



Local Public Finance in Oaxaca: Indigenous traditions and Mexican reform efforts

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Abstract:

The decentralisation of expenditure and public functions is only “one side of the coin” of fiscal federalism. A key question is also how this delegation is to be financed and how independent the subnational and local authorities are to be in their provision of public goods and services. This paper provides a brief overview of the local public finance system in the Mexican federal state Oaxaca, which is divided into 570 municipalities, of which almost three quarters are governed by the system of usos y costumbres (customs and traditions) with recognized local forms of self-governance. Moreover, the proposed block grant formula has included with the Climate resilience factor and Green electricity factor two indicators, which are worldwide unique.

JEL Classification: H7; G20; R10

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⁷⁰ The findings, interpretations, and conclusions expressed in this paper are entirely those of the author. They do not necessarily represent the view of the CBS Business School or the city of Langen. An earlier version of this paper was provided in November 2019 as “Local Public Finance in Oaxaca: Some Reform Proposals under the Perspective of the Agenda 2030” for GIZ Mexico.

1 Introduction

Mexico is a federal country with the central government in the capital, Mexico City. It is composed of 32 federal states, including the capital and former federal district of Mexico City, and 2,458 municipalities and 16 delegations that conform Mexico City. The total population of Mexico in 2019 is approximately 127 million,⁷¹ while the federal state of Oaxaca has a population of 4.1 million and consists of 570 municipalities. The following table presents the population structure of the local units in the state of Oaxaca in 2015:

Size of population	# of municipalities	Band
Over 100,000	2	A
From 75,000 – 99,999	4	B
From 50,000 – 74,999	2	C
From 25,000 – 49,999	20	D
From 10,000 – 24,999	63	E
From 5,000 – 9,999	69	F
From 1,000 – 4,999	289	G
From 500 – 999	74	H
Less than 500	47	I

Table 1: Population structure of the municipalities in Oaxaca in 2015

Source: various publications of the Instituto Nacional de Estadística y Geografía (INEGI)

A large part of the communities in Oaxaca is thus more rural with few inhabitants structured. Furthermore, the population density is also very fragmented, as in Oaxaca 276 of the 570 municipalities have a population density of less than 30 inhabitants per square kilometer.⁷²

Mexico has seen moderate economic growth over the past two decades, mainly driven by oil revenues, population growth, and open trade and investment policies. Moreover, Mexico has slightly reduced its dependency on oil revenues, as oil production

⁷¹ Mexico had 83 million inhabitants in 1980, the latest census was conducted in 2010 with the next scheduled for 2020, see United Nations, 2019, page 28.

⁷² The average population density in Mexico is around 64 people per quad kilometer.

generates only 4 % of GDP compared with 9 % a decade ago or rather 6 % of total exports compared with 16 % ten years ago.⁷³

Mexico has, however, not been able to achieve higher living standards or reduce the economic gap in relation to the USA or other OECD countries. Figure 1 below shows the real GDP growth as a percentage in Mexico, USA, the OECD countries and the LAC-5⁷⁴ countries from 2000 until 2018.

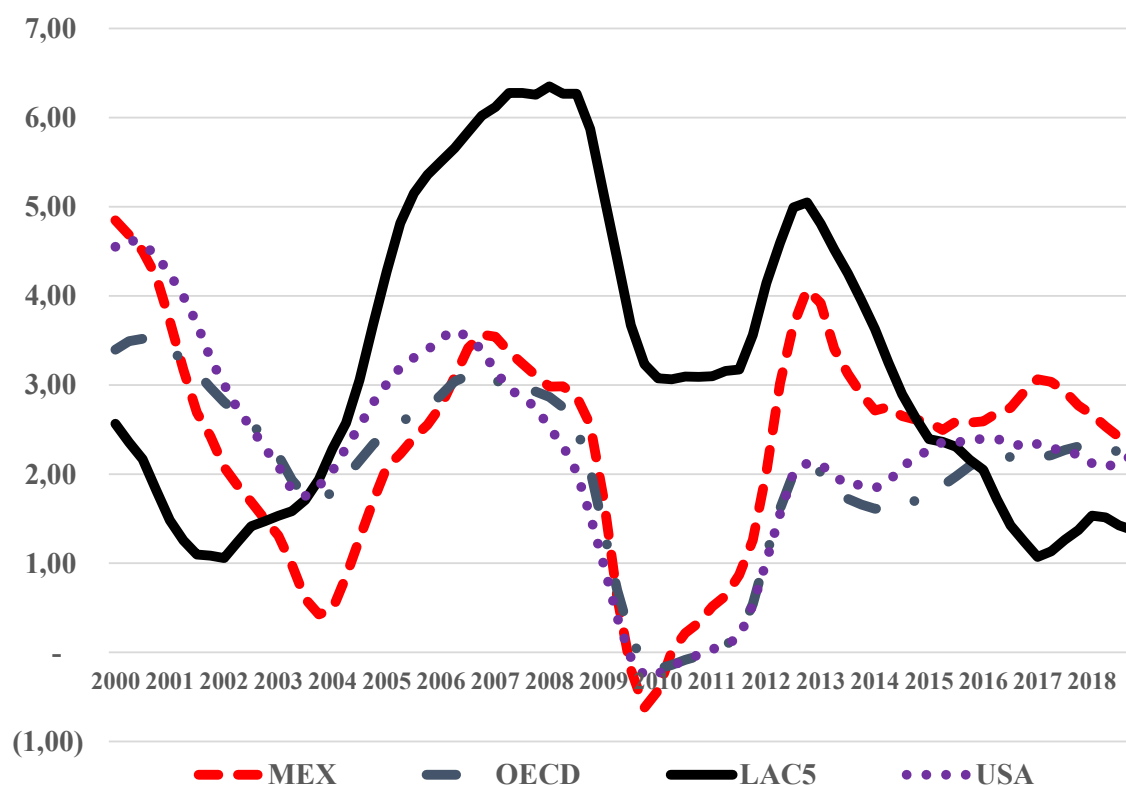


Figure 1: Real GDP growth in Mexico, USA, LAC-5 countries and the OECD from 2000 to 2018

Source: OECD, 2019, page 8.

Furthermore, the relative poverty⁷⁵ in relation to the total population is very high, especially in the federal states with a high indigenous population, such as Oaxaca. Figure 2 below shows poverty and extreme poverty for the year 2016.

⁷³ See OECD, 2019, page 7.

⁷⁴ The LAC-5 countries are Argentina, Brazil, Chile, Colombia and Costa Rica.

⁷⁵ This poverty indicator issued by CONEVAL (Consejo Nacional de Evaluación de la Política de Desarrollo Social) is not based purely on income, but rather income plus lack of quality housing, lack of access to basic educational services, lack of access to basic housing services, lack of access to food, lack of access to health services and lack of access to social security. The population in extreme

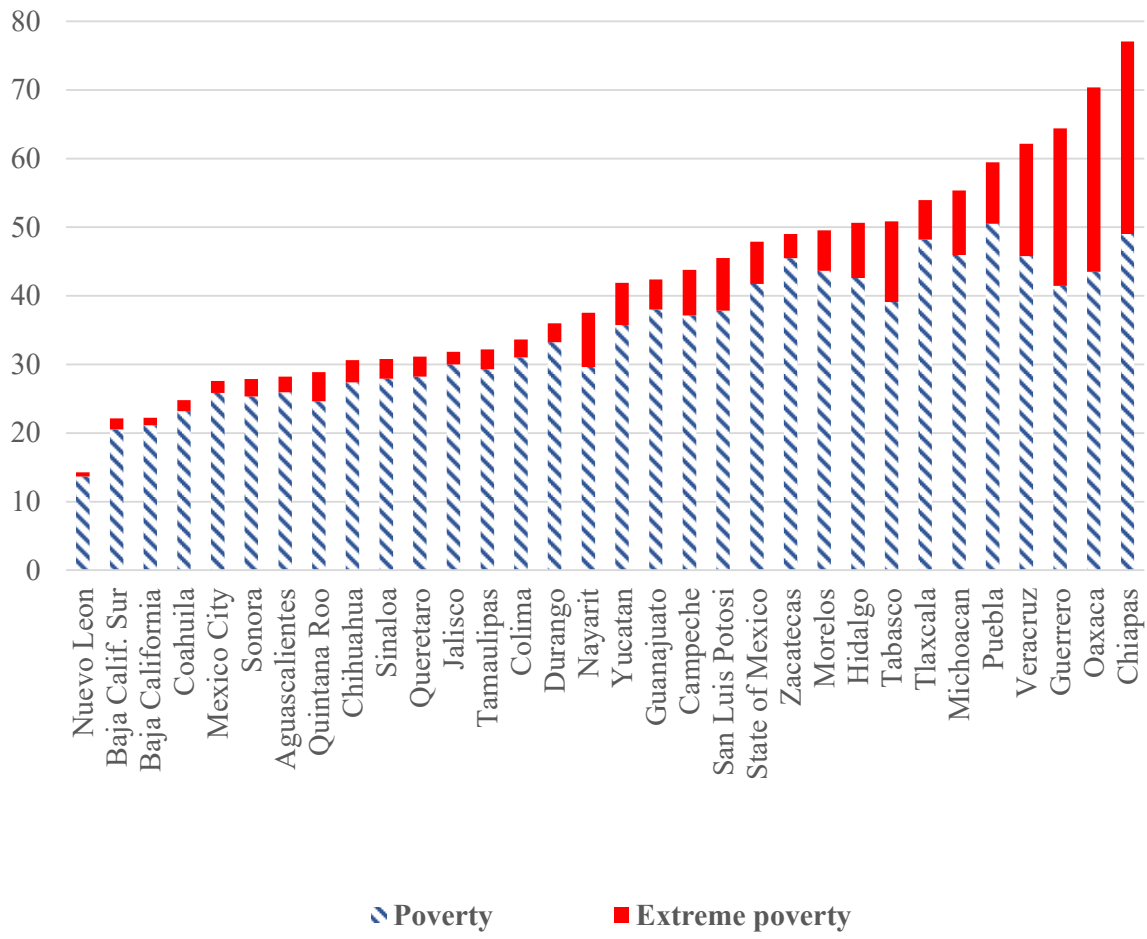


Figure 2: Poverty and extreme poverty in 32 federal states in Mexico in 2016
 Source: OECD, 2019, page 12.

Compared with other OECD countries, Mexico collects a relatively low amount of taxes, ranking 36th out of 36 OECD countries in terms of the tax-to-GDP ratio in 2017. However, whereas the Mexican tax-to-GDP ratio has increased from 11.5% in 2000 to 16.2% in 2017, the OECD average in 2017 was only slightly above the 2000 level; 34.2% compared with 33.8%.⁷⁶

poverty is the group whose income cannot ensure adequate nutrition and who is deprived in at least three of the six social indicators. The population in poverty includes those whose income cannot ensure adequate access to nutrition and basic services and who are deprived in at least one of the social indicators.

⁷⁶ See OECD, 2018, page 2.

Table 2 below highlights the Mexican tax structure in relation to the GDP.

	Mexico in 2013	Mexico in 2017	OECD in 2017
Total tax revenues	13.3	16.2	34.2
➤ Personal income tax	2.6	3.5	8.2
➤ Corporate income tax	2.4	3.5	2.9
➤ Value-added tax	3.4	3.7	6.8
➤ Social security contributions	2.2	2.1	9.2
➤ Property taxes	0.3	0.0	1.9
➤ Other taxes	2.4	3.4	5.2
Revenues from oil	8.0	5.0	0.0 ⁷⁷

Table 2: Tax structure in relation to the GDP in 2013 and 2017

Source: OECD, 2019, page 36.

There is a huge vertical fiscal gap in Mexico since the 32 federal states as well as the municipalities are extremely dependent on transfers and do not have great fiscal autonomy. The largest sources of revenues are unconditional transfers (*participaciones, ramo 28*) and conditional transfers (*aportaciones, ramo 33*).

The *participaciones* are basically a tax-sharing transfer from the central government to the federal states⁷⁸. Through the General Fund for Revenue-Sharing Transfers (*Fondo General de Participaciones*), 20 percent of all central tax revenue and central income from extractive industries are transferred to all 32 federal states based on a formula.⁷⁹ The federal states, in turn, are required to transfer at least 20 % of their revenues from this tax-sharing system to their municipalities, but every federal state can develop its own formula for distribution to the municipalities.

⁷⁷ The oil revenues of all OECD countries were subsumed under "Other taxes".

⁷⁸ The tax sharing system was introduced in 1978, when the central government replaced some indirect state and local taxes with a national value-added tax.

⁷⁹ Since 2007, transfers have been distributed using a formula based on population, state GDP, and the state's own tax collection system, introduced gradually. As population becomes a dominant factor in the distribution formula, it is expected that *Participaciones* will favor some regional redistribution: taxes that are largely collected in the most developed regions of the country will be distributed on an equal per capita transfer basis. Moreover, it must be borne in mind that State and municipal tax collections per inhabitant in the north-east and central north regions are 4.5 times higher than the collections by state and local governments in the south-west. Mexico City collects 15 times more state and municipal revenues per capita than Chiapas, Oaxaca and Tlaxcala and over 10 times more than in Guerrero and Zacatecas, the states with the lowest subnational tax collections. See World Bank, 2019, page 112.

Besides this general tax-sharing system, a number of other smaller funds exist within the unconditional transfer system. The Fund for the Promotion of Local Governments (*Fondo de Fomento Municipal*) and Fund for Municipalities Located along the Border or in Coastal Areas (*Fondo para Municipios Colindantes con la Frontera o los Litorales*) comprise fiscal resources transferred directly from the central level to the local units. The *Fondo de Fomento Municipal* receives 1 % of the nationwide, shared taxes and the *Fondo para Municipios Colindantes con la Frontera o los Litorales* receives 0.36 % of all shared taxes which it distributes according to the value of international trade processed at seaports and border crossings in each municipality. Another fund is the Revenue Collection and Auditing Fund (*Fondo de Fiscalización y Recaudación*) which receives another 1.25 percent of shared taxes.

“Aportaciones” are earmarked and formula-based transfers from the central government to the federal states as well as from the central government directly to the municipal governments. For the municipal governments, the two most important conditional transfer schemes related to the Fund of Conditional Transfers to Strengthen Mexico’s municipalities and the Delegations of the Federal District (*Fondo de Aportaciones para el Fortalecimiento de los Municipios y de los Territorios del Distrito Federal* (FORTAMUN)) and the Fund of Conditional Transfers for the Construction of Social Infrastructure (*Fondo de Aportaciones para la Infraestructura Social* (FAIS)).

In the last two decades a paradigm shift has taken place in Mexico, since the relative importance of unconditional transfers (*participaciones, ramo 28*) has fallen compared with the past and, at the same time, conditional transfers (*aportaciones, ramo 33*) have a relatively higher importance for the municipalities. However, this development reduces the financial autonomy of the municipalities, because a mayor can autonomously decide on unconditional transfers, while earmarked transfers determine the area of expenditure by defining the purpose and thus restrict financial autonomy. The following Figure 3 shows the development of the relative amounts as a percentage and as an absolute amount in Mexican Pesos for both transfer types from 2000 until 2016:

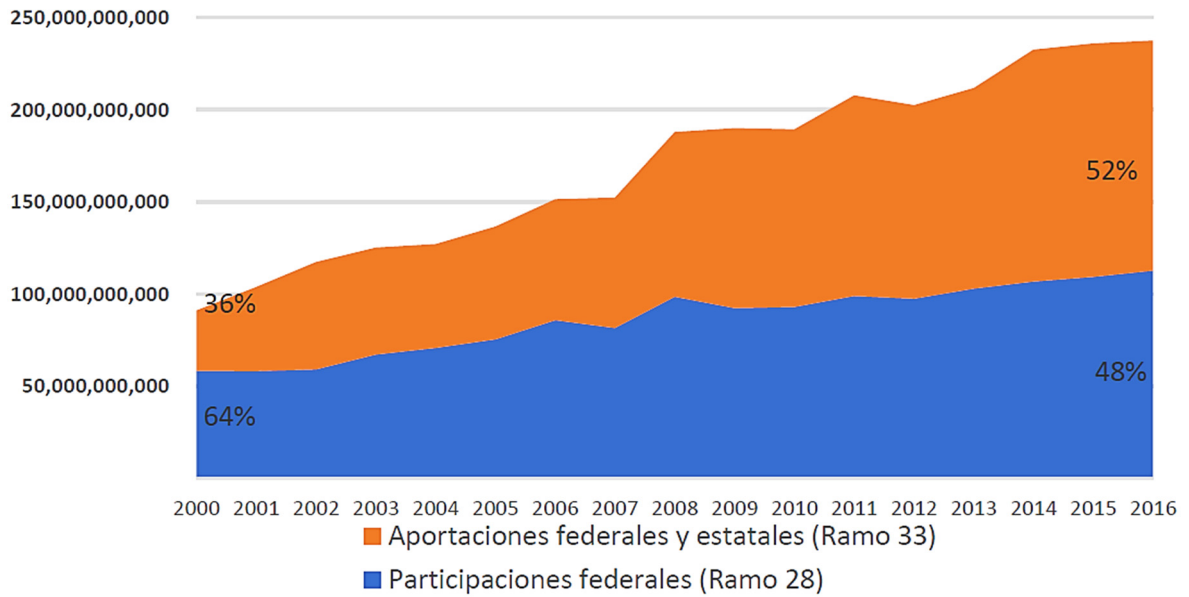


Figure 3: Development of ramo 33 and ramo 28 from 2000 until 2016

Source: GIZ, 2018, page 33.

However, the vertical transfers *participaciones* and *aportaciones* are the most important sources of revenue for Mexican municipalities. Fiscal autonomy is therefore eroded and the municipalities’ own resources –taxes and user fees – play only a minor role as source of income. The main reason for the low influence of local taxes is that there are no local business taxes and the property tax (*impuesto predial*) only generates a low amount of revenues. The following Figure 4 presents the revenue structure of all Mexican municipalities from 2000 until 2016.

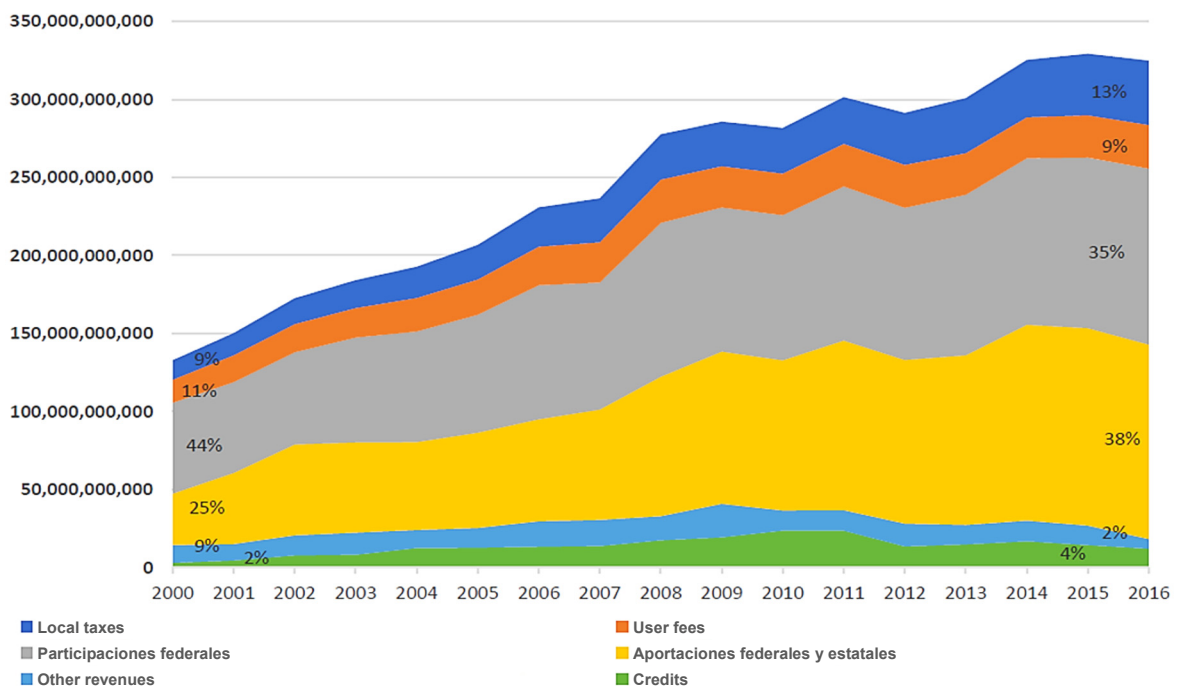


Figure 4: Development the revenue structures of the Mexican municipalities from 2000 until 2016

Source: GIZ, 2018, page 36.

The state of Oaxaca uses the following system to determine the full **amount** of the *participaciones* from the provincial government to the municipal units:

Name of resource	Percent for the municipalities	Value in millions of Mexican Pesos in 2018 for the municipalities	Value millions of Mexican Pesos in 2019 for the municipalities
General tax-sharing fund called fondo general de participaciones	21 %	3,111	3,299
Tax-sharing from alcohol taxes called participaciones por impuestos especiales	20 %	47.5	41.8
Tax on new cars called impuesto sobre automoviles nuevos	20 %	22.2	21.1
Compensation Fund for the tax on new cars called fondo de compensation del impuesto sobre automoviles nuevos ⁸⁰	20 %	6.2	6.2
Revenue Collection and Auditing Fund called Fondo de Fiscalizacion y Recaudacion	20 %	169	160
Fund for the Promotion of Local Governments called Fondo de Fomento Municipal	100 %	1,309	1,383
General compensation fund called fondo de compensation	20 %	116,6	120,8
Fund for gasoline taxes called Impuestos a las Ventas Finales de Gasolinas y Diésel	20 %	88.4	93.4
Total value / Budget _t	X	4,869	5,125
Value per inhabitant		1,187	1,250

Table 3: Origin of sources of the *participaciones* in Oaxaca in 2018 and 2019

Source: own data and estimations taken from Periodico Oficial 2018 and 2019 of Gobierno de Oaxaca

⁸⁰ In some laws the term Fondo Resarcitorio del Impuesto Sobre Automóviles Nuevos is also used.

The state of Oaxaca uses the following formula for the **distribution** of the *participaciones* from the provincial government to the municipal units,

$$T_i = \text{Budget}_t * (0.50 * (\text{POP}_i / \text{POP}_{\text{Oaxaca}}) + 0.50 (\text{LocalRev}_i - \text{LocalRev}_{\text{Oaxaca}}))$$

T_i : receiving transfer of the local authority i

Budget_t : budget available for distribution in year t

POP_i : number of inhabitants in local authority i based on the 2015 census

$\text{POP}_{\text{Oaxaca}}$: total population in province Oaxaca based on the 2015 census

LocalRev_i : own revenues collected in local authority i

$\text{LocalRev}_{\text{Oaxaca}}$: total of own revenues collected in the State of Oaxaca

The formula is divided in two parts. First, all municipalities receive exactly the same amount as in the tax year of 2013, which could be described as a guarantee factor or lump sum.

However, the difference between the additional available amounts of the participations from the year 2013 to the year 2019 is only 673 millions of Mexican peso. Thus, only 20 percent of the total distributed amount are actually subject to distribution under the above presented formula. 80 percent of the unconditional transfers are distributed according to the guarantee factor.

The remaining amount after this guarantee factor is based on the two factors population and revenue. The population factor $0.50 * (\text{POP}_i / \text{POP}_{\text{Oaxaca}})$ is not adjusted in any way and every municipality receives the same amount of participaciones per inhabitant, i.e., there is no prime on, e.g., inhabitants of larger cities or inhabitants of remote regions. The revenue factor $(0.50 (\text{LocalRev}_i - \text{LocalRev}_{\text{Oaxaca}}))$ is an incentive factor, because if a municipality's revenues are higher than the provincial average, that municipality will receive more fiscal funds based on the formula and if a municipality has no revenues of its own, it will not receive any funds at all.

The population factor is most certainly in line with international customs, but the revenue factor is subject to criticism. First of all, such an incentive factor has a negative impact on the goal of equalisation, because it means that fiscally strong municipalities receive a relatively higher amount than the average municipalities and fiscally weak municipalities are actually punished by this factor. This is a particular problem for the indigenous population in the municipalities with the status "*usos y costumbres*", which do not have high revenues of their own. On the one hand, the proportion of land classified as "Ejidal" and "Comunal" is very high, resulting in a

low tax base. On the other hand, the administrative capacities in these communities are also very low.⁸¹

Secondly, the revenue factor is not purely based on local taxes or only on one local tax such as the *impuesto predial* (property tax); it also includes revenues from charges, mainly from water charges. It does not make sense to include water charges in this revenue factor because the idea of an incentive grant is to increase the fiscal freedom of a local unit. However, only a tax generates fiscal freedom for local units, while a charge means that the municipality has to provide a special public service with a similar value. Furthermore, the consideration of water charges presents a fiscal disadvantage for the municipalities with the status *usos y costumbres* because they have less access to mains water or relatively more homes without a sewage system.

The four, main problems of the local public finance system in Oaxaca are:

- (1) There is no fiscal autonomy for the 570 municipalities in the State of Oaxaca because the main revenue sources are the vertical transfers from the province to the municipalities.
- (2) Property tax, which is the main tax collected autonomously by the local authorities in Oaxaca, does not generate a sustainable income, because
 - 186 municipalities did not have any revenues from property tax in 2018,
 - 107 municipalities collected less than 10,000 Mexican pesos in 2018
 - and 79% of the entire property in Oaxaca is social property – *Ejidotes or Comunidades* – and this is de facto exempt from any property taxation.⁸²
- (3) The formula for the *participaciones* in Oaxaca generates the wrong incentives and finally the formula does not change the current situation for the better, but instead increases the fiscal gap between rich and poor municipalities. Moreover, 80 % of the total volume is fixed by the guarantee factor and this is another major weakness, because such non updated lump sum cannot generated any incentives.
- (4) Lack of human resources and capacities in the 570 municipalities in Oaxaca, especially in the 417 with an indigenous structure.

In combination with the low fiscal autonomy of the municipalities already presented, local expenditure is dependent on provincial transfers that leave little room for any freedom of fiscal policy. Unfortunately, a low quality of education and health services

⁸¹ A map of Oaxaca with the different property classification of “Ejidotes” or “Comunidades” is located in annex.

⁸² The annex shows a chart illustrating the distribution of Ejidotes or Comunidades in all 32 federal states of Mexico.

leads to low living standards, and their improvement is the key to raising the economic prospects of the municipalities in Oaxaca. Only well-educated people with a reliable supply of public services are able and willing to pay taxes.

2 Recommendations for Oaxaca's local public finance system

The **first recommendation:** The local governance system in Oaxaca suffers from a lack of manpower in the 570 municipalities in Oaxaca, especially in the 417 with an indigenous structure. There is therefore a huge personnel deficit in terms of administrative knowledge and skills in the municipalities in Oaxaca. However, the general principle for successful decentralisation is that “finance follows function, and function follows capacity.”

A sound local public finance system requires a reliable supply of adequate manpower with the necessary technical skills and in order to ensure this, it is recommended that a local governance school is created with the name Benito Juarez Local Governance Institute which will serve as a local governance public service academy.

In the future, every newly elected mayor will have to participate in a course on the principles of public management (budget cycle, auditing, municipal revenues, ramos 33 versus ramos 28, expenditure of the local units, etc.). The course will last one week and the costs of the course as well accommodation and transportation costs will be completely covered by this new Institute. The budget of the Institute itself will be financed by the provincial Ministry of Finance of Oaxaca. Moreover, the Institute will offer additional courses to all mayors or public servants in local administration.

The **second recommendation:** Significant forms of own-source revenue must be introduced in the municipalities in Oaxaca. Currently, the municipalities are highly dependent on vertical transfers from the provincial government and have no fiscal autonomy. One of the key issues for the local authorities in Oaxaca is thus to release them from their fiscal dormancy and enable them to generate own-source revenues.

Own-source revenues may be either taxes or fees, but fees and user charges also imply direct costs for a local jurisdiction; no fees are generated if no service is offered. For this reason, taxes are always preferable to fees.

A property tax seems to be the only advisable option in the context of Oaxaca because no enhanced personal income tax system yet exists in Mexico, which would allow local piggy back surcharges on the national personal income tax, as in the Nordic countries, Switzerland, Belgium and Croatia. Neither is a tax-sharing system possible in Oaxaca such as that in Bolivia, Pakistan or Germany, where a significant share of taxes being allocated to the local units, because any reform of the current tax-sharing system in Mexico requires a consensus of the central government and all 32 federals

states and - even if such a consensus was reached – tax-sharing of this kind would not increase the fiscal freedom of the municipalities in Oaxaca sufficiently.

Hence, the introduction of a new, local property tax could be the only main source for generating local revenues. However, the introduction of a property tax system is not a short-term goal; it has to be seen as a medium/long-term goal since its introduction requires a thorough strategy and implementation plan, which could be developed over the next five years.

A general problem of all property tax systems is the question of how to obtain a market-based valuation of property without generating high administrative costs.

In the case of Oaxaca, the provincial cadastre is incomplete. Furthermore, since properties are sold without conveyance duty / real estate transfer tax, it is not possible to determine property values on the basis of selling prices, either.

A tailor-made property tax system for Oaxaca should therefore be based on the concept below. A property tax in the rural areas / *usos y costumbres* is not possible, due to a lack of skilled work force in the local administration, the high percent of “Ejidos” or “Comunidades” in these municipalities, which leads to a small tax base as well as political willpower. A new urban property tax is therefore only relevant for the twenty biggest municipalities in Oaxaca.

In the transition period, three of the 20 municipalities should be named as pilot municipalities; however it is very important that these three pilot municipalities participate in this transition period voluntarily. Property valuation and tax collection should be handled by the provincial administration without any costs for the three pilot municipalities.⁸³ Due to the incomplete property cadastre, property values cannot be established based on the selling prices of neighboring properties. The assessment of property must therefore be handled by the regional government (Instituto Catastral del Estado de Oaxaca) along the following general guidelines:

- The tax rate should be fixed independently by every municipality with the provincial government setting only a minimum tax rate. This feature guarantees high revenue autonomy for the municipalities.
- Three benchmark indicators could be used to determine the tax assessment base for real property:

(a) maximum ground space,

⁸³ Tax administration and tax collection should be handled by the provincial administration, with the provincial government receiving 10 % of the total tax revenues as a refund for administration costs. This feature can be compared to a tax-sharing system.

(b) maximum number of floors,
and (c) size of property.⁸⁴

All three figures would be multiplied and, in order to attract incentives for optimal land use, it would be irrelevant whether the property is fully constructed or undeveloped.

- The municipalities would divide individual building sections into special building zones, to which they would allocate individual building zone factors. The municipalities themselves would decide not only how high this building zone factor should be, but also how big the zone should be.
- The municipalities would also set the local real property tax rates, with all zones being subject to the same municipal assessment rate.
- The real property tax rates set by municipalities would be subject to a minimum/maximum range fixed by the provincial government. This aims to ensure that municipalities do not set rates that are either excessive or so low that the property tax contributes only marginally to a municipal budget.

Hence, the new urban property tax would be calculated as follows:

$$\text{Ground space} * \text{Floor number} * \text{Size of property} * \text{Zone factor} * \text{Local tax rate} = \text{Tax liability}$$

These approaches should be reviewed with the aim of establishing a standard valuation process best suited to the remaining 17 urban municipalities in Oaxaca. A new property tax system such as this could be implemented within the next five years in Oaxaca, provided there is a common political willpower. Moreover, a well-conceived and properly managed pilot program involving three municipalities could be completed within three years. Such a pilot program could form the basis for the new urban property tax system that would benefit from the culture and experience developed during the pilot phase.

The **third recommendation** is to create a new formula for the participaciones (ramos 28). To prevent any future ad-hoc decision-making or even political pork barrelling, it is essential that the Ministry of Finance of Oaxaca publishes all information – the formulae, data collected and calculations for every municipality – in advance on the internet. Such a transparent process would, on the one hand, allow the municipalities

⁸⁴ Indicator c is measured in square meters, whereas the two indicators a and b are measured in decimal numbers and calculated in relation to the total size of the property. For example, if a property has a size of 400 square meters and the building on this property has two floors, with a ground space of 240 square meters, the respective benchmark indicators are a = 0.6, b = 2.0, and c = 400.

to control the whole work flow of the transfer system, while at the same time enabling the civil society to cross check how funds have been delivered from the provincial government to their respective municipalities.

Moreover, the new formula should following the principle of the Agenda 2030 and combine social inclusion, economic growth, and environmental protection in a sustainable development. In the current circumstances of Oaxaca the sub dimension of “Leaving no one behind “is very important for the indigenous population as well to take urgent action to combat climate change and its impacts.

The following block grant formula is a transparent and easily administrable example for Oaxaca:

$$T_i = \text{Budget}_t * (0.60 * (\text{POP}_i / \text{POP}_{\text{Oaxaca}}) + 0.30 (\text{LocalRev}_i - \text{LocalRev}_{\text{Oaxaca}}) + 0.05 * \text{climate resilience factor} + 0.05 * \text{green electricity factor})$$

T_i : receiving transfer of the local authority i

Budget_t : budget available for distribution in year t

POP_i : number of inhabitants in local authority i based on the 2015 census

$\text{POP}_{\text{Oaxaca}}$: total population of the whole province based on the 2015 census

LocalRev_i : property tax collected in local authority i per capita (based on the 2015 census)

$\text{LocalRev}_{\text{province}}$: total property tax collected in the province of Oaxaca per capita (based on the 2015 census)

Climate resilience factor = funds for municipalities based on the *Declaracion de Desastre (SEGOB)* & resilience committee

Green electricity factor = funds for municipalities which have installed new green energy infrastructure starting in 2020

With respect to the population indicator, a readjustment factor should be used for municipalities with more than 100,000 and less than 5,000 inhabitants. A metropolitan area has higher expenditure needs per capita than a city with just 10,000 inhabitants. On the other hand, the least populated municipalities in Oaxaca, which are usually located in remote and difficult to access regions, have the biggest deficit in local infrastructure a provision of public services although one principle of Agenda 2030

is that no one should be left behind. Therefore, the number of inhabitants in the municipalities with more than 100,000 citizens and less than 5,000 would be "readjusted" in the formula, i.e. the number of inhabitants would be multiplied by a factor of 1.10.⁸⁵

As regards the "LocalRev" indicator, this would not be an equalisation indicator between the municipalities – again similar to the current formula – but rather it could be an incentive grant, meaning that for every Mexican Peso collected from property tax, the municipality would receive an additional Mexican Peso from the transfer system as an incentive to collect the tax properly. For this reason, only municipalities with more than the provincial average per capita will receive funds for this indicator.⁸⁶ For the three pilot municipalities it will act as the incentive carrot for the new urban property tax, because if the transition period is a success, they will receive additional funds based on this indicator. If the pilot municipalities receive more funds in relative terms as a result of this indicator, the remaining 17 urban municipalities will surely want to replace the current property tax with the new urban property tax.⁸⁷

The climate resilience factor is an ex post indicator which supports the municipalities that have an extra fiscal burden due to the climate change (flood, drought, hurricane, rising sea levels, etc.) or any natural catastrophe such as earthquakes. A transparent classification of the respective municipalities can be achieved by using the central government's *Declaracion de Desastre (SEGOB)* as the decision indicator for the affected municipalities. This indicator is an additional instrument alongside the existing funds from the central government, but in case of an emergency, these central government funds are not sufficient for the municipalities in Oaxaca. In years where no municipality is classified by the *Declaracion de Desastre (SEGOB)*, the funds are transferred in full to the next fiscal year. Moreover, the exact distribution of funds between the municipalities is determined by the resilience committee.⁸⁸

⁸⁵ Such a readjustment is a common international standard. For example, in the equalisation formula for the 16 federal states in Germany, the three city states Berlin, Bremen and Hamburg receive a bonus of 35 % for their inhabitants compared to the remaining 13 federal states. The local equalisation system in Germany also has a readjustment factor for metropolitan cities. Denmark and Sweden even have an inhabitant readjustment factor for the local units, based on the age structure within the local equalisation system. See Werner, 2018 and Werner / Shah, 2005.

⁸⁶ Surely this violates the principle of "Leaving no one behind" for the indigenous municipalities, but those group of municipalities are already supported by the population readjustment.

⁸⁷ However, in the long run this indicator should be changed to an equalisation grant, which would reduce the fiscal gap between fiscally rich municipalities and fiscally poor municipalities.

⁸⁸ The resilience committee consists of three persons. One representative selected by the provincial Ministry of Finance, one representative from the 417 indigenous municipalities (usos y costumbre)

The green electricity factor provides funds to those municipalities that plan to install the six⁸⁹ renewable energy forms – solar, wind, hydroelectric, geothermal, tidal and biomass – in their jurisdiction after the base year 2020. To simplify the calculation process, only power plants with a minimum output should be taken into consideration, because otherwise every solar panel would have to be counted.⁹⁰ This indicator specifically fulfils indicator 7 and 13 of the agenda 2030. Worldwide there is no indicator in any intergovernmental formula, which considers the production of renewable energy.

Any formula requires a constant review and the formula of the participaciones in Oaxaca should therefore be renewed every five years.

3 Conclusion

Local public finance and fiscal transfers are a highly technical as well as political issue. Institutional arrangements can reduce or increase fiscal conflicts and for this reason, no one should underestimate the importance of the institutional arrangement of the future local public finance system in Oaxaca.

It is important to bear in mind the administrative capacity of the provincial MoF and the amount - quality and accuracy - of data available in Oaxaca if a new formula for the participaciones is to be implemented. Consequently, it is essential to keep things simple and transparent, to use the existing data on population figures, and to carry out a new census as quickly as possible to acquire an even more reliable indicator.

The following table classifies the three recommendations in terms of their temporal implementation.

and one representative from 153 municipalities with a minority indigenous population. In the selection process for the two local representatives, every city has just one vote, regardless of their population. Such a selection process could also mark the start of the process to found an Oaxaca Association of Municipalities. For a sound local public finance, it is very important at provincial level to have dialog partner who is authorized to present the viewpoints of the local level.

⁸⁹ Some scientists also include hydrogen among renewable energy forms, but the author of this report considers this energy form as a good transition product for oil for the transportation system.

⁹⁰ Decentralised solar panels are certainly a good solution for the topographical situation of Oaxaca and reduce the costs for new power supply lines.

Short term within one year	Medium term within 1-3 years	Long term within five years
<ul style="list-style-type: none"> ❖ The new formula for the participaciones is implemented ❖ Full operation of the local governance academy ❖ The twenty urban municipalities are informed about the new urban property tax ❖ The Instituto Catastral del Estado de Oaxaca will have sufficient manpower and political backing for the new urban property tax 	<ul style="list-style-type: none"> ❖ Three pilot municipalities have been selected for the new urban property tax ❖ After three years, an additional three to seven municipalities can introduce the new urban property tax 	<ul style="list-style-type: none"> ❖ An urban property tax for the 20 biggest municipalities in Oaxaca nationwide local ❖ A revision of the formula of the participaciones

Table 4: Three recommendations and their roadmap

Moreover, even with the best taxation system in combination with an honest, non-corrupt tax administration, it is impossible to improve a tax collection rate without political willpower.

4 Appendix

The following figure presents the distribution of property between social property – *Ejid*os or *Comunidades* – and private property in Oaxaca in 2019:

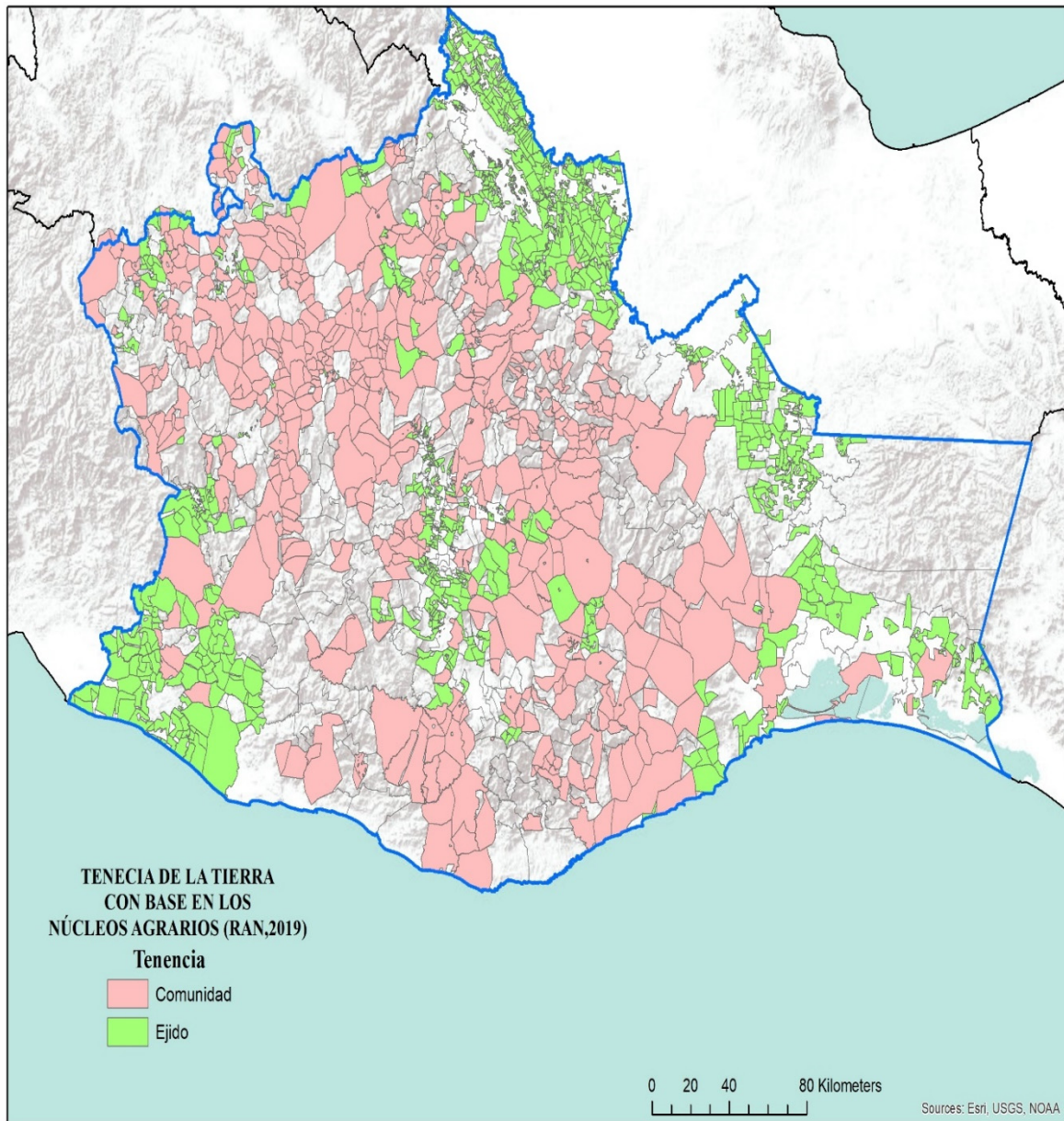


Figure A1: Property classification in Oaxaca in 2019

Source: Figure created by Oscar Figueroa based on Registro Agrario Nacional (RAN) 2019: <https://datos.gob.mx/busca/dataset/datos-geograficos-de-las-tierras-de-uso-comun-por-estado--formato-shape> and Municipios INEGI 2015: <https://www.inegi.org.mx/app/mapas/>

The following figure presents the percentage of property, which is social property – *Ejid*os or *Comunidades* – of the total property in every federal state in the year 2014:

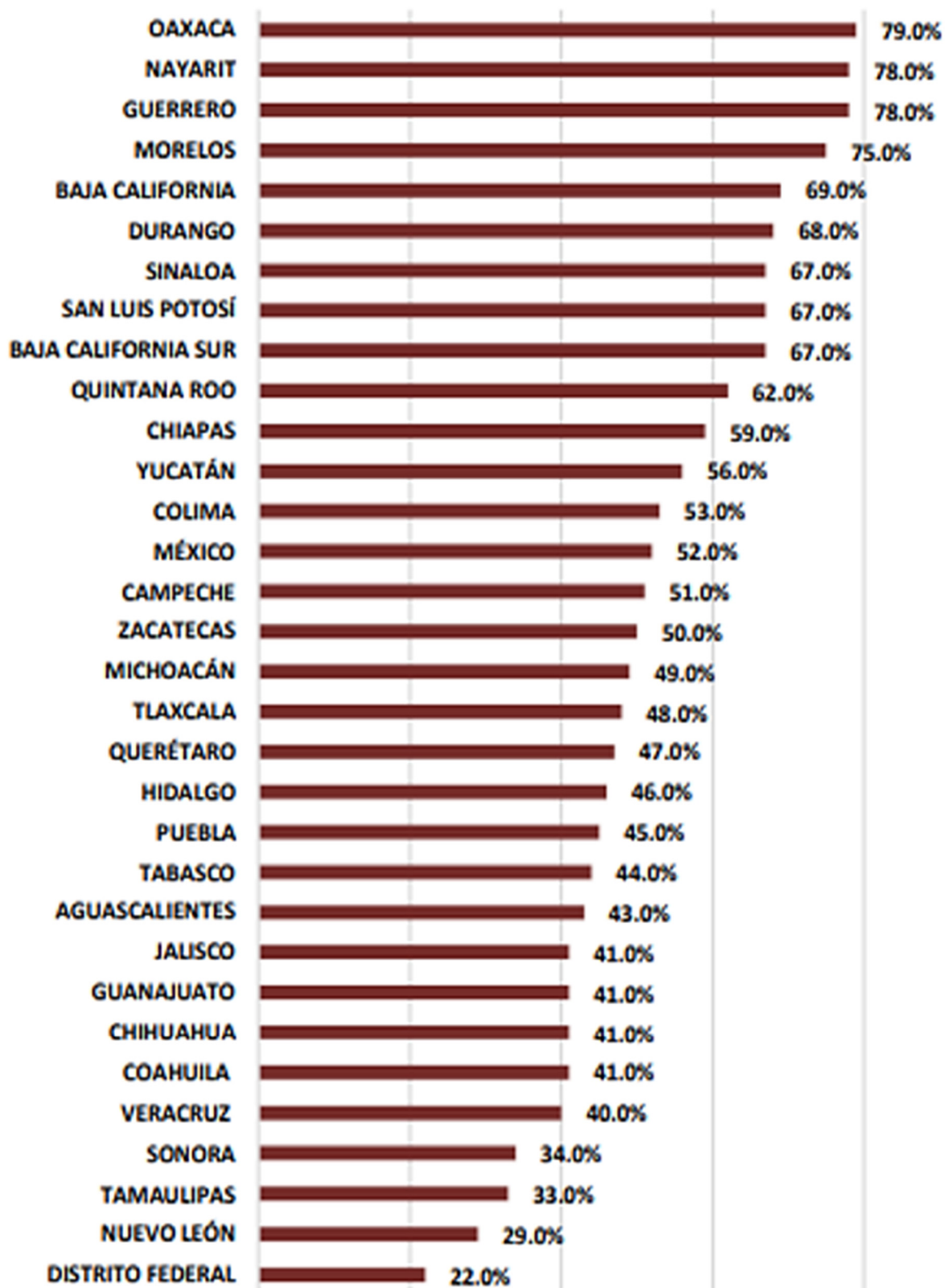


Figure A2: Social property as % of the total property in 2014

Source: GIZ, 2018, page 36.

5 References

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