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Decentralization of Mexico's Agricultural Extension Services and the Ongoing Struggle to Alleviate Rural Poverty

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Abstract

A tendency to decentralize national agricultural extension systems around the world caught many countries unprepared to respond effectively to the needs of its rural population under privatized approaches to extension delivery, especially in regard to poverty alleviation. Myriad internal and external factors led Mexico to dismantle its national agricultural extension system in the 1990s, and adopt a more privatized or contractor-driven approach. As a result, significant changes occurred in the way extension services were offered to the public after the system's decentralization by Mexico's federal government, although some similarities remained. After almost two decades of decentralization, the effectiveness of the current system has been questioned regarding its provision of services to marginalized groups who represent the most impoverished of Mexico's citizens. This historical narrative aimed to understand the phenomenon by exploring the causes of decentralization, comparing extension service delivery before and after decentralization, including its outcome, privatization of extension services, and suggest directions for improvement in the future.

Keywords: agricultural extension; decentralization; Mexico; rural poverty

Introduction and Background

Countries need to consider that "poverty is a multidimensional phenomenon" (Van Praag & Ferrer-i-Carbonell, 2007, p. 6). In a national approach to reducing poverty, an agricultural extension system can be an important force (Farrington, Christoplos, Kidd, & Beckman, 2002). If a nation's agricultural extension system is to play a significant role in reducing poverty, its rural and agricultural contexts must be considered. We examined the decentralization of Mexico's national agricultural extension system (NAES), its replacement by a private contractor system, and consequences associated with that change. We also suggest the proper role of Mexico's government regarding agricultural extension and reducing rural poverty in the future.

Rural Poverty Remains a Major Challenge in Mexico

The population of Mexico was about 120 million in 2013 and almost 22% of its citizens were living in rural areas (*Consejo Nacional de Población*, 2013). Impoverished Mexicans accounted for 46.1% of the country's total population in 2012 (*Consejo Nacional de Evaluación de la Política de Desarrollo Social* [*CONEVAL*], 2013). For the Government of Mexico, the population living in poverty includes those "whose income is below the wellbeing line and that endures at least one social deprivation" (National Council for the Evaluation of Social Development Policy [NCESDP], 2012, p. 9). *Extreme poverty* comprises the "[p]opulation that endures three or more social deprivations and whose income is below the minimum wellbeing line" (NCESDP, 2012, p. 9).

As of 2012, six social deprivations were considered in the definition of poverty: educational gap, access to health services, access to social security, quality and spaces of the dwelling, access to basic services in the dwelling, and access to food (NCESDP, 2012). The wellbeing line is defined as the "[m]onetary value of a food, goods, and basic services basket" (NCESDP, 2012, p. 9). In the rural areas of Mexico, 61.6% of the population is impoverished, and one-third, or about five million people, includes Mexicans living in extreme poverty; their meager incomes are not enough to meet daily nutritional needs (*CONEVAL*, 2013; NCESDP, 2012).

Most of the mainly rural states in Mexico have the highest poverty levels (see Figure 1). Mexico's southern states reported the highest extreme poverty rates for 2012, i.e., Chiapas 32.2%, Guerrero 31.7%, Puebla 17.6%, and Veracruz 14.3% (*CONEVAL*, 2013). Not coincidentally, these states have some of the highest proportions of Mexico's more than nine million indigenous people (see Figure 1) with almost one million not speaking the Spanish language (*Diario Oficial de la Federación*, 2010).

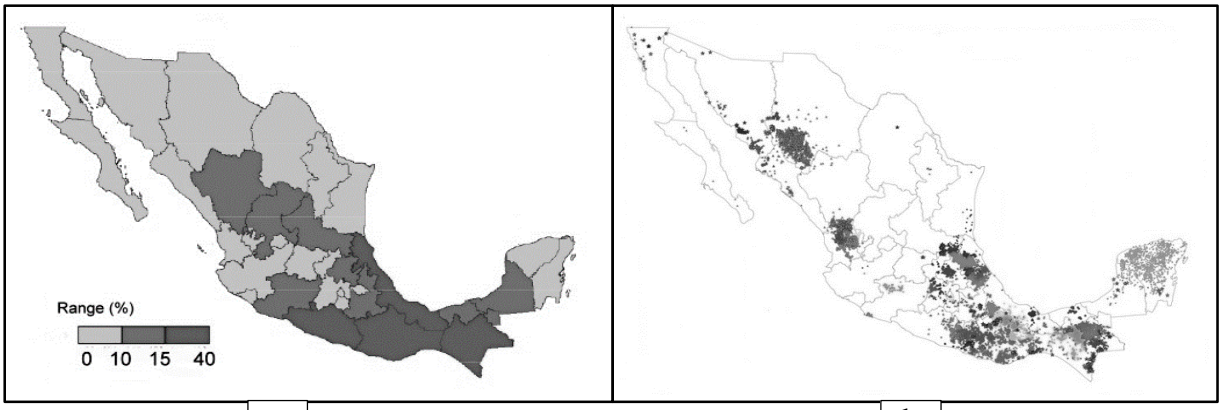

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Figure 1. Extreme Poverty and Indigenous People in Mexico: (a) Population living in extreme poverty in Mexico, as of 2010. Adapted from "*Medición de la pobreza en México 2010*" (*CONEVAL*, 2010); (b) Distribution of communities with an indigenous population of more than 40% in Mexico, as of 2000. Adapted from "*Indicadores socioeconómicos de los pueblos indígenas de México*, 2002" (*Comisión Nacional de los Pueblos Indígenas*, 2009).

A Snapshot of the Agricultural Sector in Mexico and Its Economic Importance

Agriculture represents about 4% of Mexico's Gross Domestic Product (GDP) (*Instituto Nacional de Estadística y Geografía* [*INEGI*], 2011a). However, the agriculture sector employs nearly 6.5 million people or 14% of the country's labor force (*INEGI*, 2011b). Of Mexico's approximately six million farms (Muñoz & *Universidad Autónoma de Chapingo [UACh]*, 2007), at least 50% are considered subsistence, 35% are small-scale, and 15% are commercial farms (McMahon & Valdes, 2011). Subsistence farms, however, may comprise up to 60% of total farms (Muñoz & *UACh*, 2007).

For commercial farms, production is tied mainly to exports focused primarily on a few types of fruits and vegetables. In 2010, of more than 70 fresh products, nine represented about 20% of the total value of agricultural exports (*INEGI*, 2011c). The small-scale farm production is linked mainly to the internal market with some participation in exports. Exports from Mexico's agricultural sector are highly vulnerable to market fluctuations in the United States; in 2010, about 80% of its agricultural exports went to the United States (*INEGI*, 2011c).

Among Mexico's subsistence farmers, production is primarily for household consumption. More than 60% of Mexican farms average 20 acres or less (McMahon & Valdes, 2011). However, income for the rural population relies mainly on nonagricultural activities. In 2002, only 29% of rural per-capita income depended on family farm production, 16% relied on migrant remittances, and the largest share was 50% of which four-fifths were wages derived from nonagricultural employment (Taylor, Mora, Adams, & Lopez-Feldman, 2005).

The Beginning of Agricultural Extension Services in Mexico

Before 1950, the agriculture sector in Latin America was only slightly developed, and very limited technologies were used. National governments invested very little in the sector and educational programs in agriculture were rarely offered. The establishment of national extension systems occurred mostly after the World War II period between 1950 and 1975; as a result, the region significantly enhanced its agricultural sector (Kaimowitz, 1993).

In 1949, U.S. President Harry S. Truman launched the *Point Four Program* with the aim of helping to develop poor countries. A significant emphasis was put on agriculture. As a consequence, many changes were implemented to boost agriculture, including reforms that established and augmented agricultural extension systems (Simon, 1950). Mexico, however, did not receive official advice and funding from the United States, as did most of the other Latin American countries. Instead, the country only had to *look over the border* to see an approach to extension on a national scale (Rice, 1971); such was the *conventional wisdom* of some policymakers.

Agricultural extension in Mexico has its origins in a group of agronomists who started providing services in 1911 (Venezian & Gamble, 1969; Yates, 1981). After being interrupted by the Mexican Revolution, the extension service was reinitiated by 1922; however, it experienced a series of

reorganizations and operated with limited support and staff during most of the next three decades (Venezian & Gamble, 1969). In 1948, it acquired the name of *Servicio de Extensión Agricola* [Agricultural Extension Service] (Venezian & Gamble, 1969; Yates, 1981). According to Rice (1971), a NAES in Mexico was established officially in 1953; some services existed before 1953 but not as a national policy. The NAES in Mexico boomed beginning in the 1970s and its growth continued until the middle of the 1980s (Yates, 1981). After that period, the country experienced a series of events, including crises, openness to trade, and reforms, which resulted in the decentralization of its NAES beginning in the 1990s (McMahon & Valdes, 2011).

Purpose and Research Questions

This historical inquiry sought to describe the impact of decentralization on Mexico's NAES, especially regarding the provision of services to small-scale and subsistence farmers who comprise much of the nation's rural poor. This study, therefore, examined the history of the NAES in Mexico *before* and *after* its decentralization. In addition, we suggest implications and recommendations for the federal government's role in the future delivery of agricultural extension services in Mexico. Four research questions guided this study: (a) What were the major reasons for decentralizing the NAES in Mexico? (b) How was agricultural extension offered *before* decentralization? (c) How has agricultural extension been offered *after* decentralization? (d) What should be the role of Mexico's federal government in the delivery of agricultural extension services in the future?

Methods and Procedures

Historical research methods were used to answer the questions that guided this study (McDowell, 2002). McDowell (2002) stated that historical evidence should serve as the basis for understanding our past. He asserted: "[C]hange occurs on a constant basis and so we are unable to freeze reality, except perhaps when we look at historical evidence, such as written or photographic material" (p. 3). Further, Hale and Astolfi (2007) proposed five steps to follow in historical research: (1) identification of the research problem; (2) collection and evaluation of source materials; (3) examination of collected evidence; (4) synthesis of information; and (5) analysis, interpretation, and formulation of conclusions. These steps guided this inquiry. Primary and secondary sources, including peer-refereed journal articles, books, newspapers, photographs, and government reports, were retrieved and analyzed by the researchers during 2013 and 2014. Internet search engines as well as library search engines at Oklahoma State University were used to identify the study's sources of data. Sources in the Spanish language were translated by the lead author who is a native speaker of Spanish. All of the sources were subjected to internal criticism for accuracy and external criticism for authenticity (Johnson & Christensen, 2010).

Findings

Major Reasons for the Decentralization of Mexico's NAES

Public extension services, including those involving agriculture, have been critiqued as "inefficient, irrelevant, ineffective, and poorly targeted" (The World Bank, 2000, p. 6). Attempts have been made worldwide to decentralize many public or national extension systems (Rivera, 1996, 2000; Rivera & Qamar, 2003; Swanson, 2011). According to Swanson (2011), pluralistic extension systems are becoming more common in most of the world's regions.

A series of reforms in the 1990s dismantled national extension systems in many countries, which decentralized the delivery of their services, including provisions to the agriculture sector. In Mexico, some of the reasons for decentralizing the NAES were because of its low efficacy and sub-par efficiency, significant financial crises, and a burgeoning openness to free trade (McMahon & Valdes, 2011). As of 2012, Mexico had free trade agreements with more than 40 countries which started in the 1980s and were augmented in the 1990s with its opening to trade liberalization and integration policies (Villareal, 2009). Trade openness in Mexico exposed its agricultural producers to global competition; therefore, a government strategy to face the external competition was to devolve services from the public to the private sector with the aim of making the agriculture sector more efficient (Muñoz & *UACh*, 2007). According to McMahon and Valdes (2011), trade openness led to a *model of export-driven agriculture* in Latin America, including Mexico.

Mexico's financial crisis, which also contributed to decentralizing its NAES, can be traced to the aftermath of World War II, when most developing countries, including Mexico, adopted an *imports-substitution-industrialization* economic policy to replace foreign imports with domestic production (Felix, 1989). By the 1970s, however, Mexico experienced a financial crisis as a result of that economic policy (Jiménez Alatorre, 2006). The country was unable to continue to afford its domestic expenditures, recurring to borrow money from the United States and the International Monetary Fund [IMF] (Barkbu, Eichengreen, & Mody, 2012; Lusting, 1997).

The IMF assistance continued for almost the entire decade of the 1980s, and during some of the 1990s to face the economic crisis of 1994 (Barkbu et al., 2012). As a consequence of the IMF's lending conditions and also as a national commitment, Mexico's government was obligated to reduce its size to repay debt and to begin operating on a sounder financial footing (Barkbu et al., 2012). Important state-owned, agriculturally related institutions were restructured to make them more efficient, e.g., the *Banco de Crédito Rural* (*BANRURAL*) [Rural Credit Bank], the *Aseguradora Nacional Agrícola y Ganadera* (*ANAGSA*) [National Agricultural and Livestock Insurance], and the *Compañía Nacional de Subsistencias Populares* (*CONASUPO*) [National Company of Popular Subsistence] were reformed. Other entities were sold to the private sector, e.g., the *Productora Nacional de Semillas* (*PRONASE*) [National Seed Producer] and the *Fertilizantes Mexicanos* (*FERTIMEX*) [Mexican Fertilizers] (Díaz Tapia, 2006).

Other than a financial crisis during this period, officials determined that because many of the state-owned institutions had become so inefficient and corrupt, their operation in the future would be highly problematic (Díaz Tapia, 2006). A representative example is the case of *ANAGSA*, the state-owned crop and livestock insurance service, which was created in 1961. By 1964, insurance losses were about 30%, increased to 57% by 1976, and were 75% before its closure in 1990 (Díaz Tapia , 2006); the losses represented government subsides of about 62% of the total operating budget of *BANRURAL*, Mexico's main rural credit bank. The provision of insurance through a state-owned company required considerable subsidies because of the farmer's premium cost and the company's administrative expenses.

As Díaz Tapia (2006) reported, *negotiations* between the insurance agents and farmers were common at the community level. This kind of contact between farmers and extension agents led to corrupt practices (Díaz Tapia, 2006, p. 9). As a consequence of

the abovementioned factors, decentralization of the NAES occurred in Mexico by 1994. The planning and funding continued to be mainly a government function, but the delivery of services would be open to individuals or groups interested in providing such, whether private, public, or other governmental entities, e.g., States. This would be a much different way of reaching farmers compared to the system and methods used before.

Agricultural Extension Before Decentralization

Forty extension agents were working in Mexico in 1953; the number rose to about 230 by 1956 after a budget increase in 1954 (Venezian & Gamble, 1969). In 1961, Mexico had 220 extension agents (Cole & Sanders, 1970). Of the 15 countries in Latin America, in 1961, Mexico had the largest number of extension agents, excluding Chile with 460; the other 13 countries together had only 997 agents (Cole & Sanders, 1970). Gustavo Díaz Ordaz, President of Mexico from 1964 to 1970, was very interested in poverty reduction and rural development (Rice, 1971). In 1969, the national budget for agricultural extension services was five times larger than the allocation during 1966. Rice (1971) stated funding was received on time and "jeeps were in good supply" (p. 69) under Díaz Ordaz, and the NAES had enough money to operate (Rice, 1971). The number of agents increased to 700 by 1969, and they were distributed in 430 offices; all of the agents held an agricultural engineering degree (Rice, 1971). For many years, especially during the 1970s, graduates in agriculture from Mexico's universities had *guaranteed positions* in one of the government agencies related to the agricultural sector (Venezian & Gamble, 1969).

Extension agents in Mexico were assigned to serve a specific population. According to Cole and Sanders (1970), by 1969, one Mexican agent was mobilized to provide services for an average of 35,000 farmers, also referred to as *production units* or *family farms*. In comparison, one extension agent in Venezuela, Panama, Costa Rica, and Argentina was serving 17,000, 18,000, 28,000 and 31,000 farmers, respectively (Rice, 1971). However, Venezian and Gamble (1969) concluded "[the] number of extension agents relative to farm families [was] about 1 to 10,000" (p. 165) for Mexico in 1967. The ratio of agents to beneficiaries in the United States and Japan was 1 to 540 and 1 to 650, respectively, for the same year (Venezian & Gamble, 1969). In 1976, fusion of the three main agricultural banks in Mexico created *BANRURAL*, which buoyed the NAES by employing a large number of agents (Yates, 1981). In the early 1990s, before decentralization, about 25,000 extension agents were employed by Mexico's Government (McMahon & Valdes, 2011), and most of their services were related to agriculture.

The usual way of reaching farmers to deliver agricultural extension services, also boosted after the creation of *BANRURAL*, was through the *ejido* (Yates, 1981). According to Johnson (2001), before 1992, *"[e]jidos* [were] communities that own[ed] land communally and work[ed] it under a system of permanent but nontransferable use[r] rights" (p. 292). The *ejido* was the main achievement of the Mexican Revolution; it provided land to the people by redistributing properties belonging to the big *haciendas*. According to the 1991 *ejidal* census, almost 30,000 *ejidos* existed in Mexico, including upwards of three million members or *ejidatarios;* thus, almost one-half of Mexico's land was stewarded under this form of social (or communal) tenure (*INEGI,* 1994). A similar number was reported about a decade earlier by Venezian and Gamble (1969). More recent, Escalante (2001) posited that more

than 50% of Mexico's land was held under this social tenure system.

In 2008, *ejidos* were reported to have increased from 30,305 in 2001 to 31,518 in 2007 and comprised 54.4 % of Mexico's land (*INEGI*, 2008). A single *ejido* communal area is divided into units of land, or *parcela,* e.g., 100 units comprising 20 acres each, with an independent governance system following the principles of Mexico's agrarian law (Escalante, 2001). Before the reforms of 1992, the land could not be sold, rented, leased, or subjected to any private contracts (Johnson, 2001). The *parcela* only could be transferred to a family member or another person by the approval of a majority of e*jido* members or *asamblea ejidal,* a group that meets regularly to confer on communal interests and issues (Escalante, 2001).

Before decentralization, the delivery of agricultural extension services was differentiated, in most cases, by the types of farmers served (Venezian & Gamble, 1969). Most commercial farmers were able to pay for extension services. Therefore, small-scale and subsistence farmers were *BANRURAL's* usual clients (Venezian & Gamble, 1969; Yates, 1981), and many were *ejidatarios. BANRURAL* designed production packages for the *ejidos* that included all costs of production; in the main, however, no money was given directly to the farmers. The credit provided to the farmers would cover their costs of production inputs and advisory services, as supplied by the state-owned companies (Meza Castillo, 2011), i.e., credit, extension, and project administration were provided by *BANRURAL*, seeds were supplied by *PRONASE*, fertilizers by *FERTIMEX*, and crop insurance by *ANAGSA*. *CONASUPO* would deliver the goods through its local stores and also serve as the reception point for farmers' harvests. *BANRURAL* and/or *CONASUPO* were often also in charge of selling the harvest (Escalante, 2001; Yunez-Naude, 2003).

Urban settlements in the *ejidos,* usually in their communal areas, provided basic services such as an elementary school and a grocery store. *CONASUPO* managed the stores which were "retail shops to sell basic foods to the rural and urban poor, and it was also involved in the trade of fertilizer and improved seeds and in peasant training programs" (Yunez-Naude, 2003, p. 5). In most *ejidos,* one *parcela,* the *parcela escolar,* i.e., the school plot, was allocated for field practicums (see Figure 2). It was where demonstrations by NAES personnel took place; and, in most cases, profits from production activities in the *parcela escolar* were given to the school (García Solorzano, 2010); see Figure 2.

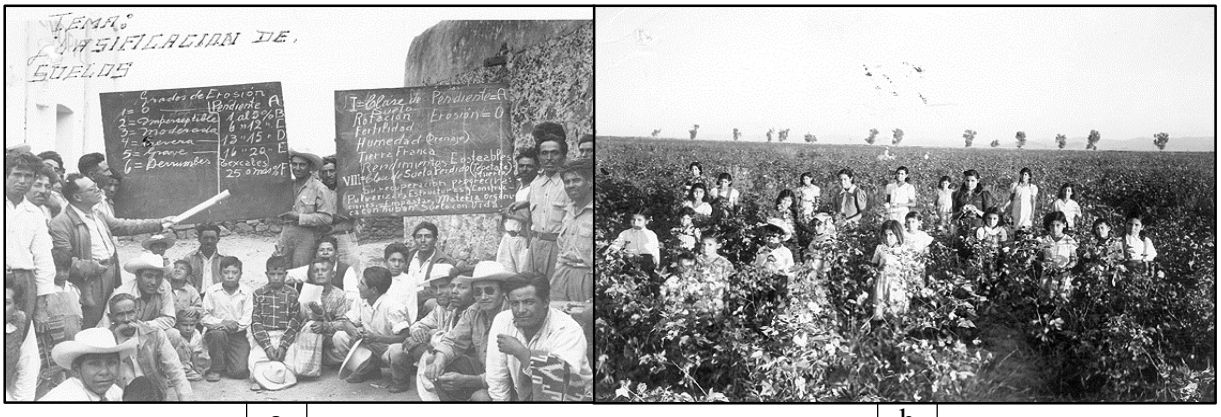

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Figure 2. The Role of the *Ejido* in Agricultural Extension in Mexico before Decentralization: (a) Photograph of a rural school in the 1950s. (their subject was soil classification.); (b) Photograph of a cultivated *parcela escolar* in the *ejido* San Luis, municipality of Torreon, Coahuila, Mexico, 1938-1939 school year. Copyright by *Universidad Nacional Autónoma de México* (n.d.a, n.d.b).

Agricultural Extension After Decentralization

In most countries of Latin America, few complementary reforms followed the decentralization of public institutions, including their agricultural extension systems. As a result, many of the programs faltered or failed to reach expectations due to inadequate monitoring practices or adherence to transparent accountability mechanisms (The World Bank, 2000). In the case of Mexico, two events marked the way extension was delivered after the NAES was decentralized: (1) *BANRURAL* was replaced, and (2) the *ejido,* as a legal entity, was reformed.

In 1989, the government eliminated *BANRURAL* and a similar agency was created to offer government-sponsored rural credit, *Financiera Rural*, but due to the previous institution's failure, the rules to access credit were tightened with much stricter lending and repayment requirements (Meza Castillo, 2011). Moreover, in 1992, the agrarian law of Mexico was reformed so the land of the *ejidos* could become private property (Escalante, 2001). Thereafter, the *ejido* lost its somewhat paternalistic ability to reach farmers through the NAES agents. As for commercial farmers, they continued to pay for extension services, which was not the case of most small-scale and subsistence farmers who could seldom afford to pay for assistance. Extension services were now delivered primarily by private sector contractors either working alone or in groups (McMahon & Valdes, 2011). McMahon & Valdes (2011) explained:

> A dedicated agricultural extension service does not exist in Mexico [today]. . . . The technical assistance is implemented through private sector contractors, *prestadores de servicios profesionales* [*PSPs*], whose function is to implement the programs at the farm level. This program was a government strategy to create a market for these services as a response to the abandonment in the early 1990s of the National Directorate for Agricultural Extension. *Servicios Profesionales* as defined for these purposes includes strategic planning, project formulation, accessing public resources, technical advice, commercial strategies, training etc. with the goal of supporting farmers to increase efficiency and facilitate their incorporation into value chains. (p. 17)

PSPs serve as a bridge between the government and farmers and compete for government resources, typically, charging a percentage of the project's budget, as provided by government agencies related but not limited to agriculture. The extension agents, therefore, are *rent-seekers* in the competition for government support rather than *resource-linkers* and *advocates* for farmers (McMahon & Valdes, 2011); moreover, little follow up of projects occurs after receiving the funds (Swanson, 2011). Further, the agents often face low salaries, short-term contracts, job insecurity, and late payments for the services they deliver to *SAGARPA* [Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food]; they were about 6,000 in 2011 (McMahon & Valdes, 2011).

The agricultural extension system in Mexico, historically, focused mainly on the production process; few efforts were made to develop a value-addition chain. If evaluation did occur in any part of the value stream, it

concentrated mainly on production. McMahon and Valdes (2011) found a systemic deficiency of *impact evaluation* throughout the current provision of Mexico's extension services, from the generation of technology to its diffusion and across the entire process. Evaluation is based mainly on the government's indicator of the percentage of farms receiving support (*Diario Oficial de la Federación,* 2013). Despite an increase in the national government's budget for the agricultural sector, due to the exclusive operational rules on which the allocations are based, only a small percentage of farmers benefit; in 2008, only 6.3% of farmers had access to credit and 17,000 received 60% of the government's funds (Ramos, 2013).

> The present system of technical assistance as implemented through the support programs is highly fragmented and is based on individual projects. . . . [T]here is a dispersion of effort and resources into small projects and there is a lack of integration in terms of territorial development and productivity goals. . . . The driving force behind demand is access to government programs (*'la inercia de la ventanilla'*). *The means becomes the end* [emphasis added]. (McMahon & Valdes, 2011, p. 17)

A counterfactual example of progress during the era of decentralization may be the Capacities Development and Extension Program, which focuses on different production scales. According to the Organisation for Economic Co-operation and Development (OECD, 2012), a key component of this program is the Strategic Project for Food Security or *PESA,* which began operating during 2002 in collaboration with the Food and Agriculture Organization (FAO). *PESA* provides support to small farms and farm households in highly marginalized rural areas. Other programs follow the same three-component approach: investment-extension-conservation, i.e., deploying resources from earlier programs and focusing on large-scale production activities (OECD, 2012). *PESA* is a new approach that aims to better impact its clients (*SAGARPA*, 2014).

Conclusions and Discussion

The role of national governments in the provision of extension services has been minimized in many countries; instead, diverse systems have emerged with varying levels of involvement from the private sector (Swanson, 2011). However, decentralization of agricultural extension services leading to their privatization may produce problems that undermine progress (Rivera, 1996). Decentralization stands to foment expected and desirable consequences as well as unexpected outcomes (Bruno & Pleskovic, 1996) which may be undesirable (Rogers, 2003).

Mexico's NAES started after World War II, following a worldwide pattern, when the United States helped a number of developing countries establish their extension systems (Kaimowitz, 1993; Rice, 1971; Simon, 1950; Venezian & Gamble, 1969; Yates, 1981). Mexico, however, did not receive formal assistance from the United States in regard to its NAES (Rice, 1971). Mexico's extension system boomed considerably during a period of good economic performance from the 1940s to the 1970s due to high demand for products that began with the post-World War II era (Yates, 1981). Mexico's President, Díaz Ordaz, from 1964 to 1970, dedicated considerable resources to establish a robust NAES (Venezian & Gamble, 1969; Yates, 1981). Further, the fusion of Mexico's three main agricultural banks created *BANRURAL* in 1976, which buoyed its extension services by employing more agents (Yates, 1981).

Agricultural extension services before decentralization were planned and executed by Mexico's national government. The most common way to reach farmers was through the *ejidos* (Venezian & Gamble, 1969), a highly organized communal land tenure system controlled by the government that included more than three million small-scale and subsistence farmers (Johnson, 2001). Under the *ejido* system, farmers were reached by government institutions mainly through *BANRURAL* and its affiliates. However, the participation of farmers in planning the government programs was very limited or non-existent; they were simply another production input, i.e., labor, rather than participants who took managerial, decision-making positions in the production process (Escalante, 2001). Commercial farmers usually paid private contractors for their extension services (Venezian & Gamble, 1969; Yates, 1981).

The collapse of Mexico's financial system in the late 1980s resulted in a trend to decentralize public institutions beginning in the 1990s (McMahon & Valdes, 2011). The elimination of a web of state-owned institutions led to Mexico's NAES being essentially dismantled and replaced by a pluralistic extension system where government provides the funding and the private sector delivers services (McMahon & Valdes, 2011), i.e., *in concept*. Another main factor that precipitated the decentralization of Mexico's NAES was the high incidence of corruption it tolerated (Díaz Tapia, 2006) along with the escalating pressure of global competition caused by trade pacts such as the North American Free Trade Agreement (McMahon & Valdes, 2011). Although Mexico's Government increased its budget for the agricultural sector during the era of decentralization, the current system's operational rules are benefiting only a small percentage of the nation's farmers (Ramos, 2013).

Even though Mexico no longer has a NAES, its agricultural extension services still could be considered *centralized* (McMahon & Valdes, 2011). This is because most services are delivered to farmers as a result of decisions made at the federal level rather than as initiatives emanated by a *bottom up approach* as argued for by Swanson (2011). After the government approves funding for a specific program, the *act of extension* is now between a private contractor and his *client,* the farmer, instead of a federal extension agent serving as a *beneficiary's* advisor.

Poverty remains a major problem (*CONEVAL*, 2013), especially in the rural areas of southern Mexico, even though the agricultural sector of this region represents an important source of employment and wealth generation. Moreover, this is where many of the more than six million farmers of Mexico are located, also where more than six million indigenous people live (see Figure 1), and where extreme poverty affects people the most (*CONEVAL*, 2013; *Consejo Nacional de Población*, 2013; *INEGI*, 2011b). The main strategy of Mexico's Government to alleviate poverty has been conditional cash transfer programs which provide some relief but this model of *clientelism* perpetuates poverty rather than reducing it (Ansell & Mitchell, 2011).

Muñoz and *UACh* (2007) concluded that, generally, income from the agricultural sector, as contribution to a nation's GDP, is at least two times more effective in reducing poverty than the income derived from other sectors. Moreover, innovation is a key factor for generating additional income from the agricultural sector. Governments, therefore, should provide conditions for this to occur, such as laws and infrastructure, including the harmonization of relationships with and among service providers of agricultural extension (Muñoz & *UACh*, 2007). In addition, transparent monitoring and evaluation schemes must be designed

properly and implemented professionally to be effective (Ansell & Mitchell, 2011; McMahon & Valdes, 2011; Swanson, 2011).

Implications and Recommendations

A high rate of rural poverty is not only a norm in Mexico; the poverty rate in Latin America is 44% overall but 64% in rural areas (International Fund for Agricultural Development [IFAD], 2002). Moreover, youth, about 30% of the population, are affected even more; children under the age of 15 are 1.7 times more likely to suffer from poverty than adults (IFAD, 2010).

Multidimensional poverty must be addressed with a multifaceted approach. Mexico's Government needs to redefine its national approach to extension to better serve farmers of all socio-economic strata but especially the small-scale and subsistence producers. It is the more than five million small-scale and subsistence farmers who are in most need of government-provided extension services, commercial producers, historically, have paid for their extension services (McMahon & Valdes, 2011; Rivera, 1996; Venezian & Gamble, 1969; Yates, 1981).

The current system for delivering agricultural extension services to Mexico's farmers is untenable if those most in need are to receive assistance commensurate with their challenges. The number of extension agents in Mexico is currently about 6,000 who are expected to serve approximately five million farmers (McMahon & Valdes, 2011); a ratio of one extension agent to more than 8,000 farmers is the reality.

Elsewhere in Latin America, Guatemala's government has enjoined to reestablish its national extension system where the *PESA* program plays an important role in serving the rural poor (*Gobierno de Guatemala,* 2012; Swanson, 2011). A new strategy should include increasing the number of extension agents similar to Guatemala (*Gobierno de Guatemala,* 2012), as well as expanding the partnership with FAO through the *PESA* program. *PESA* is operating currently in Mexico with encouraging results but in only a few highly marginalized rural areas (OECD, 2012). Moreover, if delivered in a contextually appropriate way, an organization of youth, adult leaders, and volunteers might multiply Extension's impact even further; examples include the 4-H Organization and school-based, agricultural education/FFA models practiced in the United States (Lindley, 1992; Mukembo, Edwards, Ramsey, & Henneberry, 2014). Other alternative ways to reach Mexico's farmers also may involve more extensive use of mass media channels, such as radio and television, of the formal education system, as well as increasing their access to and use of the Internet and social media (Schoemaker & Stremlau, 2014) to focus more on process innovations rather than product innovations (Swanson, 2011).

Government rules of operation, especially the guidelines for accessing funding, should be changed according to the needs of farmers and extension providers. Rules of operation should provide equal access to all farmers and not only to the approximately 17,000 who receive 60% of the resources (Ramos, 2013). In addition, the low salaries, short-term contracts, job insecurity, and late payments experienced by private contractors providing agricultural extension must be addressed (McMahon & Valdes, 2011). Doing that stands to reduce the prevalence of agents participating in corruption and improve their performance overall.

According to Swanson (2011), in a pluralistic extension system many actors collaborate to plan, deliver, and evaluate the system's services. The current pluralistic extension system can be improved to help reduce rural poverty in Mexico. Rivera (2000) suggested that, rather than the typical

decentralization of the extension services toward local governments, a federalization of the strategy may contribute more to the alleviation of poverty: "Federalization is the involvement of all levels of government in the funding and direction of extension services" (p. 2). To this end, Rivera (2000) predicted:

> Decentralization reforms, when limited to shifting authority to lower levels of government or to the private sector alternatives, will fail to address major issues of public concern and will, within the next decades, result in a reconsideration of the value and utility of national extension services. (p. 3)

Mexico's government officials charged with ensuring that its agricultural extension services perform as intended are encouraged to consider Rivera's admonition and begin strategizing on how best to recalibrate the current system. No less than improving the lives of millions of their citizens could result from good policies, properly implemented, with a bias toward measurable and sustainable results. Finally, if Mexico's government is interested in assisting those farmers most in need, it is encouraged to reconsider the role of the *ejido* as a social cohesive force and an actor for positive change. Even though *ejidos* experienced significant reforms in 1992 (Escalante, 2001; Johnson, 2001), they remain functional and vibrant.

Ten points are offered for Mexico's Government to consider to reform and revitalize its approach to providing extension services, especially in regard to reducing rural poverty: (1) strategies should focus mainly on rural areas due to their higher poverty levels (IFAD, 2002); (2) focus strategies according to farmers' scale of production, i.e., commercial, small-scale, and subsistence (Maass Wolfenson, 2013); (3) commercial farmers need to diversify their production for the export market to be less susceptible to price fluctuations or market dependency (United Nations Development Programme, 2011); (4) small-scale farmers need incentives to increase production designed to satisfy the domestic market (IFAD, 2013); (5) subsistence farmers need a comprehensive strategy that should include not only agriculture but all of the economic activities supporting their income generation (Fritzsch, 2012); (6) equal opportunities for women and other marginalized groups should be cross-cutting components of all strategies (International Food Policy Research Institute, 2012); (7) youth also should be targeted across all strategies (Proctor & Lucchesi, 2012); (8) local contexts and the many socio-economic-cultural variables should be considered in the development and execution of all strategies, e.g., indigenous peoples should be served according to their customs and languages considering that a high number of the rural poor do not speak Spanish (Tripathi & Bhattarya, 2004); (9) an *impact evaluation strategy* should be established at all levels and for all programs according to the major objectives and realities of the processes and stakeholders involved (Farley, Lucas, Molyneaux, & Penn, 2012; Muller-Praefcke, 2010); and (10) education and training in effective leadership and ethics should be compulsory for all stakeholders, including extension providers, farmers, and other key participants (Brown, 2006; Lasley, Baumel, Deiter, & Hipple, 1997; Schminke, Wells, Peyrefitte, & Sebora, 2002).

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