and other vulnerable groups and include explicit (though imperfectly enforced) targeting criteria. The evidence suggests that the program fails dismally to achieve its distributive priorities. For example, its rules require that at least 70% of its resources be allocated to Very High or High marginality localities (as defined by Conapo’s marginality index), but in 2004 only 32% of the expenditures associated with PDR were spent in these localities—less than 2% in Very High marginality localities. In the context of a recent evaluation of the program, FAO (2005) used a survey and typology of beneficiaries based on socioeconomic and productive variables to evaluate the distribution of PDR benefits.18 The FAO finds that 78% of PDR beneficiaries are of Types I and II, in contrast to 54% of total Alianza beneficiaries, and concludes that the PDR “is targeted to low income producers” (p. 3). However, their relative position as “low income” is defined within the set of beneficiaries only, not in the rural population at large. World Bank (2006, fig. 3.24) uses a rural population survey (ENHRUM) to place these types within the latter population, obtaining very different results: almost 75% of RDP funds are concentrated in the richest quintile of the rural population.

To place this distribution in context, we use the latter results to generate a concentration curve for the PDR, and compare this to the distribution of Procampo and Oportunidades. This comparison assumes that the ordering criteria for PDR (based on the socioeconomic characteristics and assets of the FAO typology) are reasonably correlated with the criteria used in the case of the other two programs (income per capita). Another limitation is that the FAO typology is biased towards the top of the rural income distribution, and does not provide information on PDR shares below the eighth decile. But the distance between the curves seems large enough to make it robust to these uncertainties in the data.

Though regressive in absolute terms (in contrast to Oportunidades), the distribution of Procampo transfers is progressive relative to the distribution of income, and therefore redistributive. In contrast, the PDR curve lies clearly below the rural income curve, and is therefore regressive even in relative terms, contributing to actually increase income inequality in the rural sector.

18 The table below reports the values of some of the principal variables in the FAO typology based on a survey of PDR beneficiaries.

<table>
<thead>
<tr>
<th>SELECTED VARIABLES</th>
<th>TYPOLOGY OF PDR BENEFICIARIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Education (Years)</td>
<td>4.8</td>
</tr>
<tr>
<td>Value of Assets (MxP)</td>
<td>1,799</td>
</tr>
<tr>
<td>Number of Equivalent Cattle Units</td>
<td>5.6</td>
</tr>
<tr>
<td>Irrigated land Equivalent (hectare)</td>
<td>0.8</td>
</tr>
</tbody>
</table>

The PDR curve follows the agricultural land distribution curve remarkably well. Given that the rest of Alianza is even more regressive than the PDR, as we have seen, the latter distribution may be reasonably interpreted as a lower bound for the (absolute) degree of regressivity of non-targeted, less decoupled agricultural support programs more generally: a large part of the rural population (at least the poorest 50%) is excluded simply because they are landless or have plots which are too small to be reached by such programs (except for a decoupled program like Procampo), and in the upper half of the land distribution there are probably strong economies of scale in the capacity to attract agricultural support resources (unless some explicit targeting is applied, as in the case of the PDR).¹⁹

In addition to Alianza as a whole, the latter hypothesis would certainly apply to Apoyos a la Comercialización (Aserca), which subsidizes the difference between local prices and international prices of the principal crops. Like Procampo, this program is compensatory, reinforcing rather than transforming traditional crops. Though it was originally designed to favour a more competitive menu of crops, excluding maize and beans, the latter were later introduced and by 2004 absorbed a majority of its resources. Unlike Procampo and the PDR (but like the rest of Alianza), this program has no equity objectives. Its benefits are concentrated on larger commercial farmers and the richest agricultural states. In 2002 it covered 67,000 beneficiaries with an average support per producer of US $5,200 (World Bank, 2005), placing it at the top of the rural income distribution.

Considering the distribution of the three programs at the state level, the level of benefits per rural capita varies dramatically, with a broadly regressive distribution of benefits. The richer agricultural states of Sonora, Sinaloa and Tamaulipas obtain benefits per rural capita some seven to eight times higher than the poorest seven states (Chiapas, Guerrero, Oaxaca, Veracruz, Hidalgo, SLP and Puebla).

¹⁹ These estimates only consider the direct (partial equilibrium) effect of these benefits. In a general equilibrium setting, agricultural workers may share some of the benefits from the agricultural support transfers obtained by large commercial producers, through higher wages and land prices. On the other hand, however, by lowering the production costs of large producers, these transfers undermine the competitiveness and income of smaller commercial producers.
Agricultural Policy and Rural Poverty in Mexico

PROGRAMA DE DESARROLLO RURAL IN ALIANZA: % SHARE IN TOTAL ALIANZA FEDERAL SPENDING


DISTRIBUTION OF BENEFICIARIES AND FUNDS OF THE PROGRAMA DE DESARROLLO RURAL BY MARGINALITY OF LOCALITIES AND SOCIOECONOMIC PRODUCER “TYPE”: 2004

CONCENTRATION CURVES FOR OPORTUNIDADES, PROCAMPO AND ALIANZA TRANSFERS, AND INCOME AND AGRICULTURAL LAND IN THE RURAL SECTOR (2002)


ASERCA: PROGRAMA DE APOYOS A LA COMERCIALIZACIÓN, DISTRIBUTION OF RESOURCES BY PRINCIPAL CROPS

5. Social Programs for Rural Development: The Reforms of the 1990s

Complementing the reforms in land and agricultural support policies analyzed above, social policy in the rural sector underwent a similarly radical transformation since 1990. The principal changes may be summarized as follows.

5.1. Priority of social spending
After deep budgetary cuts following the 1982 crisis, social spending only regained pre-crisis levels (as a proportion of GDP as well as in real per capita terms) by the end of the 1990s, but in contrast to the former peak, this was financed through a reallocation of public spending from administrative and economic functions (including agricultural support) to social programs, doubling the share of social spending in programmable public spending, from 30% to 60% in the 1990s. As reported above (section 2), this tendency can also be observed in rural spending, where “social” programs have commanded a dominant and growing share of resources over “productive” programs in the last decade.

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20 Public spending net of debt payments and fiscal transfers to the states.
5.2. Effectively targeted rural anti-poverty programs
The most important reform in anti-poverty policy in this period was the creation of the Programa de Educación, Salud y Alimentación (Progresa) in 1997, offering direct monetary transfers to poor rural households conditional on basic school attendance and use of public health services. Beyond the innovation of using transfers to induce synergic human capital investment decisions by households (with the aim of reducing intergenerational poverty traps), in addition to immediate (income) poverty reduction, this was the first program in the history of Mexico to apply effective and transparent targeting mechanisms at the household level. The program was rapidly expanded and cover 5 million households with a budget of 35 billion MXP in 2006. In 2001, it was extended to urban areas and upper secondary education, and renamed Oportunidades, while retaining its original design and mainly rural coverage.

A second important innovation was the creation in 1996 of the Fondo de Aportaciones para Infraestructura Social (FAIS), a large (27.6 billion MXP in 2006) decentralized fund for basic infrastructural investment transferred to state and municipal governments through transparent targeting criteria at both levels (using explicit and public formulas based on poverty and infrastructural and development shortfalls). This substituted (and absorbed most of the budgetary resources of) the Programa Nacional de Solidaridad (Pronasol) —the ambitious but poorly targeted flagship anti-poverty and rural development program of the Salinas administration (1988-1994), designed to by-pass local governments and respond to the organized demands of local communities directly. This reform had a notable effect on the distribution of the latter resources both between states, and within them: the budget share obtained by the six poorest states (Veracruz, Chiapas, Estado de México, Puebla, Oaxaca and Guerrero) expanded from 29 to 36% between 1988 and 1994, but increased to 54% by 2000 (Scott, 2004a). On the other hand, the communitarian participatory element of Pronasol was lost without compensatory gains in transparency and equity in the final allocation of resources within municipalities, as this last allocative decision is barely regulated and monitored.

This last point is illustrative of a broader history of failures of local, participatory and inter-agency development initiatives in rural Mexico. The present administration launched an ambitious new program of this kind, Microrregiones, which has failed to attract the necessary public and private resources to take off, given the complex vertical and horizontal coordination challenges involving three levels of government, multiple (often competitively rather than cooperatively motivated) government agencies and programs, and local economic initiatives and communitarian demands.

Finally, a rural temporary employment program, the Programa de Empleo Temporal (PET), was introduced in 1995, with the joint participation of four Ministries (SCT, Sedesol, Sagarpa and Semarnat). It was designed as a self-
targeted program by offering a very low wage (90% of the official minimum wage), calculated to attract temporarily unemployed workers in the season of low agricultural activity. Originally intended as a transitional program following the 1995 crisis, it was one of the principal anti-poverty programs in the Zedillo administration (1995-2000), though its budget has been sharply reduced since then. Thanks to the self-selection mechanism, the program is as effectively targeted as Oportunidades, without incurring administrative targeting costs. However, in actual practice the program has failed to deliver its resources counter-cyclically, reducing its net benefits by as much as 50% of the wage paid due to the high opportunity cost of participating in periods of high agricultural activity.\(^{21}\)

5.3. Pro-rural allocation
Against a general context of urban bias in most social programs during previous decades, social expenditures were redirected in part towards rural areas in this period. This was most effectively achieved in the case of food subsidies, with the elimination of the general tortilla subsidy in 1999 (benefiting urban areas), reduction of the targeted tortilla (Tortibono) and milk (Liconsa) urban subsidies, and creation and expansion of Progresa/Oportunidades, whose food component represents at present the principal food aid instrument in Mexico. The effect of these reforms was an increase in the rural share of food subsidies from 31 to 76% by official estimates (1994-2000),\(^{22}\) or from 40 to 55% using ENIGH (2002).\(^{23}\) Before these changes, 70% of food subsidies were concentrated in Mexico City where only 7% of undernourished children live, while only 7% reached the Southern states with 50% of the undernourished children. By 1999, this regional distribution of food subsidies was in line with the regional distribution of undernourished children in the country. In terms of the national distribution of households, as a result of these reforms in the allocation of food subsidies, the poorest decile increased their share of food subsidies from 8 to 33%.

Important pro-rural shifts in access to public social resources were also achieved in the case of health services for the uninsured,\(^ {24}\) where the rural share increased from 20 to 28% between 1996 and 2002, and lower secondary education services, were the rural share increased from 16 to 26% between 1992 and 2002. This may be explained in part by expansions in the physical coverage of these services and the demographics and natural inertia in the coverage of educational services (coverage rates in primary education had already approached 100% by the early 1990s), but it also reflects the impact

\(^{21}\) Scott (2002).
\(^{22}\) Secretaría de Hacienda y Crédito Público (2000).
\(^{23}\) Scott (2004b).
\(^{24}\) There are two principal health systems serving the rural uninsured: the Health Ministry (SSA), and the IMSS-Oportunidades program (before IMSS-Solidaridad, and originally IMSS-Coplamar), covering mostly poor rural localities (around half of Oportunidades beneficiaries).
of Progresa, as its transfers are conditioned precisely on the use of these services.

The critical failure in this pro-rural trend, as illustrated above (section 3), has been social insurance. Even in the case of currently active workers, the rural share in the principal formal sector pension system (IMSS) is small and declining (from 9.5% to 8% in 2002). In the case of health insurance, an ambitious initiative, Seguro Popular (Sistema de Protección Social en Salud) was launched in 2004, aiming to achieve full coverage of the currently uninsured by 2010. The scheme offers a basic health package, including free provision of selected medicines, and is designed to be financed by the federal and state governments, and by the beneficiaries themselves through a progressive contributory schedule, with the poor fully exempted. The program faces formidable financial (at present it is mostly federally financed) and logistical challenges—the capacity of the health system to absorb the new resources and deliver the expected benefits to half of the Mexican population by 2010— but it will be the rural poor who will have most to gain from it.

In contrast to the case of health, non-contributive old age pension programs for the poor have been surprisingly absent from the policy agenda in Mexico until very recently. A modest rural program—Atención a los Adultos Mayores en Zonas Rurales—was introduced in 2003 as part of the Acuerdo Nacional para el Campo, and a new old age pension has been incorporated as part of Oportunidades in 2006, and is expected to benefit up to a million Oportunidades elderly. But these programs offer very modest pensions: half a dollar a day in the former case, and 75 cents in the latter, equivalent to 37% and 25% of the food poverty line, and between 1 and 2% of the subsidies currently paid to support the state worker pension systems.

As a result of the above reforms, the rural share in total public social expenditures in Mexico is at present close to 30%, and 65% in the case of targeted programs. Considering the latter, the most pro-rural are Crédito/Apoyos a la palabra, a rural credit program which originated as part of the discontinued Pronasol and is presently classified as part of Oportunidades productivas, PET, Piso firme, a recent program pouring concrete floors in rural houses with earth floors to reduce health risks, and Oportunidades, which concentrate between 80% and 88% of their resources in the rural sector.

Within the rural population, there is a wide equity gap between the social and productive programs, with Oportunidades and PET targeting 57% of their benefits to the poorest 40%, in one extreme, and Procampo and Alianza, concentrating 60 and 80% of benefits on the richest 40%, respectively, in the other.

Jointly, the targeted monetary and quasi-monetary transfers considered represent more than 80% of pre-tax/transfer income of the poorest rural decile, mostly contributed by Oportunidades (almost 50%), Procampo (15%),
and PET (13%). The contribution of these transfers to the average income of the extreme (“food”) poor is significantly higher in the rural than in the urban sector, though still falling well short of what would be required to close the (post-transfer) income gap between the two.

RURAL SHARE IN PUBLIC EXPENDITURES IN EDUCATION, HEALTH AND SOCIAL SECURITY SPENDING: MID 1990S-2002

![Chart showing rural share in public expenditures in education, health, and social security spending between mid-1990s and 2002.](chart)


REGIONAL DISTRIBUTION OF FOOD AID AND UNDERNOURISHED CHILDREN (LOW HEIGHT/AGE): 1988, 1999

![Chart showing regional distribution of food aid and undernourished children in 1988 and 1999.](chart)


Sources: Scott (2004b). Households ordered by income per capita.

RURAL SHARE IN PUBLIC SOCIAL EXPENDITURE (2002)

**DISTRIBUTION OF SELECTED TARGETED “SOCIAL” AND “PRODUCTIVE” PROGRAMS WITHIN THE RURAL POPULATION**

![Bar Chart]


**AVERAGE INCIDENCE OF MONETARY (AND QUASI-MONETARY) TARGETED TRANSFERS IN RURAL POPULATION: % OF PRE TAX/TRANSFER INCOME, 2002**

![Bar Chart]

6. Input Support: Water and Energy Resources

The principal form of agricultural input support in Mexico, at present and historically, are hydro agricultural infrastructural investments and electricity subsidies associated with irrigation. There are 6.3 million ha of irrigated land, accounting for close to 80% of water use in Mexico. The electricity used to pump this water for irrigation is the most heavily subsidized in the country, with a 28% cost recovery (price/cost ratio), in contrast to 94% for industry and 43% for domestic use.

The yearly public expenditure on hydro agricultural infrastructure and agricultural electricity subsidies is comparable to the spending on Procampo. But these subsidies have three main disadvantages: they lead to over-exploitation of water resources, they encourage inefficient water use, and they are highly inequitable. Over-exploited aquifers have tripled over the last three decades from 32 to 100 (of a total 650 aquifers in the country). This has in turn led to further increases in extraction costs and energy use. The average efficiency in agricultural water use is estimated at 43%.25

These subsidies are even more heavily concentrated in the rich northern states26 than the support programs we have considered above (section 4), though in this case the distribution of irrigation infrastructure mostly reflects regional differences in water resources and geo-climatic conditions generally. At present, electricity subsidies benefit 105,000 agricultural users, with average yearly subsidies per user of 78,000 pesos a year.

26 Sinaloa, Tamaulipas, Sonora and Baja California. The three poorest states –Chiapas, Oaxaca and Guerrero– receive only 1% of this input support.
PUBLIC EXPENDITURE IN HYDRO AGRICULTURAL INFRASTRUCTURE AND THE AGRICULTURAL ELECTRICITY SUBSIDY (MXP, 2005)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>PUBLIC SPENDING ON HYDRO AGRICULTURAL INFRASTRUCTURE (BILLION)</th>
<th>AGRICULTURAL ELECTRICITY SUBSIDY</th>
<th>BENEFICIARIES (THOUSAND)</th>
<th>SUBSIDY PER USER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>6675</td>
<td>5482</td>
<td>79</td>
<td>69,388</td>
</tr>
<tr>
<td>1996</td>
<td>7509</td>
<td>7423</td>
<td>81</td>
<td>91,641</td>
</tr>
<tr>
<td>1997</td>
<td>6047</td>
<td>7312</td>
<td>84</td>
<td>87,044</td>
</tr>
<tr>
<td>1998</td>
<td>4078</td>
<td>6787</td>
<td>87</td>
<td>78,016</td>
</tr>
<tr>
<td>1999</td>
<td>3607</td>
<td>6887</td>
<td>90</td>
<td>76,523</td>
</tr>
<tr>
<td>2000</td>
<td>3802</td>
<td>7408</td>
<td>92</td>
<td>80,521</td>
</tr>
<tr>
<td>2001</td>
<td>2709</td>
<td>6616</td>
<td>95</td>
<td>69,638</td>
</tr>
<tr>
<td>2002</td>
<td>2405</td>
<td>6665</td>
<td>97</td>
<td>68,450</td>
</tr>
<tr>
<td>2003</td>
<td>4087</td>
<td>7473</td>
<td>100</td>
<td>74,732</td>
</tr>
<tr>
<td>2004</td>
<td>6164</td>
<td>7529</td>
<td>103</td>
<td>73,098</td>
</tr>
<tr>
<td>2005</td>
<td>4843</td>
<td>8235</td>
<td>105</td>
<td>78,429</td>
</tr>
</tbody>
</table>

Source: Anexo Estadístico, 5º Informe de Gobierno, Government of Mexico.

DISTRIBUTION OF PUBLIC SPENDING ON HYDRO AGRICULTURAL INFRASTRUCTURE AND AGRICULTURAL ELECTRICITY SUBSIDIES BY STATE ORDERED BY LEVEL OF MARGINALITY (MXP PER RURAL CAPITA, 2002)

Conclusions and Policy Implications: Towards a “Third Agrarian Reform”

The following are some of the principal findings of this review:

1. Rural poverty has fallen by a half between 1998 and 2004, but this apparent success must be qualified in several respects: a) most of this fall represents a recuperation from the dramatic increase in poverty following the 1995 “Tequila” crisis—the 1992-2002 decade was fully “lost” in terms of rural poverty-reduction—, b) the rural sector still accounts for a disproportional share of the extreme poor, c) the reduction in poverty reflects progress of households close to the poverty line, rather than at the lower end of the income distribution, and d) most of those who have escaped rural poverty in this period have done so through rural non-agricultural activities and migration, rather than agriculture.

2. Despite progress in basic human development indicators, large gaps remain between rural and urban localities, north and south, and indigenous and non-indigenous communities within the rural sector.

3. Though average agricultural subsidies in Mexico are modest by OECD standards, public expenditure in agricultural support and rural development is among the highest in the LAC region, relative to both agricultural GDP and other public spending demands.

4. Contrary to expectations, the ejido reform and associated institutions created to regulate agrarian property rights have led neither to a significant rise in agricultural productivity (through a more efficient allocation of land resources), nor to massive flows of landless migrants into the cities. There is no evidence that ejidatarios have gained better access to private credit as a result of the reform, and less than 1% of ejidos have opted out of the social property regime. On the other hand, by freeing up the labour of ejidatarios with limited agricultural comparative advantages (through the land rental market), the reform has probably contributed to the notable expansion of rural non-agricultural activities.

5. The principal output and input agricultural support programs (Procampo, Alianza, Aserca and water and energy subsidies), like the older price support mechanisms, have proved to be (cost-) ineffective instruments in transforming Mexican agriculture in the context of the second agrarian reform effort. In general, these programs are not well designed to provide adequate opportunities or incentives for shifting from traditional crops into more productive activities. Many of these resources have contributed to the entrenchment of traditional crops.

6. With the notable exception of Procampo, the benefits of these programs are overwhelmingly concentrated on a small fraction of agricultural
producers in the rich northern agricultural states and at the extreme top of the rural income distribution (richest decile of the national income distribution), but fail to reach the poorer and vulnerable producers. Even in the case of Procampo, 23% of transfers are concentrated in only 2.6% of producers in the top national income decile. The distributive analysis for the “targeted” component of Alianza (PDR), and the evidence reviewed for the other (untargeted) support instruments, reveals that this small group of large and rich producers is the recipient of the bulk of the budgetary transfers generated by agricultural support in Mexico today. Since these benefits are certainly more regressively distributed than the highly unequal income distribution prevalent in Mexico, these transfers aggravate rather than compensate original, asset-based inequality in Mexico.

7. Although Procampo works reasonably well as a compensatory program and represents a significant addition to the finances of poor farmers, especially in comparison to the other support programs, it nevertheless has large exclusion (landless agricultural workers) and inclusion errors (large commercial producers), in comparison to well-targeted social programs like Progresa/Oportunidades.

8. Public expenditure on human capital and basic infrastructure in the rural sector has undergone a revolution of its own over the last decade, reversing the strong urban bias in the allocation of public resources for education, health and food programs prevalent up to the mid-nineties. A central instrument in this reallocation was the creation of the innovative and effectively targeted conditional transfer program, Progresa/Oportunidades, substituting regressive urban food subsidies associated with the old price support mechanisms (Conasupo), and inducing the use of basic education and health services by the poor.

There are several policy recommendations which may be derived from these results:

It should be clear from the above that pressures to increase output or input agricultural support spending—likely to increase as 2008 approaches—should be resisted or conditioned on reforming existing programs. With current instruments, these resources are not only concentrated on the richest producers, to the exclusion of the more vulnerable, facing higher transitional and conversion uncertainties and costs, but they have also proved to be (cost-) ineffective in contributing to the broad transition to the more competitive agricultural sector expected of the second agrarian reform. The opportunity cost of these resources are exceptionally high in the fiscally constrained and extreme distributive conditions of Mexico.

On the other hand, a case may be made for maintaining and possibly expanding a reformed version of Procampo beyond its current deadline.
(2008), but its design should be carefully evaluated. The new Procampo could target its transfers by limiting them to small producers or applying a progressive payment schedule (per hectare payments decreasing with total hectares). It could also condition these benefits on clearly specifiable and verifiable productive commitments, in the model of Progresa/Oportunidades.

Increasing the transparency and accountability of agricultural support programs and evaluating their distributive and productive impact should be a priority, not only to counter demands for increased expenditures by exposing their limitations, but to inform effective reform efforts.

In the absence of more effective and equitable support instruments, the shift in rural public spending from “productive” (agricultural support) to “social” (rural development and anti-poverty) programs has been fortunate and should be maintained, especially given the more successful reforms in the latter programs.

More constructively, the two types of programs should be conceived and designed as complementary, rather than substitute instruments for rural development. The integral approach promoted by the **Ley de Desarrollo Rural Sustentable** (LDRS), in particular through the **Programa Especial Concurrente para el Desarrollo Rural Sustentable** (PEC), is welcome, but must be developed beyond a classificatory scheme, into a coherent and effective operational design. An integral approach would respond to the conditioning effect of human capital and basic infrastructure on the capacity of poorer producers to access the economic opportunities opened up by the second agrarian reform. We have also argued that extending the coverage of public social security to the rural poor is not only of critical importance in its own terms, but would also facilitate the required transformation of subsistence agriculture and the ejido land market by freeing these institutions from this function.

Finally, the whole model of a clear distinction and division of labour between “productive” and “social” programs underlying the latter, integral conception of public policy in this area (and codified in the LDRS and PEC), might be critically re-examined in the present context. A simple and attractive element in this conception is the division of labour between programs along equity-efficiency lines, best expressed in the terms of modern welfare economics: “productive” programs are primarily concerned with expanding the production possibility frontier, while “social” programs are concerned with achieving an equitable point within this frontier, and programs of each kind should be evaluated according to the corresponding objective. In the polarized context of Mexican agriculture, this view might suggest that productive programs should be concentrated according to productive potential, at the top of the productive asset distribution (in particular, irrigated land), while the poor can be best served through well-targeted social programs. This conception would even imply that our concern
with the inequities in the allocation of agricultural support programs is misplaced. Unfortunately, though this might perhaps explain some of the principal findings of the present review, there are at least two important reasons why it could not justify them.

First, agricultural support programs in Mexico are not just distributively neutral. To the extent that they actually aggravate original, asset-based inequality, as we have found (excluding Procampo), they are part of the cause of rural (and national) inequality in Mexico—a significant part, given the degree of regressivity and the scale of the resources involved in relation to sectoral GDP. They thus work against, rather than just orthogonally to—let alone complementarily to—social programs. In other words, an effective “social program” could be implemented, while freeing up fiscal resources, just by cutting down agricultural support expenditures.

Secondly, and more fundamentally, despite its elegant simplicity and consistency with basic principles of welfare economics, the assumed independence of equity and efficiency objectives underlying the above conception has been undermined by a large body of recent economic theory and empirical evidence,27 which is directly relevant to the present context. In the conditions of extreme asset-based inequalities and market failures characteristic of Mexican agriculture, the most efficient allocation of the marginal agricultural support peso, in terms of increasing national agricultural productivity, may well be at the lower rather than higher end of the asset and income distribution. As the evidence on both Progresa/Oportunidades and Procampo suggests, it is perfectly possible in such circumstances to reduce current poverty and inequality while increasing productivity through human and physical capital investment.

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