# WHAT GOVERNABILITY FOR THE MEXICAN COUNTRYSIDE?

# A QUANTITATIVE FOCUS

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**Introduction**

The *ejidos* and agrarian communities that came out of the Mexican Revolution have been simultaneously an organ of representation of peasants; a mechanism of political control; units of production of raw materials; and a pool of labor for the process of industrialization that began in the 1950's (Gordillo y Wagner, 2005; Gordillo, de Janvry y Sadoulet, 1999). Beginning in the 1990's, as a result of the constitutional reform of Article 27, the *ejido* dwellers had rights over the land for common use of their *ejidos* and they could take full possession of their individual parcels. According to the data provided by the National Agrarian Registry (RAN), for December of 2015, there were 30,305 active and registered agrarian nuclei[1]; with 63 million hectares of common use. Within these agrarian nuclei there were 5.8 million parcels with a total of 30.8 million hectares of land.

"Agrarian nucleus" is a generic term to define *ejidos* and communities that have benefitted from a presidential resolution or ruling of the Agrarian Tribunals, through which they were granted land, forests, and bodies of water. An *ejido* is subject to a special set of rules of social property in the tenancy of land, and it is also considered as a legal person with its own judicial standing. The community differs from the previous set of rules essentially in the sense that it brings together a dimension of belonging to share traditions, uses and customs (Art. 27 of the constitution).

Those that have rights in the nucleus are *ejiditarios*, *posesionarios*, and *avecindados*. The *ejidatarios* are titles of *ejido* rights. They have the right: to attend and vote in the assembly, to access common use land, to have an individual parcel and a plot for their homes. *Posesionarios* have land within a nucleus that is part of the common use area or individuals plots, but they are not recognized as *ejiditarios* because they cannot vote in the assembly. The *avecindados* have lived for a year or more in the nucleus and they are recognized by the assembly or an Agrarian Tribunal.

The current study constitutes a methodological summary and the first finding of a project in progress called "What Governability for the Mexican

[1] There are 1,559 agrarian nuclei certified through FANAR and 28,746 through PROCEDE (RAN, December 2015).

Countryside? A Quantitative Focus" coordinated by Gustavo Gordillo. It is part of the Transforming Territories Program finances and developed by RIMISP (Latin American Center for Rural Development). The study seeks to create an inventory of the extant information in Mexico at the level of agrarian nuclei about several topics. In particular, it sought to compile inputs that will allow a long term analysis of the effect of the reform of Article 27 of the constitution implemented in 1991-1992. After presenting the background and justification of the study, the first findings and methodology will be described.

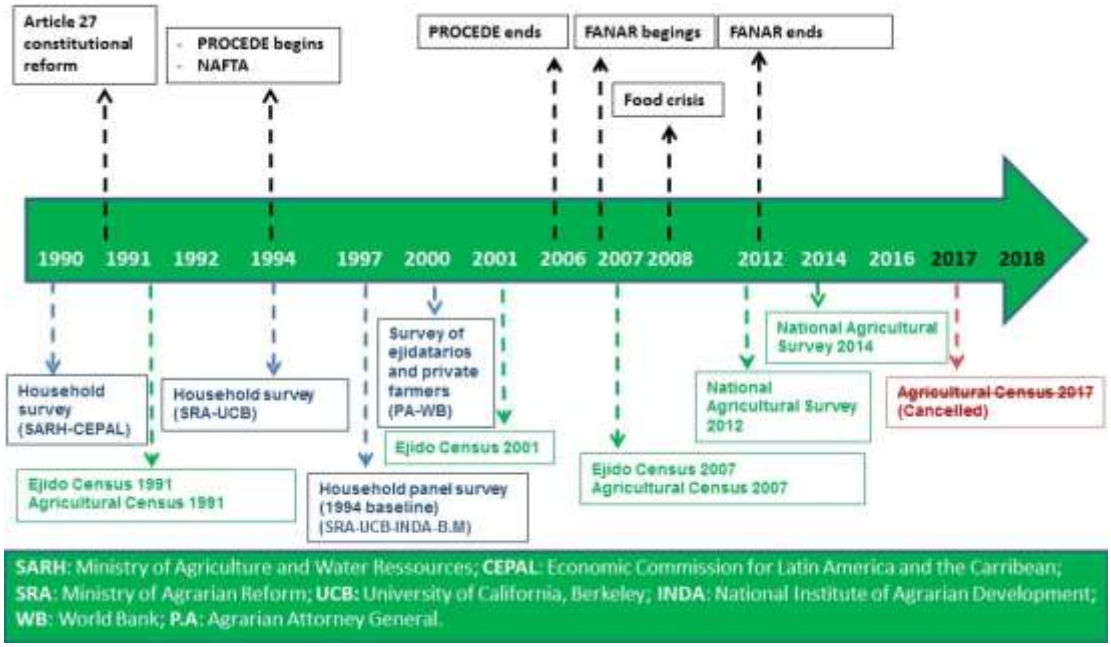
## 1. Background of the investigation

INEGI, the national statistics agency of Mexico, maintains nationwide data on the characteristics of farms in Mexico. The data is collected through the Census of Agriculture, Livestock, and Forestry and the *Ejido* Census (Figure 1). Through these surveys it is possible to uncover the general structure of the countryside, the number of *ejidos* and communities, the type of tenancy of the land, the extent of the territory, infrastructure, activities and forms of organization. Traditional periodicity developed by INEGI is to conduct an agricultural and *ejido* census every ten years, but it will not achieve it because the 2017 agricultural census has been cancelled[2]. Therefore, the most recent official information is from 2007.

It is important to note the efforts of academia and of certain international institutions to research the situation of the rural and agrarian world. For 1988, the National Agricultural Survey was used as a base for the sample of the first survey of *ejido* households and communities in 1990. There were other surveys carried out in 1994, 1997, and 2000, with some of them integrated as a panel. Studies have been made about topics like agricultural and nonagricultural activities, rural incomes, migration, voting, and agricultural subsidies (Gordillo, Warman, Bartra, de Janvry, Sadoulet, Davies, Winters, Alix-Garcia, etc).

*Figure 1: National surveys of agriculture, ejidos, and households 1991-2018*

[2] The framework for the agricultural census was developed in 2016, but because of a lack of funds the census will not be carried out in 2017.




The World Bank also evaluated the effects of the reforms of the 1990's at five and ten years after their implementation. It studied the determinants of poverty in *ejidos*, the main institutional and economic changes, adaptation of families, the impact on the land market, access to credit, and natural resources.

Recent publications on the evolution of the rural and *ejido* world, as well as their role and integration in territorial and public policies, are considered to be scarce to date. The present study sought to compile databases of diverse information about agrarian nuclei at different geographic levels and from different sources.

## 2. Methodology and data sources

As was discussed above, after 2007 INEGI does not have data about certain dimensions of the agrarian nuclei. The study sought to compile information and cover holes in the information through the use of secondary data, geographic resources, and direct requests for information to institutions in charge of data related to agrarian nuclei. The information comes from official sources, *inter alia* INEGI, the National Agrarian Registry (RAN), the Ministry of Social Development (SEDESOL), the Ministry of Agriculture, Livestock, Rural Development, Fish, and Food (SAGARPA), the Ministry of the Environment and Natural Resources (SEMARNAT), the

National Commission for Biodiversity (CONABIO), and the Commission of Development of Indigenous People.

The study focuses on the compilation of data about the 1990-2017 period and creates four databases by different levels of geographic aggregation: states, municipalities, localities, and agrarian nuclei. Also various auxiliary databases were generated. The first tracks all the territorial changes about the period to be able to incorporate this dynamic into the analysis. The other databases bring together the legal actions of the agrarian nuclei, information about the use of land, geographic information, and other indicators.

In addition, the project developed a methodology to link localities with agrarian nuclei, which allows a comparison of living conditions between *ejidos* and localities that are not related to the social property. Effectively, a finding of the study shows that there exists to date very little information about the socio-demographic characteristics of *ejidos*, which is explained in part by the specificity of the Mexican territorial structure. The methodology permits the approximation of this information.

## 3. Products Generated

*The territorial division in Mexico*

In a preliminary phase of the collection of the information, the project sought to understand the organization of the Mexican territory and in particular the structure of the agrarian nuclei and their inclusion within the geographical administrative units: localities, municipalities, and states. The territory of Mexico is divided into 32 states, and "each state is constituted in turn by municipalities, of which there are 2,456 total in the country. For its part, Mexico City is made up of 16 political divisions" (INEGI[3]). The municipalities are subdivided into localities and neighborhoods that represent population centers of the inhabitants of the municipalities.

For its part, the tenancy and organization of the land of the agrarian nuclei is more complex; the territory of an agrarian nucleus cannot be

[3] http://cuentame.inegi.org.mx/territorio/division/default.aspx?tema=T

characterized as a part of a municipality given that in many cases nuclei have territory in multiple municipalities, in addition to nuclei that are completely cover a municipality or have territory in two states. The process of distribution of agricultural land that started at the beginning of the last century was subject to incessant demands for expanding the *ejido* territory, and at the same time there were fractures, mergers, and expropriations of agrarian nuclei. In parallel, the territorial dynamic has involved the creation of localities and municipalities and the fracture of others. There is one more complication: there are members of a single *ejido* that can live in various localities, some of which are outside of the official boundaries of the *ejido* territory.

In terms of analysis these territorial changes need to be taken into account. The current study incorporates in its databases the changes and the relationships described above.

*Proposed method for matching socio-demographic information*

As of now there is not a satisfactory official and public source to locate the place of residence of the beneficiaries of the agrarian nuclei. A search was carried out in the literature to obtain certain documents of INEGI that located the localities where the *ejido* members live. It is also possible to obtain information from the list of beneficiaries of different public programs. Finally, Alain de Janvry and Elisabeth Sadoulet proposed a methodology with geographic tools to match the localities located within the boundaries of agrarian nuclei. We propose working with different data sources, privileging official sources to link nuclei and localities. First we use official sources, next we link the localities that are within the area of human settlement of nuclei. If such a locality does not exist, then we link localities that exist within the outer boundary of the entire nucleus.

We use the following resources to conduct the linkages:

- *The geographic methodology proposed by de Janvry et al. (2015) and de Janvry et al. (2012).*
- *Documents of INEGI: Tabulados Básicos por Municipio (1997 y 2006).*
- *Georeferenced files from RAN about the polygons of various components of agrarian nuclei, which includes an ID number for an associated locality.*
- *Lists of the beneficiaries of public programs, for example PROCAMPO.*

The methodology that we use links more than 80 percent of the certified agrarian nuclei with one or more localities. The goal of the linkage is to fill a hole in the publicly available information. That is to say, it helps to obtain socio-demographic and economic information about the inhabitants of agrarian nuclei. The results indicate that approximately 40 percent of the localities in Mexico are within the boundaries of an agrarian nucleus. The foregoing would permit pertinent analysis about socio-economic conditions of rural inhabitants according to the type of locality and the tenancies of the land.

*Table 1: Localities that are located inside of and outside of agrarian nuclei*

| **Localities inside the perimeter of an A.N.** | | **Localities inside a human settlement polygon of an A.N.** | |
|---|---|---|---|
| **Number of agrarian nuclei** | **Number of localities** | **Number of agrarian nuclei** | **Number of localities** |
| 23 657 | 79 429 | 14 352 | 21 638 |

*Source: Created with geographic tools and data provided by INEGI and RAN.*

## *Conclusion of the study about the state of agrarian information in Mexico*

Compared to other countries, the access to information that is public and non-confidential is quite open in Mexico. The majority of information that this study used was available on the websites of the pertinent institutions. The government has also begun an effort to centralize this information in the *datos.gob.mx* portal. In addition, there are channels to receive and respond to requests for information. The INFOMEX system of the National Institute of Transparency, Access to Information and Protection of Personal Data (INAI) is one of these. The present study requested public information from public institutions through the National Platform of Transparency. Finally, there are a number of important geographic datasets in *.kml* or *.shp*

format on various government websites. Using that data, it is possible to generate information at the level of the agrarian nucleus by using their territorial boundaries.

Databases were generated at different geographic levels (state, municipality, locality, agrarian nucleus) with a temporal focus about many topics, including economic, sociodemographic, environment, land use, and receipt of government subsidies. The compilation at different points over the period 1990-2017 enables spatial-temporal analysis that reveals the evolution of the agrarian nuclei after the reforms of Article 27 of the Mexican constitution. In this way, the project brings together a massive amount of information about the agrarian nuclei that is currently available. Furthermore, the project has determined what information about the agrarian nuclei has not been collected. To deepen the analysis, it is necessary to gather this additional information, possibly by carrying out surveys.

## 4. Initial Findings

*Evolution in the social property*

The data indicates that about half of the land area of Mexico is community or *ejido* land. Furthermore, according to our calculations 79,429 localities are within the boundaries of an agrarian nucleus, although not all of these have residents that are *ejiditarios*, *comuneros* o *posesionarios*. Most of the forests and bodies of water within Mexico are also within the boundaries of agrarian nuclei.

Table 1 shows that the social property has not been altered much in terms of the large areas, which are common use, the parceled areas, and human settlement, in effect. In summary approximately 4 million hectares left the social property. The breakdown is as follows: 0.27 million hectares left the social property without becoming another type of property, 2.7 million hectares turning into parcel with full alienation rights (*dominio pleno*), and 1.1 million hectares left due to expropriations.

On the other hand, the changes of the designated purpose of land within agrarian nuclei is more important. 3.2 million hectares changed from

land for common use to parceled land, as declared to RAN. The other changes are minimal, but they translate into a small change of the designated purpose to the human settlement zones (0.04 million hectares).

*Table 2: Shift of land in agrarian nuclei across categories*

| **Change of the designated purpose of land** | | **N° of nuclei** | **Area** | **N° de nuclei** | **Area** |
|---|---|---|---|---|---|
| | | Certified agrarian nuclei | | Agrarian nuclei that have left the social property | |
| **Human settlement** | From human settlement to parceled | 1 | 26.2 Ha | | |
| | From human settlement to area reserved for growth. | 73 | 1 146.3 Ha | | |
| | From human settlement without title to common use. | 2 | 81.8 Ha | | |
| **Parceled area** | From parceled area to human settlement and settlement without delimitation | 47 | 1 323.5 Ha | | |
| | From parceled to common use | 5 | 10 053.8 Ha | | |
| **Common use** | From common use to human settlement or settlement without delimitation | 204 | 25 795.4 Ha | | |
| | From common use to area reserved for growth | 10 | 7 901.2 Ha | | |
| | From common use to parceled | 1 237 | 3 039 021.9 Ha | 3 | 127 956.6 Ha |
| **Reserved for growth** | From area reserved for growth to human settlement without delimitation | 4 | 34.8 Ha | | |
| **Collective exploitation**[4] | From collective exploitation to parceled | 2 | 328.0 Ha | | |
| **From individual parcel to full property rights** | | 3 333 | 2 700 433.2 Ha | 17 | 137 729.8 Ha |
| **Expropriation** | | | 1 094 017.6 Ha | 135 | 64 825.1 Ha |
| **Contribution of land for common use to firms** | | 41 | 117 307.4 Ha | 4 | 3 348.7 Ha |

*Source: Created with data provided by RAN.*

*Full property rights by state*

[4] **Article 11.** The collective exploitation of *ejidal* lands can be adopted by an *ejido* when its assembly resolved as well, in this case should be established previously the way of organizing labor and the exploitation of the resources of the *ejido*, as well as mechanisms for equitable sharing of benefits, the constitution of capital reserves, social and services provisions, and which that integrate mutual funds.

The 1991-1992 constitutional reforms allowed agrarian nuclei to convert their parceled land into fully alienable property. This is called *dominio pleno*, or full property rights. To implement full property rights, an agrarian nucleus had to vote in favor of it at an assembly. Without full property rights, members of an agrarian nucleus could rent their parceled land to anyone, but sale was only permitted to fellow members of the same nucleus. Full property rights allowed sale of the parceled land to any Mexican citizen. In effect, an agrarian nucleus left the social property legal framework if it voted for full rights.

One motivation for implementation of full rights was to take advantage of the expansion of urban areas. Full rights allowed parceled land that previously was used for agriculture to be developed for housing or commercial purposes. Naturally, the incentive to convert to full property rights for the opportunity to sell land to developers was greatest in agrarian nuclei that were closest to urban areas.

Although a substantial number of agrarian nuclei opted for full rights, there was a certain degree of reluctance among members of other agrarian nuclei to do so. The collective nature of the nuclei served as a sort of refuge from macroeconomic shocks, such as fluctuations in the exchange rate, spikes in urban unemployment, and migration crackdowns in the United States. Many people did not want to eliminate this refuge. There was also an ideological element in the decision to not implement full rights. To an extent, implementation of full rights marked the end of the fruits of the Mexican Revolution of the 1910's. Some members of agrarian nuclei rejected full rights as yet another market-oriented neoliberal reform, especially in the southern states.

The split between southern and northern states is seen clearly in Table 3. The state with the greatest percentage of agrarian nuclei implementing full rights is Baja California Sur, in the north of the country. About 62 percent of nuclei chose full rights there. The state of Colima on the pacific coast as well as states of the *Bajio*'s[5] region also teach high rates of agrarian nuclei to implement full rights. In contrast, Chiapas in the south

[5] Bajio's states are Queretaro, Aguascalientes, Jalisco and Guanajuato.

had the lowest uptake of the full rights option, with 2 percent voting for it, same trend can be observed for states of Oaxaca, Guerrero and Quintana Roo.

*Table 3: Implementation of full property rights (dominio pleno) by state*

| State | Implemented full rights | Did not implement full rights | Percentage implemented full rights | Percentage did not implement full rights |
|---|---|---|---|---|
| AGUASCALIENTES | 115 | 72 | 61% | 39% |
| BAJA CALIFORNIA | 123 | 115 | 52% | 48% |
| BAJA CALIFORNIA SUR | 61 | 38 | 62% | 38% |
| CAMPECHE | 38 | 347 | 10% | 90% |
| CHIAPAS | 73 | 3,137 | 2% | 98% |
| CHIHUAHUA | 112 | 868 | 11% | 89% |
| COAHUILA DE ZARAGOZA | 258 | 633 | 29% | 71% |
| COLIMA | 99 | 67 | 60% | 40% |
| D.F. | 3 | 47 | 6% | 94% |
| DURANGO | 168 | 949 | 15% | 85% |
| GUANAJUATO | 502 | 1,070 | 32% | 68% |
| GUERRERO | 56 | 1,195 | 4% | 96% |
| HIDALGO | 141 | 1,031 | 12% | 88% |
| JALISCO | 326 | 1,128 | 22% | 78% |
| MEXICO | 159 | 1,084 | 13% | 87% |
| MICHOACAN | 295 | 1,585 | 16% | 84% |
| MORELOS | 50 | 181 | 22% | 78% |
| NAYARIT | 83 | 320 | 21% | 79% |
| NUEVO LEON | 143 | 465 | 24% | 76% |
| OAXACA | 93 | 1,492 | 6% | 94% |
| PUEBLA | 232 | 966 | 19% | 81% |
| QUERETARO | 161 | 219 | 42% | 58% |
| QUINTANA ROO | 9 | 273 | 3% | 97% |
| SAN LUIS POTOSI | 143 | 1,301 | 10% | 90% |
| SINALOA | 248 | 1,065 | 19% | 81% |
| SONORA | 184 | 821 | 18% | 82% |
| TABASCO | 182 | 626 | 23% | 77% |
| TAMAULIPAS | 213 | 1,182 | 15% | 85% |
| TLAXCALA | 81 | 164 | 33% | 67% |
| VERACRUZ | 467 | 3,264 | 13% | 87% |
| YUCATAN | 100 | 638 | 14% | 86% |
| ZACATECAS | 33 | 737 | 4% | 96% |
| Total | 4,951 | 27,080 | 15% | 85% |

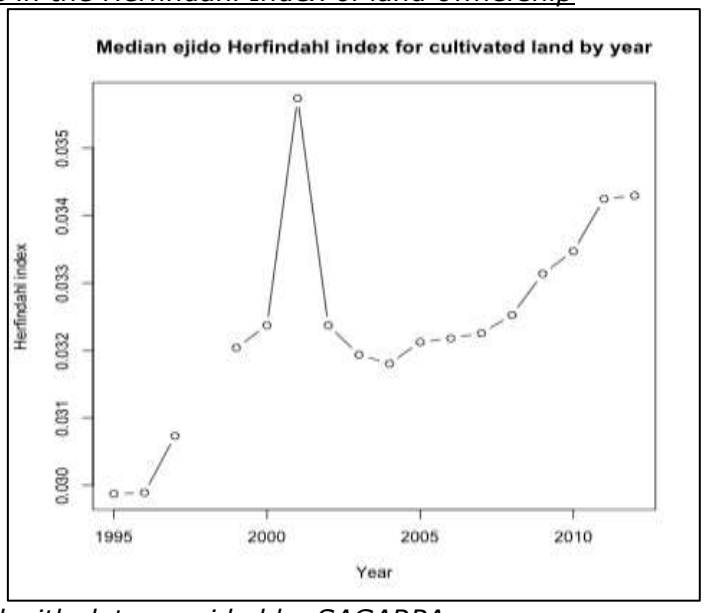
*Source: Created with data provided by RAN.*

*Concentration of land ownership*

The liberalization of the land market that came with the 1991-1992 reforms permitted greater concentration of land in fewer hands. Land concentration is also expected in the normal course of economic development. Administrative data from the PROCAMPO subsidy program presents an opportunity to reach precise conclusions about the extent of land concentration. PROCAMPO was available to nearly all farmers. About 80 percent of members of agrarian nuclei received the subsidy. The names of the beneficiaries and the quantity of land that they held was recorded by the government and was recently made publicly available.

The rich PROCAMPO data allows calculation of indicators of land concentration. The Herfindahl index is a commonly-used measure of concentration of market share used in the study of monopolistic behavior. It is also suitable in this application. Higher Herfindahl indices indicate higher degrees of concentration. Figure 2 displays the Herfindahl Index in the median *ejido* over 1995 to 2012. There is a clear upward trend. Data was missing for 1998, while the 2001 index may be an artifact of how data was collected that year.

*Figure 2: Trends in the Herfindahl Index of land ownership*




*Source: Created with data provided by SAGARPA.*

## Conclusion

The initial analysis of the data products generated during the project "What Governability for the Mexican Countryside: A Quantitative Focus"

sheds light on the general trends in the transformation and adaptation of the social property to the recent reforms of the 1990's. On the other hand, the need to deepen this analysis is understood, in particular to develop spatial-temporal analysis, by state and typology of agrarian nuclei, with the goal of understanding the adaptation of families and living conditions, and the evolution of the social property in certain territories.

RAN has made available data about the designated purpose of land within the social property, various legal actions, as well as georeferenced boundaries of areas for common use, parceled, and human settlement. Furthermore, it is possible to obtain approximate data on sociodemographic information on members of agrarian nuclei by linking *ejidos* and localities. Information about the amount of land sales, transfer of land rights[6], and cessation of rights can also be generated. Relevant data was also obtained from the National Forestry Commission (CONAFOR) and from the Ministry of the Environment and Natural Resources (SEMARNAT) that were linked to agrarian nuclei. This information could allow environmental dimensions to be incorporated into the analysis.

The data offers great possibilities for analysis, in particular through the legal actions that reveal the nuclei that left the social property, expropriations of land, and different changes in the tenancy in the land categories.

## Bibliography

Alix-Garcia, J., de Janvry, A y Sadoulet, E., 2005, *A Tale of Two*

[6] About the use of the common land and participation in assemblies.

*Communities: Explaining Deforestation in Mexico*, *World Development* 33(2), pp.219-235.

Davis, B., 1997, *Economic Reform and Determinants of Income among Agricultural Households in Mexico and Nicaragua*. Unpublished Doctoral Dissertation, University of California, Berkeley. Davis, B. 1999. The Adjustment Strategies of Mexican Ejidatarios in the Face of Neoliberal Reform.

De Janvry, A., Sadoulet, E., 2001, *Income strategies among rural households in Mexico: The role of off-farm activities*. World Development, 29(3):467, num.480, 2001.

De Janvry, A., Gonzalez Navarro, M., Sadoulet, E., 2012a. Are land reforms granting complete property rights politically risky? Electoral outcomes of Mexico's certification program, University of California at Berkeley and University of Toronto, November 2012.

De Janvry, A., Emerick, K., Gonzalez-Navarro, M y Sadoulet, E., 2012b, *Certified to migrate: Property rights and migration in rural Mexico.* Working Paper (Berkeley, CA: University of California)

De Janvry, A., Emerick, K., González-Navarro, M y Sadoulet, E., 2015, *Delinking Land Rights from Land Use: Certification and Migration in Mexico*.American Economic Review, 105(10): 3125-49.

Gordillo, G., A. De Janvry, A y Sadoulet, E., 1999, *La segunda reforma agraria de México: respuestas de familias y comunidades, 1990-1994*, México, Fideicomiso Historia de las Américas. Fondo de Cultura Económica, 1999.

Gordillo, G., Wagner, R., 2005, *Las reformas titubeantes*. El campo mexicano, 1975-2000, EconomiaUNAM, Vol. 2, núm. 5, Ciudad de México.

Warman, A., 2001, *El campo mexicano en el siglo XX*, México: FCE, 2001.

Warman, A., 2003., *La reforma agraria mexicana: una visión de largo plazo*, en Reforma agraria, colonización y cooperativas, FAO, 2003/2. Disponible en: ftp://ftp.fao.org/docrep/fao/006/j0415T/j0415T00.pdf

Winters, P., de Janvry, A y Sadoulet, E., 2001, *Family and community networks in Mexico-U.S. migration*. Journal of Human Resources, 36(1):159, num.184, Winter 2001.